



CONTRACT TO CHARTER A PUBLIC SCHOOL ACADEMY
AND RELATED DOCUMENTS

ISSUED TO

IVYWOOD CLASSICAL ACADEMY
(A PUBLIC SCHOOL ACADEMY)

BY THE

CENTRAL MICHIGAN UNIVERSITY
BOARD OF TRUSTEES
(AUTHORIZING BODY)

JULY 1, 2024

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REAUTHORIZING RESOLUTION

REAUTHORIZATION OF PUBLIC SCHOOL ACADEMY**Ivywood Classical Academy**

Recitals:

1. At its December 6, 2018, meeting this board authorized the issuance of a contract to charter as a public school academy to Ivywood Classical Academy. On April 4, 2019, the contract was effective.
2. The contract of this academy expires June 30, 2024.
3. The Governor John Engler Center for Charter Schools has completed its evaluation and assessment of the operation and performance of Ivywood Classical Academy.
4. The university president or designee has recommended the reissuance of a contract to charter as a public school academy to Ivywood Classical Academy. The term of the contract is recommended for a term not to exceed seven (7) years.

BE IT RESOLVED, That this board approves and authorizes the execution of a contract to charter as a public school academy to Ivywood Classical Academy for a term not to exceed seven (7) years and authorizes the chair of the board to execute a contract to charter as a public school academy and related documents between Ivywood Classical Academy and the Central Michigan University Board of Trustees, provided that, before execution of the contract, the university president or designee affirms that all terms of the contract have been agreed upon and Ivywood Classical Academy is able to comply with all terms and conditions of the contract.

CMU BDT APPROVED

Date: 4/30/2023

Signature: Mary Jane Flanagan



BOARD OF TRUSTEES

PROPOSAL FOR BOARD ACTION: CONSENT AGENDA

Public School Academy Board of Directors: Method of Selection, Appointment, and Removal

Project Description:

After reviewing the exigent appointment process, the Center for Charter Schools believes that this process cannot adequately protect the University Board from a situation where an academy governing board and the educational service provider simultaneously resign. The challenges in recruiting, interviewing and appointing a new board (or at least three members who could meet as a quorum), and have the new board contract with a new educational service provider, is time consuming and cannot be accomplished quickly. Accordingly, the Center recommends that the University Board charter contracts include a revision to a provision regarding the appointment of a conservator/manager on a temporary basis to address situations such as the en masse resignation of an academy governing board.

The conservator/manager would have all the powers and duties of the academy’s governing board and would function in the board’s place upon appointment. The conservator/manager would be designated by the University President or his or her designee upon consultation with the University Board Chair. The current conservator/manager provision required the action of the full University Board to appoint a conservator/manager. In order for this change to occur, the University Board’s Method of Selection, Appointment and Removal Policy must be amended.

Proposed by: Provost Gealt

PROPOSED RESOLUTION: CONSENT AGENDA

Public School Academy Board of Directors: Method of Selection, Appointment, and Removal

BE IT RESOLVED, That the policy titled Public School Academy Board of Directors: Method of Selection, Appointment, and Removal as amended and dated February 15, 2018, is adopted and replaces the Public School Academy Board of Directors: Method of Selection, Appointment and Removal approved and dated December 7, 2006, July 12, 2007 and July 14, 2011; and Be it further

RESOLVED, That these provisions shall be implemented with new charter contracts and shall be phased in as existing charter contracts are reissued. This applies to new and existing charter contracts issued under Part 6A, Part 6E or MCL 380.1311b to MCL 380.1311m of the Revised School Code. The charter schools office is authorized to negotiate changes in the terms and conditions of charter contracts to fully implement these provisions.

CMU BDT APPROVED

Date: 2/15/18
Signature: M. J. Mangano

Public School Academy Board of Directors: Method of Selection, Appointment and Removal

The Central Michigan University Board of Trustees declares that the method of selection, length of term, and number of board members shall be as follows.

Method of Selection and Appointment

The Central Michigan University Board of Trustees ("University Board") shall prescribe the method of appointment for members of an academy's board of directors. The director of the charter schools office is authorized to develop and administer an academy board selection and appointment process that includes an *Application for Public School Academy Board Appointment* and is in accord with these policies:

- a. The University Board shall appoint the initial and subsequent academy board of directors by resolution, except as prescribed by subparagraphs d and e. The director of the charter schools office shall recommend qualified individuals to the University Board, and ensure that the board of directors includes representation from the local community where the academy is located.
- b. The academy board of directors, by resolution and majority vote, shall nominate its subsequent members, except as provided otherwise. The academy board of directors shall recommend to the director of the charter schools office at least one nominee for each vacancy. Nominees shall submit the *Application for Public School Academy Board Appointment* for review by the charter schools office. The director of the charter schools office may or may not recommend the appointment of a nominee submitted by the academy board. If the director of the charter schools office does not recommend the appointment of a nominee submitted by the academy board, he/she may select and recommend another nominee or may request the academy board submit a new nominee for consideration.
- c. An individual appointed to fill a vacancy created other than by the expiration of a term shall be appointed for the unexpired term of that vacant position.
- d. Under exigent conditions, and with the approval of the University Board's chair and the president, the director of the charter schools office may appoint a qualified individual to an academy's board of directors. All appointments made under this provision must be presented to the University Board for final determination at its next regularly scheduled meeting. The University Board reserves the right to review, rescind, modify, ratify, or approve any appointments made under this provision.
- e. In the event that the health, safety and welfare of an academy's students, property or funds are at risk, the president, after consulting with the University Board's chair, may appoint a person to serve as a conservator for the academy. Upon appointment, the conservator shall have all the powers of the academy's board of directors and shall act in the place and stead of the academy's board of directors. After the President appoints a conservator, the full Board of Trustees shall receive notice of the appointment as soon as possible. The president shall appoint the conservator for a definite term which may be extended in writing. During the conservator's appointment, the academy's board of directors, and all powers of the academy's board of directors, are suspended. The charter contract shall set forth any additional powers granted to the conservator during their appointment. All appointments made under this

Date: 2/15/18

Signature: MJ Henegar

provision must be presented to the University Board for final determination at its next regularly scheduled meeting.

Length of Term

The director of an academy board shall serve at the pleasure of the University Board. Terms of the initial positions of the academy board of directors shall be staggered in accordance with *The Academy Board of Directors Table of Staggered Terms and Appointments* established and administered by the director of the charter schools office. Subsequent appointments shall be for a term of office not to exceed four (4) years, except as prescribed by *The Academy Board of Directors Table of Staggered Terms and Appointments*.

Removal and Suspension

If the University Board determines that an academy board member's service in office is no longer necessary, then the University Board may remove an academy board member with or without cause and shall specify the date when the academy board member's service ends. An academy board member may also be removed as part of a reconstitution under the charter contract or from office by a two-thirds (2/3) vote of the academy's board of directors for cause.

With the approval of the University Board's chair and the president, the director of the charter schools office may suspend an academy board member's service, if in his/her judgment the person's continued presence would constitute a risk to persons or property, or would seriously impair the operation of the academy. Any suspension made under this provision must be presented to the University Board for final determination at its next regularly scheduled meeting. The University Board reserves the right to review, rescind, modify, ratify, or approve any suspensions made under this provision.

Number of Directors

The number of members of the academy board of directors shall not be less than five (5) nor more than nine (9). If the academy board of directors fails to maintain its full membership by making appropriate and timely nominations, the University Board or its designee may deem that failure an exigent condition.

Qualifications of Academy Board Members

To be qualified to serve on an academy's board of directors, a person shall, among other things: (a) be a citizen of the United States; (b) be a resident of the State of Michigan; (c) submit all materials requested by the charter schools office including, but not limited to, the *Application for Public School Academy Board Appointment* which must include authorization to process a criminal background check; and (d) annually submit a conflict of interest disclosure as prescribed by the charter schools office.

The members of an academy board of directors shall not include: (a) employees of the academy; (b) any director, officer, or employee of an educational management organization or educational management corporation that contracts with the academy; (c) a Central Michigan University official or employee, as a representative of Central Michigan University.

CMU BDT APPROVED

Date: 2/15/18

Signature: m J. Flanagan

Oath of Public Office

All members of the academy board of directors must take the constitutional oath of office and sign the *Oath of Public Office* before beginning their service. No appointment shall be effective prior to the filing of the *Oath of Public Office* with the charter schools office.

Note: These provisions shall be implemented with new charter contracts and shall be phased in as existing charter contracts are reissued or amended. The charter schools office is authorized to negotiate changes in the terms and conditions of charter contracts to fully implement these provisions.

Amended by Board of Trustees: 18-0215

Adopted by Board of Trustees: 98-0918, 06-1207, 07-0712 and 11-0714

CMU BDT APPROVED

Date: 2/15/18

Signature: my Haneja

TERMS AND CONDITIONS OF CONTRACT

**TERMS AND CONDITIONS
OF CONTRACT**

DATED: JULY 1, 2024

ISSUED BY

CENTRAL MICHIGAN UNIVERSITY BOARD OF TRUSTEES

**CONFIRMING THE STATUS OF
IVYWOOD CLASSICAL ACADEMY**

AS A

PUBLIC SCHOOL ACADEMY

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WHEREAS, the People of Michigan through their Constitution have provided that schools and the means of education shall forever be encouraged and have authorized the Legislature to maintain and support a system of free public elementary and secondary schools; and

WHEREAS, all public schools are subject to the leadership and general supervision of the State Board of Education; and

WHEREAS, the Legislature has authorized an alternative form of public school designated a "public school academy" to be created to serve the educational needs of pupils and has provided that pupils attending these schools shall be eligible for support from the State School Aid Fund; and

WHEREAS, the Legislature has delegated to the governing boards of state public universities, community college boards, intermediate school district boards and local school district boards, the responsibility for authorizing the establishment of public school academies; and

WHEREAS, the Central Michigan University Board of Trustees has considered and has approved the issuance of a contract to Ivywood Classical Academy;

NOW, THEREFORE, pursuant to the Revised School Code, the Central Michigan University Board of Trustees issues a Charter Contract conferring certain rights, franchises, privileges, and obligations and confirms the Ivywood Classical Academy's status as a public school academy. In addition, the parties agree that the issuance of this Charter Contract is subject to the following terms and conditions:

ARTICLE I DEFINITIONS

Section 1.1. Certain Definitions. For purposes of this Charter Contract, and in addition to the terms defined throughout this Contract, each of the following words or expressions, whenever initially capitalized, shall have the meaning set forth in this section:

- (a) "Academy" means the Michigan nonprofit corporation named Ivywood Classical Academy which is established as a public school academy pursuant to this Charter Contract.
- (b) "Academy Board" means the Board of Directors of the Academy.
- (c) "Applicable Law" means all state and federal law applicable to public school academies, including all rules, regulations, and orders promulgated thereunder.
- (d) "Application" means the public school academy application and supporting documentation submitted to the University for the establishment of the Academy.
- (e) "Code" means the Revised School Code, Act No. 451 of the Public Acts of 1976, as amended, being Sections 380.1 to 380.1852 of the Michigan Compiled Laws.
- (f) "Community District" means a community school district created under part 5B of the Code, MCL 380.381 et seq.
- (g) "Conservator" means an individual appointed by the President of Central Michigan University in accordance with Section 10.8 of these Terms and Conditions of Contract.

- (h) "Contract" means, in addition to the definition set forth in the Code, these Terms and Conditions of Contract, the Reauthorizing Resolution, the Method of Selection, Appointment, and Removal Resolution, the Charter Contract Schedules 1-8, as defined below, the Educational Service Provider Policies, the Master Calendar of Reporting Requirements and the Application.
- (i) "Department" means the Michigan Department of Education.
- (j) "Director" means a person who is a member of the Academy Board.
- (k) "Educational Service Provider" or "ESP" means an educational management organization, or employee leasing company, as defined under section 503c of the Code, MCL 380.503c, that has entered into a contract or agreement with the Academy Board for operation or management of the Academy, and which agreement has been submitted to the Center for review, has not been disapproved by the director of The Governor John Engler Center for Charter Schools, is consistent with the Educational Service Provider Policies, as they may be amended from time to time, and with Applicable Law.
- (l) "Educational Service Provider Policies" or "ESP Policies" means the Educational Service Provider Policies, adopted by The Governor John Engler Center for Charter Schools at Central Michigan University that apply to an agreement that has been entered into between an ESP and the Academy Board. The Educational Service Provider Policies may be amended from time to time. Upon amendment, changes to the ESP Policies shall automatically be incorporated into this Contract and shall be exempt from the amendment procedures under Article IX of these Terms and Conditions of Contract.
- (m) "Fund Balance Deficit" means the Academy has more liabilities than assets at the end of any given school fiscal year, and includes any fiscal year where the Academy would have had a budget deficit but for a financial borrowing by the Academy or a monetary contribution by an Educational Service Provider or other person or entity to the Academy. If the Academy receives a gift or grant of money or financial support from an Educational Service Provider or other person or entity that does not require repayment by the Academy, and is not conditioned upon the action or inactions of the Academy or the Academy Board, then such gift or grant shall not constitute a borrowing or contribution for purposes of determining a Fund Balance Deficit.
- (n) "Management Agreement" or "ESP Agreement" means an agreement as defined under section 503c of the Code, MCL 380.503c, that has been entered into between an ESP and the Academy Board for the operation and/or management of the Academy and that has been submitted to The Governor John Engler Center for Charter Schools for review and has not been disapproved by the director of The Governor John Engler Center for Charter Schools.
- (o) "Master Calendar" means the Master Calendar of Reporting Requirements as annually issued by The Governor John Engler Center for Charter Schools setting forth reporting and document submission requirements for the Academy.
- (p) "Method of Selection, Appointment, and Removal Resolution" means the policy adopted by resolution of the University Board on September 18, 1998, and amended on February 15, 2018, establishing the standard method of selection and appointment, length of term, removal and suspension, number of directors and qualifications of Academy Board members for public school academies issued a Contract by the University Board.

- (q) "Reauthorizing Resolution" means the resolution adopted by the Central Michigan University Board of Trustees on November 30, 2023, approving the issuance of a Contract to the Academy.
- (r) "Schedules" means the following Contract documents: Schedule 1: Restated Articles of Incorporation, Schedule 2: Amended Bylaws, Schedule 3: Fiscal Agent Agreement, Schedule 4: Oversight, Compliance and Reporting Agreement, Schedule 5: Description of Staff Responsibilities, Schedule 6: Physical Plant Description, Schedule 7: Required Information for a Public School Academy, and Schedule 8: Information Available to the Public and the Center.
- (s) "State Board" means the State Board of Education, established pursuant to Article 8, Section 3 of the 1963 Michigan Constitution and MCL 388.1001 et seq.
- (t) "State School Aid Fund" means the State School Aid Fund established pursuant to Article IX, Section 11 of the Michigan Constitution of 1963, as amended.
- (u) "State School Reform/Redesign Office" means the office created within the Michigan Department of Technology Management and Budget by Executive Reorganization Order 2015-02 codified at MCL 18.445, and transferred from the Michigan Department of Technology Management and Budget to the Michigan Department of Education by Executive Reorganization Order 2017-02, codified at MCL 388.1282.
- (v) "Superintendent" means the Michigan Superintendent of Public Instruction.
- (w) "Terms and Conditions" means this document entitled "Terms and Conditions of Contract, Dated July 1, 2024, Issued by the Central Michigan University Board of Trustees Confirming the Status of Ivywood Classical Academy as a Public School Academy."
- (x) "The Governor John Engler Center for Charter Schools" or "the Center" means the office designated by the Central Michigan University Board of Trustees as the initial point of contact for public school academy applicants and public school academies authorized by the Central Michigan University Board of Trustees. The Center is also responsible for administering the Central Michigan University Board of Trustees' responsibilities with respect to the Contract.
- (y) "The Governor John Engler Center for Charter Schools Director" or "the Center Director" means the person designated at Central Michigan University to administer the operations of the Center.
- (z) "University" means Central Michigan University, established pursuant to Article 8, sections 4 and 6 of the 1963 Michigan Constitution and MCL 390.551 et seq.
- (aa) "University Board" means the Central Michigan University Board of Trustees.
- (bb) "University Charter Schools Hearing Panel" or "Hearing Panel" means such persons as designated by the University President.
- (cc) "University President" means the President of Central Michigan University or his or her designee. In section 1.1(bb) above, "University President" means the President of Central Michigan University.

Section 1.2. Captions. The captions and headings used in this Contract are for convenience only and shall not be used in construing the provisions of this Contract.

Section 1.3. Gender and Number. The masculine, feminine, or neuter pronouns in this Contract shall be interpreted without regard to gender, and the use of the singular shall be deemed to include the plural (and vice versa) wherever applicable.

Section 1.4. Statutory Definitions. Statutory terms defined in the Code shall have the same meaning in this Contract.

Section 1.5. Schedules. All Schedules to this Contract are incorporated into, and made part of, this Contract.

Section 1.6. Application. The Application submitted to the University Board for the establishment of the Academy is incorporated into, and made part of, this Contract. To the extent there is a difference between the Contract and the Application, the Contract shall control.

Section 1.7. Conflicting Contract Provisions. In the event that there is a conflict between language contained in the provisions of this Contract, the Contract shall be interpreted as follows: (i) the Method of Selection, Appointment, and Removal Resolution shall control over any other conflicting language in the Contract; (ii) the Reauthorizing Resolution shall control over any other conflicting language in the Contract with the exception of language in the Method of Selection, Appointment, and Removal Resolution; (iii) the Terms and Conditions shall control over any other conflicting language in the Contract with the exception of language in the Method of Selection, Appointment, and Removal Resolution and the Reauthorizing Resolution; and (iv) the Restated Articles of Incorporation shall control over any other conflicting language in the Contract with the exception of language in the Method of Selection, Appointment, and Removal Resolution, Reauthorizing Resolution and these Terms and Conditions.

ARTICLE II

RELATIONSHIP BETWEEN THE ACADEMY AND THE UNIVERSITY BOARD

Section 2.1. Constitutional Status of Central Michigan University. Central Michigan University is a constitutionally established body corporate operating as a state public university. The University Board is an authorizing body as defined by the Code. In approving this Contract, the University Board voluntarily exercises additional powers given to the University under the Code. Nothing in this Contract shall be deemed to be any waiver of Central Michigan University's powers or independent status and the Academy shall not be deemed to be a part of Central Michigan University. If applicable, the University Board has provided to the Department the accreditation notice required under the Code.

Section 2.2. Independent Status of the Academy. The Academy is a body corporate and governmental entity authorized by the Code. It is organized and shall operate as a public school academy and a nonprofit corporation. It is not a division or part of Central Michigan University. The relationship between the Academy and the University Board is based solely on the applicable provisions of the Code and the terms of this Contract or other agreements between the University Board and the Academy.

Section 2.3. Financial Obligations of the Academy Are Separate From the State of Michigan, University Board and the University. Any contract, mortgage, loan or other instrument of indebtedness entered into by the Academy and a third party shall not in any way constitute an obligation, either general, special, or moral, of the State of Michigan, the University Board, or the University. Neither the full faith and credit nor the taxing power of the State of Michigan or any agency of the State, nor the full faith and

credit of the University Board or the University shall ever be pledged for the payment of any Academy contract, mortgage, loan or other instrument of indebtedness.

Section 2.4. Academy Has No Power To Obligate or Bind the State of Michigan, the University Board or the University. The Academy has no authority whatsoever to enter into any contract or other agreement that would financially obligate the State of Michigan, the University Board or the University, nor does the Academy have any authority whatsoever to make any representations to lenders or third parties, that the State of Michigan, the University Board or the University in any way guarantee, are financially obligated, or are in any way responsible for any contract, mortgage, loan or other instrument of indebtedness entered into by the Academy.

Section 2.5. New Public School Academies Located Within the Boundaries of a Community District. If the circumstances listed below in (a) or (b) apply to the Academy's site, the Academy represents to the University Board, intending that the University Board rely on such representation as a precondition to issuing a contract for a new public school academy, that the Academy will have substantially different governance, leadership and curriculum than the public school previously operating at the site:

- (a) The Academy's proposed site is the same location as a public school that (i) is currently on the list under Section 1280c(1), MCL 380.1280c(1) or Section 1280g(3), MCL 380.1280g(3) of the Code, as applicable; or (ii) has been on the list under Section 1280c(1) or 1280g(3) of the Code, as applicable, during the immediately preceding 3 school years.
- (b) The Academy's proposed site is the same location of another public school academy, urban high school academy, school of excellence or strict discipline academy whose contract was revoked or terminated by an authorizing body.

ARTICLE III ROLE OF THE UNIVERSITY BOARD AS AUTHORIZING BODY

Section 3.1. University Board Resolutions. The University Board has adopted a resolution, hereinafter the Method of Selection, Appointment, and Removal Resolution, providing for the method of selection and appointment, length of term, removal and suspension, number of Directors and the qualifications of Directors. The University Board has adopted a Reauthorization Resolution which approves the issuance of this Contract. The Reauthorization Resolution and the Method of Selection, Appointment, and Removal Resolution are hereby incorporated into this Contract. The University Board may, from time to time, amend the Method of Selection, Appointment, and Removal Resolution changing the method of selection, length of term, number of Directors and the qualifications of Directors. Any subsequent resolution of the University Board changing the Method of Selection, Appointment, and Removal Resolution shall automatically be incorporated into this Contract without the need for an amendment under Article IX of the Terms and Conditions.

Section 3.2. University Board as Fiscal Agent for the Academy. The University Board is the fiscal agent for the Academy. As fiscal agent, the University Board assumes no responsibility for the financial condition of the Academy. The University Board is not liable for any debt or liability incurred by or on behalf of the Academy Board, or for any expenditure approved by or on behalf of the Academy Board. Except as provided in the Oversight, Compliance and Reporting Agreement and Article X of these Terms and Conditions, the University Board shall promptly, within ten (10) business days of receipt, forward to the Academy all state school aid funds or other public or private funds received by the University Board for the benefit of the Academy. The responsibilities of the University Board, the State of Michigan, and the Academy are set forth in the Fiscal Agent Agreement incorporated herein as Schedule 3.

Section 3.3. Oversight Responsibilities of the University Board. The University Board has the responsibility to oversee the Academy's compliance with the Contract and all Applicable Law. The responsibilities of the Academy and the University Board are set forth in the Oversight, Compliance and Reporting Agreement and incorporated herein as Schedule 4.

Section 3.4. University Board Administrative Fee. The Academy shall pay the University Board an administrative fee to compensate the University Board for overseeing the Academy's compliance with the Contract and all Applicable Law.

Section 3.5. University Board Approval of Condemnation. In the event that the Academy desires to acquire property pursuant to the Uniform Condemnation Procedures Act or other applicable statutes, it shall obtain express written permission for such acquisition from the University Board. The Academy shall submit a written request to the Center describing the proposed acquisition and the purpose for which the Academy desires to acquire the property. Provided the Academy Board submits the written request to the Center at least sixty (60) days before the University Board's next regular meeting, the University Board may vote on whether to give express written permission for the acquisition at its next regular meeting.

Section 3.6. Authorization to Employ or Contract. The University Board authorizes the Academy Board to employ or contract for personnel according to the position information outlined in Schedule 5. The Academy Board shall prohibit any individual from being employed by the Academy or an Educational Service Provider in more than one (1) full-time position and simultaneously being compensated at a full-time rate for each of these positions. An employee hired by the Academy shall be an employee of the Academy for all purposes and not an employee of the University for any purpose. With respect to Academy employees, the Academy shall have the power and responsibility to (i) recruit, select and engage employees; (ii) pay their wages, benefits, and applicable taxes; (iii) evaluate performance; (iv) discipline and dismiss employees; and control the employees' conduct, including the method by which the employee carries out his or her work. The Academy Board shall be responsible for carrying workers' compensation insurance and unemployment insurance for its employees.

The Academy Board may contract with an Educational Service Provider to provide comprehensive educational, administrative, management, or instructional services or staff to the Academy. Before entering into a Management Agreement with an Educational Service Provider, the Academy Board shall first comply with the Educational Service Provider Policies issued by the Center. Any Management Agreement entered into by the Academy shall also comply with Section 11.2 and 12.10 of these Terms and Conditions. A copy of the Management Agreement between the Academy Board and the Educational Service Provider shall be incorporated into this Contract under Schedule 5. Any changes to the Management Agreement shall be incorporated into this Contract by amendment in accordance with Article IX, as applicable.

Section 3.7. Teacher Certification. Except as otherwise provided by law, the Academy shall use certificated teachers according to State Board rule.

Section 3.8. Administrator and Teacher Evaluation Systems. The Academy Board shall adopt, implement and maintain a rigorous, transparent, and fair performance evaluation system for its teachers and school administrators that complies with Applicable Law. If the Academy enters into a Management Agreement with an Educational Service Provider, the Academy Board shall ensure that the Educational Service Provider complies with this section.

Section 3.9. Reimbursement of University Board Services. The University Board shall be reimbursed for the actual cost of University services associated with responding to third party subpoenas and freedom of information act (FOIA) requests under the following circumstances:

If the University receives a subpoena or FOIA request from a third party (including the Academy, its counsel, the Academy's ESP or its counsel) demanding the production of Academy documents related to pending litigation or proceedings involving the Academy, the Academy's ESP (or any subcontractor of the ESP or other contractors of the Academy) or a third party, the University may charge the Academy for the actual cost of the services associated with the University's response to the subpoena or FOIA request(s) (including actual attorney's fees in fulfilling the request). The parties agree that the Academy may reduce or avoid the obligation to pay for services by the University Board associated with such responses by directly producing Academy documents to the requesting party.

ARTICLE IV REQUIREMENT THAT THE ACADEMY ACT SOLELY AS GOVERNMENTAL ENTITY

Section 4.1. Limitation on Actions in Performance of Governmental Functions. The Academy shall act exclusively as a governmental entity and shall not undertake any action inconsistent with its status as a governmental entity authorized to receive state school aid funds pursuant to Section 11 of Article IX of the State Constitution of 1963.

Section 4.2. Other Permitted Activities.

- (a) Nothing in this Contract shall prohibit the Academy from engaging in other lawful activities that are not in derogation of the Academy's status as a public school or that would not jeopardize the eligibility of the Academy for state school aid funds. Except as provided for the agreements identified below in Section 4.2(b), the Academy may enter into agreements with other public schools, governmental units, businesses, community and nonprofit organizations where such agreements contribute to the effectiveness of the Academy or advance education in this state.
- (b) The Academy shall submit to the Center for prior review the following agreements:
 - (i) In accordance with the Educational Service Provider Policies, a draft copy of any ESP Agreement and any subsequent amendments;
 - (ii) In accordance with the Master Calendar, a draft copy of any Academy deed or lease, amendments to existing leases or any new leasing agreements for any Academy facility; and
 - (iii) In accordance with the Master Calendar, draft long-term or short-term financing closing documents and intercept requests.

Section 4.3. Academy Board Members Serve In Their Individual Capacity. All Directors of the Academy Board shall serve in their individual capacity, and not as a representative or designee of any other person or entity. A person who does not serve in their individual capacity, or who serves as a representative or designee of another person or entity, shall be deemed ineligible to continue to serve as a Director of the Academy Board. A Director who violates this section shall be removed from office, in accordance with the removal provisions found in the Method of Selection, Appointment and Removal Resolution and Contract Schedule 2: Amended Bylaws. As set forth in the Method of Selection, Appointment and Removal Resolution, a Director serves at the pleasure of the University Board, and may be removed with or without cause at any time.

Section 4.4. Incompatible Public Offices and Conflicts of Interest Statutes. The Academy shall comply with the Incompatible Public Offices statute, being MCL 15.181 et seq. of the Michigan Compiled Laws, and the Contracts of Public Servants with Public Entities statute, being MCL 15.321 et seq. of the Michigan Compiled Laws. The Academy Board shall ensure compliance with Applicable Law relating to

conflicts of interest. Notwithstanding any other provision of this Contract, the following shall be deemed prohibited conflicts of interest for purposes of this Contract:

- (a) An individual simultaneously serving as an Academy Board member and an owner, officer, director, employee or consultant of an Educational Service Provider or an employee leasing company, or a subcontractor to an Educational Service Provider or an employee leasing company that has an ESP Agreement with the Academy;
- (b) An individual simultaneously serving as an Academy Board member and an Academy employee;
- (c) An individual simultaneously serving as an Academy Board member and an independent contractor to the Academy;
- (d) An individual simultaneously serving as an Academy Board member and a member of the governing board of another public school;
- (e) An individual simultaneously serving as an Academy Board member and a University official, employee, or paid consultant, as a representative of the University; and
- (f) An individual simultaneously serving as an Academy Board member and having an ownership or financial interest in any real or personal property leased or subleased to the Academy.

Section 4.5. Prohibition of Identified Family Relationships. The Academy Board shall prohibit specifically identified family relationships pursuant to applicable law and the Terms and Conditions of this Contract. Language in this Section controls over section 1203 of the Code. Notwithstanding any other provision of this Contract, the following shall be deemed prohibited familial relationships for the purposes of this Contract:

- (a) No person shall be appointed or reappointed to serve as an Academy Board member if the person's mother, mother-in-law, father, father-in-law, son, son-in-law, daughter, daughter-in-law, sister, sister-in-law, brother, brother-in-law, spouse or domestic partner:
 - (i) Is employed by the Academy;
 - (ii) Works at or is assigned to work at the Academy;
 - (iii) Has an ownership, officer, policymaking, managerial, administrative non-clerical, or other significant role with the Academy's Educational Service Provider or employee leasing company;
 - (iv) Has an ownership or financial interest in any school building lease or sublease agreement with the Academy; or
 - (v) Is a current Academy Board member.
- (b) The Academy Board shall require each individual who works at the Academy to annually disclose any familial relationship with any other individual who works at, or provides services to, the Academy. For purposes of this subsection, familial relationship means a person's mother, mother-in-law, father, father-in-law, son, son-in-law, daughter, daughter-in-law, sister, sister-in-law, brother, brother-in-law, spouse or domestic partner.

Section 4.6. Oath of Public Office. Before entering upon the duties of a public school board member, each Academy Board member shall take the constitutional oath of office as required by the Code and as set forth in the Method of Selection, Appointment and Removal Resolution.

Section 4.7. Academy Counsel. The Academy Board shall select, retain and pay legal counsel to represent the Academy. The Academy shall not retain any attorney to represent the Academy if the attorney or the attorney's law firm also represents the Academy's Educational Service Provider or any person or entity leasing real property to the Academy, if any.

ARTICLE V CORPORATE STRUCTURE OF THE ACADEMY

Section 5.1. Nonprofit Corporation. The Academy shall be organized and operate as a public school academy corporation organized under the Michigan Nonprofit Corporation Act, as amended, Act No. 162 of the Public Acts of 1982, being Sections 450.2101 to 450.3192 of the Michigan Compiled Laws. Notwithstanding any provision of the Michigan Nonprofit Corporation Act, as amended, the Academy shall not take any action inconsistent with the provisions of Part 6A of the Code or other Applicable Law.

Section 5.2. Articles of Incorporation. The Restated Articles of Incorporation of the Academy, as set forth in Schedule 1, shall be the Articles of Incorporation of the Academy.

Section 5.3. Bylaws. The Amended Bylaws of the Academy, as set forth in Schedule 2, shall be the Bylaws of the Academy.

ARTICLE VI OPERATING REQUIREMENTS

Section 6.1. Governance Structure. The Academy shall be organized and administered under the direction of the Academy Board and pursuant to the Governance Structure as set forth in Schedule 7a. The Academy shall have four officers: President, Vice-President, Secretary and Treasurer. The officer positions shall be filled by persons who are members of the Academy Board. A description of their duties is included in Schedule 2.

Section 6.2. Educational Goal and Related Measures. The Academy shall achieve, or demonstrate measurable progress for all groups of pupils toward the achievement of, the educational goal and related measures identified in Schedule 7b and the results of the academic assessments identified in Schedule 7e. Upon request, the Academy shall provide the Center with a written report, along with supporting data, assessing the Academy's progress toward achieving this goal.

Section 6.3. Educational Programs. The Academy shall implement, deliver and support the educational programs identified in Schedule 7c.

Section 6.4. Curriculum. The Academy shall implement, deliver and support the curriculum identified in Schedule 7d.

Section 6.5. Methods of Pupil Assessment. The Academy shall properly administer the academic assessments identified in Schedule 7e and in accordance with the requirements detailed in the Master Calendar. The Academy also shall assess pupil performance using all applicable testing that the Code or the Contract require. The Academy shall provide the Center direct access to the results of these assessments, along with any other measures of academic achievement reasonably requested by the Center.

Section 6.6. Application and Enrollment of Students. The Academy shall comply with the application and enrollment requirements identified in Schedule 7f.

Section 6.7. School Calendar and School Day Schedule. The Academy shall comply with the school calendar and school day schedule requirements as set forth in Schedule 7g.

Section 6.8. Age or Grade Range of Pupils. The Academy shall comply with the age or grade ranges as stated in Schedule 7h.

Section 6.9. Collective Bargaining Agreements. Collective bargaining agreements, if any, with employees of the Academy shall be the responsibility of the Academy.

Section 6.10. Accounting Standards. The Academy shall at all times comply with generally accepted public sector accounting principles and accounting system requirements that comply with the State School Aid Act of 1979, as amended, the Uniform Budgeting and Accounting Act, MCL 141.421, et seq., and applicable State Board and Michigan Department of Education rules.

Section 6.11. Annual Financial Statement Audit. The Academy shall conduct an annual financial statement audit prepared and reviewed by an independent certified public accountant. The Academy Board shall select, retain and pay the Academy's independent auditor. The Academy Board shall not approve the retention of any independent auditor if that independent auditor or auditor's firm is also performing accounting and/or auditing services for the Academy's Educational Service Provider, if applicable. The Academy shall submit the annual financial statement audit and auditor's management letter to the Center in accordance with the Master Calendar. The Academy Board shall provide to the Center a copy of any responses to the auditor's management letter in accordance with the Master Calendar.

Section 6.12. Address and Description of Physical Plant. The address and description of the physical plant for the Academy is set forth in Schedule 6. With the approval of the University Board, the Academy Board may operate the same configuration of age or grade levels at more than one (1) site if each configuration of age or grade levels and each site identified in Schedule 6 are under the direction and control of the Academy Board. University Board consideration regarding requests to add additional site(s) shall include, but not be limited to, the Academy Board's demonstration that it meets all statutory requirements under the Code.

Section 6.13. Contributions and Fund Raising. The Academy may solicit and receive contributions and donations as permitted by law. No solicitation shall indicate that a contribution to the Academy is for the benefit of Central Michigan University.

Section 6.14. Disqualified Organizational or Contractual Affiliations. The Academy shall comply with all state and federal law applicable to public schools concerning church-state issues. To the extent disqualified under the state or federal constitutions, the Academy shall not be organized by a church or other religious organization and shall not have any organizational or contractual affiliation with or constitute a church or other religious organization. Nothing in this Section shall be deemed to diminish or enlarge the civil and political rights, privileges and capacities of any person on account of his or her religious belief.

Section 6.15. Method for Monitoring Academy's Compliance with Applicable Law and its Targeted Educational Outcomes. The Academy shall perform the compliance certification duties required by the University Board as outlined in the Oversight, Compliance and Reporting Agreement set forth as Schedule 4. In addition to the University Board's oversight responsibilities and other Academy compliance and reporting requirements set forth in this Contract, the Academy's compliance with the annual Master

Calendar shall serve as one means by which the University will monitor the Academy's compliance with Applicable Law.

Section 6.16. Matriculation Agreements. Before the Academy Board approves a matriculation agreement with another public school, the Academy shall provide a draft copy of the agreement to the Center for review. Any matriculation agreement entered into by the Academy shall be added to Schedule 7f through a contract amendment approved in accordance with the Contract.

Section 6.17. Postings of Accreditation Status. The Academy shall post notices to the Academy's homepage of its website disclosing the accreditation status of each school as required by the Code.

ARTICLE VII TUITION PROHIBITED

Section 7.1. Tuition Prohibited; Fees and Expenses. The Academy shall not charge tuition. The Academy may impose fees and require payment of expenses for activities of the Academy where such fees and payments are not prohibited by Applicable Law.

ARTICLE VIII COMPLIANCE WITH APPLICABLE LAWS

Section 8.1. Compliance with Applicable Law. The Academy shall comply with all applicable state and federal laws. Nothing in this Contract shall be deemed to apply any other state or federal law to the Academy.

ARTICLE IX AMENDMENT

Section 9.1. Amendments. The University Board and the Academy acknowledge that the operation and administration of a public school academy and the improvement of educational outcomes over time will require appropriate amendment of this Contract. In order to assure a proper balance between the need for independent development of the Academy and the statutory responsibilities of the University Board as an authorizing body, the parties have established a flexible process for amending this Contract.

Section 9.2. Process for Amendment Initiated by the Academy. The Academy, by a majority vote of its Board of Directors, may, at any time, propose specific changes in this Contract or may propose a meeting to discuss potential revision of this Contract. The proposal will be made to the University Board through its designee. The University Board delegates to the Center Director the review and approval of changes or amendments to this Contract. In the event that a proposed change is not accepted by the Center Director, the University Board may consider and vote upon a change proposed by the Academy following an opportunity for a presentation to the University Board by the Academy.

Section 9.3. Process for Amendment Initiated by the University Board. The University Board, or an authorized designee, may, at any time, propose specific changes in this Contract or may propose a meeting to discuss potential revision of this Contract. The University Board delegates to the Center Director the review and approval of changes or amendments to this Contract. The Academy Board may delegate to a Director of the Academy the review and negotiation of changes or amendments to this Contract. The

Contract shall be amended as requested by the University Board upon a majority vote of the Academy Board.

Section 9.4. Final Approval of Amendments. Amendments to this Contract take effect only after they have been approved by the Academy Board and by the University Board or the Center Director. If the proposed amendment conflicts with any of the University Board's general policies on public school academies, the proposed amendment shall take effect only after approval by the Academy Board and the University Board.

Section 9.5. Change in Existing Law. If, after the effective date of this Contract, there is a change in Applicable Law which alters or amends the responsibilities and obligations of either the Academy or the University Board, this Contract shall be altered or amended to reflect the change in existing law as of the effective date of such change. To the extent possible, the responsibilities and obligations of the Academy and the University Board shall conform to and be carried out in accordance with the change in Applicable Law.

Section 9.6. Emergency Action on Behalf of University Board. Notwithstanding any other provision of this Contract to the contrary, the contents of this Section shall govern in the event of an emergency situation that arises between meetings of the University Board. An emergency situation shall be deemed to occur if the University President, in his or her sole discretion, determines that the facts and circumstances warrant that emergency action take place before the next meeting of the University Board. Upon the determination that an emergency situation exists, the University President may temporarily take action on behalf of the University Board with regard to the Academy or the Contract, so long as such action is in the best interest of the University Board and the University President consults with the University Board Chairperson prior to taking the intended actions. When acting during an emergency situation, the University President shall have the authority to act in place of the University Board, and such emergency action shall only be effective in the interim before the earlier of (a) rejection of the emergency action by the Chairperson of the University Board; or (b) the next meeting of the University Board. The University President shall immediately report such action to the University Board for confirmation at the next meeting so that the emergency action continues or, upon confirmation by the University Board, becomes permanent.

ARTICLE X CONTRACT REVOCATION, TERMINATION, AND SUSPENSION

Section 10.1. Statutory Grounds for Revocation. In addition to the other grounds for revocation in Section 10.2 and the automatic revocation in Section 10.3 of these Terms and Conditions, the University Board may revoke this Contract, pursuant to the procedures set forth in Section 10.6, upon a determination that one or more of the following has occurred:

- (a) Failure of the Academy to demonstrate improved pupil academic achievement for all groups of pupils or abide by and meet the educational goal and related measures set forth in this Contract;
- (b) Failure of the Academy to comply with all Applicable Law;
- (c) Failure of the Academy to meet generally accepted public sector accounting principles and to demonstrate sound fiscal stewardship; or
- (d) The existence of one or more other grounds for revocation as specified in this Contract.

Section 10.2. Other Grounds for Revocation. In addition to the statutory grounds for revocation set forth in Section 10.1 and the grounds for an automatic revocation set forth in Section 10.3, the University Board may revoke this Contract, pursuant to the procedures set forth in Section 10.6, upon a determination that one or more of the following has occurred:

- (a) The Academy fails to achieve or demonstrate measurable progress toward achieving the educational goal and related measures identified in this Contract;
- (b) The Academy fails to properly implement, consistently deliver, and support the educational programs or curriculum identified in this Contract;
- (c) The Academy is insolvent, has been adjudged bankrupt, or has operated for two or more school fiscal years with a Fund Balance Deficit;
- (d) The Academy has insufficient enrollment to successfully operate a public school academy, or the Academy has lost more than fifty percent (50%) of its student enrollment from the previous school year;
- (e) The Academy fails to fulfill the compliance and reporting requirements or defaults in any of the terms, conditions, promises or representations contained in or incorporated into this Contract or, during the term of this Contract, it is discovered by the Center that the Academy failed to fulfill the compliance and reporting requirements or there was a violation of a prior Contract issued by the University Board;
- (f) The Academy files amendments to its Articles of Incorporation with the Michigan Department of Licensing and Regulatory Affairs, without first obtaining the Center's approval;
- (g) The Center Director discovers grossly negligent, fraudulent or criminal conduct by the Academy's applicant(s), directors, officers, employees or agents in relation to their performance under this Contract; or
- (h) The Academy's applicant(s), directors, officers, employees or agents have provided false or misleading information or documentation to the Center in connection with the University Board's approval of the Application, the issuance of this Contract, or the Academy's reporting requirements under this Contract or Applicable Law.

Section 10.3. Automatic Amendment Of Contract; Automatic Termination of Contract If All Academy Sites Closed; Economic Hardship Termination. Except as otherwise provided in this Section 10.3, if the University Board is notified by the Department that an Academy site is subject to closure under section 507 of the Code, MCL 380.507 ("State's Automatic Closure Notice"), then this Contract shall automatically be amended to eliminate the Academy's authority to operate certain age and grade levels at the site or sites identified in the State's Automatic Closure Notice. If the State's Automatic Closure Notice includes all of the Academy's existing sites, then this Contract shall automatically be terminated at the end of the current school year in which either the State's Automatic Closure Notice is received without any further action of the University Board or the Academy.

Following receipt of the State's Automatic Closure Notice, the Center Director shall forward a copy of the notice to the Academy Board and request a meeting with the Academy Board representatives to discuss the Academy's plans and procedures for the elimination of certain age or grade levels at the identified site or sites, or if all of the Academy's existing sites are included in that notice, then wind-up and dissolution of the Academy corporation at the end of the current school year. All Academy inquiries and

requests for reconsideration of the State's Automatic Closure Notice, including the granting of any hardship exemption by the Department rescinding the State's Automatic Closure Notice ("Pupil Hardship Exemption"), shall be directed to the Department, in a form and manner determined by the Department. If the Department rescinds the State's Automatic Closure Notice for an Academy site or sites by granting a Pupil Hardship Exemption, the Academy is not required to close the identified site(s), but shall present to the Center a proposed Contract amendment incorporating the Department's school improvement plan, if applicable, for the identified site(s).

If the Department elects not to issue a Pupil Hardship Exemption and the Center Director determines, in his or her discretion, that the closure of one or more sites as directed by the Department creates a significant economic hardship for the Academy as a going concern or the possibility of a mid-year school closure, then the Center Director may recommend to the University Board that the Contract be terminated at the end of the current school year (hereinafter "Economic Hardship Termination"). If the University Board approves the Economic Hardship Termination recommendation, then this Contract shall terminate at the end of the current school year without any further action of the parties.

The University Board's revocation procedures set forth in Section 10.6 do not apply to an automatic termination initiated by the State's Automatic Closure Notice or an Economic Hardship Termination under this Section 10.3.

Section 10.4. Grounds and Procedures for Academy Termination of Contract. The Academy Board, by majority vote of its Directors, may, at any time and for any reason, request termination of this Contract. The Academy Board's request for termination shall be made to the Center Director not less than six (6) calendar months in advance of the Academy's proposed effective date of termination. Upon receipt of an Academy request for termination, the Center Director shall present the Academy Board's request for termination to the University Board. A copy of the Academy Board's resolution approving of the Contract termination, including a summary of the reasons for terminating the Contract, shall be included with the Academy Board's request for termination. After receipt of the Academy Board's request for termination, the University Board shall consider the Academy's request no later than its next regularly scheduled meeting. The University Board shall make a final determination and vote on the proposed termination request within 90 days of receipt of the request from the Academy. The University Board may, in its sole discretion, waive the six (6) month advance notice requirement for terminating this Contract.

Section 10.5. Grounds and Procedures for University Termination of Contract. The University Board, in its sole discretion, reserves the right to terminate the Contract (i) for any reason or for no reason provided that such termination shall not take place less than six (6) months from the date of the University Board's action; (ii) if there is a change in Applicable Law that the University Board, in its sole discretion, determines impairs its rights and obligations under the Contract or requires the University Board to make changes in the Contract that are not in the best interest of the University Board or the University; or (iii) if exigent circumstances exist that the University Board determines, in its sole discretion, that termination of this Contract is required to protect the health, safety, or welfare of the Academy students, property, or funds that cannot be cured in a reasonable period as determined solely by the University Board, then such termination shall take effect at the end of the current Academy fiscal year. Following University Board approval, the Center Director shall provide notice of the termination to the Academy. If during the period between the University Board action to terminate and the effective date of termination, the Academy has violated the Contract or Applicable Law, the Contract may be revoked or suspended sooner pursuant to this Article X. If this Contract is terminated pursuant to this Section 10.5, the revocation procedures in Section 10.6 shall not apply.

Section 10.6. University Board Procedures for Revoking Contract. Except for the automatic revocation and procedures initiated by the State of Michigan set forth in Section 10.3, the University Board's process for revoking the Contract is as follows:

- (a) Notice of Intent to Revoke. The Center Director, upon reasonable belief that grounds for revocation of the Contract exist, shall notify the Academy Board of such grounds by issuing the Academy Board a Notice of Intent to Revoke for non-compliance with the Contract or Applicable Law. The Notice of Intent to Revoke shall be in writing and shall set forth in sufficient detail the alleged grounds for revocation.
- (b) Academy Board's Response. Within thirty (30) days of receipt of the Notice of Intent to Revoke, the Academy Board shall respond in writing to the alleged grounds for revocation. The Academy Board's response shall be addressed to the Center Director, and shall either admit or deny the allegations of non-compliance. If the Academy's response includes admissions of non-compliance with the Contract or Applicable Law, the Academy Board's response must also contain a description of the Academy Board's plan and timeline for correcting the non-compliance with the Contract or Applicable Law. If the Academy's response includes a denial of non-compliance with the Contract or Applicable Law, the Academy's response shall include sufficient documentation or other evidence to support a denial of non-compliance with the Contract or Applicable Law. A response not in compliance with this Section shall be deemed to be non-responsive. As part of its response, the Academy Board may request that a meeting be scheduled with the Center Director prior to a review of the Academy Board's response.
- (c) Plan of Correction. Within fifteen (15) days of receipt of the Academy Board's response or after a meeting with Academy Board representatives, the Center Director shall review the Academy Board's response and determine whether a reasonable plan for correcting the deficiencies can be formulated. If the Center Director determines that a reasonable plan for correcting the deficiencies set forth in the Notice of Intent to Revoke can be formulated, the Center Director shall develop a plan for correcting the non-compliance ("Plan of Correction") which may include Reconstitution pursuant to 10.6(d) of these Terms and Conditions. In developing a Plan of Correction, the Center Director is permitted to adopt, modify or reject some or all of the Academy Board's response for correcting the deficiencies outlined in the Notice of Intent to Revoke. The Notice of Intent to Revoke shall be closed if the Center Director determines any of the following: (i) the Academy Board's denial of non-compliance is persuasive; (ii) the non-compliance set forth in the Notice of Intent to Revoke has been corrected by the Academy Board; or (iii) the Academy Board has successfully completed the Plan of Correction.
- (d) University Board's Contract Reconstitution Provision. The Center Director may reconstitute the Academy in an effort to improve student educational performance or to avoid interruption of the educational process. Reconstitution may include, but is not limited to, one of the following actions: (i) removal of 1 or more members of the Academy Board; (ii) termination of at-will board appointments of 1 or more Academy Board members in accordance with the Method of Selection, Appointment and Removal Resolution; (iii) withdrawing approval of a contract under Section 506 of the Code; or (iv) the appointment of a new Academy Board or a Conservator to take over operations of the Academy.

Except as otherwise provided in this subsection, reconstitution of the Academy does not prohibit the Department from issuing an order under section 507 of the Code, MCL 380.507, directing the automatic closure of the Academy's site(s).

- (e) Request for Revocation Hearing. The Center Director may initiate a revocation hearing before the University Charter Schools Hearing Panel if the Center Director determines that any of the following has occurred:
- (i) the Academy Board has failed to respond to the Notice of Intent to Revoke as set forth in Section 10.6(b);
 - (ii) the Academy Board's response to the Notice of Intent to Revoke is non-responsive;
 - (iii) the Academy Board's response admits violations of the Contract or Applicable Law which the Center Director deems cannot be remedied or cannot be remedied in an appropriate period of time, or for which the Center Director determines that a Plan of Correction cannot be formulated;
 - (iv) the Academy Board's response contains denials that are not supported by sufficient documentation or other evidence showing compliance with the Contract or Applicable Law;
 - (v) the Academy Board has not complied with part or all of a Plan of Correction established in Section 10.6(c);
 - (vi) the Academy Board has engaged in actions that jeopardize the financial or educational integrity of the Academy; or
 - (vii) the Academy Board has been issued multiple or repeated Notices of Intent to Revoke.

The Center Director shall send a copy of the request for revocation hearing to the Academy Board at the same time the request is sent to the Hearing Panel. The request for revocation shall identify the reasons for revoking the Contract.

- (f) Hearing before the University Charter Schools Hearing Panel. Within thirty (30) days of receipt of a request for revocation hearing, the Hearing Panel shall convene a revocation hearing. The Hearing Panel shall provide a copy of the notice of hearing to the Center and the Academy Board at least ten (10) days before the hearing. The purpose of the Hearing Panel is to gather facts surrounding the Center Director's request for Contract revocation, and to make a recommendation to the University Board on whether the Contract should be revoked. The revocation hearing shall be held at a location, date and time as determined by the Center Director and shall not last more than three hours. The hearing shall be transcribed and the cost shall be divided equally between the University and the Academy. The Center Director or his or her designee, and the Academy Board or its designee, shall each have equal time to make their presentation to the Hearing Panel. Although each party is permitted to submit affidavits and exhibits in support of their positions, the Hearing Panel will not hear testimony from any witnesses for either side. The Hearing Panel may, however, question the Center Director and the Academy Board. Within thirty (30) days of the revocation hearing, the Hearing Panel shall make a recommendation to the University Board concerning the revocation of the Contract. For good cause, the Hearing Panel may extend any time deadline set forth in this subsection. A copy of the Hearing Panel's recommendation shall be provided to the Center and the Academy Board at the same time that the recommendation is sent to the University Board.
- (g) University Board Decision. If the Hearing Panel's recommendation is submitted to the University Board at least fourteen (14) days before the University Board's next regular meeting, the University Board shall consider the Hearing Panel's recommendation at its next regular meeting and vote on whether to revoke the Contract. The University Board reserves the right to modify, reject or approve all or any part of the Hearing Panel's recommendation. The University Board shall have available to it copies of the Hearing Panel's recommendation and the transcript from the hearing. The University Board may waive the fourteen (14) day submission requirement or hold a special board meeting to consider the Hearing Panel's

recommendation. A copy of the University Board's decision shall be provided to the Center, the Academy Board and the Department.

- (h) Effective Date of Revocation. If the University Board votes to revoke the Contract, the revocation shall be effective on the date of the University Board's act of revocation, or at a later date as determined by the University Board.
- (i) Disposition of State School Aid Funds. Notwithstanding any other provision of the Contract, any state school aid funds received by the University Board after a recommendation is made by the Hearing Panel to revoke the Contract, or a decision by the University Board to revoke the Contract, may be withheld by the University Board or returned to the Michigan Department of Treasury upon request. The University Board may also direct that a portion of the Academy's state school aid funds be directed to fund the Academy's Dissolution account established under Section 10.9 of these Terms and Conditions.

Section 10.7. Contract Suspension. The University Board's process for suspending the Contract is as follows:

- (a) The Center Director Action. If the Center Director determines, in his or her sole discretion, that certain conditions or circumstances exist such that the Academy Board:
 - (i) has placed staff or students at risk;
 - (ii) is not properly exercising its fiduciary obligations to protect and preserve the Academy's public funds and property;
 - (iii) has lost its right to occupancy of the physical facilities described in Schedule 6, and cannot find another suitable physical facility for the Academy prior to the expiration or termination of its right to occupy its existing physical facilities;
 - (iv) has failed to secure or has lost the necessary fire, health, and safety approvals as required by Schedule 6;
 - (v) has willfully or intentionally violated this Contract or Applicable Law; or
 - (vi) has violated Section 10.2(g) or (h),

then the Center Director may immediately suspend the Contract, pending completion of the procedures set forth in Section 10.6. A copy of the suspension notice, setting forth the grounds for suspension, shall be sent to the Academy Board and to the Hearing Panel. If this subsection is implemented, the notice and hearing procedures set forth in Section 10.6 shall be expedited as much as possible.

- (b) Disposition of State School Aid Funds. Notwithstanding any other provision of the Contract, any state school aid funds received by the University Board after a decision by the Center Director to suspend the Contract, shall be retained by the University Board for the Academy until the Contract is reinstated, or shall be returned to the Michigan Department of Treasury upon the State's request.
- (c) Immediate Revocation Proceeding. If the Academy Board, after receiving a notice of Contract suspension from the Center Director, continues to engage in conduct or activities that are covered by the suspension notice, the Hearing Panel may immediately convene a revocation hearing in accordance with the procedures set forth in section 10.6(e) of this Contract. The Hearing Panel has the authority to accelerate the timeline for revoking the Contract, provided that notice of the revocation hearing shall be provided to the Center and the Academy Board at least five (5) days before the hearing. If the Hearing Panel determines that the Academy Board

has continued to engage in conduct or activities that are covered by the suspension notice, the Hearing Panel may recommend revocation of the Contract. The University Board shall proceed to consider the Hearing Panel's recommendation in accordance with sections 10.6(f) through (h).

Section 10.8. Conservator; Appointment By University President. Notwithstanding any other provision of the Contract, in the event that the University President, in his or her sole discretion, determines that the health, safety and welfare of Academy students, property or funds are at risk, the University President, after consulting with the University Board Chairperson, may appoint a person to serve as the Conservator of the Academy. Upon appointment, the Conservator shall have all the powers and authority of the Academy Board under this Contract and Applicable Law and shall act in the place and stead of the Academy Board. The University President shall appoint the Conservator for a definite term which may be extended in writing at his or her sole discretion. During the appointment, the Academy Board members and their terms in office are suspended and all powers of the Academy Board are suspended. All appointments made under this provision must be presented to the University Board for final determination at its next regularly scheduled meeting. During their appointment, the Conservator shall have the following powers:

- (a) take into his or her possession all Academy property and records, including financial, board, employment and student records;
- (b) institute and defend actions by or on behalf of the Academy;
- (c) continue the business of the Academy including entering into contracts, borrowing money, and pledging, mortgaging, or otherwise encumbering the property of the Academy as security for the repayment of loans. However, the power shall be subject to any provisions and restrictions in any existing credit documents;
- (d) hire, fire, evaluate and discipline employees of the Academy;
- (e) settle or compromise with any debtor or creditor of the Academy, including any governmental or taxing authority;
- (f) review all outstanding agreements to which the Academy is a party and to take those actions which the Academy Board may have exercised to pay, extend, rescind, renegotiate or settle such agreements as needed; and
- (g) perform all acts necessary and appropriate to fulfill the Academy's purposes as set forth under this Contract or Applicable Law.

Section 10.9. Academy Dissolution Account. If the University Board terminates, revokes or fails to issue a new Contract to the Academy, the Center Director shall notify the Academy that, beginning thirty (30) days after notification of the University Board's decision, the University Board may direct up to \$10,000 from each subsequent State School Aid Fund payment, not to exceed a combined total of \$30,000, to a separate Academy account ("Academy Dissolution Account") to be used exclusively to pay the costs associated with the wind-up and dissolution responsibilities of the Academy. Within five (5) business days of the Center Director's notice, the Academy Board Treasurer shall provide the Center Director, in a form and manner determined by the Center, with account detail information and authorization to direct such funds to the Academy Dissolution Account. The Academy Dissolution Account shall be under the sole care, custody and control of the Academy Board, and such funds shall not be used by the Academy to pay any other Academy debt or obligation until such time as all the wind-up and dissolution expenses have been satisfied. An intercept agreement entered into by the Academy and a third-party lender or trustee shall

include language that the third party lender or trustee acknowledges and consents to the funding of the Academy's dissolution account in accordance with this Contract. Any unspent funds remaining in the Academy's dissolution account after payment of all wind-up and dissolution expenses shall be returned to the Academy.

ARTICLE XI PROVISIONS RELATING TO PUBLIC SCHOOL ACADEMIES

Section 11.1. The Academy Budget; Transmittal of Budgetary Assumptions; Budget Deficit; Enhanced Deficit Elimination Plan. The Academy agrees to comply with all of the following:

- (a) The Academy Board is responsible for establishing, approving, and amending an annual budget in accordance with the Uniform Budgeting and Accounting Act, MCL 141.421, et seq. The Academy Board shall submit to the Center a copy of its annual budget for the upcoming fiscal year in accordance with the Master Calendar. The budget must detail budgeted expenditures at the object level as described in the Department's Michigan School Accounting Manual. In addition, the Academy Board is responsible for approving all revisions and amendments to the annual budget. In accordance with the Master Calendar, revisions or amendments to the Academy's budget shall be submitted to the Center following Academy Board approval.
- (b) Unless exempted from transmitting under section 1219 of the Code, MCL 380.1219, the Academy, on or before July 7th of each school fiscal year, shall transmit to the Center for Educational Performance and Information ("CEPI") the budgetary assumptions used when adopting its annual budget pursuant to the Uniform Budgeting and Accounting Act, MCL 141.421 et seq.
- (c) The Academy shall not adopt or operate under a deficit budget, or incur an operating deficit in a fund during any fiscal year. At any time during the term of this Contract, the Academy shall not have an existing deficit fund balance, incur a deficit fund balance, or adopt a current year budget that projects a deficit fund balance. If the Academy has an existing deficit fund balance, incurs a deficit fund balance in the most recently completed school fiscal year, or adopts a current year budget that projects a deficit fund balance, all of the following apply:
 - (i) The Academy shall notify the Superintendent and the State Treasurer immediately upon the occurrence of the circumstance, and provide a copy of the notice to the Center;
 - (ii) Within 30 days after making notification under subdivision (i), the Academy shall submit to the Superintendent in the form and manner prescribed by the Department an amended budget for the current school fiscal year and a deficit elimination plan approved by the Academy Board, with a copy to the State Treasurer. The Academy shall transmit a copy of the amended budget and the deficit elimination plan to the Center; and
 - (iii) After the Superintendent approves Academy's deficit elimination plan, the Academy shall post the deficit elimination plan on the Academy's website.
- (d) If the Academy is required by the State Treasurer to submit an enhanced deficit elimination plan under section 1220 of the Code, MCL 380.1220, the Academy shall do all of the following:
 - (i) The enhanced deficit elimination plan shall be approved by the Academy Board before submission;

- (ii) After the State Treasurer approves an enhanced deficit elimination plan for the Academy, the Academy shall post the enhanced deficit elimination plan on the Academy's website; and
- (iii) As required, submit to the Superintendent and State Treasurer an enhanced monthly monitoring reports in a form and manner prescribed by the State Treasurer and post such monthly reports on the Academy's website.

Section 11.2. Insurance. The Academy Board shall secure and maintain in its own name, as the "first named insured," insurance coverage as required by the University's insurance carrier.

The insurance must be obtained from a licensed mutual, stock, or other responsible company licensed to do business in the State of Michigan. The Academy may join with other public school academies to obtain insurance if the Academy Board finds that such an association provides economic advantages to the Academy, provided that each Academy maintains its identity as first named insured. The Academy shall list the University on the insurance policies as an additional insured as required by the University's insurance carrier. The coverage provided to the University as an additional covered person or organization will be primary and non-contributory with the University's insurance carrier. The Academy shall have a provision included in all policies requiring notice to the University, at least thirty (30) days in advance, upon termination or non-renewal of the policy for any reason other than nonpayment which would require a ten (10) day advance notice to the University. In addition, the Academy shall provide the Center copies of all insurance policies required by this Contract.

When changing insurance programs or carriers, the Academy must provide copies of the proposed policies to the Center at least thirty (30) days prior to the proposed change. The Academy shall not cancel or change its existing carrier without the prior review of the Center.

The University's insurance carrier periodically reviews the types and amounts of insurance coverage that the Academy must secure in order for the University to maintain insurance coverage for the authorization and oversight of the Academy. In the event that the University's insurance carrier requests additional changes in coverage identified in this Section 11.2, the Academy agrees to comply with any additional changes in the types and amounts of coverage requested by the University's insurance carrier within thirty (30) days after notice of the insurance coverage change.

The Academy may expend funds for payment of the cost of participation in an accident or medical insurance program to insure protection for pupils while attending school or participating in a school program or activity. Other insurance policies and higher minimums may be required depending upon academic offerings and program requirements.

Pursuant to Section 3.6 of these Terms and Conditions, the University requires that any Educational Service Provider or employee leasing company that enters into a contract with the Academy must obtain insurance coverage similar to the insurance coverage that is currently required for the Academy. Accordingly, any agreement between the Academy and an Educational Service Provider or employee leasing company shall contain a provision requiring the Educational Service Provider or employee leasing company to comply with the coverage requirements recommended by the University's insurance carrier. Furthermore, the agreement between the Educational Service Provider or employee leasing company and the Academy shall contain a provision stating that "in the event that the University's insurance carrier recommends any change in coverage by the Educational Service Provider or employee leasing company, the Educational Service Provider or employee leasing company agrees to comply with any changes in the type and amount of coverage as requested by the University or the University's insurance carrier within thirty (30) days after notice of the insurance coverage change."

Section 11.3. Legal Liabilities and Covenant Against Suit. The Academy acknowledges and agrees that it has no authority to extend the faith and credit of the University or to enter into a contract that would bind the University. The Academy also is limited in its authority to contract by the amount of funds obtained from the state school aid fund, as provided hereunder, or from other independent sources. The Academy hereby covenants not to sue the University Board, the University or any of its Trustees, officers, employees, agents or representatives for any matters that arise under this Contract. The University does not assume any obligation with respect to any director, employee, agent, parent, guardian, student, or independent contractor of the Academy, and no such person shall have the right or standing to bring suit against the University Board, the University or any of its Trustees, employees, agents, or independent contractors as a result of the issuance, non-issuance, oversight, revocation, termination or suspension of this Contract.

Section 11.4. Lease or Deed for Proposed Site. The Academy shall provide to the Center copies of its proposed lease or deed for the premises in which the Academy shall operate. Following the Center's review, a copy of the Academy's lease or deed shall be incorporated into this Contract under Schedule 6 and in accordance with Article IX, as applicable.

Section 11.5. Certificate(s) of Use and Occupancy. The Academy Board shall: (i) ensure that the Academy's physical facilities comply with all fire, health and safety standards applicable to schools; and (ii) possess the necessary occupancy certificates for the Academy's physical facilities. The Academy Board shall not occupy or use any facility until approved for occupancy by the Michigan Department of Licensing and Regulatory Affairs, Bureau of Construction Codes. Copies of these Certificate(s) of Use and Occupancy shall be incorporated into this Contract under Schedule 6 and in accordance with Article IX, as applicable.

Section 11.6. New Building Construction or Renovations. The Academy shall not commence construction on a new school building or the major renovation of an existing school building unless the Academy consults on the plans of the construction or major renovation regarding school safety issues with the law enforcement agency that is or will be the first responder for that school building. School building includes either a building intended to be used to provide pupil instruction or a recreational or athletic structure or field used by pupils.

Section 11.7. Criminal Background and History Checks; Disclosure of Unprofessional Conduct. The Academy shall comply with section 1230 and 1230a of the Code concerning criminal background and criminal history checks for its teachers, school administrator(s), and for any other position requiring State Board approval. In addition, the Academy shall comply with section 1230b of the Code concerning the disclosure of unprofessional conduct by persons applying for Academy employment. This Section 11.7 shall apply to such persons irrespective of whether they are employed by the Academy or employed by another entity contracting with the Academy.

Section 11.8. Special Education. Pursuant to Section 1701a of the Code, the Academy shall comply with Article III, Part 29 of the Code, MCL 380.1701 et seq., concerning the provision of special education programs and services at the Academy as referenced in Contract Schedule 7c. Upon receipt, the Academy shall notify the Center of any due process or state complaint filed against the Academy or notice of state audit.

Section 11.9. Information Available to the Public and the Center.

- (a) Information to be provided by the Academy. In accordance with Applicable Law, the Academy shall make information concerning its operation and management, including, without limitation, information in Schedule 8 available to the public and the Center.

- (b) Information to be provided by Educational Service Provider. The agreement between the Academy and the Educational Service Provider shall contain a provision requiring the Educational Service Provider to make information concerning the operation and management of the Academy, including the information in Schedule 8, available to the Academy as deemed necessary by the Academy Board in order to enable the Academy to fully satisfy its obligations under paragraph 11.9 (a) above.

Section 11.10. Deposit of Public Funds by the Academy. The Academy Board agrees to comply with Section 1221 of the Revised School Code, being MCL 380.1221, regarding the deposit of all public or private funds received by the Academy. Such deposit shall be made within three (3) days after receipt of the funds by the Academy. Only Academy Board members or designated Academy Board employees may be a signatory on any Academy bank account.

Section 11.11. Nonessential Elective Course. If the Academy Board elects to provide nonessential elective courses to part-time pupils at a nonpublic school building, the Academy shall comply with Section 166b of the State School Aid Act of 1979, as amended, MCL 388.1766b. Prior to providing instruction, the Academy Board shall ensure that the Academy has sufficient documentation to qualify for part-time pupil funding under the State School Aid Act. The provision of nonessential elective courses by the Academy shall be incorporated into Schedule 7c of this Contract by amendment pursuant to Article IX of these Terms and Conditions, as applicable.

ARTICLE XII GENERAL TERMS

Section 12.1. Notices. Any and all notices permitted or required to be given hereunder shall be deemed duly given: (i) upon actual delivery, if delivery is by hand; or (ii) upon receipt by the transmitting party of confirmation or answer back if delivery is by facsimile or electronic mail; or (iii) upon delivery into United States mail if delivery is by postage paid first class mail. Each such notice shall be sent to the respective party at the address indicated below or to any other address or person as the respective party may designate by notice delivered pursuant hereto:

If to the University Board:	The Governor John Engler Center for Charter Schools Attn: Executive Director Central Michigan University EHS 200 Mt. Pleasant, MI 48859
General Counsel:	General Counsel Central Michigan University Mt. Pleasant, MI 48859
Chief Financial Officer:	Vice President for Finance and Administrative Services Central Michigan University Mt. Pleasant, MI 48859
If to the Academy:	Academy Board President Ivywood Classical Academy 14356 Genoa Ct. Plymouth, MI 48170

Section 12.2. Severability. If any provision in this Contract is held to be invalid or unenforceable, it shall be ineffective only to the extent of the invalidity, without affecting or impairing the validity and enforceability of the remainder of the provision or the remaining provisions of this Contract. If any provision of this Contract shall be or become in violation of any local, state or federal law, such provision shall be considered null and void, and all other provisions shall remain in full force and effect.

Section 12.3. Successors and Assigns. The terms and provisions of this Contract are binding on and shall inure to the benefit of the parties and their respective successors and permitted assigns.

Section 12.4. Entire Contract. Except as specifically provided in this Contract, this Contract sets forth the entire agreement between the University Board and the Academy with respect to the subject matter of this Contract. All prior contracts, representations, statements, negotiations, understandings, and undertakings are superseded by this Contract.

Section 12.5. Assignment. This Contract is not assignable by the Academy.

Section 12.6. Non-Waiver. Except as provided herein, no term or provision of this Contract shall be deemed waived and no breach or default shall be deemed excused, unless such waiver or consent shall be in writing and signed by the party claimed to have waived or consented. No consent by any party to, or waiver of, a breach or default by the other, whether expressed or implied, shall constitute consent to, waiver of, or excuse for any different or subsequent breach or default.

Section 12.7. Governing Law. This Contract shall be governed and controlled by the laws of the State of Michigan as to interpretation, enforcement, validity, construction, and effect, and in all other respects.

Section 12.8. Counterparts. This Contract may be executed in any number of counterparts. Each counterpart so executed shall be deemed an original, but all such counterparts shall together constitute one and the same instrument.

Section 12.9. Term of Contract. This Contract is for a fixed term and shall terminate at the end of the Contract term without any further action of either the University Board or the Academy. This Contract shall commence on the date first set forth above and shall remain in full force and effect for a period of seven (7) academic years and shall terminate on June 30, 2031, unless sooner revoked, terminated, or suspended pursuant to Article X of these Terms and Conditions. Pursuant to University Board policy, the standards by which the Academy may be considered for the issuance of a new contract will be guided by the following core questions:

Is the Academy's academic program successful?

Is the Academy's organization viable?

Is the Academy demonstrating good faith in following the terms of its charter and applicable law?

The Center shall establish the process and timeline for the issuance of a new contract. The standards for the issuance of a new contract shall include increases in academic achievement for all groups of pupils as measured by assessments and other objective criteria established by the University Board as the most important factor of whether to issue or not issue a new contract. Consistent with the Code, the University Board in its sole discretion may elect to issue or not issue a new contract to the Academy.

Section 12.10. Indemnification of University. As a condition to receiving a grant of authority from the University Board to operate a public school pursuant to the Terms and Conditions of this Contract, the Academy agrees to indemnify, defend and hold harmless the University Board, the University and its

officers, employees, agents or representatives from and against all demands, claims, actions, suits, causes of action, losses, judgments, liabilities, damages, fines, penalties, forfeitures, or any other liabilities or losses of any kind whatsoever, including costs and expenses (not limited to reasonable attorney fees, expert and other professional fees) settlement and prosecution imposed upon or incurred by the University, and not caused by the sole negligence of the University, which arise out of or are in any manner connected with the University Board's approval of the public school academy application, the University Board's consideration of or issuance of a Contract, the Academy's preparation for or operation of a public school, or which are incurred as a result of the reliance by the University Board, the University and its officers, employees, agents or representatives upon information supplied by the Academy, or which arise out of the Academy's failure to comply with this Contract or Applicable Law. The foregoing provision shall not be deemed a relinquishment or waiver of any kind of Section 7 of the Governmental Liability for Negligence Act, being Act No. 170, Public Acts of Michigan, 1964.

Section 12.11. Construction. This Contract shall be construed fairly as to both parties and not in favor of or against either party, regardless of which party prepared the Contract.

Section 12.12. Force Majeure. If any circumstances occur which are beyond the control of the parties, which delay or render impossible the obligations of one or both of the parties, the parties' obligations to perform such services shall be postponed for an equivalent period of time or shall be canceled, if such performance has been rendered impossible by such circumstances.

Section 12.13. No Third Party Rights. This Contract is made for the sole benefit of the Academy and the University Board. Except as otherwise expressly provided, nothing in this Contract shall create or be deemed to create a relationship between the parties hereto, or either of them, and any third person, including a relationship in the nature of a third party beneficiary or fiduciary.

Section 12.14. Non-agency. It is understood that the Academy is not the agent of the University.

Section 12.15. University Board or the Center's General Policies on Public School Academies Shall Apply. Notwithstanding any provision of this Contract to the contrary, and with the exception of existing University Board or the Center policies regarding public school academies which shall apply immediately, University Board or the Center general policies clarifying procedure and requirements applicable to public school academies under this Contract, as from time to time adopted or amended, will automatically apply to the Academy, provided they are not inconsistent with provisions of this Contract. Before issuing general policies under this section, the University Board or the Center shall provide a draft of the proposed policies to the Academy Board. The Academy Board shall have at least thirty (30) days to provide comment to the Center on the proposed policies before such policies shall become effective.

Section 12.16. Survival of Provisions. The terms, provisions, and representations contained in Section 11.2, Section 11.3, Section 11.9, Section 12.10, Section 12.13 and any other provisions of this Contract that by their sense and context are intended to survive termination of this Contract shall survive.

Section 12.17. Termination of Responsibilities. Upon termination or revocation of the Contract, the University Board or its designee shall have no further obligations or responsibilities under this Contract to the Academy or any other person or persons in connection with this Contract. Upon termination or revocation of the Contract, the Academy may amend its articles of incorporation or bylaws as necessary to allow the Academy Board to: (a) take action to appoint Academy Board members in order to have a quorum necessary to take Academy Board action; or (b) effectuate a dissolution, provided that the Academy Board may not amend the articles of incorporation with regard to the disposition of assets upon dissolution.

Section 12.18. Disposition of Academy Assets Upon Termination or Revocation of Contract. Following termination or revocation of the Contract, the Academy shall follow the applicable wind-up and dissolution provisions set forth in the Academy's articles of incorporation, the Code, and Applicable Law.

Section 12.19. Student Privacy. In order to protect the privacy of students enrolled at the Academy, the Academy Board, subject to Section 12.22, shall not:

- (a) Sell or otherwise provide to a for-profit business entity any personally identifiable information that is part of a pupil's education records. This subsection does not apply to any of the following situations:
 - (i) for students enrolled in the Academy, providing such information to an ESP that has a contract with the Academy and whose contract has not been disapproved by the University;
 - (ii) providing the information as necessary for standardized testing that measures a student's academic progress and achievement; or
 - (iii) providing the information as necessary to a person that is providing educational or educational support services to the student under a contract with either the Academy or an educational management organization that has a contract with the Academy and whose contract has not been disapproved by the University.
- (b) The terms "education records" and "personally identifiable information" shall have the same meaning as defined in MCL 380.1136.

Section 12.20. Disclosure of Information to Parents and Legal Guardians, subject to Section 12.22.

- (a) Within thirty (30) days after receiving a written request from a student's parent or legal guardian, the Academy shall disclose without charge to the student's parent or legal guardian any personally identifiable information concerning the student that is collected or created by the Academy as part of the student's education records.
- (b) Except as otherwise provided in this subsection (b) and within thirty (30) days after receiving a written request from a student's parent or legal guardian, the Academy shall disclose to a student's parent or legal guardian without charge any personally identifiable information provided to any person, agency or organization. The Academy's disclosure shall include the specific information that was disclosed, the name and contact information of each person, agency, or organization to which the information has been disclosed; and the legitimate reason that the person, agency, or organization had in obtaining the information. The parental disclosure requirement does not apply to information that is provided:
 - (i) to the Department or CEPI;
 - (ii) to the student's parent or legal guardian;
 - (iii) by the Academy to the University Board, University, Center or to the ESP with which the Academy has a Management Agreement that has not been disapproved by the Center Director;
 - (iv) by the Academy to the Academy's intermediate school district or another intermediate school district providing services to Academy or the Academy's students pursuant to a written agreement;
 - (v) to the Academy by the Academy's intermediate school district or another immediate school district providing services to pupils enrolled in the Academy pursuant to a written agreement;
 - (vi) to the Academy by the University Board, University, Center;

- (vii) to a person, agency, or organization with written consent from the student's parent or legal guardian, or from the student if the student is 18 years of age;
 - (viii) to a person, agency, or organization seeking or receiving records in accordance with an order, subpoena, or ex parte order issued by a court of competent jurisdiction;
 - (ix) to a person, agency, or organization as necessary for standardized testing that measures a student's academic progress and achievement; or
 - (x) in the absence of, or in compliance with, a properly executed opt-out form, as adopted by the Academy in compliance with section 1136(6) of the Code, pertaining to uses for which the Academy commonly would disclose a pupil's "directory information."
- (c) If the Academy considers it necessary to make redacted copies of all or part of a student's education records in order to protect personally identifiable information of another student, the Academy shall not charge the parent or legal guardian for the cost of those redacted copies.
- (d) The terms "education records," "personally identifiable information," and "directory information" shall have the same meaning as defined in MCL 380.1136.

Section 12.21. List of Uses for Student Directory Information; Opt Out Form; Notice to Student's Parent or Legal Guardian.

- (a) Subject to Section 12.22, the Academy shall do all of the following:
- (i) Develop a list of uses (the "Uses") for which the Academy commonly would disclose a student's directory information;
 - (ii) Develop an opt-out form that lists all of the Uses and allows a student's parent or guardian to elect not to have the student's directory information disclosed for one (1) or more Uses;
 - (iii) Present the opt-out form to each student's parents or guardian within the first thirty (30) days of the school year and at other times upon request; and
 - (iv) If an opt-out form is signed and submitted to the Academy by a student's parent or guardian, then the Academy shall not include the student's directory information in any of the Uses that have been opted out of in the opt-out form.
- (b) The term "directory information" shall have the same meaning as defined in MCL 380.1136.

Section 12.22. Confidential Address Restrictions.

- (a) The Academy shall not disclose the confidential address of a student if the student or the student's parent or legal guardian has obtained a participation card issued by the department of the attorney general under the address confidentiality program act and the parent or legal guardian provides notice of the issuance of the participation card, in a form and manner prescribed by the Michigan Department of Education.
- (b) The term "confidential address" shall have the meaning as defined in MCL 380.1136.

Section 12.23. Partnership Agreement. If the Department and State School Reform/Redesign Office impose a partnership agreement on the Academy, the Academy shall work collaboratively with the Department, the State School Reform/Redesign Office and other partners to implement the partnership agreement. In the event that a provision in the partnership agreement is inconsistent with a provision in this Contract, this Contract shall control.

As the designated representative of the Central Michigan University Board of Trustees, I hereby issue this Contract to the Academy on the date first set forth above.

CENTRAL MICHIGAN UNIVERSITY BOARD OF TRUSTEES

By: _____
Todd J. Regis, Chair

Date: _____

As the authorized representative of the Academy, I hereby certify that the Academy is able to comply with the Contract and all Applicable Law, and that the Academy, through its governing board, has approved and agreed to comply with and be bound by the Terms and Conditions of this Contract and all Applicable Law.

IVYWOOD CLASSICAL ACADEMY

By:  _____
Board President

Date: 5/28/2024

As the designated representative of the Central Michigan University Board of Trustees, I hereby issue this Contract to the Academy on the date first set forth above.

CENTRAL MICHIGAN UNIVERSITY BOARD OF TRUSTEES

By: Todd J. Regis
Todd J. Regis, Chair

Date: May 7, 2024

As the authorized representative of the Academy, I hereby certify that the Academy is able to comply with the Contract and all Applicable Law, and that the Academy, through its governing board, has approved and agreed to comply with and be bound by the Terms and Conditions of this Contract and all Applicable Law.

IVYWOOD CLASSICAL ACADEMY

By: _____
Board President

Date: _____

CONTRACT SCHEDULES

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CONTRACT SCHEDULE 1

RESTATED ARTICLES OF INCORPORATION

MICHIGAN DEPARTMENT OF LICENSING AND REGULATORY AFFAIRS CORPORATIONS, SECURITIES & COMMERCIAL LICENSING BUREAU																				
Date Received 3:21 19	ADJUSTED PURSUANT TO TELEPHONE AUTHORIZATION email																			
11:11 pm	This document is effective on the date filed, unless a subsequent effective date within 90-days after received date is stated in the document.																			
<table border="1"> <tr><td colspan="3">Name</td></tr> <tr><td colspan="3">Tyler Horning</td></tr> <tr><td colspan="3">Address</td></tr> <tr><td colspan="3">368 North Harvey Street</td></tr> <tr> <td>City</td> <td>State</td> <td>Zip</td> </tr> <tr> <td>Plymouth</td> <td>MI</td> <td>48170</td> </tr> </table>		Name			Tyler Horning			Address			368 North Harvey Street			City	State	Zip	Plymouth	MI	48170	\$10 - Cepas: 19020801772172 FILED MAR 22 2019 ADMINISTRATOR CORPORATIONS DIVISION
Name																				
Tyler Horning																				
Address																				
368 North Harvey Street																				
City	State	Zip																		
Plymouth	MI	48170																		
802201596																				

**RESTATED ARTICLES OF INCORPORATION
For Use by Domestic Nonprofit Corporations**

OF

IVYWOOD CLASSICAL ACADEMY

Pursuant to the provisions of the Michigan Nonprofit Corporation Act (Act 162) of 1982, as amended (the "Act"), being MCL 450.2101 *et seq.* and Revised School Code (the "Code") as amended, being Sections 380.501 to 380.507 of the Michigan Compiled Laws, the undersigned corporation executes the following Restated Articles:

The present name of the corporation is: Ivywood Classical Academy Project Team.

The corporation identification number ("CID") assigned by the Bureau is: 802201596.

The corporation has used no other names.

The date of filing the original Articles of Incorporation was: May 31, 2018.

The following Restated Articles of Incorporation supersede the Articles of Incorporation and shall be the Articles of Incorporation for the corporation:

ARTICLE I

The name of the corporation is: Ivywood Classical Academy.

The authorizing body for the corporation is: Central Michigan University Board of Trustees.

ARTICLE II

The purpose or purposes for which the corporation is organized are:

1. The corporation is organized for the purpose of operating as a public school academy in the State of Michigan pursuant to the Code.

2. The corporation, including all activities incident to its purposes, shall at all times be conducted so as to be a governmental entity pursuant to Section 115 of the United States Internal Revenue Code ("IRC") or any successor law. Notwithstanding any other provision of these Restated Articles, the corporation shall not carry on any other activity not permitted to be carried on by a governmental instrumentality exempt from federal income tax under Section 115 of the IRC or by a nonprofit corporation organized under the laws of the State of Michigan and subject to a Contract authorized under the Code.

ARTICLE III

The corporation is organized on a non-stock basis.

Description:

The corporation is to be financed under the following general plan:

- a. State school aid payments received pursuant to the State School Aid Act of 1979 or any successor law.
- b. Federal funds.
- c. Donations.
- d. Fees and charges permitted to be charged by public school academies.
- e. Other funds lawfully received.

The corporation is organized on a directorship basis.

ARTICLE IV

The name of the resident agent at the registered office is Tyler Horning.

The address of its registered office in Michigan is: 368 North Harvey Street, Plymouth, MI 48170.

The mailing address of the registered office in Michigan is the same.

ARTICLE V

The corporation is a governmental entity.

ARTICLE VI

The corporation and its incorporators, board members, officers, employees, and volunteers have governmental immunity as provided in section 7 of Act No. 170 of the Public Acts of 1964, being section 691.1407 of the Michigan Compiled Laws.

ARTICLE VII

Before execution of a Contract to charter a public school academy between the corporation and Central Michigan University Board of Trustees (the "University Board"), the method of selection, length of term, and the number of members of the Board of Directors of the corporation shall be approved by a resolution of the University Board as required by the Code.

ARTICLE VIII

The Board of Directors shall have all the powers and duties permitted by law to manage the business, property and affairs of the corporation.

ARTICLE IX

A volunteer director is not personally liable to the corporation or its members for money damages for any action taken or any failure to take any action as a volunteer officer, except liability for any of the following:

- (i) The amount of a financial benefit received by a director or volunteer officer to which he or she is not entitled.
- (ii) Intentional infliction of harm on the corporation, its shareholders, or members.
- (iii) A violation of Section 551 of the Michigan Nonprofit Corporation Act;
- (iv) An intentional criminal act.

- (v) A liability imposed under section 497(a).

If the corporation obtains tax exempt status under section 501(c)(3) of the internal revenue code, the corporation assumes all liability to any person other than the corporation for all acts or omissions of a volunteer director occurring on or after the filing of the Articles incurred in the good faith performance of the volunteer director's duties. This article shall not be deemed a relinquishment or waiver of any kind of Section 7 of the Government Liability for Negligence Act, being Act No. 170, Public Acts of Michigan, 1964.

ARTICLE X

The corporation assumes the liability for all acts or omissions of a volunteer director, volunteer officer, or other volunteer if all of the following are met:

- (i) The volunteer was acting or reasonably believed he or she was acting within the scope of his or her authority;
- (ii) The volunteer was acting in good faith;
- (iii) The volunteer's conduct did not amount to gross negligence or willful and wanton misconduct;
- (iv) The volunteer's conduct was not an intentional tort; and
- (v) The volunteer's conduct was not a tort arising out of the ownership, maintenance or use of a motor vehicle for which tort liability may be imposed under section 3135 of the insurance code of 1956, 1956 PA 218, MCL 500.3135.

This article shall not be deemed a relinquishment or waiver of any kind of Section 7 of the Governmental Liability for Negligence Act, being Act No. 170, Public Acts of Michigan, 1964.

ARTICLE XI

The officers of the corporation shall be a President, Vice-President, Secretary and a Treasurer, each of whom shall be a member of the Board of Directors and shall be selected by the Board of Directors. The Board of Directors may select one or more assistants to the Secretary or Treasurer, and may also appoint such other agents as it may deem necessary for the transaction of the business of the corporation.

ARTICLE XII

No part of the net earnings of the corporation shall inure to the benefit of or be distributable to its board, directors, officers or other private persons, or organization organized and operated for a profit (except that the corporation shall be authorized and empowered to pay

reasonable compensation for services rendered and to make payments and distributions in the furtherance of the purposes set forth in Article II hereof). Notwithstanding any other provision of these Restated Articles, the corporation shall not carry on any other activities not permitted to be carried on by a governmental entity exempt from federal income tax under section 115 of the IRC, or comparable provisions of any successor law.

To the extent permitted by law, upon the dissolution of the corporation, the board shall after paying or making provision for the payment of all of the liabilities of the corporation, dispose of all of the assets of the corporation to the University Board for forwarding to the state school aid fund established under article IX, section 11 of the Constitution of the State of Michigan of 1963, as amended.

ARTICLE XIII

These Restated Articles of Incorporation shall not be amended except by the process provided in Article IX of the Terms and Conditions incorporated as part of the Contract. This process is as follows:

The corporation, by a majority vote of its Board of Directors, may, at any time, propose specific changes to these Restated Articles of Incorporation or may propose a meeting to discuss potential revision to these Restated Articles of Incorporation. The proposal will be made to the University Board through its designee. The University Board delegates to The Governor John Engler Center for Charter Schools' ("The Center") Executive Director the review and approval of changes or amendments to these Restated Articles of Incorporation. In the event that a proposed change is not accepted by The Center's Executive Director, the University Board shall consider and vote upon a change proposed by the corporation following an opportunity for a written and oral presentation to the University Board by the corporation.

At any time and for any reason, the University Board or an authorized designee may propose specific changes to these Restated Articles of Incorporation or may propose a meeting to discuss potential revision. The corporation's Board of Directors may delegate to an officer of the corporation the review and negotiation of changes or amendments to these Restated Articles of Incorporation. The Restated Articles of Incorporation shall be amended as requested by the University Board or an authorized designee upon a majority vote of the corporation's Board of Directors.

Amendments to these Restated Articles of Incorporation take effect only after they have been approved by the corporation's Board of Directors and by the University Board or The Center's Executive Director, and the amendments are filed with the Michigan Department of Licensing and Regulatory Affairs, Bureau of Commercial Services. In addition, the corporation shall file with the amendment a copy of the University Board's or The Center's Executive Director's approval of the amendment.

Upon termination or revocation of the Contract, the Academy may amend its articles of incorporation as necessary to allow the Academy Board to: (a) take action to appoint Academy Board members in order to have a quorum necessary to take Academy Board action; or (b)

effectuate a dissolution, provided that the Academy Board may not amend the articles of incorporation with regard to the disposition of assets upon dissolution.


ARTICLE XIV


The definitions set forth in the Terms and Conditions incorporated as part of the Contract shall have the same meaning in these Restated Articles of Incorporation.


ADOPTION OF ARTICLES

These Restated Articles of Incorporation were duly adopted on the 3 day of January, 2019, in accordance with the provisions of Section 641 of the Act. These Restated Articles of Incorporation restate, integrate and do further amend the provisions of the Articles of Incorporation and were duly adopted by the directors. The necessary number of votes were cast in favor of these Restated Articles of Incorporation.

Signed this 3 day of January, 2019.

By: 
Mr. Tyler Horning
Board President

X 
Myranda Fabian
Board Member

X 
Jim Musgrave
Board Member

X 
Troy Morris
Board Member

CONTRACT SCHEDULE 2

AMENDED BYLAWS

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AMENDED BYLAWS
OF
IVYWOOD CLASSICAL ACADEMY

ARTICLE I
NAME

This organization shall be called Ivywood Classical Academy (the "Academy" or the "corporation").

ARTICLE II
FORM OF ACADEMY

The Academy is organized as a non-profit, non-stock, directorship corporation.

ARTICLE III
OFFICES

Section 1. Principal Office. The principal office of the Academy shall be located in the state of Michigan.

Section 2. Registered Office. The registered office of the Academy may be the same as the principal office of the Academy, but in any event must be located in the state of Michigan, and be the business office of the resident agent, as required by the Michigan Non-Profit Corporation Act. Changes in the resident agent and registered address of the Academy must be reported to the Michigan Department of Licensing and Regulatory Affairs and to The Governor John Engler Center for Charter Schools (“the Center.”)

ARTICLE IV
BOARD OF DIRECTORS

Section 1. General Powers. The business, property and affairs of the Academy shall be managed by the Academy Board of Directors ("Academy Board"). The Academy Board may exercise any and all of the powers granted to it under the Michigan Non-Profit Corporation Act or pursuant to Part 6A of the Revised School Code ("Code"). The Academy Board may delegate such powers to the officers and committees of the Academy Board as it deems necessary, so long as such delegation is consistent with the Articles, these Amended Bylaws, the Contract and Applicable Law.

Section 2. Method of Selection and Appointment. The Central Michigan University Board of Trustees (“University Board”) shall prescribe the method of appointment for members of an Academy’s Board. The Center Director is authorized to develop and administer an academy board selection and appointment process that includes an *Application for Public School Academy Board Appointment* and is in accord with these policies:

- a. The University Board shall appoint the initial and subsequent Academy Board by resolution, except as prescribed by subparagraph d. The Center Director shall recommend qualified individuals to the University Board.
- b. The Academy Board, by resolution and majority vote, shall nominate its subsequent members, except as provided otherwise. The Academy Board shall recommend to the Center Director at least one nominee for each vacancy. Nominees shall submit the *Application for Public School Academy Board Appointment* for review by the Center. The Center Director may or may not recommend the appointment of a nominee submitted by the Academy Board. If the Center Director does not recommend the appointment of a nominee submitted by the Academy Board, he/she may select and recommend another nominee or may request the Academy Board submit a new nominee for consideration.
- c. An individual appointed to fill a vacancy created other than by the expiration of a term shall be appointed for the unexpired term of that vacant position.
- d. Under exigent conditions, and with the approval of the University Board's chair and the University President, the Center Director may appoint a qualified individual to the Academy Board. All appointments made under this provision must be presented to the University Board for final determination at its next regularly scheduled meeting. The University Board reserves the right to review, rescind, modify, ratify, or approve any appointments made under this provision.

Section 3. Length of Term. A Director of the Academy Board shall serve at the pleasure of the University Board. Terms of the initial positions of the Academy Board shall be staggered in accordance with *The Academy Board of Directors Table of Staggered Terms and Appointments* established and administered by the Center Director. Subsequent appointments shall be for a term of office not to exceed four (4) years, except as prescribed by *The Academy Board of Directors Table of Staggered Terms and Appointments*.

Section 4. Number of Director Positions. The number of director positions on the Academy Board shall not be less than five (5) nor more than nine (9) as determined by the University Board. If the Academy Board fails to maintain its full membership by making appropriate and timely nominations, the Center Director may deem that failure an exigent condition.

Section 5. Qualifications of Academy Board Members. To be qualified to serve on the Academy Board, a person shall, among other things: (a) be a citizen of the United States; (b) be a resident of the State of Michigan; (c) submit all materials requested by the Center including, but not limited to, the *Application for Public School Academy Board Appointment* which must include authorization to process a criminal background check; and (d) annually submit a conflict of interest disclosure as prescribed by the Center.

The members of the Academy Board shall not include (a) employees of the Academy; (b) any director, officer, or employee of a service provider that contracts with the Academy; (c) a Central Michigan University official or employee, as a representative of Central Michigan University.

Section 6. Oath of Public Office. All members of the Academy Board must take the constitutional oath of office and sign the *Oath of Public Office* before beginning their service. The *Oath of Public Office* shall be filed with the Center.

Section 7. Tenure. Each Director shall hold office until the Director's replacement, death, resignation, removal or until the expiration of the term, whichever occurs first.

Section 8. Removal and Suspension. If the University Board determines that the service in office of a Director of the Academy Board is no longer necessary, then the University Board may remove the Academy Board member with or without cause and shall specify the date when the Academy Board member's service ends. The Academy Board member may also be removed from office for cause by a two-thirds (2/3) vote of the Academy's Board.

With the approval of the University Board's chair and the University President, the Center Director may suspend the service of a Director of the Academy Board if, in his/her judgment, the person's continued presence would constitute a risk to persons or property, or would seriously impair the operation of the Academy. Any suspension made under this provision must be presented to the University Board for final determination at its next regularly scheduled meeting. The University Board reserves the right to review, rescind, modify, ratify, or approve any suspensions made under this provision.

Section 9. Resignation. Any Director may resign at any time by providing written notice to the corporation or by communicating such intention (orally or in writing) to the Center. Notice of resignation will be effective upon receipt or at a subsequent time if designated in a written notice. A successor shall be appointed as provided in Section 2 of this Article.

Section 10. Board Vacancies. A Director vacancy shall occur because of death, resignation, removal, failure to maintain residency in the State of Michigan, disqualification or as otherwise specified in the Code. Any vacancy shall be filled as provided in Section 2 of this Article.

Section 11. Compensation. A Director of the Academy Board shall serve as a volunteer Director. By resolution of the Academy Board, the Directors may be reimbursed for their reasonable expenses incident to their duties.

ARTICLE V MEETINGS

Section 1. Annual and Regular Meetings. The Academy Board shall hold an annual meeting each year. The Academy Board must provide, by resolution, the time and place, within the State of Michigan, for the holding of regular monthly meetings. The Academy Board shall provide notice of the annual and all regular meetings as required by the Open Meetings Act.

Section 2. Special Meetings. Special meetings of the Academy Board may be called by or at the request of any Director. The person or persons authorized to call special meetings of the Academy Board may fix the place within the State of Michigan for holding any special meeting of the Academy Board called by them, and, if no other place is fixed, the place of meeting shall be the principal business office of the corporation in the state of Michigan. The corporation shall provide notice of all special meetings as required by the Open Meetings Act.

Section 3. Notice; Waiver. The Academy Board must comply with the notice provisions of the Open Meetings Act. In addition, notice of any meeting shall be given to each Director stating the time and place of the meeting, delivered personally, mailed, or sent by facsimile or electronic mail to the Director's business address. Any Director may waive notice of any meeting by written statement, facsimile or electronic mail sent by the Director, signed before or after the holding of the meeting. The attendance of

a Director at a meeting constitutes a waiver of notice of such meeting, except where a Director attends a meeting for the express purpose of objecting to the transaction of any business because the meeting is not lawfully called or convened.

Section 4. Quorum. In order to legally transact business, the Academy Board shall have a quorum physically present at a duly called meeting of the Academy Board. A “quorum” shall be defined as follows:

<u># of Academy Board Positions</u>	<u># Required for Quorum</u>
Five (5)	Three (3)
Seven (7)	Four (4)
Nine (9)	Five (5)

A Director of the Academy Board who is absent from a meeting of the Academy Board due to military duty may participate in the meeting virtually, and that member’s virtual presence will count towards quorum and allow the absent member to participate in and vote on business before the Academy Board.

Section 5. Manner of Acting. The act of the majority of the Directors present at a meeting at which a quorum is present shall be the act of the Academy Board. No member of the Academy Board may vote by proxy, by way of a telephone conference or any other electronic means of communication.

Section 6. Open Meetings Act. All meetings of the Academy Board shall at all times be in compliance with the Open Meetings Act.

Section 7. Presumption of Assent. A Director of the Academy Board who is present at a meeting of the Academy Board at which action on any corporate matter is taken shall be presumed to have assented to the action taken unless that Director's dissent shall be entered in the minutes of the meeting or unless that Director shall file a written dissent to such action with the person acting as the Secretary of the meeting before the adjournment thereof or shall forward such dissent by registered mail to the Secretary of the corporation immediately after the adjournment of the meeting. This right to dissent shall not apply to a Director who voted in favor of such action.

ARTICLE VI COMMITTEES

Section 1. Committees. The Academy Board, by resolution, may designate one or more committees. Each committee is to consist of one or more Directors selected by the Academy Board. As provided in the resolution as initially adopted, and as thereafter supplemented or amended by further resolution, the committees shall have such powers as delegated by the Academy Board, except (i) filling of vacancies in the officers of the Academy Board or committees created pursuant to this Section; (ii) amending the Articles of Incorporation or Amended Bylaws; or (iii) any action the Academy Board cannot lawfully delegate under the Articles, Amended Bylaws or Applicable Law. All committee meetings shall at all times be in compliance with the Open Meetings Act. Each committee shall fix its own rules governing the conduct of its activities and shall make such reports to the Academy Board of its activities as the Academy Board may request.

ARTICLE VII OFFICERS OF THE BOARD

Section 1. Number. The officers of the Academy Board shall be a President, Vice-President, Secretary, Treasurer, and such assistant Treasurers and assistant Secretaries as may be selected by the Academy Board.

Section 2. Election and Term of Office. The Academy Board shall elect the initial officers at its first duly noticed meeting. Thereafter, the officers of the Academy Board shall be elected annually by the Academy Board. If the election of officers is not held at the annual meeting, the election shall be held as soon thereafter as may be convenient. Each officer shall hold office while qualified or until the officer resigns or is removed in the manner provided in Section 3.

Section 3. Removal. Any officer or agent elected or appointed by the Academy Board may be removed by the Academy Board whenever in its judgment the best interests of the corporation would be served thereby.

Section 4. Vacancies. A vacancy in any office shall be filled by appointment by the Academy Board for the unexpired portion of the term.

Section 5. President. The President of the Academy Board shall be a member of the Academy Board. The President of the corporation shall preside at all meetings of the Academy Board. If there is not a President, or if the President is absent, then the Vice-President shall preside. If the Vice-President is absent, then a temporary chair, chosen by the members of the Academy Board attending the meeting shall preside. The President shall, in general, perform all duties incident to the office of President of the Academy Board as may be prescribed by the Academy Board from time to time.

Section 6. Vice-President. The Vice-President of the Academy Board shall be a member of the Academy Board. In the absence of the President or in the event of the President's death, inability or refusal to act, the Vice-President shall perform the duties of President, and when so acting, shall have all the powers of and be subject to all the restrictions upon the President. The Vice-President shall perform such other duties as from time to time may be assigned to the Vice-President by the President or by the Academy Board.

Section 7. Secretary. The Secretary of the Academy Board shall be a member of the Academy Board. The Secretary shall: (a) keep the minutes of the Academy Board meetings in one or more books provided for that purpose; (b) see that all notices, including those notices required under the Open Meetings Act, are duly given in accordance with the provisions of these Amended Bylaws or as required by law; (c) be custodian of the corporate records and of the seal of the corporation and see that the seal of the corporation is affixed to all authorized documents; (d) keep a register of the post office address of each Director; and (e) perform all duties incident to the office of Secretary and other duties assigned by the President or the Academy Board.

Section 8. Treasurer. The Treasurer of the Academy Board shall be a member of the Academy Board. The Treasurer shall: (a) have charge and custody of and be responsible for all funds and securities of the corporation; (b) keep accurate books and records of corporate receipts and disbursements; (c) deposit all moneys and securities received by the corporation in such banks, trust companies or other depositories as shall be selected by the Academy Board; (d) complete all required corporate filings; (e) assure that the responsibilities of the fiscal agent to the corporation are properly carried out; and (f) in general perform all

of the duties incident to the office of Treasurer and such other duties as from time to time may be assigned by the President or by the Academy Board.

Section 9. Assistants and Acting Officers. The Assistants to the officers, if any, selected by the Academy Board, shall perform such duties and have such authority as shall from time to time be delegated or assigned to them by the Secretary or Treasurer or by the Academy Board. The Academy Board shall have the power to appoint any member of the Academy Board to perform the duties of an officer whenever, for any reason, it is impractical for such officer to act personally. Such acting officer so appointed shall have the powers of and be subject to all the restrictions upon the officer to whose office the acting officer is so appointed except as the Academy Board may by resolution otherwise determine.

Section 10. Salaries. Officers of the Academy Board, as Directors of the corporation, may not be compensated for their services. By resolution of the Academy Board, officers may be reimbursed for reasonable expenses incident to their duties.

Section 11. Filling More Than One Office. Subject to the statute concerning the Incompatible Public Offices, Act No. 566 of the Public Acts of 1978, being Sections 15.181 to 15.185 of the Michigan Compiled Laws, any two offices of the corporation except those of President and Vice-President may be held by the same person, but no officer shall execute, acknowledge or verify any instrument in more than one capacity.

ARTICLE VIII CONTRACTS, LOANS, CHECKS AND DEPOSITS; SPECIAL CORPORATE ACTS

Section 1. Contracts. The Academy Board may authorize any officer or officers, agent or agents, to enter into any contract, to execute and deliver any instrument, or to acknowledge any instrument required by law to be acknowledged in the name of and on behalf of the corporation. Such authority may be general or confined to specific instances, but the appointment of any person other than an officer to acknowledge an instrument required by law to be acknowledged should be made by instrument in writing. When the Academy Board authorizes the execution of a contract or of any other instrument in the name of and on behalf of the corporation, without specifying the executing officers, the President or Vice-President, and the Secretary or Treasurer may execute the same and may affix the corporate seal thereto. No contract entered into, by or on behalf of the Academy Board, shall in any way bind Central Michigan University or impose any liability on Central Michigan University, its trustees, officers, employees or agents.

Section 2. Loans. No loans shall be contracted on behalf of the Academy and no evidences of indebtedness shall be issued in its name unless authorized by a prior resolution of the Academy Board. Such authority shall be confined to specific instances. No loan, advance, overdraft or withdrawal by an officer or Director of the corporation, shall be made or permitted unless approved by the Academy Board. No loan entered into, by or on behalf of the Academy Board, shall in any way be considered a debt or obligation of Central Michigan University or impose any liability on Central Michigan University, its trustees, officers, employees or agents.

Section 3. Checks, Drafts, etc. All checks, drafts or other orders for the payment of money, notes or other evidences of indebtedness issued in the name of the Academy, shall be signed by Academy Board members or Academy Board employees, which shall not include employees of the Academy Board's Educational Service Provider, and in such manner as shall from time to time be determined by resolution of the Academy Board.

Section 4. Deposits. All funds of the Academy shall be deposited from time to time to the credit of the corporation in such banks, trust companies or other depositories as the Academy Board may select, provided that such financial institution is eligible to be a depository of surplus funds under Section 1221 of the Revised School Code, being Section 380.1221 of the Michigan Compiled Laws.

Section 5. Voting of Gifted, Bequested or Transferred Securities Owned by this Corporation. Subject always to the specific directions of the Academy Board, any shares or other securities issued by any other corporation and owned or controlled by this corporation may be voted at any meeting of security holders of such other corporation by the President of this corporation or by proxy appointed by the President, or in the absence of the President and the President's proxy, by the Secretary or Treasurer of this corporation or by proxy appointed by the Secretary or Treasurer. Such proxy or consent in respect to any shares or other securities issued by any other corporation and owned by this corporation shall be executed in the name of this corporation by the President, the Secretary or the Treasurer of this corporation without necessity of any authorization by the Academy Board, affixation of corporate seal or countersignature or attestation by another officer. Any person or persons designated in the manner above stated as the proxy or proxies of this corporation shall have full right, power and authority to vote the shares or other securities issued by such other corporation and owned by this corporation the same as such shares or other securities might be voted by this corporation. This section shall in no way be interpreted to permit the corporation to invest any of its surplus funds in any shares or other securities issued by any other corporation. This section is intended to apply, however, to all gifts, bequests or other transfers of shares or other securities issued by any other corporation which are received by the corporation.

Section 6. Contracts Between Corporation and Related Persons. As required by Applicable Law, any Director, officer or employee of the Academy, who enters into a contract with the Academy, that meets the definition of contract under the statute on Contracts of Public Servants with Public Entities, Act No. 317 of the Public Acts of 1968, being sections 15.321 to 15.330 of the Michigan Compiled Laws, shall comply with the public disclosure requirements set forth in Section 3 of the statute.

The University Board authorizes the Academy Board to employ or contract for personnel according to the position information outlined in Schedule 5. However, the Academy Board shall prohibit any individual from being employed by the Academy, an Educational Service Provider or an employee leasing company involved in the operation of the Academy, in more than one (1) full-time position and simultaneously being compensated at a full-time rate for each of these positions. An employee hired by the Academy Board shall be an employee of the Academy for all purposes and not an employee of the University for any purpose. With respect to Academy Board employees, the Academy shall have the power and responsibility to (i) select and engage employees; (ii) pay their wages, benefits, and applicable taxes; (iii) dismiss employees; and (iv) control the employees' conduct, including the method by which the employee carries out his or her work. The Academy Board shall be responsible for carrying workers' compensation insurance and unemployment insurance for its employees. The Academy Board may contract with an Educational Service Provider or an employee leasing company to provide services or to provide personnel to perform services or work at the Academy. Before entering into an agreement with an Educational Service Provider or an employee leasing company to perform services or to provide personnel to perform services or work at the Academy, the Academy Board must first comply with the Educational Service Provider Policies issued by the Center. A copy of the agreement between the Academy Board and the Educational Service Provider or employee leasing company shall be included as part of Schedule 5.

The Academy shall comply with the Incompatible Public Offices statute, Act No. 566 of the Public Acts of 1978, of the Michigan Compiled Laws, and the Contracts of Public Servants With Public Entities statute, Act No. 371 of the Public Acts of 1968, of the Michigan Compiled Laws. The Academy Board shall

ensure compliance with Applicable Law relating to conflicts of interest. Language in this Section controls over section 1203 of the Code. The following shall be deemed prohibited conflicts of interest:

- (a) An individual simultaneously serving as an Academy Board member and an owner, officer, director, employee or consultant of an Educational Service Provider or an employee leasing company, or a subcontractor to an Educational Service Provider or an employee leasing company that has an ESP Agreement with the Academy;
- (b) An individual simultaneously serving as an Academy Board member and an Academy Board employee;
- (c) An individual simultaneously serving as an Academy Board member and an independent contractor to the Academy;
- (d) An individual simultaneously serving as an Academy Board member and a member of the governing board of another public school;
- (e) An individual simultaneously serving as an Academy Board member and a University official, employee, or paid consultant, as a representative of the University; and
- (f) An individual simultaneously serving as an Academy Board member and having an ownership or financial interest in any real or personal property leased or subleased to the Academy.

No person shall be appointed or reappointed to serve as an Academy Board member if the person's mother, mother-in-law, father, father-in-law, son, son-in-law, daughter, daughter-in-law, sister, sister-in-law, brother, brother-in-law, spouse or domestic partner:

- (a) Is employed by the Academy Board;
- (b) Works at or is assigned to work at the Academy;
- (c) Has an ownership, officer, policymaking, managerial, administrative non-clerical or other significant role with the Academy's Educational Service Provider or employee leasing company; and
- (d) Has an ownership or financial interest in any school building lease or sublease agreement with the Academy.
- (e) Is a current Academy Board member.

The Academy Board shall require each individual who works at the Academy to annually disclose any familial relationship with any other individual who works at, or provides services to, the Academy. For purposes of this sub-section, familial relationship means a person's mother, mother-in-law, father, father-in-law, son, son-in-law, daughter, daughter-in-law, sister, sister-in-law, brother, brother-in-law, spouse or domestic partner.

**ARTICLE IX
INDEMNIFICATION**

To the extent permitted by Applicable Law, each person who is or was a Director, officer or member of a committee of the Academy and each person who serves or has served at the request of the Academy as a trustee, director, officer, partner, employee or agent of any other corporation, partnership, joint venture, trust or other enterprise, may be indemnified by the Academy. The corporation may purchase and maintain insurance on behalf of any such person against any liability asserted against and incurred by such person in any such capacity or arising out of his status as such, whether or not the corporation would have power to indemnify such person against such liability under the preceding sentence. The corporation may, to the extent authorized from time to time by the Academy Board, grant rights to indemnification to any employee or agent of the corporation.

**ARTICLE X
FISCAL YEAR**

The fiscal year of the corporation shall begin on the first day of July in each year.

**ARTICLE XI
AMENDMENTS**

These Amended Bylaws may be altered, amended or repealed and new Amended Bylaws may be adopted by obtaining (a) the affirmative vote of a majority of the Academy Board at any regular or special meeting of the Academy Board, if a notice setting forth the terms of the proposal has been given in accordance with the notice requirements of these Amended Bylaws and applicable law, and (b) the written approval of the changes or amendments by the Center Director. In the event that a proposed change is not accepted by the Center Director, the University Board may consider and vote upon a change proposed by the corporation following an opportunity for a written presentation to the University Board by the Academy Board. These Amended Bylaws and any amendments to them take effect only after they have been approved by both the Academy Board and by the Center Director.

Upon termination or revocation of the Contract, the corporation may amend its Amended Bylaws as necessary to allow the Academy Board to: (a) take action to appoint Academy Board members in order to have a quorum necessary to take Academy Board action; or (b) effectuate a dissolution, provided that the Academy Board may not amend the Amended Bylaws with regard to the disposition of assets upon dissolution.

**ARTICLE XII
TERMS AND CONDITIONS DEFINITIONS**

The definitions set forth in the Terms and Conditions incorporated as part of the Contract shall have the same meaning in these Amended Bylaws.

CERTIFICATION

The Board certifies that these Amended Bylaws were adopted as and for the Bylaws of a Michigan corporation in an open and public meeting, by the Academy Board on the 28th day of May, 2024.



Academy Board Secretary

CONTRACT SCHEDULE 3
FISCAL AGENT AGREEMENT

SCHEDULE 3

FISCAL AGENT AGREEMENT

This Fiscal Agent Agreement is part of the Contract issued by the Central Michigan University Board of Trustees ("University Board"), an authorizing body as defined by the Revised School Code, as amended (the "Code"), to Ivywood Classical Academy ("Academy"), a public school academy.

Preliminary Recitals

WHEREAS, pursuant to the Code and the Contract, the University Board, as authorizing body, is the Fiscal Agent for the Academy, and

WHEREAS, the University Board is required by law to forward any State School Aid Payments received from the State of Michigan ("State") on behalf of the Academy to the Academy,

NOW, THEREFORE, in consideration of the premises set forth below, the parties agree to the following:

ARTICLE I **DEFINITIONS AND INTERPRETATIONS**

Section 1.1. Definitions. Unless otherwise provided, or unless the context requires otherwise, the following terms shall have the following definitions:

"Academy Account" means an account established by the Academy Board for the receipt of State School Aid Payments at a bank, savings and loan association, or credit union which has not been deemed ineligible to be a depository of surplus funds under Section 6 Act No. 105 of the Public Acts of 1855, being Section 21.146 of the Michigan Compiled Laws.

"Agreement" means this Fiscal Agent Agreement.

"Fiscal Agent" means the University Board or an officer or employee of Central Michigan University as designated by the University Board.

"Other Funds" means any other public or private funds which the Academy receives and for which the University Board voluntarily agrees to receive and transfer to the Academy.

"State School Aid Payment" means any payment of money the Academy receives from the State School Aid Fund established pursuant to Article IX, Section 11 of the Michigan Constitution of 1963 or under the State School Aid Act of 1979, as amended.

"State" means the State of Michigan.

"State Treasurer" means the office responsible for issuing funds to public school academies for State School Aid Payments pursuant to the State School Aid Act of 1979, as amended.

ARTICLE II
FISCAL AGENT DUTIES

Section 2.1. Receipt of State School Aid Payments and Other Funds. The University Board is the Fiscal Agent for the Academy for the limited purpose of receiving State School Aid Payments. By separate agreement, the University Board and the Academy may also agree that the University will receive Other Funds for transfer to the Academy. The Fiscal Agent will receive State School Aid Payments from the State, as provided in Section 3.2.

Section 2.2. Transfer to Academy. Except as provided in Article X of the Terms and Conditions of Contract and in the Oversight, Compliance and Reporting Agreement, the Fiscal Agent shall transfer all State School Aid Payments and all Other Funds received on behalf of the Academy to the Academy within ten (10) business days of receipt or as otherwise required by the provisions of the State School Aid Act of 1979 or applicable State Board rules. The State School Aid Payments and all Other Funds shall be transferred into the Academy Account designated by a resolution of the Academy Board and by a method of transfer acceptable to the Fiscal Agent.

Section 2.3. Limitation of Duties. The Fiscal Agent has no responsibilities or duties to verify the Academy's pupil membership count, as defined in the State School Aid Act of 1979, as amended, or to authorize, to approve or to determine the accuracy of the State Aid School Payments received on behalf of the Academy from the State Treasurer. The duties of the Fiscal Agent are limited to the receipt and transfer to the Academy of State School Aid Payments and Other Funds received by the Academy. The Fiscal Agent shall have no duty to monitor, account for or approve expenditures made by the Academy Board.

Section 2.4. Academy Board Requests for Direct Intercept of State School Aid Payments. If the Academy Board (i) authorizes a direct intercept of a portion of its State School Aid Payments from the State to a third party account for the payment of Academy debts and liabilities; or (ii) assigns or directs that a portion of its State School Aid Payments be forwarded by the Fiscal Agent to a third party account for the payment of Academy debts and liabilities, then Academy shall submit to The Governor John Engler Center for Charter Schools at Central Michigan University for review and consideration: (i) a copy of the Academy Board's resolution authorizing the direct intercept or the assignment or direction of State School Aid Payments; (ii) a State School Aid Payment Agreement and Direction document that is in a form and manner acceptable to the Fiscal Agent; and (iii) other documents as required. The Center reserves the right to not acknowledge in writing any State School Aid Payment Agreement and Direction that is not in a form and manner acceptable to the Fiscal Agent. The State School Aid Payment and Direction document shall include language that the third party lender or trustee acknowledges and consents to the transfer of State School Aid Payments into the Academy's dissolution account, as set forth in Article X of the Terms and Conditions. Any unspent funds remaining in the Academy dissolution account after payment of all wind-up and dissolution expenses shall be returned to the Academy.

ARTICLE III
STATE DUTIES

Section 3.1 Eligibility for State School Aid Payments. The State, through its Department of Education, has sole responsibility for determining the eligibility of the Academy to receive State School Aid Payments. The State, through its Department of Education, has sole responsibility for determining the amount of State School Aid Payments, if any, the Academy shall be entitled to receive.

Section 3.2. State School Aid Payment Overpayments and Penalties. The State, through its Department of Education, has sole responsibility for determining State School Aid Payment overpayments to the Academy and the method and time period for repayment by the Academy. The State, through its Department of Education, has sole responsibility for assessing State School Aid penalties against the Academy for noncompliance with the Code and the State School Aid Act of 1979, as amended.

Section 3.3. Method of Payment. Each State School Aid Payment for the Academy will be made to the Fiscal Agent by the State Treasurer by issuing a warrant and delivering the warrant to the Fiscal Agent by electronic funds transfer into an account specified by the Fiscal Agent, or by such other means deemed acceptable to the Fiscal Agent. The State shall make State School Aid Payments at the times specified in the State School Aid Act of 1979, as amended.

ARTICLE IV **ACADEMY DUTIES**

Section 4.1. Compliance with State School Aid Act. In order to assure that funds are available for the education of pupils, the Academy shall comply with all applicable provisions of the State School Aid Act of 1979, as amended.

Section 4.2. Academy Account. The Academy is authorized to establish an account in the name of the Academy. Signatories to the Academy Account shall be current Academy Board members and/or Academy Board employees, which shall not include employees of the Academy Board's Educational Service Provider, as shall from time to time be determined by resolution of the Academy Board. The Academy Board is authorized to approve withdrawals and transfers from any Academy Account. Any authorization approved by the Academy Board for automatic withdrawals or transfers from an Academy Account may only be terminated or amended by the Academy Board.

Section 4.3. Expenditure of Funds. The Academy may expend funds that it receives from the State School Aid Fund for any purpose permitted by the State School Aid Act of 1979 and may enter into contracts and agreements determined by the Academy as consistent with the purposes for which the funds were appropriated.

Section 4.4. Mid-Year Transfers. Funding for students transferring into or out of the Academy during the school year shall be in accordance with the State School Aid Act of 1979 or applicable State Board rules.

Section 4.5. Repayment of Overpayment. The Academy shall be directly responsible for reimbursing the State for any overpayment of State School Aid Payments or any State School Aid penalties. At its option, the State may reduce subsequent State School Aid Payments by the amount of the overpayment or penalty or seek collection of the overpayment or penalty from the Academy.

ARTICLE V **RECORDS AND REPORTS**

Section 5.1. Records. The Fiscal Agent shall keep books of record and account of all transactions relating to the receipts, disbursements, allocations and application of the State School Aid Payments and Other Funds received, deposited or transferred for the benefit of the Academy, and these books shall be available for inspection at reasonable hours and under reasonable conditions by the Academy and the State.

Section 5.2. Reports. Annually, the Fiscal Agent shall prepare and send to the Academy within thirty (30) days of September 1, a written report dated as of August 31. This report shall summarize all receipts, deposits and transfers made on behalf or for the benefit of the Academy during the period beginning on the latter of the date hereof or the date of the last such written report and ending on the date of the report, including without limitation, State School Aid Payments received on behalf of the Academy from the State Treasurer and any Other Funds which the University Board receives under this Agreement.

ARTICLE VI

CONCERNING THE FISCAL AGENT

Section 6.1. Representations. The Fiscal Agent represents that it has all necessary power and authority to enter into this Agreement and undertake the obligations and responsibilities imposed upon it in this Agreement and that it will carry out all of its obligations under this Agreement.


Section 6.2. Limitation on Liability. The liability of the Fiscal Agent to transfer funds to the Academy shall be limited to the amount of State School Aid Payments as are from time to time delivered by the State and the amount of Other Funds as delivered by the source of those funds.

The Fiscal Agent shall not be liable for any action taken or neglected to be taken by it in good faith in any exercise of reasonable care and believed by it to be within the discretion or power conferred upon it by this Agreement, nor shall the Fiscal Agent be responsible for the consequences of any error of judgment; and the Fiscal Agent shall not be answerable except for its own action, neglect or default, nor for any loss unless the same shall have been through its gross negligence or willful default.

The Fiscal Agent shall not be liable for any deficiency in the State School Aid Payments received from the State Treasurer to which the Academy was properly entitled. The Fiscal Agent shall not be liable for any State School Aid overpayments made by the State Treasurer to the Academy for which the State subsequently seeks reimbursement.

ACKNOWLEDGMENT OF RECEIPT

The undersigned, on behalf of the State of Michigan, Department of Treasury, acknowledges receipt of the foregoing Fiscal Agent Agreement that is part of the Contract issued by the Central Michigan University Board of Trustees to Ivywood Classical Academy.

By: 
Alyson Hayden, Director
Bureau of State and Authority Finance
Michigan Department of Treasury

Date: February 28, 2024

CONTRACT SCHEDULE 4
OVERSIGHT, COMPLIANCE
AND REPORTING AGREEMENT

SCHEDULE 4

OVERSIGHT, COMPLIANCE AND REPORTING AGREEMENT

This Oversight, Compliance, and Reporting Agreement is part of the Contract issued by the Central Michigan University Board of Trustees ("University Board"), an authorizing body as defined by the Revised School Code, as amended (the "Code"), to Ivywood Classical Academy ("Academy"), a public school academy.

Preliminary Recitals

WHEREAS, the University Board, subject to the leadership and general supervision of the State Board of Education over all public education, is responsible for overseeing the Academy's compliance with the Contract and all Applicable Law.

NOW, THEREFORE, in consideration of the premises set forth below, the parties agree to the following:

ARTICLE I **DEFINITIONS AND INTERPRETATIONS**

Section 1.1. Definitions. Unless otherwise provided, or unless the context requires otherwise, the following terms shall have the following definitions:

"Agreement" means this Oversight, Compliance and Reporting Agreement.

"Oversight Responsibilities" means the University Board's oversight responsibilities set forth in Section 2.1 of this Agreement.

"Compliance and Reporting Duties" means the Academy's duties set forth in Section 2.2 of this Agreement.

"State School Aid Payment" means any payment of money the Academy receives from the state school aid fund established pursuant to Article IX, Section 11 of the Michigan Constitution of 1963 or under the State School Aid Act of 1979, as amended.

ARTICLE II **OVERSIGHT, COMPLIANCE AND REPORTING RESPONSIBILITIES**

Section 2.1. Oversight Responsibilities. The Governor John Engler Center for Charter Schools ("the Center") at Central Michigan University, as it deems necessary to fulfill the University Board's Oversight Responsibilities, may undertake the following:

- a. Monitor and evaluate if the Academy Board is properly governing the Academy and following the Amended Bylaws set forth in the Contract.
- b. Monitor and evaluate the Academy's academic performance and progress toward achieving the educational goal and related measures set forth in Contract Schedule 7b.

- c. Monitor and evaluate the Academy's implementation, delivery, and support of the educational program and curriculum as set forth in Contract Schedules 7c and 7d, respectively.
- d. Monitor and evaluate the Academy's application and enrollment procedures as set forth in Contract Schedule 7f.
- e. Monitor and evaluate the Academy's organizational and financial viability.
- f. Monitor and evaluate the Academy's fiscal stewardship and use of public resources.
- g. Monitor and evaluate the records, internal controls or operations of the Academy.
- h. Monitor and evaluate if the Academy is staffed with qualified personnel and that appropriate background checks have been conducted.
- i. Monitor and evaluate if the Academy is providing a safe learning environment.
- j. Request evidence that the Academy has obtained the necessary permits and certificates to operate as a public school from the applicable governmental agencies, including, without limitation, the Michigan Department of Licensing and Regulatory Affairs' Bureau of Construction Codes and local health departments.
- k. Conduct comprehensive on-site reviews to assess and/or evaluate the Academy's performance.
- l. Monitor and evaluate if the Academy is demonstrating good faith in complying with the Contract, the Revised School Code, and all other Applicable Law.
- m. Request periodic reports from the Academy regarding any aspect of its operation including, but not limited to, information identified in Schedule 8 of the Contract.
- n. Initiate action pursuant to the Terms and Conditions of Contract to amend, revoke, reconstitute, terminate or suspend the Contract.
- o. Provide information and support to the Academy.

Section 2.2. Compliance and Reporting Duties. The Academy agrees to fulfill the following Compliance and Reporting Duties:

- a. Adopt and properly maintain governing board policies in accordance with Applicable Law.
- b. Comply with the reporting and document submission requirements set forth in the Master Calendar of Reporting Requirements issued annually by the Center.
- c. Comply with any Academy-specific reporting and document submission requirements established by the Center.
- d. Comply with the insurance requirements set forth in Article XI, Section 11.2 of the Terms and Conditions of Contract.

- e. Comply with the Center’s Educational Service Provider Policies, as may be amended.
- f. Report any litigation or formal proceedings to the Center including, but not limited to, litigation initiated by or against the Academy alleging violation of any Applicable Law. If the University is a named party, notify the general counsel for the University Board as set forth in Article XII, Section 12.1 of the Terms and Conditions.
- g. The Academy shall not occupy or use any school facility set forth in Schedule 6 of the Contract until such facility has received all fire, health and safety approvals required by Applicable Law and has been approved for occupancy by the Michigan Department of Licensing and Regulatory Affairs’ Bureau of Construction Codes.
- h. Permit the Center to inspect the records, internal controls, operations or premises of the Academy at any reasonable time.
- i. Authorize the Center to perform audit and conduct systematic investigations, including research development, testing and evaluation studies, designed to develop and contribute to generalizable knowledge using Academy data including, but not limited to, personally identifiable information about the Academy’s students and staff submitted by the Academy to agencies including, but not limited to, Center for Educational Performance and Information (“CEPI”), Office of Educational Assessment and Accountability (“OEAA”) and the Michigan Department of Education (“MDE”). Pursuant to this authorization, the Center shall abide by the regulations that govern the use of student data within the Family Educational Rights and Privacy Act (FERPA - 34 CFR Part 99), the Michigan Identity Theft Protection Act of 2004, and the Privacy Act of 1974.
- j. Upon request, the Academy Board shall provide the Center with a written report, along with supporting data, assessing the Academy’s progress toward achieving the educational goal and related measures outlined in Contract Schedule 7b.
- k. Upon request, provide the Center with copies or view access to data, documents or information submitted to MDE, the Superintendent of Public Instruction, the State Board of Education, CEPI or any other state or federal agency.
- l. If the Academy operates an online or other distance learning program, it shall submit a monthly report to the MDE, in the form and manner prescribed by the MDE, that reports the number of pupils enrolled in the online or other distance learning program, during the immediately preceding month.

Section 2.3. Waiver of Compliance and Reporting Duties. The University Board, or the Center Director as its authorized designee, may modify or waive any of the Academy’s Compliance and Reporting Duties.

ARTICLE III **RECORDS AND REPORTS**

Section 3.1. Records. The Academy will keep complete and accurate records and reports of its governance and operations. These records and reports shall be available for inspection by the Center at reasonable hours and under reasonable conditions.

ARTICLE IV
MISCELLANEOUS

Section 4.1. Administrative Fee. The Academy agrees to pay to the University Board an administrative fee of 3% of the Academy's State School Aid Payments. This fee shall be retained by the University Board from each State School Aid Payment received for forwarding to the Academy. This fee shall compensate the University Board for overseeing the Academy's compliance with the Contract and all Applicable Law and other related activities for which compensation is permissible. By agreement between the Center and the Academy, the University may charge additional fees beyond the administrative fees for services rendered.

Section 4.2. Time of the Essence. Time shall be of the essence in the performance of obligations from time to time imposed upon the Academy and the University Board by this Agreement.

Section 4.3. Audit and Evaluation. The Academy:

- a. Hereby authorizes the Center to perform audit and evaluation studies using Academy data including, but not limited to, personally identifiable information about the Academy's students and staff submitted by the Academy to agencies including, but not limited to, CEPI, OEAA and the MDE. Pursuant to this authorization, the Center shall abide by regulations that govern the use of student data within the FERPA, the Michigan Identity Theft Protection Act of 2004 and the Privacy Act of 1974.
- b. Shall upon request, provide the Center with copies or view access to data, documents or information submitted to the MDE, the Superintendent of Public Instruction, the State Board of Education, CEPI, the Michigan DataHub or any other state or federal agency.

Section 4.4. Fiscal Stress Notification from State Treasurer. If the State Treasurer notifies the Academy that the State Treasurer has declared the potential for Academy financial stress exists, the Academy shall provide a copy of the notice to the Center. Within fifteen (15) days of receipt of the notification from the Academy, the Center Director shall notify the Academy whether the Center is interested in entering into a contract to perform an administrative review for the Academy. The parties shall consult with the Department of Treasury on the development of the contract and the contract for administrative review shall comply with the Code. If the Center is not interested in performing an administrative review or if the parties are unable to reach agreement on an administrative review, the Academy shall consider entering into a contract for an administrative review with an intermediate school district. Nothing in this Section 4.4 shall prohibit the Academy for electing to enter into a contract for an administrative review with an intermediate school district. Nothing in this Section 4.4 shall require the Academy to elect to enter or not enter into a contract for an administrative review with the Center or an intermediate school district.

CONTRACT SCHEDULE 5

DESCRIPTION OF STAFF RESPONSIBILITIES

DESCRIPTION OF STAFF RESPONSIBILITIES

Pursuant to Applicable Law and the Terms and Conditions of this Contract, including Article III, Section 3.6., the Academy is authorized to employ or contract for personnel according to the position information outlined in this schedule. Before entering into an agreement with an Educational Service Provider, as defined in the Terms and Conditions of this Contract, to provide comprehensive educational, administrative, management or instructional services or staff to the Academy, the Academy Board must first comply with the Educational Service Provider Policies adopted by the Center.

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Qualifications. The Academy shall comply with all Applicable Law regarding requirements affecting personnel employed by or assigned to the Academy including (but not limited to): qualifications, evaluation systems, criminal background checks and unprofessional conduct disclosures. All administrators or other person whose primary responsibility is administering instructional programs or as a chief business official shall meet the certification and continuing education requirements as described in MCL 380.1246. Except as otherwise provided by law, the Academy shall use certificated teachers according to state board rule.

Administrator and Teacher Evaluation Systems. The Academy Board shall adopt and implement for all teachers and school administrators a rigorous, transparent, and fair performance evaluation system that complies with the Code. If the Academy enters into an agreement with an Educational Service Provider, then the Academy Board shall ensure that the Educational Service Provider adopts a performance evaluation system that complies with MCL 380.1249.

Performance Evaluation System. During the term of this Contract, the Academy shall not assign a pupil to be taught in the same subject area for 2 consecutive years by a teacher who has been rated as ineffective on his or her 2 most recent annual year-end evaluations per the Code. If the Academy is unable to comply with this provision of the Code and plans to assign a pupil to be taught in the same subject area for 2 consecutive years by a teacher who has been rated as ineffective on his or her 2 most recent annual year-end evaluations per the Code, the Academy Board shall notify the pupil's parent or legal guardian that the pupil has been assigned to be taught in the same subject area for a second consecutive year by a teacher who has been rated as ineffective on his or her 2 most recent annual year-end evaluations. The notification shall be in writing, shall be delivered to the parent or legal guardian not later than July 15th immediately preceding the beginning of the school year for which the pupil is assigned to the teacher, and shall include an explanation of why the pupil is assigned to the teacher. MCL 380.1249a.

Teacher and Administrator Job Performance Criteria. The Academy Board shall implement and maintain a method of compensation for its teachers and school administrators that includes job performance and job accomplishments as a significant factor in determining compensation and additional compensation. The assessment of job performance shall incorporate a rigorous, transparent, and fair evaluation system that evaluates a teacher's or school administrator's performance at least in part based upon data on student growth as measured by assessments and other objective criteria. If the Academy enters into an agreement with an Educational Service Provider, then the Academy Board shall ensure that the Educational Service Provider complies with this section. MCL 380.1250.

Reporting Structure

All positions are employed by Choice Schools Associates, L.L.C., and are outlined in the Educational Service Provider Agreement included in this Schedule.

Position Responsibilities

Following are the categories into which Academy staff fall. Descriptions for all positions employed by or assigned to the Academy are available at the Academy.

School Administrator(s)

As stated above, all administrators or other person whose primary responsibility is administering instructional programs or as a chief business official shall meet the certification and continuing education requirements as described in MCL 380.1246. In addition to the position titles identified in MCL 380.1246, the Michigan Department of Education ("MDE") will deem an administrator working

at a district or school level to be “administering instructional programs” if the person’s position description or day-to-day duties include any or all of the following elements *:

1. Responsibility for curriculum. This includes final or executive decisions which directly impact what should be taught to students and how it should be delivered, as well as what learning outcomes are expected, often following a philosophy of research, best practices, and continuous improvement providing equitable access to all students.
2. Responsibility for overseeing district or school improvement plan design or implementation. This includes a vision and a method for execution of plans regarding incorporating student assessment, using student performance and school safety data to drive decision-making, the use of information technology to support improvement, professional development, and overall student achievement.
3. Oversight of instructional policies. This includes the creation, modification, and recommendation of final policy regarding any aspect of how teachers implement, deliver, and support curriculum. Whether or not making specific financial decisions in support of these policies is part of the oversight role, this person still has final decision-making responsibility for instruction.
4. Executive-level reporting on academic progress to a governing authority. This includes providing updates, documentation, data, or presentations in an official or executive capacity to a governing body regarding progress on student learning goals—whether or not these reports are tied to expenditures related to the successful delivery of the instruction.
5. Supervision and evaluation of direct reports responsible for instruction. This includes providing executive leadership for employees who report to the individual, and providing direction to establish work priorities and decision-making. This involves evaluation of educator efficacy as well as general work performance of staff.

(*This statement and numbered items that follow it were taken directly from the February 23, 2017, Memorandum issued by the MDE.)

Instructional Staff

As stated above, except as otherwise provided by law, the Academy shall use certificated teachers according to state board rule. Individuals that are considered instructional staff are responsible for implementing the Academy’s curriculum, developing assessments and monitoring student progress. Instructional staff whose main responsibility is working with students with disabilities must modify instructional techniques in order to enhance learning for all students.

Non-Instructional Staff

The staff that fall into this category are not required to hold an administrator certificate or a teaching certificate. The individuals in this category support the Academy’s pursuit of its mission, vision, and educational goals.

MANAGEMENT SERVICES AGREEMENT

This Management Services Agreement (the "Agreement") is made and entered into as of the 1st day of July, 2024, by and between Choice Schools Associates, L.L.C., a Michigan limited liability company ("Choice Schools"), and the Ivywood Classical Academy (the "Academy"), a body corporate and public school academy organized under Part 6A of the Michigan Revised School Code (the "Code").

WHEREAS, the Academy operates pursuant to a charter contract (the "Contract") issued by the Central Michigan University Board of Trustees ("CMU"); and

WHEREAS, the Academy operates as a public school academy under the direction of the Academy Board (the "Board"); and

WHEREAS, the Academy has a contract with Hillsdale College's Barney Charter School Initiative ("Hillsdale") to provide a classical education model to students; and

WHEREAS, Choice Schools is a limited liability company providing educational and managerial services to public school academies that has the ability to implement a comprehensive educational program and management methodologies for the Academy; and

WHEREAS, the Academy desires to engage Choice Schools to perform certain services related to the Academy's educational program and operations.

NOW, THEREFORE, IT IS AGREED AS FOLLOWS:

ARTICLE I

CONTRACTUAL RELATIONSHIP

A. Academy Authority. The Academy has been granted the Contract by CMU to organize and operate a public school academy, together with the powers necessary or desirable for carrying out the educational program set forth in the Contract. The Academy is authorized by law to contract with a private entity to provide educational management services, provided that no provision of such a contract shall be effective if it would prohibit the Board from acting as an independent, self-governing public body, allow public decisions to be made other than in compliance with the Open Meetings Act, or interfere with the Board's constitutional duty to exercise its statutory, contractual and fiduciary obligations governing the operation of the Academy.

B. Delegated Authority. Acting under and in the exercise of such authority, the Academy hereby engages Choice Schools, to the extent permitted by law, to perform specified functions relating to the provision of educational services and the management and operation of the Academy; provided, however, that this Agreement is subject to all the terms and conditions of the Contract. The Contract shall be deemed incorporated herein by this reference. In the event of

any inconsistency between provisions of this Agreement and provisions of the Contract, the provisions of the Contract shall prevail.

C. Status of the Parties. Choice Schools is a limited liability company of Michigan and is not a division or a part of the Academy. The Academy is a body corporate and governmental entity authorized by the Code and is not a division or part of Choice Schools. The relationship between Choice Schools and the Academy is based solely on the terms of this Agreement. The parties to this Agreement intend that the relationship between them is that of an independent contractor, not an employee-employer relationship. The relationship between the parties was developed and entered into through arm's length negotiations and is based solely on the terms of this Agreement. Except as otherwise expressly designated by written agreement of the parties with consent from anyone whose consent is required by law or contract, no agent, officer or employee of the Academy shall be determined to be an agent or employee of Choice Schools and no agent, officer or employee of Choice Schools shall be determined to be an agent or employee of the Academy. The Academy will be solely responsible for its acts and omissions and the acts and omissions of its agents, officers, and employees and Choice Schools will be solely responsible for its acts and omissions and the acts and omission of its agents, officers, employees and subcontractors.

D. Independent Contractor/Designation of Agents. The parties to this Agreement intend that the relationship between them is that of an independent contractor, not an employee-employer relationship. The relationship between the parties was developed and entered into through arm's length negotiations and is based solely on the terms of this Agreement. Except as otherwise expressly designated by written agreement of the parties with consent from anyone whose consent is required by law or contract, no agent, officer, or employee of the Academy shall be determined to be an agent or employee of Choice Schools and no agent, officer or employee of Choice Schools shall be determined to be an agent or employee of the Academy except if expressly acknowledged, if at all, in writing by the other party. The Academy will be solely responsible for its acts and omissions and the acts and omissions of its agents, officers and employees and Choice Schools will be solely responsible for its acts and omissions and the acts and omissions of its agents, officers, employees, and subcontractors. Choice Schools is not a division of any part of the Academy. In the performance of services under this Agreement, Choice Schools (its officers, directors, employees and designated agents) shall be regarded at all times as performing services as an independent contractor of the Academy. Choice Schools shall be solely and exclusively responsible for recruiting, selecting, hiring, compensating, training, evaluating, disciplining, dismissing, terminating and otherwise controlling the employment conditions, employment rights, compensation and other similar matters relative to all individuals whom Choice Schools employs in connection with providing services under this Agreement. Except as otherwise provided for in this Agreement, and subject to the Contract, Choice Schools shall be self-directed in its activities and shall determine its own methods and manner for performing the Services required under the terms of this Agreement within the overall policies and budgets established by the Academy Board, as the same may be amended from time to time.

i. Choice Schools accepts full liability for benefits, salaries, worker's compensation, unemployment compensation and liability insurance for its employees leased to the Academy or working on Academy operations. If the Academy is staffed through an employee

leasing agreement, legal confirmation shall be provided to the Academy Board that the employment structure qualifies as employee leasing.

ii. No agent or employee of Choice Schools shall be determined to be an agent of the Academy, except as follows:

a Choice Schools, and its respective officers, directors, employees and designated agents are each hereby authorized to serve as agents of the Academy having a legitimate educational interest in the Program and its students for purposes of the Family Educational Rights and Privacy Act, 20 USC § 1232g *et seq.* (“FERPA”), such that they are jointly and severally entitled to access the educational records of the Program for all purposes related to FERPA.

b During the term of this Agreement, the Academy may disclose confidential data and information to Choice Schools, and its respective officers, directors, employees and designated agents and Choice Schools may access confidential data and information, to the extent permitted by applicable law, including without limitation, the Family Educational Rights and Privacy Act, 20 USC § 1232g, the Individuals with Disabilities Education Act (“IDEA”), 20 USC § 1401 *et seq.*, 34 CFR §§ 300.610-300.626; Section 504 of the Rehabilitation Act of 1973, 29 USC § 794a, 34 CFR § 104.36; the Michigan Mandatory Special Education Act, MCL 380.1701 *et seq.*; the Americans with Disabilities Act, 42 USC § 12101 *et seq.*; the Health Insurance Portability and Accountability Act (“HIPAA”), 42 USC §§ 1320d-13200d-8; 45 CFR §§ 160, 162 and 164; and social security numbers, as protected by the federal Privacy Act of 1974, 5 USC § 552a; and the Michigan Social Security Number Privacy Act, MCL 445.84. Choice Schools agrees that it shall comply with all applicable laws, rules and regulations in the handling, maintaining, safeguarding, re-disclosing, and returning of confidential data and information disclosed or accessed under this Agreement. Choice Schools will be solely responsible for the acts of its agents, employees, and those contractors and subcontractors who are contracted through Choice Schools.

c As otherwise expressly designated by written agreement of the parties with consent from anyone whose consent is required by law or contract.

E. Other Contracts. Nothing in this Agreement shall prohibit the Academy from entering into an agreement with Hillsdale College or its affiliates (“Hillsdale”) to provide curriculum, teacher training, and other educational support to the Academy.

ARTICLE II

TERM

A. Term. This Agreement shall become effective July 1, 2024 and shall cover seven academic years commencing on July 1, 2024 and ending on June 30, 2031, subject to continued state per capita funding. The Contract from CMU is effective through June 30, 2031, and the parties recognize that during the reauthorization process CMU may condition an extension or reauthorization of the Contract upon modifications to this Agreement or submission of a new agreement.

B. Revocation or Termination of Contract. If the Academy's Contract issued by the Central Michigan University Board of Trustees is revoked, terminated or a new charter contract is not issued to the Academy after expiration of the Academy's Contract, this Agreement shall automatically terminate on the same date as the Academy's contract is revoked, terminated or expires without further action of the parties. In the event that a reconstitution of the Academy's Contract includes measures that require cancelling of this Agreement, this Agreement shall automatically terminate on the same date as the effective date of the reconstitution of the Academy's Contract.

C. Reconstitution of Contract. In the event that the Academy is required (i) to close an Academy site pursuant to notice issued by the Michigan Department of Education under Section 507 of the Code, MCL 380.507; or (ii) to undergo reconstitution pursuant to Section 507 of the Code, MCL 380.507, and the Contract, and such a closure of an Academy site or reconstitution causes an amendment to or termination of this Agreement, the parties agree that this Agreement shall be amended or terminated to implement the Academy site closure or reconstitution, with no cost or penalty to the Academy, and Choice Schools shall have no recourse against the Academy or University Board for implementing such a site closure or reconstitution.

ARTICLE III

FUNCTIONS OF CHOICE SCHOOLS

A. Responsibility. Choice Schools shall be responsible for the management, operation, administration, and education at the Academy, consistent with Board Policy, the Contract and applicable law. Such functions include, but are not limited to:

a Implementation and administration of the Educational Program and curriculum contained in the Contract. Choice Schools agrees to consider the Hillsdale models, resources and guidance regarding curriculum and teaching practices;

b Curriculum improvement services;

c Marketing and communications plan development for board approval; the cost of implementation shall be the Academy's responsibility;

d Budget preparation and financial management services (the cost of software shall be the Academy's responsibility);

e Management of accounting and bookkeeper services (the cost of software shall be the Academy's responsibility);

f Risk management;

g Acquisition of instructional and non-instructional material, equipment and supplies, the cost of which shall be the Academy's responsibility;

h Selection, employment and supervision of all teachers and staff and the personnel management services (recordkeeping, wage and benefits administration, training and technical assistance) necessary to support those employees;

i Food service management;

j Transportation management;

k Facilities management, including assistance in securing funding sources for facility improvement;

l Preparation and timely submission of required CMU, Hillsdale, local, state and federal reports;

m Information and technology system management;

n Preparation of applications and reports for State and Federal grants;

o Management of school building operations;

p Student environment management;

q Administration of extra-curricular and co-curricular activities and programs approved by the Board;

r Preparation and implementation of administrative guidelines supporting board policy, including student codes of conduct;

s Assistance in preparation of strategic planning for the continuing educational and financial benefit of the Academy, if requested by the Board;

t Provision of special education programs and services to eligible students who attend the Academy in conformity with the requirements of state and federal laws and applicable regulations and policies.

ii. Any other functions necessarily or expedient for the administration of the Academy with approval from the Board.

iii. The parties understand and acknowledge that Hillsdale College may be providing certain services to the Academy that relate to those services performed by Choice Schools, including but not limited to curriculum improvement services, teacher training, and leader training.

B. Educational Goals and Program. Choice Schools shall implement the educational goals and programs set forth in the Contract, including but not limited to methods of pupil assessment, admission policy and criteria, school calendar and school day schedule, age and grade classifications or pupils to be enrolled, and methods to be used to monitor performance towards targeted educational outcomes (collectively the "Educational Program"). In the event that Choice

Schools determines that it is advisable to modify the Educational Program set forth in the Contract, Choice Schools will provide written notification to the Board specifying the changes it recommends and the reasons for the proposed changes. No changes in the Educational Program shall be implemented without the prior written approval of the Board and CMU. Choice Schools shall provide the Board with periodic written reports specifying the level of achievement of each of the Academy's educational goals set forth in the Contract and detailing its plan for meeting any educational goals that are not being attained. These reports will be submitted to the Board immediately prior to the Board's regular meeting in January and July each year, and at such other times as specified in Board policy as the same may be changed from time to time.

C. Subcontracts. It is anticipated that Choice Schools will utilize subcontracts to provide some of the services it is required to provide to the Academy, including but not limited to transportation and/or food service. Choice Schools shall not subcontract the management, oversight or operation of the teaching and instructional program, without the prior approval of the Board. Board approval of other subcontracts is not required unless the cost for these subcontracted services is projected to exceed the fund appropriated for that purpose in the Academy's approved budget. Choice Schools will receive no additional fee as a result of subcontracting of any services. Choice Schools remains responsible to the Academy for the services provided through subcontracting agreements. Choice Schools shall ensure that all subcontracts comply with applicable law including the Family Educational Rights and Privacy Act, 20 U.S.C. §1232g *et seq.*, ("FERPA") and the criminal background check provisions of the Code.

To the extent that Choice Schools may subcontract any or all aspects of the services permitted by the terms of this Agreement, Choice Schools represents that it shall include in the subcontracted services agreement provisions comparable to those contained in this Article 1, inclusive of subparts, to identify the employer of any person providing services under a contracted services agreement or, in the absence of an employer and in the case of an independent subcontractor, to expressly provide that the service provider is an individual independent contractor and is not intended to be, and shall not be regarded as an employee of the Academy.

D. Place of Performance. Instruction services other than field trips will normally be performed at the Academy facilities. Choice Schools may perform functions other than instruction, such as purchasing, professional development, and administrative functions at off-site locations, unless prohibited by the Contract or applicable law. The Academy shall provide Choice Schools with the necessary office space at the Academy site to perform all services for the Academy described in this Agreement.

E. Acquisitions. All acquisitions made by Choice Schools for the Academy, including, but not limited to, instructional materials, equipment, supplies, furniture, computers and other technology, shall be owned by and remain the property of the Academy. Choice Schools and its subcontractors will comply with all federal and state laws, rules, and regulations in addition to such policies as the Hoard may, from time to time adopt, under Section 1267 and Section 1274 of the Code as if the Academy were making these purchases directly from a third-party supplier or vendor. Choice Schools will not add any fees or charges to the cost of the equipment, materials and supplies purchased from third parties when it seeks reimbursement for the cost of these acquisitions.

F. Pupil Performance Standards and Evaluation. Choice Schools is responsible for and accountable to the Board for the performance of students who attend the Academy. Choice Schools shall implement pupil performance evaluations which permit evaluation of the educational progress of each Academy student, using measures of student and school performance required by the Contract or applicable laws and such additional measures as shall be mutually agreed upon by the Board and Choice Schools including but not limited to parent satisfaction surveys.

G. Student Recruitment. Choice Schools shall be responsible for the recruitment of students subject to the provisions of the Contract or applicable laws and the policies adopted by the Board. Students shall be selected in accordance with the procedures set forth in the Contract and in compliance with the Code and other applicable law. Choice Schools shall follow all applicable procedures regarding student recruitment, enrollment and lottery management, and shall be responsible for publication of appropriate public notices.

H. Student Due Process Hearings. Choice Schools shall provide students with procedural and substantive due process in conformity with the requirements of applicable law and Board policy regarding discipline, special education, confidentiality and access to records, to an extent consistent with the Academy's own obligations. The Board shall retain the right to provide due process as required by law and to determine whether any student will be expelled.

I. Legal Requirements. Choice Schools shall provide educational programs that meet the requirements under the Contract and applicable law, unless such requirements are or have been waived.

J. Rules and Procedures. The Board shall consider, adopt and conduct its operation in conformity with policies and procedures applicable to the Academy and Choice Schools is directed to enforce the policies and procedures adopted by the Board. Choice Schools shall assist the Board in its policy-making function by recommending the adoption of reasonable policies and procedures applicable to the Academy.

K. School Year and School Day. The school year and the school day shall be as provided in the Contract and as defined annually by the Board in compliance with applicable law.

L. Authority. Choice Schools shall have authority and power necessary to undertake its responsibilities described in this Agreement except in the case(s) wherein by law such power may not be delegated.

M. Compliance with Academy's Contracts. Choice Schools agrees to perform its duties and responsibilities under this Agreement in a manner that is consistent with the Academy's obligations under the Academy's Contract issued by the Central Michigan University Board of Trustees, including all schedules attached thereto and policies references therein, as they may be amended. The provisions of the Academy's Contract shall supersede any competing or conflicting provisions contained in this Agreement. Choice Schools agrees to assist the Academy in complying with all of the Academy's reporting, recordkeeping, and other obligations under the Academy's Contract. Choice Schools shall not act in a manner which will cause the Academy to be in breach of its Contract. Any action or inaction by Choice Schools that causes the Contract to be revoked, terminated or suspended, or which results in the Academy receiving official notification from the

Charter Schools Office, CMU, Superintendent of Public Instruction, or other authorizing body or official, of the commencement or an intent to initiate proceedings for the termination, revocation, or suspension of the Contract, shall be designated a material breach, which shall be grounds for termination of this Agreement by the Academy. Choice Schools also agrees to perform its duties and responsibilities under this Agreement in a manner that is consistent with the Academy's obligations under the Academy's Contract with Hillsdale.

N. Additional Programs. The services provided by Choice Schools to the Academy under this Agreement consist of the Educational Program as set forth in the Contract, as the same may change from time to time. The Academy may decide to provide additional programs, including but not limited to summer school. Any revenues collected from such programs will go directly to the Academy. The Academy may also purchase additional services from Choice Schools at mutually agreeable cost. Such additional services shall be documented in writing as an amendment to this Agreement, subject to review by CMU.

O. Annual Budget Preparation. The Board shall by Board resolution appoint the Board Treasurer, or such other officer as determined by the Board, to serve as the chief administrative officer of the School (the "CAO") under the Uniform Budgeting and Accounting Act, MCL 141.421 et seq. (the "Budgeting and Accounting Act") Notwithstanding any other provision of the Agreement to the contrary, the Board resolution may designate Choice School's chief financial officer, or such other Choice Schools employee as is mutually agreed upon by Choice Schools and the Academy, as the designated agent of the CAO to assist the CAO with the performance of the CAO's duties under the Budgeting and Accounting Act. Choice Schools will provide the Board with a proposed annual budget that shall conform to the Michigan Public School Accounting Manual and the Uniform Budgeting and Accounting Act, MCL 141.422b et seq. and in a form satisfactory to the Board and in compliance with the Contract. The budget shall contain reasonable detail as requested by the Board and as necessary to comply with the public accounting standards applicable to public schools and applicable law. The budget shall include anticipated revenues and projected expenses and costs reasonably associated with operating the Academy and the Educational Program including, but not limited to, the projected cost of all services and educational programs provided to the Academy, rent and lease payments, debt service, maintenance and repairs to Academy facilities, supplies and furnishings necessary to operate the Academy, taxes, insurance premiums, utilities, professional fees, and other costs and expenses connected to the operation of the Academy. The proposed budget shall be submitted to the Board for approval according to the Annual Budget Development Schedule approved at the Academy's organizational meeting and not later than thirty (30) calendar days prior to the date when the approved budget is required to be submitted to CMU.

P. Compliance with Section 503c. On an annual basis, Choice Schools agrees to provide the Board all of the same information that a school district is required to disclose under section 503c of the Code, MCL 380.503c or under section 18(2) of the State Aid Act of 1979, MCL 388.1618(2), for the most recent school fiscal year in which the information is available. Within thirty (30) days of receiving the information under section 18 (2), the Board and Choice Schools shall make this information publicly available on the Academy's website, in a form and manner prescribed by the Michigan Department of Education. The defined terms in section 503c of the Code, MCL 380.503c, shall have the same meaning in this Agreement.

Q. Compliance with the Contract. Choice Schools shall make information concerning the operation and management of the Academy, including without limitation the information described in the Contract, available to the Academy as deemed necessary by the Board in order to enable the Academy to fully satisfy its obligations under the Contract.

R. Suspension and Debarments List. Federal agencies are required to award contracts only to presently responsible sources and cannot award funds to entities that have been suspended or debarred from doing business with the federal government. The Academy is a recipient of federal funding and Choice Schools is required to refrain from any action that will result in being suspended or debarred. Choice Schools certifies and affirms that it is not included on the federal Suspension and Debarments list of Excluded Parties List; nor is Choice Schools affiliated with any party that is included on the federal Suspension and Debarments list of Excluded Parties List (“List”). Choice Schools shall reasonably ensure its certification and affirmation under this Agreement remains accurate.

S. Personally Identifiable Information. Choice Schools agrees to treat all personally identifiable information ("PII") received from the Academy or from students confidentially and securely, in compliance with all applicable laws and regulations related to protecting the privacy of PII, including without limitation the Family Education Rights and Privacy Act (FERPA), the Michigan Revised School Code, and Section 5 of Michigan's Student Online Personal Protection Act, MCL 388.1295. Except as permitted under the Code, Choice Schools shall not sell or otherwise provide to a for-profit business entity any PII that is part of an Academy student's education records. If Choice Schools receives information that is part of an Academy student's education records, Choice Schools shall not sell or otherwise provide the information to any other person except as permitted under the Code. For purposes of this section, the terms "educational records" and "personally identifiable information" shall have the same meaning as those terms in section 1136 of the Code, MCL 380.1136. In addition, Choice Schools will maintain a documented security program that incorporates appropriate, commercially reasonable, and industry-standard security measures to protect such PII. Choice Schools will notify the Academy of any security breach that impacts PII received from the academy or from students within a commercially reasonable time after discovery and will provide regular status updates until the breach is resolved. After final resolution of the breach, Choice Schools will provide the Academy with a final incident report.

T. Data Security Breach. Choice Schools shall promptly report to the Board, not later than the first business day following discovery, any use or disclosure of personally identifiable information from the Academy's education records or other information not suitable for public release (collectively, Covered Data or Information (“CDI”)) that is not authorized by this Agreement or Applicable Law. Choice Schools agrees to promptly undertake to identify: (i) the nature of the unauthorized use or disclosure, (ii) the CDI used or disclosed, (iii) who made the unauthorized use or received the unauthorized disclosure, (iv) what Choice Schools has done or shall do to mitigate any deleterious effect of the unauthorized use or disclosure, (v) whether, and if so on what grounds, Choice Schools has determined that the security breach has not or is not likely to cause substantial loss or injury to, or result in identity theft with respect to, one or more residents of this state, and (vi) what corrective action Choice Schools has taken or shall take to prevent future similar unauthorized use or disclosure. Choice Schools shall provide such other information as reasonably requested by the Academy Board. Choice Schools shall take appropriate

action, in accordance with MCL 445.72, to notify affected individuals whose CDI may have been compromised.

U. Bankruptcy Notice. Choice Schools shall notify the Academy Board if any principal or officer of Choice Schools, or Choice Schools (including any related organizations or organizations in which a principal or officer of Choice Schools served as a principal or officer) as a corporate entity, files for bankruptcy protection or, at the time this Agreement is executed, has filed for bankruptcy protection within the last five (5) years.

ARTICLE IV

OBLIGATIONS OF THE BOARD

A. Board Policy Authority. The Board is responsible for determining the fiscal and academic policies that will govern the operation of the Academy, including policies relative to the conduct of students while in attendance at the Academy or enroute to and from the Academy and regulations governing the procurement of supplies, materials and equipment. The Board shall exercise good faith in considering the recommendations of Choice Schools on issues including, but not limited to, policies, rules, regulations, procedures, curriculum and budgets subject to the constraints of law and the requirements of the Contract. Failure of Choice Schools and the Board to agree on educational policies is grounds for termination of the Agreement by either party and will be subject to Article VII (C) of this Agreement.

B. Building Facility. The Board is responsible for the acquisition by either purchase or lease of a building facility that complies with all of the requirements of the Contract.

C. Academy Employees. The Board may employ such employees as it deems necessary. The cost of employing Academy employees shall be paid by the Board.

D. Educational Consultants. The Board may retain an educational consultant or consultants to review the operations of the Academy and the performance of Choice Schools under this Agreement. The parties acknowledge that the Academy has contracted with Hillsdale to act as an ongoing educational consultant and to provide recommendations regarding the Academy's academic program, curriculum design and teacher professional development. Choice Schools shall cooperate with the educational consultant or consultants and will provide those individuals with prompt access to records, facilities and information as if such requests came from the full Board. Choice Schools shall have no authority to select, evaluate, assign, supervise or control any educational consultant employed by the Board, and agrees that it will not bring or threaten to bring any legal action against the Board or any educational consultant for the performance of the functions requested to be performed by the Board and which are consistent with this Agreement. The cost to employ an educational consultant shall be paid by the Board.

E. Legal Counsel. The Board shall select and retain legal counsel to advise it on any matter, including but not limited to its rights and responsibilities under the Contract, this Agreement and applicable law.

F. Audit Services. The Board shall select and retain an independent auditor to perform the annual financial audit in accordance with the Contract and applicable state law. Choice Schools

shall not select or retain the independent auditor for the Academy. Choice Schools shall make available all of its financial and other records related to the Academy available to the Academy, CMU, and the Academy's independent auditor. The Board shall select and retain an independent auditor to perform the annual financial audit in accordance with the Contract and applicable state law.

G. Budget. The Board is responsible for adopting a budget in accordance with the provisions of the Uniform Budgeting and Accounting Act, MCL 141.421 *et seq*, that has adequate resources to fulfill its obligations under the Contract, including but not limited to its oversight of Choice Schools, the organization of the Academy, negotiation of the Contract and any amendments, payment of personnel costs, insurance required under the Contract and this Agreement, the annual financial audit and retention of the Board's legal counsel and consultants. Choice Schools may not make expenditures or commitments which deviate from the amounts or purposes of appropriations contained in the approved budget without the prior approval of the Board in the form of an approved amendment to the budget in accordance with applicable law and the Contract. In addition, the Board is responsible for determining the budget reserve amount included as part of the Academy's annual budget, for implementing fiscal policies that will assist the Academy in attaining the stated budget reserve amount and for approving necessary amendments to the budget to reflect necessary deviations from the adopted budget. The budget may be amended from time to time as deemed necessary by the Board. The Board shall designate an Academy Board member as the Chief Administrative Officer of the Academy.

H. Academy Funds. The Board shall determine the depository of all funds received by the Academy. All funds received by the Academy shall be initially deposited in the Academy's depository account. Signatories on all Board accounts shall solely be current Board members properly designated annually by Board resolution. All interest or investment earnings on Academy accounts shall accrue to the Academy. The Board shall provide Academy funding on a consistent and timely basis to Choice Schools in order that Choice Schools may fulfill its obligations under this Agreement.

I. Governmental Immunity. The Board shall determine when to assert, waive or not waive its governmental immunity. Nothing in this Agreement is intended to, nor shall it be construed, as a relinquishment or waiver by the Board of any immunity from action or liability.

J. Contract with CMU. The Board will not act in a manner which will cause the Academy to be in breach of its Contract with CMU.

K. Evaluation of Choice Schools. The Board will evaluate the performance of Choice Schools each year to provide Choice Schools with an understanding of the Board's view of its performance under this Agreement. A preliminary copy of the evaluation will normally be sent to the Board for review in December of each year followed by a year-end evaluation in June. Choice Schools will determine the format to conduct this evaluation. Special additional evaluations using the format selected by the Board may occur at any time.

ARTICLE V

FINANCIAL ARRANGEMENT

A. Primary Source of Funding. As a Michigan public school academy, the primary source of funding for the Academy is state school aid payments based upon the number of eligible students enrolled in the Academy combined with such other payments as may be available from state and federal sources for specific programs and services.

B. Other Revenue Sources. In order to supplement and enhance the state school aid payments and improve the quality of education at the Academy, the Board and Choice Schools, with prior Board approval, shall endeavor to obtain revenue from other sources. In this regard:

i. The Academy and/or Choice Schools has the authority to solicit and receive donations consistent with the mission of the Academy.

ii. The Academy and/or Choice Schools may apply for and receive grant money, in the name of the Academy. Choice Schools shall provide advance notification to the Board of any grant applications it intends to make and receive the approval of the Board for the application prior to filing or submitting any grant.

To the extent permitted by law, Choice Schools may charge fees to students for extra services such as summer programs, after school programs and athletics and charge non-Academy students who participate in such programs approved by the Board. If Choice Schools manages the program, the revenues from such programs shall be included in the calculation of Choice School's fee under this Agreement.

All funds received by Choice Schools or the Academy from such other revenue sources shall inure to the benefit of and be deemed the property of the Academy, except as otherwise agreed upon by the parties in writing as an amendment to this Agreement.

iii. **Compensation for Services.** For the term of this Agreement, the Academy shall pay Choice Schools an annual fee. This annual fee shall be as follows: The annual fee to be paid for services shall be ten (10.00%) percent of all gross revenues received during that school year. For purposes of this Section, the term "gross revenues" means the sum of (a) the amount of all payments applicable to a school year that the Academy receives directly or indirectly under Article V, Paragraph A, plus (b) the amount of all grants received by the Academy under Article V, Paragraph B(ii) that were initiated and administered by Choice Schools and which are to be expended during that school year. Gross revenue does not include any local revenue, currently classified under function codes 128 to 199 of the State of Michigan Chart of Accounts, and as may be amended or revised.

Choice School's annual fee shall be paid in twelve (12) monthly installments beginning in July of each school year. The exact day of the month that each monthly installment is to be paid will coincide with the timing of any state school aid payment from the State of Michigan to be received in that month. In months where no state school aid payments are to be received, the day of the month when that monthly installment will be due will be mutually agreed upon by the parties

after taking into consideration available year-end funds and the timing of funds to be made available from state school aid anticipation notes or other sources.

All installments of the Annual Fee for the 2030-2031 school year shall be paid by June 30, 2031 if this Agreement is not extended beyond the scheduled termination date. The amount of the Annual Fee is subject to reduction in a mutually agreeable amount in any school year if extenuating circumstances make payment of the entire annual fee inappropriate.

C. Reasonable Compensation. The parties wish to satisfy the requirements of Rev. Proc. 2017-13 so that the provision of Choice Schools' services under this Agreement does not cause the Academy's facilities to be treated as used in a private business use under Section 141(b) of the Internal Revenue Code of 1986, as amended. Choice School's compensation under this Agreement is reasonable compensation for services rendered. Choice School's compensation for services under this Agreement will not be based, in whole or in part, on a share of net profits from the operation of the Academy.

D. Payment of Educational Program Costs. In addition to the Academy's obligation to pay or reimburse Choice Schools for the cost to employ Choice Schools employees under Article VI(B), (C) and (D), all costs reasonably incurred within Board approved budget parameters in providing the Educational Program at the Academy shall be paid by the Academy, including recruitment and advertisement for open positions related to teachers, leaders and support staff. Such costs shall include, but shall not be limited to, curriculum materials, professional development and training, textbooks, library books, computer and other equipment, software (i.e. Student Information System, Enrollment System, Human Resources and Payroll software), supplies utilized at the Academy for educational purposes, building payments, maintenance, utilities, capital improvements, and marketing and development costs. Marketing and development costs charged to the Academy shall be limited to those costs specific to the Academy program and shall not include any costs for the marketing and development of Choice Schools. The Board shall pay or reimburse Choice Schools monthly for approved fees and expenses upon properly presented documentation and approval by the Board, but reimbursements for the cost of compensation of Choice Schools employees under Article VI shall be made not later than thirty (30) business days before that compensation is due to the employees. At its option, the Board may advance funds to Choice Schools for the fees and expenses associated with the Academy's operation provided that documentation for the fees and expenses are provided for Board ratification at its next regularly scheduled meeting. In paying costs on behalf of the Academy, Choice Schools shall not charge an added fee. Any costs reimbursed to Choice Schools that are determined by the independent audit not to be reasonably incurred on behalf of the Educational Program of the Academy shall be promptly returned to the Academy by Choice Schools.

E. Choice Schools Costs. The annual fee to be paid to Choice Schools set forth in Article V, Section D is intended to compensate Choice Schools for all expenses it incurs for administrative and financial services it is required to provide under this Agreement, including but not limited to, expenses associated with individuals providing professional and curriculum development services, accounting services, financial reporting services, clerical services, management and budgeting services, and administrative services. Choice Schools will provide sufficient professional and non-professional staff in these areas, who shall be compensated by Choice Schools. In addition, the annual fee is intended to compensate Choice Schools for all costs

incurred by Choice Schools to provide these services. The annual fee does not include payments for Choice Schools personnel provided pursuant to Article VI (B), (C), and (D), the cost of which will be paid or reimbursed to Choice Schools in accordance with Article VI (A). Any services to be provided by Choice Schools that are included in the annual fee but are performed by a subcontractor shall not be charged to, reimbursed by, or passed through as an additional cost to the Academy. Additionally, no corporate costs of Choice Schools shall be charged to, or reimbursed by, the Academy.

F. Choice Schools Legal Services. The annual fee set forth in Article V, Section D is intended to compensate Choice Schools for routine legal fees it incurs to receive advice regarding the scope of its obligations under state and federal law to provide the administrative and financial services Choice Schools is required to provide under this Agreement. The annual fee does not cover non-routine legal services, including but not limited to the legal fees and costs associated with the appointment of special education hearing officers and the engagement of counsel to represent the Academy in legal or administrative proceedings, which are the responsibility of the Academy. The Board shall at all times retain the sole authority and discretion to engage independent legal counsel.

G. Other Public-School Academies. The Academy acknowledges that Choice Schools has entered or will enter into management agreements with other public school academies. Choice Schools shall separately account and provide written detail for reimbursable expenses incurred on behalf of the Academy and other public school academies, and only charge the Academy for expenses incurred on behalf of the Academy.

H. Financial Reporting. On not less than a monthly basis, Choice Schools shall provide the Board with monthly financial statements that shall include a balance sheet, a check register, an object level detailed statement of revenues, expenditures and changes in fund balance that includes a comparison of budget-to-actual information and an explanation of the variances of expenditures for review and approval by the Board. This report shall explain any variances from the approved budget and shall contain recommendations for necessary budget corrections. The foregoing presentation shall be in a form and format acceptable to the Board and shall be provided to Board members not less than five (5) business days prior to the Board meeting at which the information will be considered in the Board packets sent to Board members in preparation for Board meetings. Choice Schools shall provide special reports as necessary to keep the Board informed of changing conditions. All finance and other records of the ESP related to the Academy will be made available to the Academy, the Academy's independent auditor and the Authorizer upon request.

I. Operational Reporting. At least two (2) times per year, Choice Schools will provide the Board with comprehensive written reports detailing Academy operations, finances and student performance. In order to enable the Board to monitor Choice School's educational performance and the efficiency of its operation of the Academy, upon the request of the Board, Choice Schools will provide written reports to the Board on any topic of Academy activity or operations and which are consistent with this Agreement. These special reports will be provided in a timely fashion, at a date mutually agreed upon by the Board and Choice Schools.

J. Other Financial Relationships. Any lease, promissory notes or other negotiable instruments, lease-purchase agreements or other financing agreements between the Academy and Choice Schools shall be contained in a document separate from this Agreement and shall comply with applicable law and CMU's Educational Service Provider Policies.

K. Access to Records. Choice Schools shall keep accurate financial records pertaining to its operation of the Academy, together with all Academy financial, educational and student records prepared by or in the possession of Choice Schools, and retain all of these records for a period as required by Bulletin 1022 of Michigan's Record Retention Schedule, or applicable law, whichever period is the longest, from the close of the fiscal year to which such books, accounts and records relate. Choice Schools shall further make information concerning the operation and management of the Academy, including but not limited to, information required to be kept by the Contract with CMU, including all exhibits and schedules, available to the Academy as deemed necessary by the Board in order to enable the Academy to fully satisfy its obligations under the Contract and to CMU upon request. Financial, educational, operational and student records that are now or may in the future come into the possession of Choice Schools remain Academy records and are required to be returned by Choice Schools to the Academy upon demand, provided that Choice Schools may retain copies of records necessary to document the services provided to the Academy and its actions under the Agreement. Choice Schools and the Academy shall maintain the proper confidentiality of personnel, student and other records as required by law. All Academy records shall be physically or electronically available, upon request, at the Academy's physical facilities. The financial, educational, operational and student records pertaining to the Academy are Academy property and are public documents subject to disclosure in accordance with the provisions of the Michigan Freedom of Information Act. This Agreement shall not be construed to restrict CMU's or the public's access to these records under the Freedom of Information Act or the Contract, except to the extent permitted by law.

L. Access to Confidential Information. Choice Schools, and its respective officers, directors, employees and designated agents are each hereby authorized to serve as agents of the Academy having a legitimate educational interest in the Program and its students for purposes of the Family Educational Rights and Privacy Act, 20 U.S.C. §1232g *et seq.*, ("FERPA"), such that they are jointly and severally entitled to access the educational records of the Program for all purposes related to FERPA. The Academy agrees to define "school official" in the Academy's annual notification of rights under 20 U.S.C. § 1232g, 34 C.F.R. § 99, FERPA to include a contractor who performs an institutional service or function for which the Academy would otherwise use its own employees, who is under the direct control of the Academy with respect to the use and maintenance of personally identifiable information from education records, and who is subject to the requirements of 34 C.F.R. § 99.33(a) governing the use and redisclosure of personally identifiable information from education records. The Board designates Choice Schools and certain of its employees and subcontractors as school officials of the Academy having a legitimate educational interest such that they are entitled to access to educational records under FERPA. Choice Schools and its employees and subcontractors agree to comply with FERPA and corresponding regulations applicable to school officials. Except as set forth in this Paragraph or as expressly acknowledged in writing by the Board, no employee of Choice Schools shall be deemed to be an agent of the Academy. During the term of this Agreement, the Academy may disclose, and Choice Schools and its officers, directors, employees and designated agents may have access to, confidential information to the extent permitted by applicable law, including without limitation,

the Family Educational Rights and Privacy Act, 20 U.S.C. §1232g *et seq.*, ("FERPA"), the Individuals with Disabilities Education Act ("IDEA"), 20 USC §1401 *et seq.*, 34 CFR 300.610-300.626; Section 504 of the Rehabilitation Act of 1973, 29 USC §794a, 34 CFR 104.36; the Michigan Mandatory Special Education Act, MCL 380.1701 *et seq.*; the Americans with Disabilities Act, 42 USC §12101 *et seq.*; the Health Insurance Portability and Accountability Act ("HIPAA"), 42 USC 1320d- 13200d-8; 45 CFR 160, 162 and 164; and social security numbers, as protected by the federal Privacy Act of 1974, 5 USC §552a; and the Michigan Social Security Number Privacy Act, MCL 445.84. Choice Schools agrees that it shall comply with all applicable law regarding the safeguarding of the confidentiality of such information.

M. Representations Regarding Performance. Choice Schools and the Academy hereby represent the following with regard to this Agreement.

i. Choice Schools' compensation under this Agreement is reasonable and is not based, in whole or in part, on a share of the net profits and/or a share of the net losses from the operation of the Academy or upon the disposition, damage or destruction of the Academy's property.

ii. This Agreement does not pass along to Choice Schools the burden of bearing any share of the net losses from the operation of the Academy or upon the disposition, damage or destruction of the Academy's property.

iii. The term of this Agreement is not greater than 30 years or 80 percent of the useful life of the Academy's tax-exempt bond financed school facility (if shorter) including all renewal options.

iv. The Academy bears the risk of loss upon the disposition, damage or destruction of the Academy's property.

v. Choice Schools is not entitled to and will not take any federal tax position that is inconsistent with being a service provider under this Agreement to the Academy.

N. Governance.

i. None of the voting power of the governing body of the Academy is vested in the directors, officers, shareholders, partners, members and employees of the service provider, in the aggregate.

ii. The governing body of the Academy does not include the chief executive officer of the service provider or the chairperson (or equivalent executive) of the service provider's governing body.

iii. The chief executive officer of Choice Schools is not the chief executive officer of the Academy or any of the Academy's related parties (as defined in Treasury Regulation 1.150-1(b)).

O. Relationship Between the Academy and Choice Schools. In interpreting this Agreement and the provision of services required pursuant to this Agreement, Choice Schools shall

not have any role or relationship with the Academy that limits the Academy's ability to exercise its rights, including cancellation rights, under this Agreement. As required by the Academy's Articles of Incorporation and Bylaws, the Academy Board may not include any director, officer or employee of the management company that contracts with the Academy. In furtherance of such restriction, it is agreed between the Academy and Choice Schools that none of the voting power of the governing body of the Academy will be vested in Choice Schools or its directors, members, managers, officers, shareholders and employees and the Academy and Choice Schools will not be related parties as defined in Treasury Regulation 1.150-1(b)(6).

ARTICLE VI

PERSONNEL AND TRAINING

A. Personnel Responsibility. Choice Schools is responsible for providing the Academy with a School Administrator and other qualified administrative, teaching, food service, secretarial, maintenance and transportation staff to operate the Academy within the staffing levels approved by the Board in its annual budget. Choice Schools shall have the responsibility to recruit, select, hire, evaluate, compensate, assign, discipline, transfer and terminate the employment of all individuals that it employs to provide services at or for the Academy, consistent with state and federal law and the provisions of this Agreement. With the exception of the Board employees, if any, Choice Schools shall be the employer of all individuals working at or for the Academy and accepts full liability and is responsible for the payment of all costs incurred by Choice Schools attributable to these employees, including wages, salaries, fringe benefits, payroll taxes, social security contributions, unemployment costs, workers compensation costs, and liability insurance costs irrespective of whether Choice Schools receives an advancement of its costs or the payment of services from the Academy. Unless required by applicable statute, court or administrative decision, or Attorney General's opinion, Choice Schools shall not make payments to the Michigan Public School Employees' Retirement System or any other public retirement system on behalf of its employees. Choice Schools will provide the Board with a detailed listing of the actual wages, salaries, fringe benefits, social security contributions, unemployment costs and workers compensation costs for all employees of Choice Schools who will be assigned to provide services at the Academy. The Board will pay Choice Schools for the cost of the actual wages, salaries, fringe benefits, social security contributions, unemployment costs, and workers compensation costs of employees assigned to the Academy not later than fourteen (14) business days before that compensation is due to the employees or to other entities to be paid to provide these benefits, provided that these costs are not higher than anticipated and approved in the annual budget. Alternatively, the Board may advance funds to Choice Schools for the cost of the wages, salaries, fringe benefits, social security contributions, unemployment costs and workers compensation costs of employees assigned to the Academy provided that documentation for the fees and expenses are provided for Board ratification at its next regularly scheduled Board meeting and are consistent with budget allocations. At the request of the Board, Choice Schools will provide payroll services for employees of the Board. Choice Schools will not assign any employee to work at the Academy who has not successfully completed a pre-employment background check (including statutorily required criminal history, criminal background and unprofessional conduct checks) consistent with Michigan State Police guidelines and credential verification, and a pre-employment physical if appropriate.

B. Restrictive Covenants. Choice Schools will not place in the employment contracts with any of its employees assigned to work at the Academy any provisions that contain non-compete, no-hire or similar provisions prohibiting or restricting the Academy from hiring staff that performs work at the Academy or would prevent those individuals from working for the Academy or for any other entity providing educational services to the Academy. Choice Schools agrees that any provision of an employment agreement with any of its employees that would be in violation of this provision is void and shall not be enforceable in any forum.

C. Evaluation. Choice Schools shall comply with the requirements of applicable law, including but not limited to Section 1249 of the Code, MCL 380.1249, regarding the evaluation of its employees based in part upon data on student growth and the establishment of employee compensation levels that include job performance and job accomplishments as a significant factor. All evaluation tools will be posted publicly in compliance with applicable law. In the event that an employee hired by Choice Schools is retired under the Michigan Public School Employees Retirement Act, Choice Schools will comply with any applicable notice and reporting requirement.

D. School Administrator. Choice Schools shall provide the Academy with a School Administrator who shall be responsible for the daily operational control of the Academy and to make recommendations to Choice Schools regarding employees to be assigned to the Academy. Choice Schools will have the authority, consistent with applicable law, to select and supervise the School Administrator and to hold that individual accountable for the success of the Academy. Choice Schools shall have the sole responsibility and prerogative to hire the School Administrator; however, the Board may provide reasonable input to Choice Schools in the decision. The School Administrator will be an employee of Choice Schools. Choice Schools shall take into consideration the Board's input during evaluations of Choice Schools in the assignment and staffing of the School Administrator. Choice Schools will notify the Board prior to taking any action that would alter the employment status of the School Administrator. At the request of the Board, Choice Schools will review the performance of the School Administrator with the Board. Upon receipt of written notification indicating that the Board is not satisfied with the performance of the School Administrator, Choice Schools will provide a replacement School Administrator if the performance problems are not resolved. Absent compelling circumstances, the parties agree that Choice Schools shall have ninety (90) days to implement a corrective action plan with the School Administrator prior to removal. The Board will reimburse Choice Schools for any reasonable costs associated with the termination of the School Administrator during a school year, at the Board's request, provided that the amount of the costs to be reimbursed shall not exceed three (3) months of the School Administrator's salary and fringe benefits. The employment contract with the School Administrator, and the duties and compensation of the School Administrator shall be determined by Choice Schools, but that individual must be assigned on a full-time basis to the Academy and may not be providing services to any other school or Academy without the prior approval of the Board. If Choice Schools executes a contract with a School Administrator that has a term longer than one year, a majority of the Board may request Choice Schools to reassign the School Administrator at the end of the school year.

E. Teachers. As part of the annual budgeting process, Choice Schools shall make a recommendation to the Board regarding the number of teachers required for the operation of the Academy pursuant to the Contract. Choice Schools shall provide the Academy with such teachers, qualified in the grade levels and subjects as are required by the Academy. The curriculum taught

by such teachers shall be the curriculum perceived in the Contract. Such teachers may, at the discretion of Choice Schools, work at the Academy on a full or part time basis. If assigned to the Academy on a part time basis, such teachers may also work at other schools operated by Choice Schools. Each teacher assigned to or retained by the Academy shall hold a valid teaching certificate or temporary special permit issued by the State Board of Education under the Code, to the extent required under the Code and the Every Student Succeeds Act of 2015 ("ESSA") or other applicable law. If Choice Schools executes contracts with teaching staff that have a term of longer than one year, the Board reserves the right to have the teacher removed from the Academy by Choice Schools if the Board is dissatisfied with a teacher's performance at the end of the school year.

F. Support Staff. As part of the annual budgeting process, Choice Schools shall make a recommendation to the Board regarding the number of support staff required for the operation of the Academy pursuant to the Contract. Choice Schools shall provide the Academy with such support staff, qualified in the areas required, as are required by the Board. Such support staff may, in the discretion of Choice Schools, work at the Academy on a full or part time basis. If assigned to the Academy on a part time basis, such support staff may also work at other schools operated by Choice Schools. Each support staff employee assigned to or retained by the Academy shall have received the training and hold the certificates, degrees or licenses legally required for the position to which they are assigned under the Code and ESSA or other applicable law or have agreed to all requirements within an alternative pathway program, compliance plan, or professional development plan as determined by Choice Schools. Completion of these requirements is required in order to be considered for employment. If Choice Schools chooses to execute contracts with support staff that have a term of longer than one year, the Board reserves the right to have support staff placed elsewhere by Choice Schools if the Board is dissatisfied with their performance at the end of any school year.

G. Training. Choice Schools shall provide training to the School Administrator, teachers and paraprofessionals on a regular and continuing basis and shall insure that they receive all training required by law and the policies of the Board. Choice Schools agrees to make staff available to attend training events or seminars. The School Administrator, teachers, paraprofessionals and other support staff employees shall receive such other training as Choice Schools determines as reasonable and necessary (under the circumstances) within the board approved budget. The Academy shall reimburse Choice Schools for such training related expenses, including transportation, meals, tuition, books, and other training related expenses.

H. No Tenure Under Teachers' Tenure Act. None of the teachers, principal, administrators or staff (including the School Leader) employed, retained or contracted by Choice Schools shall be considered employees or teachers of the Academy for purposes of tenure or continuing tenure under the Teachers' Tenure Act, MCL 38.71 et seq. Nor shall any of Choice Schools' or its contracted teachers, School Leader, principal, administrators or staff be entitled to administer tenure under the Code.

I. Criminal Background Checks. Choice Schools agrees that it shall not assign any of its employees, agents or other individuals to perform any services under this Agreement except as permitted under Sections 1230, 1230a, 1230b and related provisions of the Code pertaining to criminal background and criminal conduct checks. Choice Schools shall perform or cause to be

performed all criminal and unprofessional conduct checks required by law to be performed with fidelity.

J. Unprofessional Conduct Checks. Choice Schools agrees that it will conduct unprofessional conduct checks, in accordance with MCL 380.1230b before hiring an employee assigned to work at or for the Academy.

ARTICLE VII

TERMINATION OF AGREEMENT

A. Termination by the Academy for Cause. This Agreement may be terminated by the Academy for cause prior to the end of the term specified in Article II in the event that Choice Schools should fail to remedy a material breach within a period reasonable under the circumstances, which in no event shall be longer than sixty (60) calendar days after notice from the Academy. A material breach is a failure by Choice Schools to carry out its responsibilities under this Agreement and may include, but is not limited to, (1) failure to account for its expenditures or to pay operating costs (providing funds are available to do so), (2) failure to follow policies or procedures duly adopted by the Board, (3) failure to follow the Educational Program, (4) failure to reasonably perform the functions set forth in Article III, (5) a violation of the Contract or of applicable law, or (6) any action or inaction by Choice Schools that is not cured within 60 days of notice thereof which causes the Contract to be revoked, terminated, suspended, or which causes the Contract to be put in jeopardy of revocation, suspension or termination by Central Michigan University. In order to terminate this Agreement for cause, the Board is required to provide Choice Schools with written notification of the facts it considers to constitute material breach and the period of time within which Choice Schools has to remedy this breach not to exceed sixty (60) calendar days. After the period to remedy the material breach has expired, the Board may terminate this Agreement by providing Choice Schools with written notification of termination. The Academy and Choice Schools will make every effort necessary to remedy a breach of the ESP Agreement in order to continue school operations until completion of the then current school fiscal year.

B. Termination by Choice Schools for Cause. This Agreement may be terminated by Choice Schools for cause prior to the end of the term specified in Article II in the event the Academy fails to remedy a material breach within a period reasonable under the circumstances, which in no event shall be longer than sixty (60) calendar days after notice from Choice Schools. A material breach is a failure by the Academy to carry out its responsibilities under this Agreement and may include, but is not limited to (1) a failure to make timely payments to Choice Schools as required by this Agreement, (2) a failure to give consideration to the recommendations of Choice Schools regarding the operation of the Academy), (3) a violation of the Contract or of applicable law or (4) any action or inaction by the Academy that places the Contract in jeopardy of suspension, revocation, reconstitution or termination. In order to terminate this Agreement for cause, Choice Schools is required to provide the Board with written notification of the facts it considers to constitute material breach and the period of time within which the Academy has to remedy this breach not to exceed sixty (60) days. After the period to remedy the material breach has expired, Choice Schools may terminate this Agreement by providing the Board with written notification of termination. The Academy and Choice Schools will make every effort necessary to remedy a

breach of the ESP Agreement in order to continue school operations until completion of the then current school fiscal year.

C. Termination by Either Party Without Cause. If Choice Schools and the Board are unable to agree on educational programs, curriculum, school operations or other educational policies that affect the Academy in a significant way, either party may elect to terminate this Agreement at the end of a school year, provided that the terminating party gives the other party written notification of termination at least sixty (60) calendar days prior to the termination date. The termination shall not become effective until the end of the then-current school year.

D. Action or Inaction By Choice Schools – Revocation, Termination, or Suspension of the Agreement. Any action or inaction by Choice Schools that causes the Contract to be revoked, terminated or suspended, or which results in the Academy receiving official notification from the Central Michigan University Charter School Office, University Board, Superintendent of Public Instruction, or other authorized body or official, of the commencement or an intent to initiate proceedings for the termination, revocation or suspension of the Contract, shall be designated a material breach of the Agreement, which shall be grounds for termination of this Agreement. This Agreement may be terminated if directed by the University Board as part of the process of reconstitution, as provided by the Revised School Code.

E. Change in Law. If any federal, state or local law or regulation, or court decision has a material adverse impact on the ability of either party to carry out its obligations under this Agreement, then either party, upon written notice, may request renegotiation of the Agreement; and if the parties are unable or willing to renegotiate the terms within ninety (90) calendar days after the notice, the party requiring the renegotiation may terminate this Agreement on thirty (30) calendar days further written notice.

F. Rights to Property Upon Termination. Upon termination of this Agreement all property (real or personal), equipment, materials and supplies whether purchased by the Academy or by Choice Schools with state school aid funds or other funds secured by the Academy, shall remain the exclusive property of the Academy. Choice Schools shall have the right upon proof of ownership to reclaim any usable property or equipment (e.g., including, but not limited to, desks, computers, copy machines, fax machines, telephones) that was purchased by Choice Schools with Choice Schools funds. Fixtures and building alterations shall become the property of the Academy.

G. Mid-Year Transition. The Academy and Choice Schools agree that mid-year terminations should be avoided if possible, and endeavor to take reasonable efforts necessary to remedy a breach of this agreement in order to continue school operations until completion of the then current school fiscal year. If a breach cannot be remedied, the Academy Board and Choice Schools agree to work cooperatively to transition management and operations of the academy without disrupting the Academy's operations. Choice Schools shall perform this transition in a similar manner as described under Article VII (J) based upon completion of the then-current school period.

H. End of Agreement Transition. Upon termination or expiration of this Agreement, if this agreement is terminated due to a Contract revocation, reconstitution, or termination or non-renewal, Choice Schools shall, without additional charge: (i) close the financial records on the then

current school fiscal year which includes, but is not limited to, the completion and submission of the annual financial audit, state and federal grant reporting and all other associated reporting requirements within the required timelines established by the appropriate local, state or federal authority; (ii) organize and prepare student records for transition to the new educational services provider, self-management or in the case of a school closure, transfer to a student's new school as designated by the student's parent/legal guardian or to a persons or entity authorized to hold such records; (iii) provide for the orderly transition of employee compensation and benefits to the new educational services provider or self-management without disruption to staffing, or in the case of school closure, final payment of all employee compensation, benefits and tax obligations related to services provided by Choice Schools to the Academy; (iv) organize and prepare the Academy's records, both electronic and hard-copy, for transition to the new educational service provider, self-management or dissolution; and (v) provide for the orderly transition to the new educational service provider, self-management, or dissolution of all Academy-owned assets including, but not limited to, furniture, fixtures, equipment and real estate. This includes any keys, log-in information and passwords related to any Academy asset.

ARTICLE VIII

PROPRIETARY INFORMATION

A. Choice Schools Proprietary Information and Academy Rights of Use. Choice Schools shall own all copyright and other proprietary rights to all instructional and educational materials, training materials, curriculum and lesson plans, and any other materials developed by Choice Schools, its employees, agents or subcontractors, or by any individual working for or supervised by Choice Schools, which (i) were not directly developed exclusively by staff working that the Academy; or (ii) were paid for by Choice Schools with Choice Schools funds. The Academy shall have an ongoing right to use, at no cost, all such materials in use as of the termination of this Agreement.

B. Academy Proprietary Information and Choice Schools Rights of Use. The Academy shall own all copyright and other proprietary rights to all instructional and educational materials, training materials, curriculum and lesson plans, and any other materials (i) developed exclusively by staff working at the Academy, or (ii) both directly developed and paid for by the Academy; or (iii) developed by Choice Schools at the direction of the Board with Academy funds. Choice Schools shall have an ongoing right to use, at no cost, all such materials developed during the term of this Agreement.

C. Required Disclosure. Both parties shall be permitted to report any new teaching techniques or methods of significant revisions to known teaching techniques or methods to CMU, the ISD in which the Academy is located and to the State Board of Education, which teaching techniques or methods may thereafter be made available to the public, as provided in Sections 505(3) of the Code, notwithstanding anything contained in this Article VIII to the contrary. Any educational materials and teaching techniques developed by Choice Schools and/or used by the Academy are subject to disclosure under the Code and the Freedom of Information Act.

D. Marks. The Academy and Choice Schools shall provide written notice to the other party regarding the existence of any trademarks, service marks, mascot, or other identifying

symbols (“Marks”) that they consider to be proprietary in nature. Execution of the Agreement satisfies this notice requirement as to each party's name, the Academy's logo. The parties acknowledge that all Hillsdale Marks as defined in the Hillsdale agreement with the Academy are proprietary and may be used only as conditioned by the terms of that agreement. The Academy and Choice Schools agree not to use Marks of the other party or of Hillsdale without prior written approval from the appropriate party.

ARTICLE IX

INDEMNIFICATION

A. Indemnification of Choice Schools. To the extent permitted by law, the Academy shall indemnify and hold Choice Schools (which term for purposes of this Paragraph A, includes Choice School's officers, directors, agents and employees) harmless against any and all claims, demands, suits, or other forms of liability (including reasonable attorney's fees and costs) that may arise out of, or by reason of, any noncompliance by the Academy Board (its officers, directors and employees) with any agreements, covenants, warranties, or undertakings of the Academy Board (its officers, directors and employees) contained in or made pursuant to this Agreement; and any misrepresentation or breach of the representations and warranties of the Board contained in or made pursuant to this Agreement. In addition, the Academy shall reimburse Choice Schools for any and all legal expenses and costs associated with the defense of any such claim, demand, or suit. The indemnification requirements of this paragraph may be met by the purchase of insurance in a form and amounts reasonably acceptable to Choice Schools.

B. Limitations of Liabilities. The Academy may assert or not assert all immunities and statutory limitations of liability in connection with any claims arising under this Agreement.

C. Indemnification of the Academy. To the extent permitted by law, Choice Schools shall indemnify and hold the Academy (which term for purposes of this Paragraph C, includes the Academy Board and its officers, directors, agents and employees) harmless against any and all claims, demands, suits, or other forms of liability (including reasonable attorney fees and costs) that may arise out of, or by reason of, any noncompliance by Choice Schools with any agreements, covenants, warranties, or undertakings of Choice Schools contained in or made pursuant to this Agreement; and any misrepresentation or breach of the representations and warranties of Choice Schools contained in or made pursuant to this Agreement. In addition, Choice Schools shall reimburse the Academy for any and all legal expenses and costs associated with the defense of any such claim, demand, or suit. The indemnification requirements of this paragraph may be met by the purchase of insurance in a form and amounts acceptable to the Academy.

D. Indemnification for Negligence. To the extent permitted by law, the Academy shall indemnify and hold harmless Choice Schools, and Choice School's Board of Directors, officers, employees, agents and representatives, from any and all claims and liabilities which Choice Schools may incur and which arise out of the negligence of the Academy Board or its directors, officers, employees, agents or representatives. To the extent permitted by law, Choice Schools shall indemnify and hold harmless the Academy, and the Academy's Board of Directors, officers, employees, agents or representatives, from any and all claims and liabilities which the

Academy may incur and which arise out of the negligence of Choice School's directors, officers, employees, agents or representatives.

E. Indemnification of Central Michigan University. The parties acknowledge and agree that Central Michigan University, its Board of Trustees, and its members, officers, employees, agents or representatives (collectively "University") are deemed to be third party beneficiaries for purposes of this Agreement. As third party beneficiaries, Choice Schools hereby promises to indemnify, defend and hold harmless the University from and against all demands, claims, actions, suits, causes of action, losses, judgments, liabilities, damages, fines, penalties, demands, forfeitures, or any other liabilities or losses of any kind whatsoever, including costs and expenses (not limited to reasonable attorney fees, expert and other professional fees), of settlement and prosecution imposed upon or incurred by the University, and not caused by the sole negligence of the University, which arise out of or are in any manner connected with the University Board's approval of the Academy's Application, the University Board's consideration of or issuance of a Contract, Choice School's preparation for or operation of the Academy, or which are incurred as a result of the reliance by the University upon information supplied by Choice Schools, or which arise out of Choice School's failure to comply with the Contract or applicable law. The parties expressly acknowledge and agree that the University may commence legal action against Choice Schools to enforce its rights as set forth in this section of the Agreement.

ARTICLE X

INSURANCE

A. Insurance of the Academy. The Academy shall purchase its own insurance policy and shall secure and maintain such policies of insurance as required by the Michigan Universities Self Insurance Corporation ("M.U.S.I.C."). This coverage shall include the building and related capital facilities if they are the property of the Academy. The Academy shall maintain such insurance in an amount and on such terms as required by the provisions of the Contract, including the indemnification of Choice Schools required by this Agreement. The Academy shall, upon request, present evidence to Choice Schools that it maintains the requisite insurance in compliance with the provisions of this paragraph. Choice Schools shall comply with any information or reporting requirements applicable to the Academy under the Academy's policy with its insurer(s), to the extent practicable.

B. Insurance of Choice Schools. Choice Schools shall secure and maintain such policies of insurance as required by the Contract and M.U.S.I.C.. In the event the University or M.U.S.I.C. requests any change in coverage by Choice Schools, Choice Schools agrees to comply with the change in the type or amount, as requested, within thirty (30) days after notice of the insurance coverage change. Choice School's insurance is separate from and in addition to the insurance the Academy Board is required to obtain under the Contract. Choice Schools shall, upon request, present evidence to the Academy and CMU that it maintains the requisite insurance in compliance with the provisions of this paragraph. The Academy shall comply with any information or reporting requirements applicable to Choice Schools under Choice School's policy with its insurer(s), to the extent practicable.

C. Workers' Compensation Insurance. Each party shall maintain workers' compensation insurance when and as required by law, covering their respective employees.

ARTICLE XI

MISCELLANEOUS

A. Sole Agreement. This Agreement supersedes and replaces any and all prior agreements and understanding between the Academy and Choice Schools on the subject matter hereof.

B. Force Majeure. Neither party shall be liable if the performance of any part or all of this Agreement is prevented, delayed, hindered or otherwise made impracticable or impossible by reason of any strike, flood, riot, fire, explosion, war, act of God, sabotage, accident, pandemic, infectious disease or any other casualty, or cause beyond either party's control, and which cannot be overcome by reasonable diligence and without unusual expense.

C. Notices. All notices, demands, requests and consents under this Agreement shall be in writing, shall be delivered to each party both by email, regular mail, or overnight courier service, and shall be effective when received by the parties or three (3) days after being mailed to the parties at their respective addresses set forth below, or at such other address, as may be furnished by a party to the other party. Each party agrees to additionally provide all noticed by email at the email address listed below or the then-current email address for the Academy Board President as retained by Choice Schools in its records. All notices, requests, consents, demands and other communication shall be addressed as follows:

If to Choice Schools:	Choice Schools Associates Attn: Sarah Wildey 5251 Clyde Park Avenue SW Wyoming, MI 49509 Email: sarahwildey@choiceschools.com
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If to the Academy:	Ivywood Classical Academy Attn: Board President 14356 Genoa Court Plymouth, MI 48170 Email: the email address on record at Choice Schools for the then-current Board President
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A courtesy copy of the notice should also be provided by email to the legal counsel of the party to be served, if known.

D. Severability. The invalidity of any of the covenants, phrases or clauses in this Agreement shall not affect the remaining portions of this Agreement, and this Agreement shall be construed as if such invalid covenant, phrase or clause had not been contained in this Agreement.

E. Successors and Assigns. This Agreement shall be binding upon, and inure to the benefit of, the parties and their respective successors and assigns.

F. Entire Agreement. This Agreement is the entire agreement between the parties relating to the services provided, and the compensation for such services, by the parties. Any modification to this Agreement must be made in writing, approved by the Board and Choice Schools, and signed by a duly authorized officer. In addition, any modification of this Agreement must follow CMU's ESP policies before it can be executed.

G. Non-Waiver. No failure of a party in exercising any right, power or privilege under this Agreement shall affect such right, power or privilege, nor shall any single or partial exercise thereof preclude any further exercise thereof or the exercise of any other right, power or privilege. The rights and remedies of the parties under this Agreement are cumulative and not exclusive of any rights or remedies which any of them may otherwise have.

H. Assignment. Choice Schools may not assign this Agreement without the prior written approval of the Board and without prior notification to CMU. Any such assignment shall be done in a manner consistent with CMU's ESP policies.

I. Nondiscrimination. Choice Schools agrees not to discriminate against an employee or applicant for employment with respect to hire, tenure, terms, conditions, or privileges of employment, or a matter directly or indirectly related to employment, because of race, color, religion, national origin, age, sex, sexual orientation, gender identity or expression, height, weight, or marital status. Choice Schools also agrees to include this provision in the terms of any subcontract agreement it enters into. Breach of this covenant may be regarded as a material breach of this Agreement.

J. Governing Law. This Agreement shall be governed by and enforced in accordance with the laws of the state of Michigan.

K. Delegation of Authority. Nothing in this Agreement shall be construed as delegating to Choice Schools any of the powers or authority of the Board that are not subject to delegation by the Board under Michigan Law or the Contract.

L. Compliance with Law. The parties agree to comply with all applicable laws and regulations.

M. Warranties and Representations. The Academy and Choice Schools each represent (1) that it has the authority under law to execute, deliver and perform this Agreement and to incur the obligations provided for under this Agreement, (2) that its actions have been duly and validly authorized, and (3) that it will adopt any and all resolutions or expenditure approvals required for execution of this Agreement.

N. Dispute Resolution Procedure. Any and all disputes between the parties concerning any alleged breach of this Agreement or arising out of or relating to the interpretation of this Agreement or the parties' performance of their respective obligations under this Agreement that are unable to be resolved through discussion and negotiation shall be resolved by arbitration, and such an arbitration procedure shall be the sole and exclusive remedy for such matters. The

arbitrator shall be selected from a panel provided by and in accordance with the rules of the American Arbitration Association. The arbitration shall be conducted in accordance with the rules of the American Arbitration Association, with such variations as the parties and the arbitrator unanimously accept. Any arbitration hearing shall be conducted in Plymouth, Michigan. The arbitrator shall be required to issue a cause opinion with a written explanation as to the final decision. CMU shall be notified of the arbitrator's decision and a copy of the arbitrator's opinion shall be made available to CMU upon request. A judgment on the award rendered by the arbitrators may be entered in any court having appropriate jurisdiction. The cost of arbitration, not including attorney fees, shall be paid by the losing party. It shall be in the discretion of the arbitration panel to award reasonable attorney fees to the prevailing party, to be paid if awarded by the losing party.

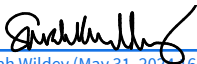
O. Modification to Conform to Changed CMU Policies. The parties intend that this Agreement shall comply with CMU's Educational Service Provider Policies, as the same may be changed from time to time. In the event that changes in CMU's Educational Service Provider Policies implemented after the date of execution of this Agreement cause any provision of this Agreement to be in conflict the revised Policies, the parties agree to amend this Agreement to eliminate the conflict within thirty (30) calendar days after being advised by CMU of the changes to its policies.

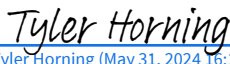
P. CMU Review. This Agreement is subject to review and non-disapproval by CMU and shall not become effective until the Academy Board is notified in writing that CMU does not disapprove of this Agreement.

The parties have executed this Agreement as of the day and year first above written.

CHOICE SCHOOLS ASSOCIATES, L.L.C.

IVYWOOD CLASSICAL ACADEMY

BY 
Sarah Wildey (May 31, 2024 16:22 EDT)
Sarah Wildey, Chief Executive Officer

BY 
Tyler Horning (May 31, 2024 16:13 EDT)
President, Board of Directors

Date: 5/31/24

Date: 5/31/24

CONTRACT SCHEDULE 6

PHYSICAL PLANT DESCRIPTION

PHYSICAL PLANT DESCRIPTION

Pursuant to Applicable Law and the Terms and Conditions of this Contract, including Article XI, Section 11.5, the Academy is authorized to operate at the physical facility or facilities outlined in this schedule. The Academy shall not occupy or use any facility until approved for occupancy by the Michigan Department of Licensing and Regulatory Affairs' Bureau of Construction Codes.

Physical Plant Description	6-1
a. Genoa Ct. Site	
Site Plan	6-3
Floor Plans	6-4
Third Amendment to Lease	6-8
Second Amendment to Lease.....	6-10
First Amendment to Lease	6-12
Lease	6-14
Certificates of Use and Occupancy.....	6-208
b. Ann Arbor Rd. Site	
Site Plan	6-211
Floor Plan.....	6-212
Lease	6-213
Certificate of Use and Occupancy	6-228

1. Applicable Law requires that a public school academy application and contract must contain a description of and the address for the proposed physical plant in which the public school academy will be located. See MCL 380.502(3)(i) and 380.503(6)(f);

2. The address and a description of the site and physical plant (the "Site") of Ivywood Classical Academy (the "Academy") is as follows:

a. Genoa Ct. Site

Address: 14356 Genoa Ct.
Plymouth, MI 48170

Description: The Academy's facility at this Site is physically located on 4.33 acres in Plymouth Township on Genoa Ct., in the Metro West Technology Park, northwest of the intersection of Beck Road and M-14 expressway. The Site includes a two story brick and steel permanent building. The Site also includes an area for parking, outdoor space suitable for a playground, and common areas.

The Academy will lease approximately 45,876 square feet of space located on the first and second floors. The first floor includes 12 classrooms, six restrooms, two special services rooms, cafeteria, two-story gross motor skills room with 1,500 square feet of space, teacher work rooms, and storage and office areas. The second floor includes 16 classrooms, two restrooms, and storage areas.

Configuration of Grade Levels: First through Tenth Grade.

Term of Use: Term of Contract.

Name of School District and Intermediate School District:

Local: Plymouth-Canton Community Schools
ISD: Wayne RESA

b. Ann Arbor Rd. Site

Address: 46250 Ann Arbor Rd.
Plymouth, MI 48170

Description: The Academy's facility at this Site is located on the corner of Ann Arbor Rd. and McClumpha Rd. The Academy leases approximately 13,744 square feet from Risen Christ Lutheran Church. The space includes six classrooms, two restrooms, a gymnasium, and a large multipurpose room. The Site includes a parking area for approximately 150 vehicles.

Configuration of Grade Levels: Kindergarten.

Term of Use: Term of Contract.

Name of School District and Intermediate School District:

Local: Plymouth-Canton Community Schools
ISD: Wayne RESA

3. It is acknowledged and agreed that the information identified below, about this Site, is provided on the following pages, or must be provided to the satisfaction of the University Board or its designee, before the Academy may operate as a public school in this state.

- A. Narrative description of physical facility
- B. Size of building
- C. Scaled floor plan
- D. Copy of executed lease or purchase agreement

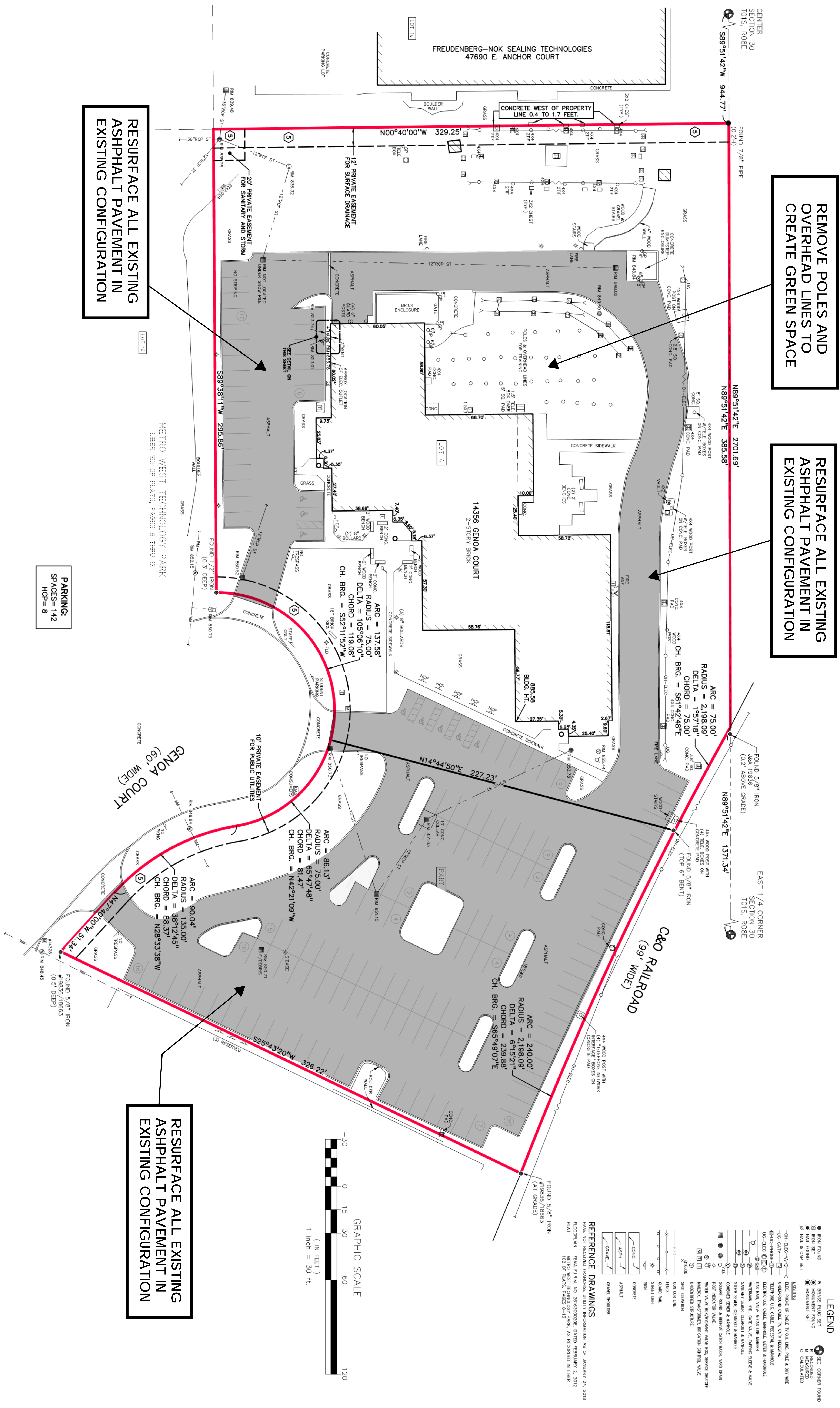
4. In addition, the Academy and the University Board hereby acknowledge and agree that this Contract is being issued to the Academy with the understanding that the Academy cannot conduct classes as a public school academy in this state until it has obtained the necessary fire, health and safety approvals for the above-described physical facility. These approvals must be provided and be acceptable to the University Board or its designee prior to the Academy operating as a public school. In cases of disagreement, the Academy may not begin operations without the consent of the University Board or its designee.

5. If the Site described above is not used as the physical facilities for the Academy, then Schedule 6 of this Contract between the Academy and the University Board must be amended pursuant to Article IX of the Terms and Conditions of Contract, to designate, describe, and agree upon the Academy's physical facilities. The Academy must submit to the University Board or its designee complete information about the new site to be actually used. This information includes that described in paragraphs 2, 3 and 4 of this Schedule 6. It is acknowledged and agreed that the public school academy cannot conduct classes as a public school in this state until it has submitted all the information described above, to the satisfaction of the University Board or its designee, and the amendment regarding the new site has been executed.

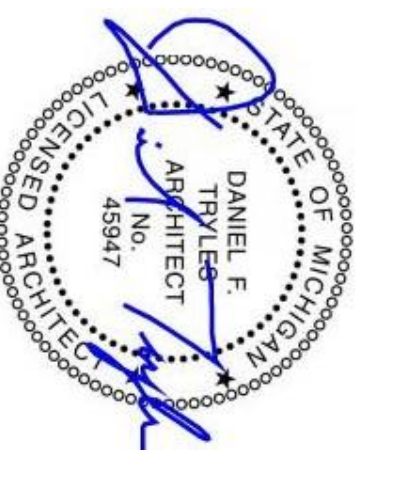
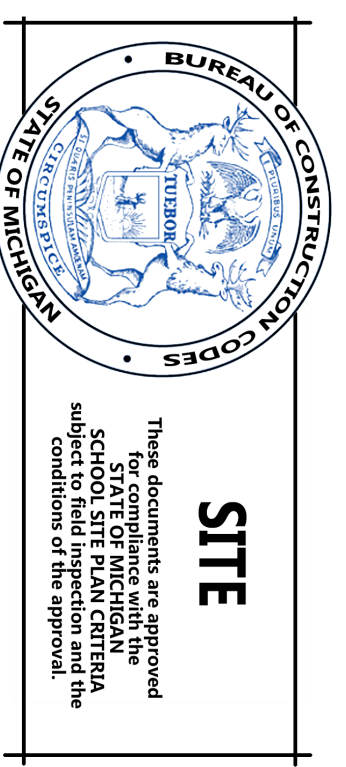
6. Any change in the configuration of grade levels at the Site requires an amendment to this Schedule 6 pursuant to Article IX of the Terms and Conditions of Contract set forth above.

Ivywood Classical Academy

Genoa Ct. Site



1 PROPOSED SITE PLAN



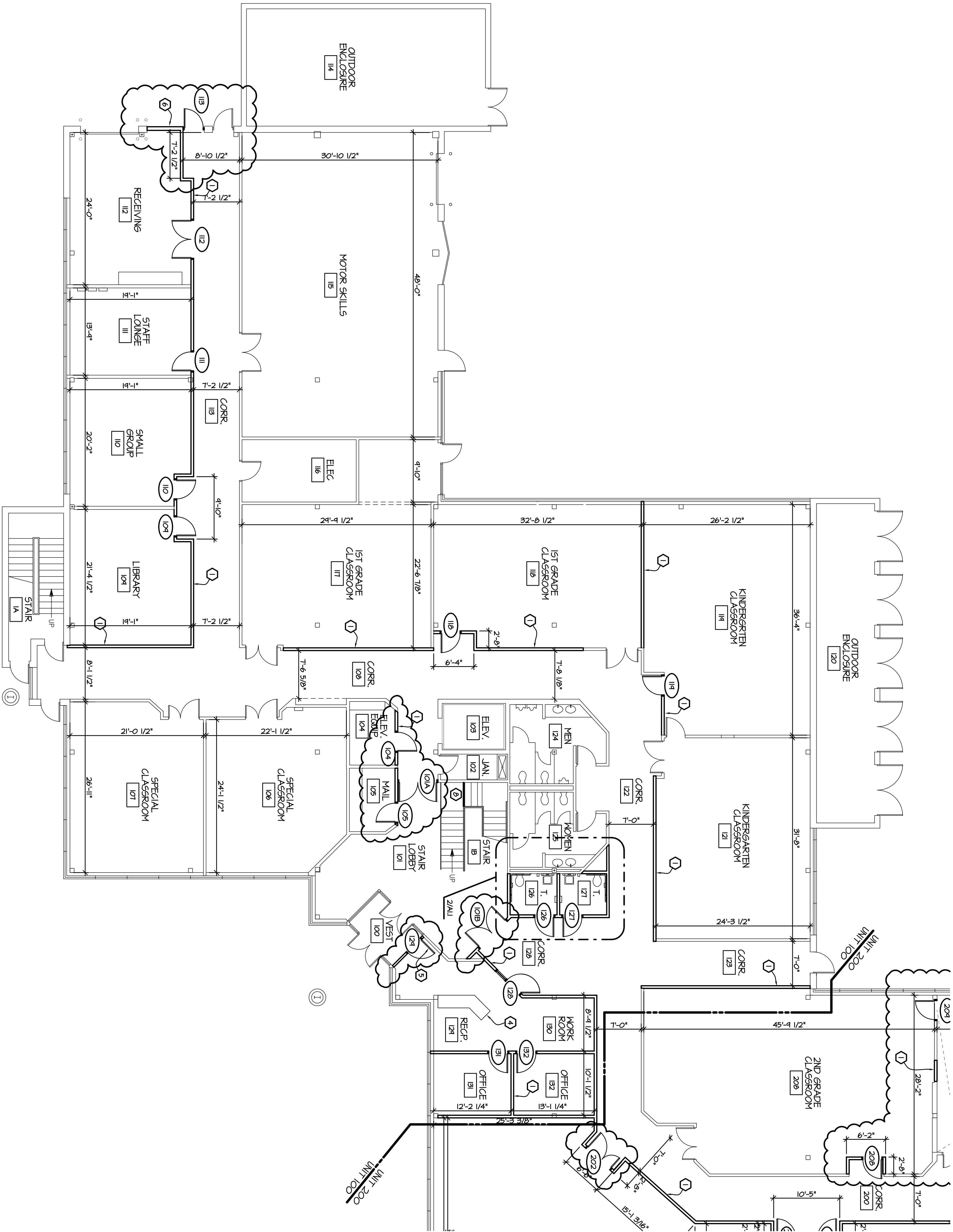
Ivywood Classical Academy
 Choice Schools Associates
 Plymouth Township, Michigan

REVISIONS/REVIEW	DATE
BUILDING PERMIT SET	4/18/19
B5 / BCC PLAN REVIEW CHANGES	6/17/19

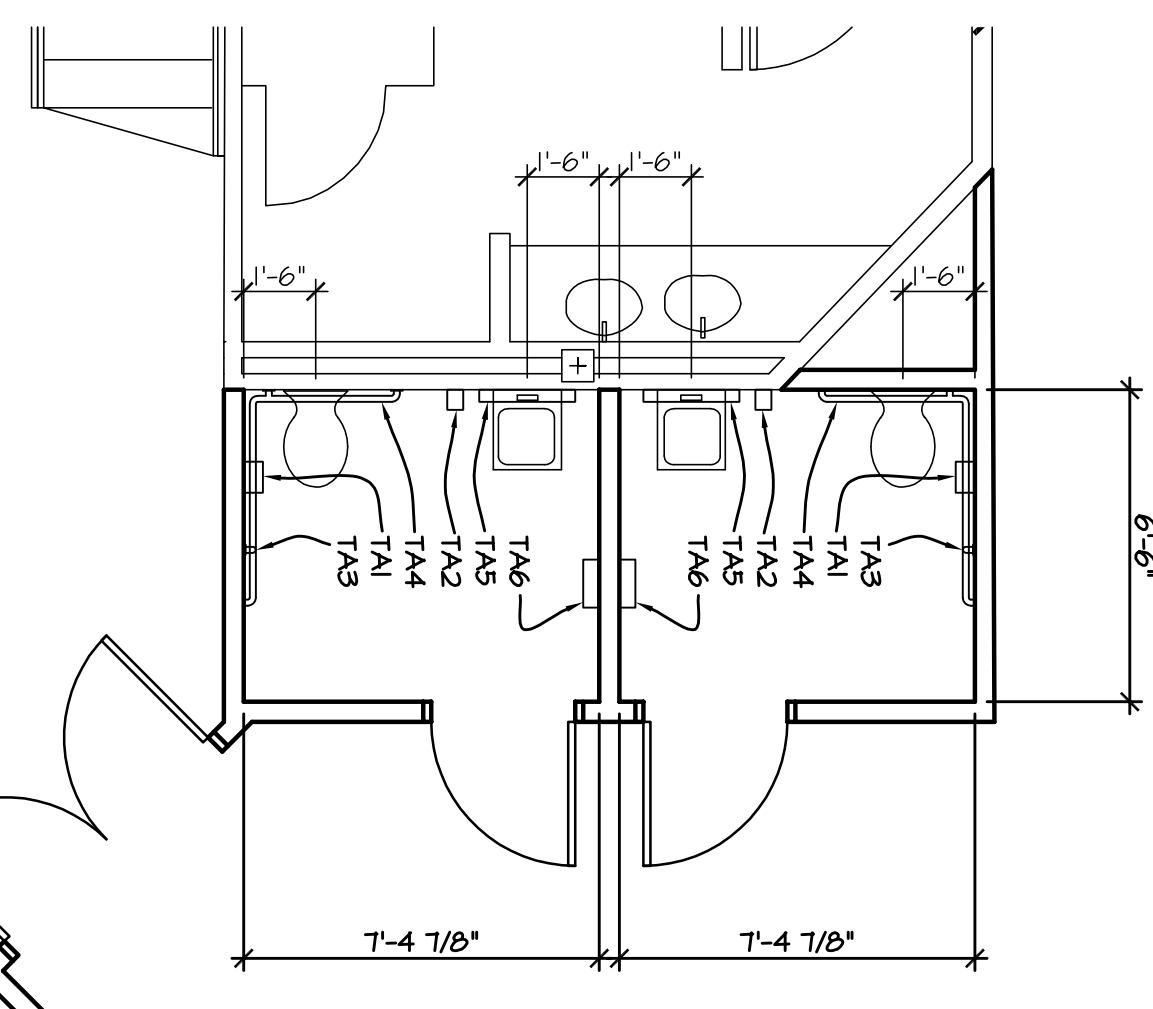
JOB NO. 301348
 SHEET TITLE
 SHEET NO. 301348
 NORTH

SHEET NO.
C1.1

© KINGSCOTT ASSOCIATES, INC. KALAMAZOO, MICHIGAN



1 FIRST FLOOR PLAN - UNIT 100
 SCALE: 1/8" = 1'-0"



2 ENLARGED TOILET ROOM FLOOR PLAN
 SCALE: 1/4" = 1'-0"

- GENERAL NOTES**
1. NEAR CORRIDOR WALLS: EXTEND FROM FINISH FLOOR TO CEILING. PROVIDE 1/2" GYPSUM BOARD OVER 5/8" INSULATION. PROVIDE 1/2" GYPSUM BOARD OVER 5/8" INSULATION FROM FINISH FLOOR TO CEILING. PROVIDE 1/2" GYPSUM BOARD OVER 5/8" INSULATION FROM FINISH FLOOR TO CEILING. PROVIDE 1/2" GYPSUM BOARD OVER 5/8" INSULATION FROM FINISH FLOOR TO CEILING.
 2. EXISTING CORRIDOR WALLS: TERMINATE ABOVE CEILING. PROVIDE 1/2" GYPSUM BOARD OVER 5/8" INSULATION FROM FINISH FLOOR TO CEILING. PROVIDE 1/2" GYPSUM BOARD OVER 5/8" INSULATION FROM FINISH FLOOR TO CEILING.
 3. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION AND NOTIFY ARCHITECT OF ANY DISCREPANCIES.
 4. PROVIDE MATERIALS TO MATCH ADJACENT EXISTING MATERIALS AT ALL LOCATIONS OF ARCHITECTURAL, MECHANICAL, AND ELECTRICAL WORKS. REFER TO SHEET 02 FOR LOCATION OF SMOKE WALLS. REFER TO SHEET 02 FOR LOCATION OF SMOKE WALLS.
 5. ALL CONTRACTORS ARE RESPONSIBLE FOR COORDINATION BETWEEN DIFFERENT TRADES.

- ARCHITECTURAL NOTES**
1. PARTITION WALL: 5/8" GYPSUM BOARD BOTH SIDES OF 3.5"-0" METAL STUDS AT 16" O.C. WITH SOUND BATT INSULATION FROM FINISH FLOOR TO CEILING. PROVIDE 1/2" GYPSUM BOARD OVER 5/8" INSULATION FROM FINISH FLOOR TO CEILING. PROVIDE 1/2" GYPSUM BOARD OVER 5/8" INSULATION FROM FINISH FLOOR TO CEILING.
 2. ALUMINUM WINDOW WITH INSULATED GLASS UNITS TO MATCH EXISTING ALUMINUM STOREFRONT FINISHING ON BUILDING.
 3. PLASTIC LAMINATE BASE CABINETS AND PLASTIC LAMINATE CONTIGATOR AT 34" ABOVE FINISH FLOOR. THREE (3) 36" WIDE X 24" DEEP DOOR/DRAWER PANEL. SINK BASE CABINET.
 4. REINFORCED SALVAGED PLASTIC LAMINATE RECEPTION COUNTER.
 5. METAL NEW FIRE RATED DOOR AND WALL.
 6. HASCONRY INFLU. 4" NOMINAL FACE BRICK ON 8" NOMINAL CMU BACKUP WALL FROM FINISH FLOOR TO 10'-0" AFF. EXISTING CONCRETE AT 34" ABOVE FINISH FLOOR. THREE (3) 36" WIDE X 24" DEEP DOOR/DRAWER PANEL. SINK BASE CABINET.
 7. PROVIDE AND INSTALL NEW GATE TO PREVENT ACCESS TO SECOND FLOOR. GATE TO BE 1 1/2" DIAMETER METAL PIPE WITH 1" ABOVE FF.

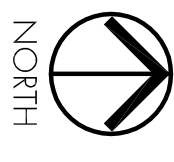
NO.	DESCRIPTION	DATE
1	ISSUED FOR PERMIT	4/18/19
2	REVISIONS	6/17/19
3	REVISIONS	7/1/2019

Ivywood Classical Academy

Choice Schools Associates
 Plymouth Township, Michigan

REVISIONS/REVIEW	DATE
BUILDING PERMIT SET	4/18/19
B55 / BCC PLAN REVIEW CHANGES	6/17/19
BULLETIN NO. 1	7/1/2019

JOB NO. 3013403



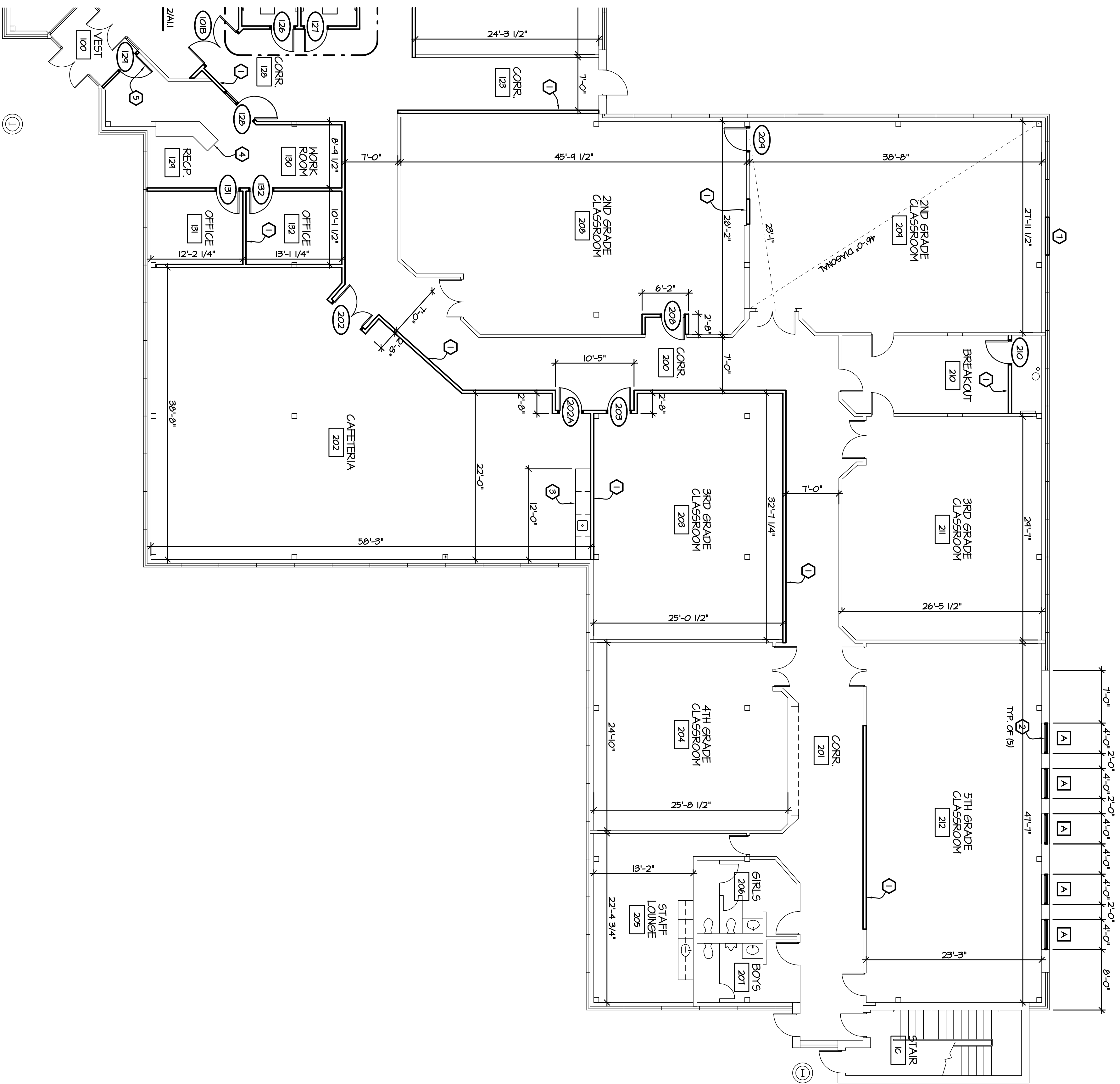
SHEET TITLE
FIRST FLOOR FLOOR PLAN - UNIT 100

SHEET NO. 00008

A1.1

- GENERAL NOTES**
1. NEIL CORRIDOR WALLS EXTEND FROM FINISH FLOOR TO FINISH CEILING. PROVIDE 2" MIN. GAP AT TOP OF WALL TO ALLOW FOR SHOE REFER TO SHEET A02 FOR LOCATION OF SHOE WALLS.
 2. EXISTING CORRIDOR WALLS TERMINATE ABOVE CEILING. PROVIDE BOARD CORRIDOR SIDING FROM EXISTING TOP OF WALL TO FINISH CEILING. PROVIDE 2" MIN. GAP AT TOP OF SHOE REFER TO SHEET A02 FOR LOCATION OF SHOE WALLS.
 3. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION AND NOTIFY ARCHITECT OF ANY DISCREPANCIES.
 4. PROVIDE MATERIALS TO MATCH ADJACENT EXISTING MATERIALS AT ALL LOCATIONS OF ARCHITECTURAL, MECHANICAL, AND ELECTRICAL WORK WHERE NOT SPECIFIED OTHERWISE. SPOT PAINT TO MATCH EXISTING IF REQUIRED.
 5. ALL CONTRACTORS ARE RESPONSIBLE FOR COORDINATION BETWEEN DIFFERENT TRADES.

- ARCHITECTURAL NOTES**
1. PARTITION WALL: 5/8" Gypsum Board Both Sides of 3-1/2" METAL STUDS AT 8" O.C. WITH SOUND BATT INSULATION FROM FINISH FLOOR TO UNDERSIDE OF EXISTING ROOF DECK. PARTITION MUST BE SHOE TIGHT AT ALL CORRIDOR WALLS.
 2. ALUMINUM WINDOW WITH NEUTRAL GLASS. COLOR TO MATCH EXISTING WINDOW SIZES AND FINISHES ON SITE.
 3. PLASTIC LAMINATE EDGES OF CABINETS AND PLASTIC LAMINATE FINISH ON INSIDE OF CABINETS. PROVIDE 1/2" MIN. GAP AT 24" DEEP DOOR/DRAWER/PANEL SINK BASE CABINET X 24" DEEP DOOR/DRAWER/PANEL SINK BASE CABINET.
 4. REINSTALL SANITIZED PLASTIC LAMINATE RECEPTION COUNTER.
 5. REINSTALL NEW FIBER GLASS DOOR AND WALL.
 6. HASCONY® INFILL, 4" NOMINAL FACE BRICK ON 8" NOMINAL CMU BACKUP WALL FROM FINISH FLOOR TO 10'-0" A.F.F.
 7. PROVIDE AND INSTALL NEW 1" NEUTRAL GLASS IN EXISTING WINDOW. PROVIDE ANTI-SCRAM TRANSLUCENT EXTERIOR FAN REMOVAL.
 8. PROVIDE AND INSTALL NEW GATE TO PREVENT ACCESS TO SECOND FLOOR. GATE TO BE 1/2" DIAMETER METAL PIPE WITH 1" ABOVE 1".



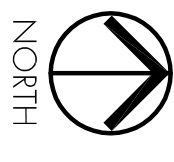
1 FIRST FLOOR PLAN - UNIT 200
 SCALE: 1/8" = 1'-0"

Ivywood Classical Academy

Choice Schools Associates
 Plymouth Township, Michigan

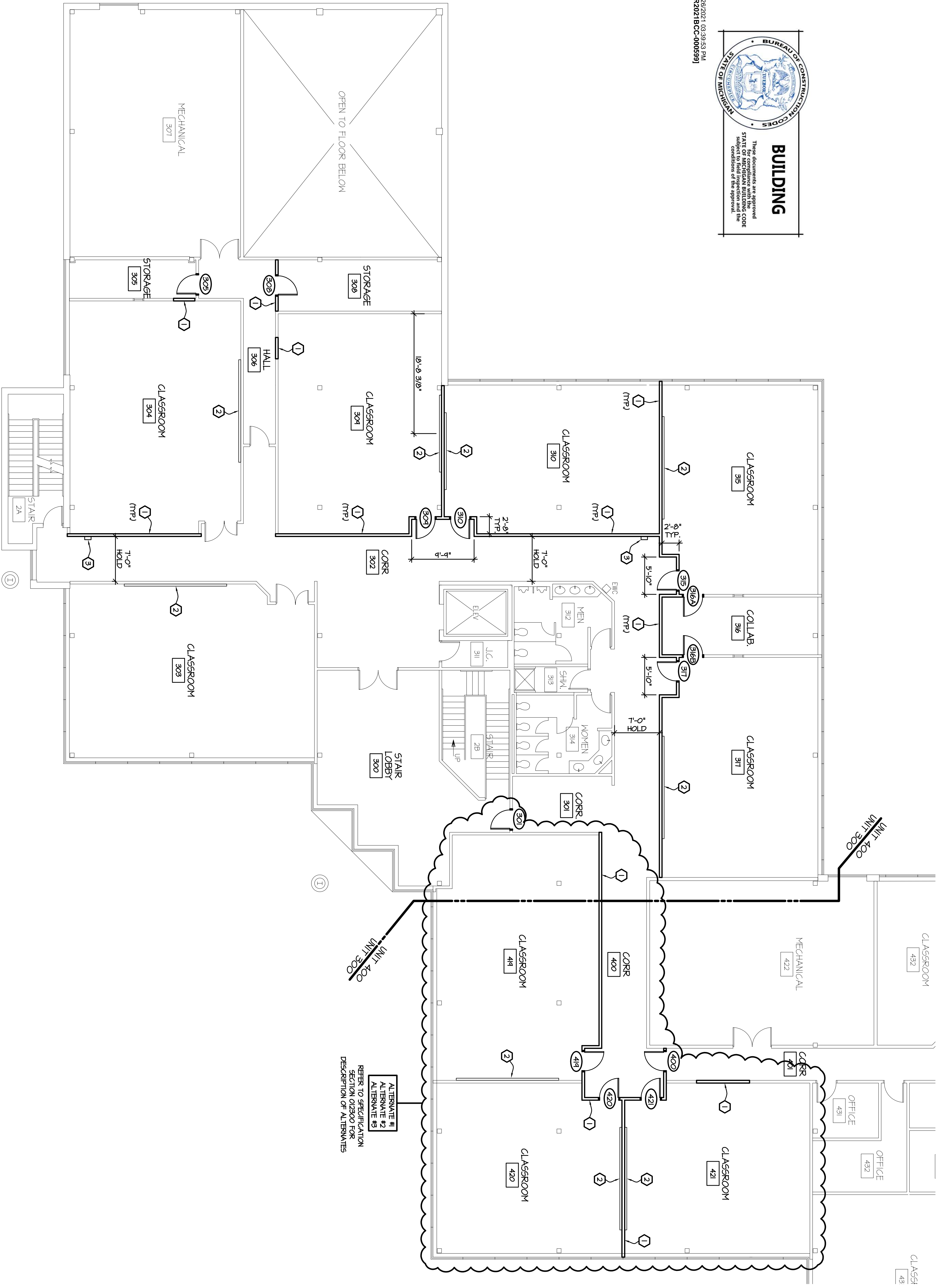
REVISIONS/REVIEW	DATE
BUILDING PERMIT SET	4/18/19
B55 / BCC PLAN REVIEW CHANGES	6/17/19
BULLETIN NO. 1	7/1/2019

JOB NO. 3013403
 SHEET TITLE
FIRST FLOOR FLOOR PLAN - UNIT 200
 SHEET NO. 30008





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ORNG	SIZE	TYPE	DOOR		FRAME		HEAD	JAMB	SILL	LABEL	REMARKS
			MAT	GLASS	MAT	GLASS					
301	3070	N	NO	1/4" FS	1	NONE	3/4" x 3	2/1/3	2/1/3	2/1/3	42 MIN.
302	3070	F	NO	1/4" FS	1	NONE	3/4" x 3	2/1/3	2/1/3	2/1/3	45 MIN.
303	3070	F	NO	NONE	1	NONE	3/4" x 3	2/1/3	2/1/3	2/1/3	45 MIN.
304	3070	N	NO	1/4" S&F	1	NONE	3/4" x 3	2/1/3	2/1/3	2/1/3	45 MIN.
305	3070	N	NO	1/4" S&F	1	NONE	3/4" x 3	2/1/3	2/1/3	2/1/3	NONE
306	3070	N	NO	1/4" S&F	1	NONE	3/4" x 3	2/1/3	2/1/3	2/1/3	NONE
307	3070	N	NO	1/4" S&F	1	NONE	3/4" x 3	2/1/3	2/1/3	2/1/3	NONE
308	3070	N	NO	1/4" S&F	1	NONE	3/4" x 3	2/1/3	2/1/3	2/1/3	NONE
309	3070	N	NO	1/4" S&F	1	NONE	3/4" x 3	2/1/3	2/1/3	2/1/3	NONE
400	3070	F	NO	NONE	1	NONE	3/4" x 3	2/1/3	2/1/3	2/1/3	NONE
401	3070	N	NO	1/4" S&F	1	NONE	3/4" x 3	2/1/3	2/1/3	2/1/3	NONE
420	3070	N	NO	1/4" S&F	1	NONE	3/4" x 3	2/1/3	2/1/3	2/1/3	NONE
421	3070	N	NO	1/4" S&F	1	NONE	3/4" x 3	2/1/3	2/1/3	2/1/3	NONE

NOTES
 1. REFER TO SPECIFICATION SECTION OPTIOO FOR DOOR HARDWARE SCHEDULE.

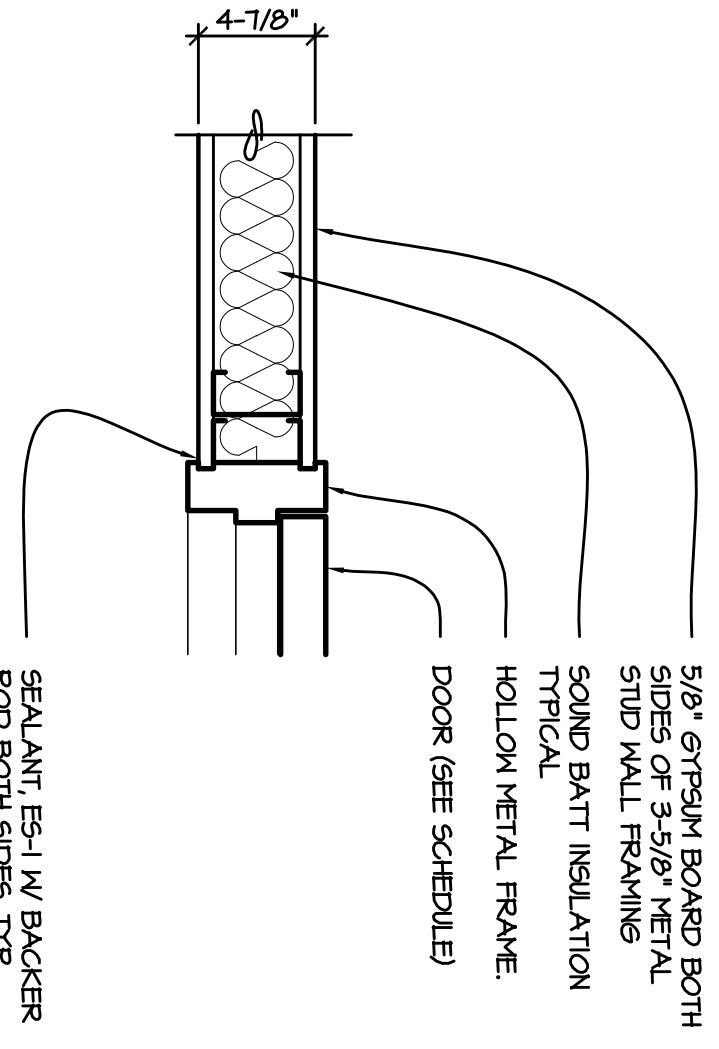
- GENERAL NOTES**
1. NEW CORRIDOR WALLS EXTEND FROM FINISH FLOOR TO INSIDE OF NEW SMOKE TIGHT CORRIDOR CEILING TO RESIST THE PASSAGE OF SMOKE. REFER TO SHEET A02 FOR LOCATION.
 2. EXISTING CORRIDOR WALLS REMAIN ABOVE EXISTING CEILING GRIPAN BOARD (CORRIDOR SIDE) FROM EXISTING TOP OF WALL TO RESIST THE PASSAGE OF SMOKE. REFER TO SHEET A02 FOR LOCATION OF SMOKE WALLS.
 3. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION AND NOTIFY ARCHITECT OF ANY DISCREPANCIES.
 4. PROVIDE MATERIALS TO MATCH ADJACENT EXISTING MATERIALS AT ALL LOCATIONS OF ARCHITECTURAL, MECHANICAL, AND ELECTRICAL WORK. FINISH PAINT TO MATCH EXISTING IF REQUIRED.
 5. ALL CONTRACTORS ARE RESPONSIBLE FOR COORDINATION OF WORK BETWEEN DIFFERENT TRADES.
- ARCHITECTURAL NOTES**
1. PARTITION WALL 5/8" GYPAN BOARD BOTH SIDES OF 3-5/8" FINISH FLOOR TO INSIDE OF EXISTING ROOF DECK. PARTITION MUST BE SMOKE TIGHT AT ALL CORRIDOR WALLS.
 2. VISUAL LIGHT ALY BOARD (MARKER BOARD) PROVIDED BY OWNER AND INSTALLED BY CONTRACTOR. CENTER BOARD ON THE WALL UNLESS DIMENSIONED OTHERWISE. NO BOARD AT 7'-0" AFF.
 3. FIRE EXTINGUISHER AND FIRE EXTINGUISHER CABINET.

1 SECOND FLOOR PLAN - UNIT 300

SCALE: 1/8" = 1'-0"

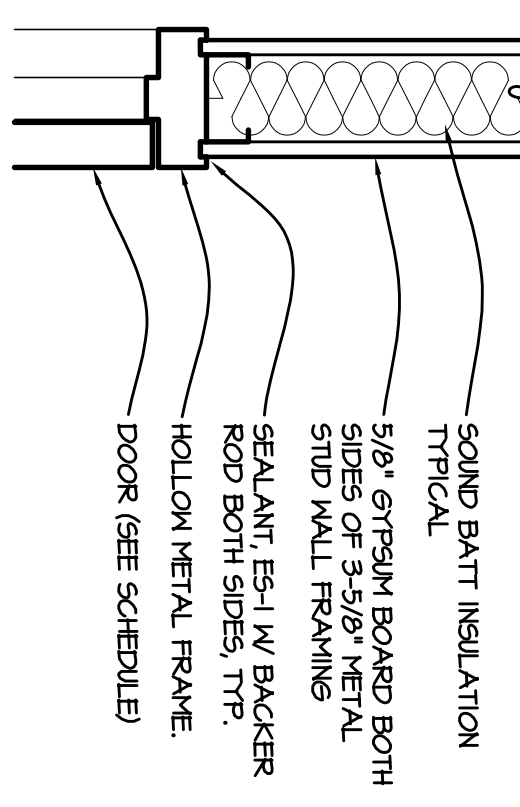
2 JAMB - HOLLOW METAL

1 1/2" x 1-1/2"



3 HEAD - HOLLOW METAL

1 1/2" x 1-1/2"



Ivywood Classical Academy

Second Floor Remodeling

Choice Schools Associates

Plymouth Township, Michigan

REVISIONS/REVIEW DATE
 BID AND CONSTRUCTION 2/26/21

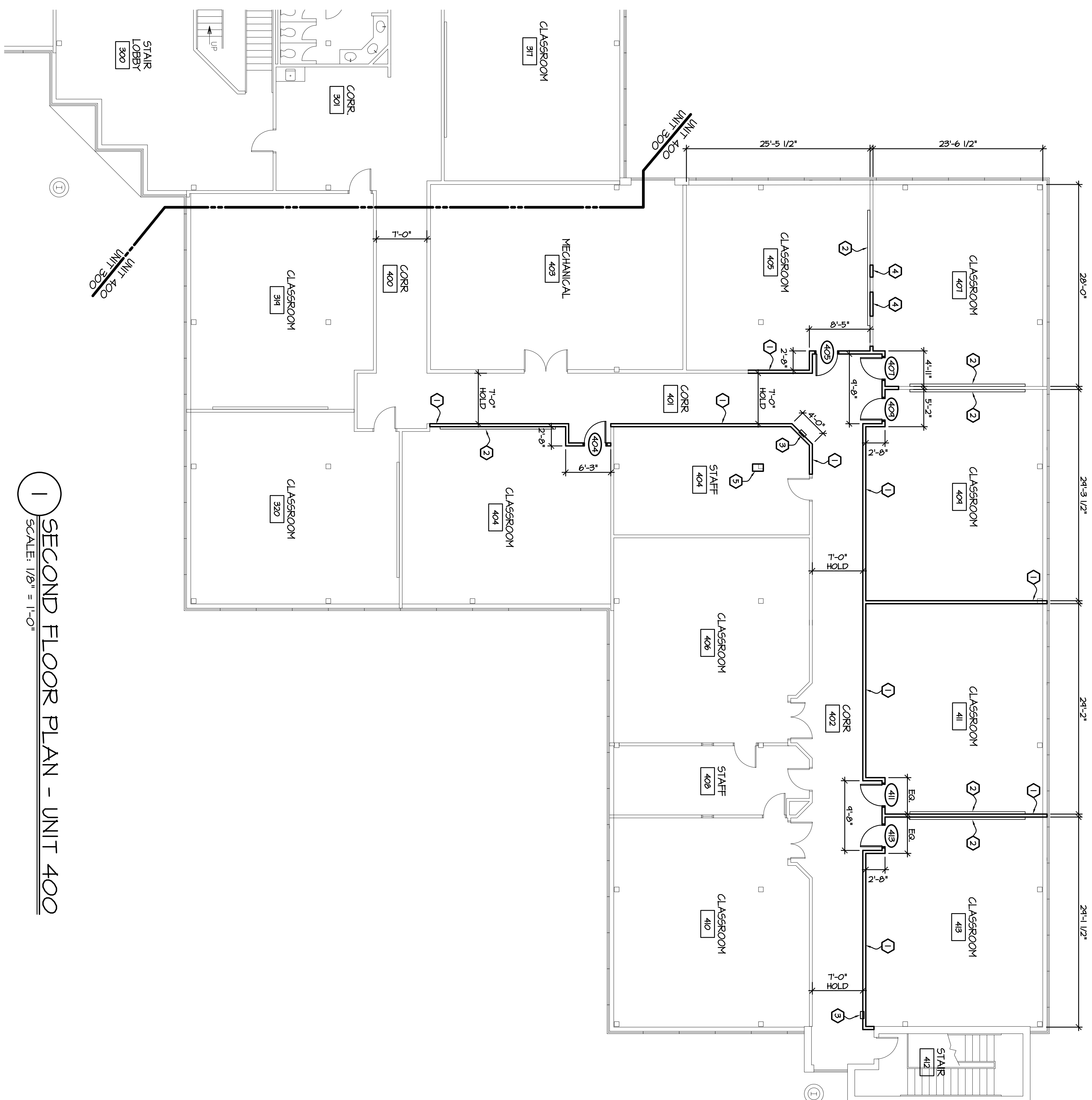
JOB NO. 3013403

SHEET TITLE
 SECOND FLOOR FLOOR PLAN - UNIT 300

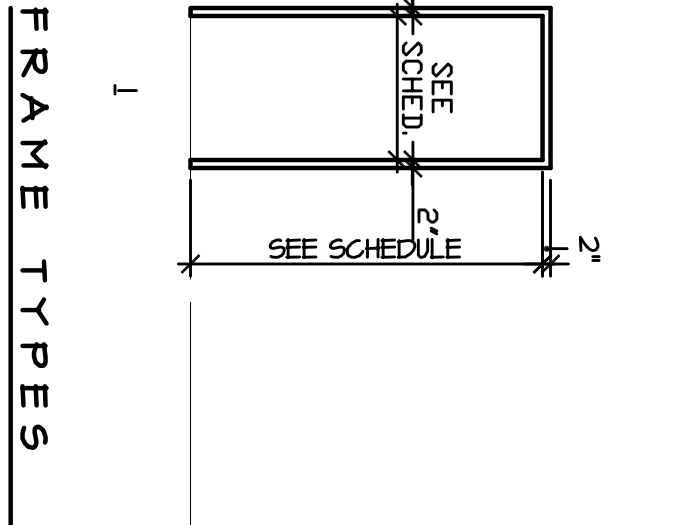
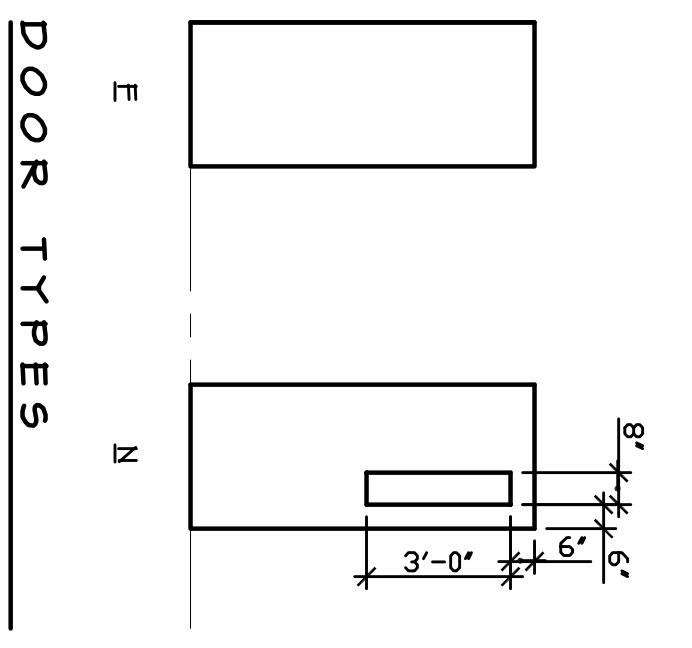
SHEET NO.
ALT-A1.3



BUILDING
These documents are approved
STATE OF MICHIGAN BUILDING CODE
subject to field inspection and the
condition of approval.



1 SECOND FLOOR PLAN - UNIT 400
SCALE: 1/8" = 1'-0"



ORING	SIZE	DOOR TYPE	MATERIAL	GLASS TYPE	FRAME			LABEL	REMARKS			
					HEAD	JAMB	SILL					
404	3070	N	HD	1/4" RFS	1	HM	3/A1.4	2/A1.4	2/A1.4	NONE	45 MIN	
405	3070	N	HD	1/4" RFS	1	HM	3/A1.4	2/A1.4	2/A1.4	NONE	45 MIN	
407	3070	N	HD	1/4" RFS	1	HM	3/A1.4	2/A1.4	2/A1.4	NONE	45 MIN	
401	3070	N	HD	1/4" RFS	1	HM	3/A1.4	2/A1.4	2/A1.4	NONE	45 MIN	
401	3070	N	HD	1/4" RFS	1	HM	3/A1.4	2/A1.4	2/A1.4	NONE	45 MIN	
403	3070	N	HD	1/4" SAN.	1	HM	3/A1.4	2/A1.4	2/A1.4	NONE	45 MIN	
410	3070	N	HD	1/4" SAN.	1	HM	3/A1.4	2/A1.4	2/A1.4	NONE	45 MIN	

NOTES

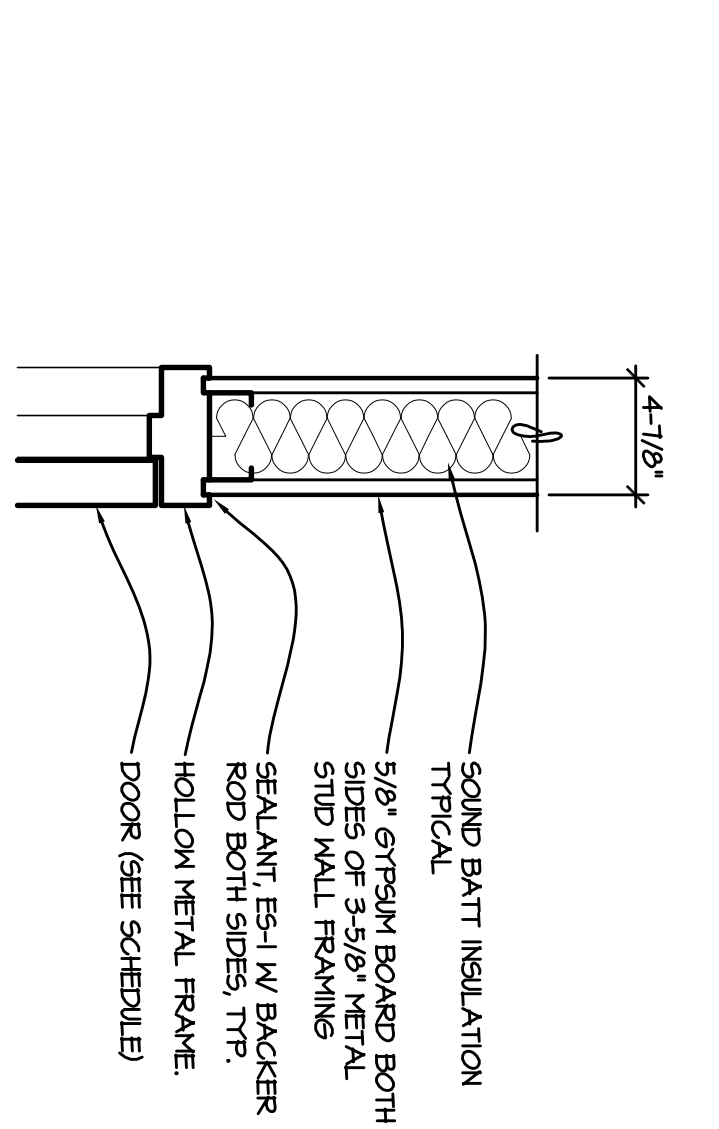
1. REFER TO SPECIFICATION SECTION 08100 FOR DOOR HARDWARE SCHEDULE.

GENERAL NOTES

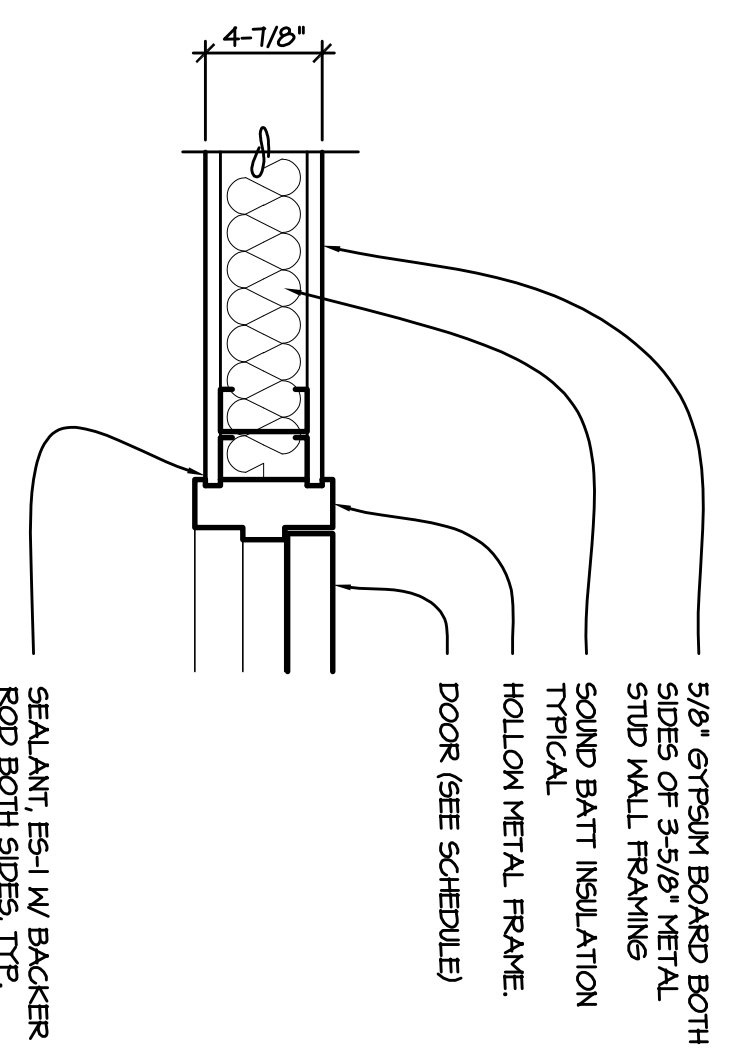
1. NEW CORRIDOR WALLS EXTEND FROM FINISH FLOOR TO GREAT-EST FINISH HEIGHT OF ADJACENT ROOMS TO GREAT-EST FINISH HEIGHT OF ROOM TO WHICH PASSAGE OF SMOKE REFER TO SHEET A02 FOR LOCATION OF SMOKE WALLS.
2. EXISTING CORRIDOR WALLS TERMINATE ABOVE EXISTING CEILING FINISH FLOOR TO INSIDE OF EXISTING ROOF DECK. PARTITION MUST BE SMOKE TIGHT AT ALL CORRIDOR WALLS.
3. VISUAL DISPLAY BOARD (MIRROR BOARD) PROVIDED BY OWNER. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS PRIOR TO INSTALLATION AND NOTIFY ARCHITECT OF ANY DISCREPANCIES.
4. PROVIDE MATERIALS TO MATCH ADJACENT EXISTING MATERIALS. ELECTRICAL WORK (CONDUIT AND NEW) WHERE NOT SPECIFIED OTHERWISE SPOT PAINT TO MATCH EXISTING IF REQUIRED.
5. ALL CONTRACTORS ARE RESPONSIBLE FOR COORDINATION OF WORK BETWEEN DIFFERENT TRADES.

ARCHITECTURAL NOTES:

1. PARTITION WALL, 5/8" GYP/PM BOARD BOTH SIDES OF 3-5/8" METAL STUDS AT 16" O.C. WITH SOUND BATT INSULATION FROM FINISH FLOOR TO UNDERSIDE OF EXISTING ROOF DECK. PARTITION MUST BE SMOKE TIGHT AT ALL CORRIDOR WALLS.
2. VISUAL DISPLAY BOARD (MIRROR BOARD) PROVIDED BY OWNER. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS PRIOR TO INSTALLATION AND NOTIFY ARCHITECT OF ANY DISCREPANCIES.
3. SEMI RECESSED FIRE EXTINGUISHER AND FIRE EXTINGUISHER CABINET MOUNTED TO WALL WITH 16" O.C. METAL STUDS AT 16" O.C. WITH SOUND BATT INSULATION FROM FINISH FLOOR TO UNDERSIDE OF EXISTING ROOF DECK. PARTITION MUST BE SMOKE TIGHT AT ALL CORRIDOR WALLS.
4. JAMB, EXISTING HOLLOW METAL WITH 5/8" GYP/PM BOARD BOTH SIDES OF 3-5/8" METAL STUDS AT 16" O.C. WITH SOUND BATT INSULATION FROM FINISH FLOOR TO UNDERSIDE OF EXISTING ROOF DECK. PARTITION MUST BE SMOKE TIGHT AT ALL CORRIDOR WALLS.
5. BOX OUT COLUMN WITH METAL STUD AND GYP/PM BOARD AS REQUIRED TO REINSULATE EXISTING 6" ROOF CONDUCTION PIPE.



3 HEAD - HOLLOW METAL
SCALE: 1/2" = 1'-0"



2 JAMB - HOLLOW METAL
SCALE: 1/2" = 1'-0"

Ivywood Classical Academy
Second Floor Remodeling
Choice Schools Associates
Plymouth Township, Michigan

REVISIONS/REVIEW	DATE
BID AND CONSTRUCTION	4/15/2022

JOB NO. 3013-07	NORTH
SHEET TITLE SECOND FLOOR FLOOR PLAN - UNIT 400	
SHEET NO.	
A1.4	
KALAMAZOO, MICHIGAN	

THIRD AMENDMENT TO LEASE

This **THIRD AMENDMENT TO LEASE** (This "Amendment") is entered into on this day of August 2023, by and between **Genoa Project, LLC**, ("Landlord"), and **Ivywood Classical Academy**, ("Tenant").



RECITALS:

WHEREAS, Landlord and Tenant entered into a certain Lease dated the 24th day of April, 2019, a First Amendment dated August 18, 2020, and a Second Amendment dated October 19, 2021 for Premises. The premises consists of 47,096 rentable square feet and is commonly known 14356 Genoa Court, Plymouth, MI. 48170, referred to as ("Demised Premises");

NOW THEREFORE, in consideration of the foregoing recitals and the mutual covenants provided herein, the parties hereto agree as follows:

1. That the rent will be as follows.

09/01/2023 – 08/31/2024	\$7.75 per rentable square foot
09/01/2024 – 08/31/2025	\$8.25 per rentable square foot
09/01/2025 – 08/31/2026	\$8.75 per rentable square foot
09/01/2026 – 08/31/2027	\$9.25 per rentable square foot
09/01/2027 – 08/31/2028	\$9.75 per rentable square foot

1. Tenant shall continue to be fully responsible for all Common Area Maintenance, Real Estate Tax, and Insurance associated with the Demised Premises.
2. Tenant shall have an option to renew the lease for an additional five (5) year term at prevailing fair market rates.
3. Tenant shall have the right to purchase the subject property at a purchase price of \$5,500,000.00 anytime within the first six (6) months of Tenant's lease term. If Tenant chooses to execute this option, then Tenant will provide Landlord written notice of Tenant's intent along with a Purchase Agreement. The Purchase Agreement shall be made a part of and an exhibit to the Second Amendment to Lease. The Purchase Agreement shall be mutually agreed upon by both Landlord and Tenant prior to the full execution of this Second Amendment to Lease. If tenant fails to exercise its option to purchase, and close in the time offered the option is void, and Landlord will be free to sell the property to another buyer.
4. Landlord agrees to pay broker a leasing commission equal to two-point five percent (2.5%) of the aggregate gross rent for the four years added to the term due and payable at the time the Second Amendment to Lease is fully executed by both Landlord and Tenant. Should Tenant execute Tenants option to purchase as stated above

Landlord / Seller agrees to pay a sale commission equal to three (3%) percent of the purchase price less any unearned leasing commission previously paid as stated above.

5. This Amendment shall inure to the benefit of and shall be binding upon the parties hereto and other respective successors are permitted assigns.

IN WITNESS WHEREOF, the undersigned have hereunto affixed their signatures on the same day and year as first above written.

"LANDLORD"
Genoa Project, LLC



By: THOMAS DUKE

Date: 8-30-23

"TENANT"
Ivywood Classical Academy



By: Tyler Herring

Date: 8-30-2023

SECOND AMENDMENT TO LEASE

This **SECOND AMENDMENT TO LEASE** (This "Amendment") is entered into on this 19th day of October, 2021, by and between **Genoa Project, LLC, ("Landlord")**, and **Ivywood Classical Academy, ("Tenant")**.

RECITALS:

WHEREAS, **Landlord** and **Tenant** entered into a certain Lease dated the 24th day of April, 2019 for Premises, 14356 Genoa Court, Plymouth, MI. 48170, referred to as ("Demised Premises"), which is approx.. 47,096 Rentable Sq.Ft (2 Floors).

WHEREAS, Landlord and Tenant have hereby agreed to amend the Lease to provide for an adjustment of rent.

NOW THEREFORE, in consideration of the foregoing recitals and the mutual covenants provided herein, the parties hereto agree as follows:

1. Effective September 1, 2020 through August 31, 2021, (Year 2), Tenant rent will be \$12,500.00 per month.
2. Rents following Year 2 rent will be paid as follows;
Year 3 9/01/21-8/31/22 \$6.69 per Rentable Sq. Ft, Plus \$5,837.98 per Month
Year 4 9/01/22-8/31/23 \$7.02 per Rentable Sq. Ft, Plus \$5,837.98 per Month
Year 5 9/01/23-8/31/24 \$7.37 per Rentable Sq. Ft
3. Tenant must continue to pay the full charges for Common Area Maintenance, Real Estate Tax, and Insurance.
4. Landlord and Tenant agree that all conditions and contingencies are satisfied and Section (m) Conditions Precedent is no longer applicable
5. Landlord will have no further responsibilities for the Second-floor renovation listed in 1.(g), or Exhibit B Building Improvement.
6. All capitalized terms used in this Amendment shall have the same meaning as ascribed to them in the Lease.
7. Except as provided in this Amendment, the Lease shall remain in full force and effect.
8. This Amendment shall inure to the benefit of, and shall be binding upon the parties hereto and other respective successors are permitted assigns.

IN WITNESS WHEREOF, the undersigned have hereunto affixed their signatures on the same day and year as first above written.

IN WITNESS WHEREOF, the undersigned have hereunto affixed their signatures on the same day and year as first above written.

Witness

"LANDLORD"
Genoa Project, LLC



By: Thomas Duke

Date: 10-11-21

"TENANT"
Ivywood Classical Academy



By: Tyler Horning

Date: Oct 25 2021

FIRST AMENDMENT TO LEASE

This **FIRST AMENDMENT TO LEASE** (This "Amendment") is entered into on this 18th day of August, 2020, by and between **Genoa Project, LLC, ("Landlord")**, and **Ivywood Classical Academy, ("Tenant")**.

RECITALS:

WHEREAS, Landlord and Tenant entered into a certain Lease dated the 24th day of April, 2019 for Premises, 14356 Genoa Court, Plymouth, MI. 48170, referred to as ("Demised Premises"), which is approx.. 47,096 Rentable Sq.Ft (2 Floors).

WHEREAS, Landlord and Tenant have hereby agreed to amend the Lease to provide for a deferral of rent.

NOW THEREFORE, in consideration of the foregoing recitals and the mutual covenants provided herein, the parties hereto agree as follows:

1. Effective September 1, 2020 through August 31, 2021, (Year 2), Tenant rent will be \$12,500.00 per month instead of \$24,175.95 per month.
2. Commencing with the September 2021, (Year 3), Tenant will submit one-twenty fourth (1/24) of the total sum of deferred Annual Rent (\$140,111.40) and will continue to do so in equal monthly installments of \$5,837.98 commencing September 2021 through August 2023.

Computation of total deferred rent is below:

\$24,175.95 x 12 months = \$290,111.40 less \$12,500.00 x 12 months = \$150,000
Total deferred rent equates to \$140,111.40.

Rents following Year 2 rent will be paid as follows;

Year 2	9/01/20-8/31/21	\$3.185 per Rentable Sq. Ft
Year 3	9/01/21-8/31/22	\$6.69 per Rentable Sq. Ft
Year 4	9/01/22-8/31/23	\$7.02 per Rentable Sq. Ft
Year 5	9/01/23-8/31/24	\$7.37 per Rentable Sq. Ft

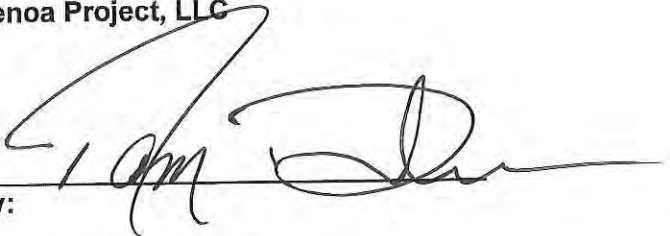
3. Tenant must continue to pay the full charges for Common Area Maintenance, Real Estate Tax, and Insurance.
4. Landlord and Tenant agree that all conditions and contingencies are satisfied and Section (m) Conditions Precedent is no longer applicable
5. Landlord will have no further responsibilities for the Second-floor renovation listed in 1.(g), or Exhibit B Building Improvement.
6. All capitalized terms used in this Amendment shall have the same meaning as ascribed to them in the Lease.

7. Except as provided in this Amendment, the Lease shall remain in full force and effect.
8. This Amendment shall inure to the benefit of, and shall be binding upon the parties hereto and other respective successors are permitted assigns.

IN WITNESS WHEREOF, the undersigned have hereunto affixed their signatures on the same day and year as first above written.

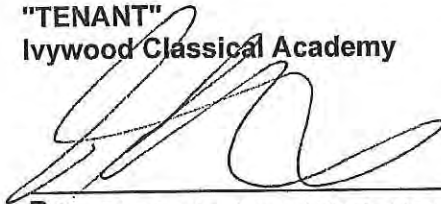
Witness

"LANDLORD"
Genoa Project, LLC


By: _____

Date: 9-3-20

"TENANT"
Ivywood Classical Academy


By: _____
Tyler Horning - Ivywood Classical Academy Board President

Date: 9-2-2020

**GENOA PROJECT BUILDING
LEASE**

THIS LEASE is made between the Landlord and Tenant hereinafter identified in Paragraph 1(b) and 1(c) hereof, respectively, and constitutes a Lease between the parties for the "Demised Premises" in the "Building" as defined in Paragraph 2 hereof on the terms and conditions and with and subject to the covenants and agreements of the parties hereinafter set forth.

WITNESSETH:

BASE LEASE PROVISIONS

1. The following are certain lease provisions, which are part of, and in certain instances referred to in subsequent provisions of this Lease.

- (a) **Date of Lease:** April 24, 2019
- (b) **Landlord:** Genoa Project, LLC
- (c) **Tenant:** Ivywood Classical Academy
Guarantor: N/A
- (d) **Demised Premises:** Genoa Court Building
14356 Genoa Court
Plymouth, Michigan 48170

Approx. 47,096 Rentable Sq. Ft. (2 Floors)
- (e) **Commencement Date:** July 1, 2019 or upon receipt of the Certificate of Occupancy, whichever occurs later
- (f) **Expiration Date:** June 30, 2024
- (g) **Minimum Annual Rent:**

Year 1	7/01/19 – 6/30/20	\$0.53 per Rentable Sq. Ft.
Year 2	7/01/20 – 6/30/21	\$8.16 per Rentable Sq. Ft.**
Year 3	7/01/21 – 6/30/22	\$6.69 per Rentable Sq. Ft.
Year 4	7/01/22 – 6/30/23	\$7.02 per Rentable Sq. Ft.
Year 5	7/01/23 – 6/30/24	\$7.37 per Rentable Sq. Ft.

**Second Floor Renovation Upon substantial completion the minimum annual rent will be increased by \$1.03 per Rentable Sq. Ft. until the expiration date of the Lease Agreement.
- (h) **Estimated Annual Operating Expenses:** \$6.50 Per Rentable Sq. Ft. (Subject to Adjustment)
- (i) **Tenant Share:** 100%
- (j) **Tenant's Address for Notices:** Ivywood Classical Academy
14356 Genoa Court
Plymouth, Michigan 48170
ivywoodboard@choiceschools.com
- (k) **Landlord's Address for Notices:** Genoa Project, LLC
37000 Grand River Ave, Suite 360
Farmington Hills, Michigan 48335
tduke@thomasduke.com
- (l) **Deposit:** \$25,000 to be applied to first year's rent. The deposit is due upon execution of the Lease.
- (m) **Conditions Precedent:**

This Lease is not effective until the following Contingencies between Landlord and Tenant are satisfied.

- (i) the Demised Premises meets State of Michigan BCC/BFS requirements as a school, including fire marshal approval, to secure a Certificate of Occupancy by August 16, 2019;
- (ii) The Academy Board approves the site, the letter of Intent and the final lease document;
- (iii) Central Michigan University's non-disapproval of the Lease; and
- (iv) The Demised Premises and all systems (electrical, HVAC, Boiler, Plumbing) are delivered in good working condition prior to Tenant taking occupancy.

Failure to meet each of these conditions shall result in the voiding of this Lease without further action or recourse by the parties, in which case the Landlord shall return the full security deposit.

DEMISED PREMISES

2. (a) Landlord, in consideration of the rents to be paid and the covenants and agreements to be performed by Tenant, does hereby lease unto Tenant premises situated in the Township of Plymouth, County of Wayne and State of Michigan, described in Paragraph 1(d) hereof, in that certain office building, the address of which is 14356 Genoa Court, Plymouth, Michigan, (hereinafter referred to as the "Building") as shown on the floor plan, Exhibit "A" hereto, (hereinafter referred to as the "Demised Premises"), together with the exclusive right and easement to use the parking and common facilities

(b) Landlord shall renovate/build out the Demised Premises in accordance with the provisions of Exhibit "B" hereto. If renovation costs exceed the allowances provided for in Exhibit "B", Tenant shall be responsible for the payment of such amounts to Landlord pursuant to the provisions of Exhibit "B". Tenant shall pay the same within ten (10) days after receipt of an invoice therefore.

TERM

3. (a) The term of this Lease shall commence on the Commencement Date set forth in Paragraph 1(e) hereof and expire on the expiration date set forth in Paragraph 1(f) hereof. The Demised Premises shall be deemed ready for occupancy when the State issues a Certificate of Occupancy for use as a public school. In the event Landlord fails to deliver the Demised Premises ready for occupancy on or before August 16, 2019, this Lease is null and void. Landlord shall not be liable to Tenant for any damages as a result of Landlord's failure to deliver the Demised Premises by that date.

Notwithstanding the foregoing, if the Tenant's Charter Contract ("Charter") issued by the Central Michigan University Board of Trustees ("Authorizer") is suspended, revoked or terminated, or a new Charter is not issued to the Tenant after expiration of the Tenant's Charter, this Lease, together with all Rent obligations arising after the termination date, shall automatically be suspended or terminated, as the case may be, on the same date as the Charter is suspended, revoked, terminated or expires without further action of the parties and without penalty for early termination. To the extent that Landlord has collected prepaid Rent, it shall be returned to Tenant.

Amendment Caused by Academy Site Closure or Reconstitution. In the event that the Tenant is required (i) to close an Academy site pursuant to a notice issued by the State School Reform/Redesign Officer under Section 507 of the Code, MCL 380.507; or (ii) to undergo a reconstitution pursuant to Section 507 of the Code, MCL 380.507, and the Charter Terms and Conditions, and such closure or reconstitution of an Academy site causes an amendment to or termination of this Lease, the parties agree that this Lease shall be amended or terminated to implement the Academy site closure or reconstitution, with no cost or penalty to the Tenant, and the Landlord shall have no recourse against the Tenant or the Authorizer for implementing such site closure or reconstitution.

(b) Tenant shall furnish Landlord, from time to time within ten (10) days of written request from Landlord to Tenant, an Estoppel letter addressed to Landlord or its mortgagee or a potential mortgagee or purchaser of the Building stating that: Tenant has accepted the Demised Premises for occupancy; the Demised Premises have been completed as herein required, and setting forth the commencement date (as the same may have been extended) and expiration date of this Lease and such other information as either Landlord or the mortgagee, potential mortgagee or

purchaser of the Building shall request. Tenant will pay to Landlord \$100.00 per day for failure to return this within ten (10) days of Landlord's written request and is a default under this lease.

RENT

4. (a) Tenant shall pay to Landlord as rent for the Demised Premises during each year of the term of this Lease the sums set forth in Paragraph 1 (g) hereof. Such rent shall be paid upon THE FIRST DAY OF EACH MONTH throughout the term of this Lease; provided, however, that if the Demised Premises are not delivered on the Commencement Date, the first year's Rent shall be prorated from the date of receipt of the Certificate of Occupancy. If the Lease term shall commence on a day other than the first day of a calendar month or shall end on a day other than the last day of a calendar month, the rental for such first or last fractional month shall be such portion of the monthly rental then in effect as the number of days in such fractional month bears to the total number of days in the calendar month.

(b) The term "RENT" as used in this Lease means the Minimum Annual Rent, Annual Operating Expenses sums owing pursuant to written agreement(s) executed pursuant to Exhibit B hereto and any other additional rent or sums payable by Tenant to Landlord pursuant to this Lease, all of which shall be deemed Rent for purposes Landlord's rights and remedies with respect thereto.

(c) All amounts payable by Tenant to Landlord hereunder, if not paid when due, shall bear interest from the date due until paid at the rate of two percent (2%) in excess of the "prime rate" published from time to time in the Wall Street Journal.

(d) At Landlord's election, and upon at least thirty (30) days' written notice to Tenant Board of Directors, Landlord may require that all payments of Minimum Monthly Rent, Additional Rent and other amounts due hereunder be made in immediately available funds or by wire transfer by electronic fund transfer through the Automated Clearing House network or any similar system designated by Landlord ("ACH"). Such payments shall be initiated by Tenant or Landlord, at Landlord's election, to an account designated from time to time by Landlord at an ACH member bank for settlement not later than 12:00 o'clock noon, Detroit, Michigan time, on the dates such sums or payments are respectively due per the Lease.

OPERATION OF PROPERTY; PAYMENT OF EXPENSES

5. (a) Payment of Operating Expenses. Tenant shall reimburse Landlord for the cost of any and all Operating Expenses as Additional Rent. Landlord may make a good faith estimate of the Additional Rent to be due by Tenant for any calendar year of the term. Tenant shall pay to Landlord, in advance concurrently with each monthly installment of Base Rent, an amount equal to the monthly estimated Additional Rent in the amount set forth in Paragraph 1(f) (prorated for any partial month), from the Commencement Date and continuing throughout the Term on the first day of each calendar month during the Term, as additional rent, without notice, demand or setoff. From time to time, Landlord may estimate and re-estimate the Additional Rent to be due by Tenant and deliver a copy of the estimate or re-estimate to Tenant. Thereafter, the monthly installment of Additional Rent payable by Tenant shall be appropriately adjusted in accordance with the estimations so that, by the end of the calendar year in question, Tenant shall have paid all the Additional Rent as estimated by Landlord. Any amount paid based on such an estimate shall be subject to adjustment as herein provided when actual operating costs are available for each calendar year. To the extent that Tenant contracts directly to pay for an Operating Expense (e.g., utilities), those costs shall not be included in the Additional Rent. As used herein, the term "Operating Expenses" shall mean all of the reasonable costs and expenses incurred by Landlord for the management, operation, repair, maintenance and replacements as reasonably necessary, of the Premises, or as may be necessary to keep the Premises in good order, condition or repair, including, without limitation, those costs and expense incurred in order to satisfy the obligations under Section B. Operating expenses shall also include by way of example rather than limitation: insurance premiums; impositions; costs for repairs and maintenance; service contracts; management and administrative fees; governmental permits and fees; maintenance of site signs; exterior parking lot lights and related site lighting located on the Premises; janitorial service (see Exhibit D- Janitorial Specifications); trash removal; security services; window cleaning; parking lot sweeping; pest control; waste removal; automatic door maintenance; HVAC preventative maintenance contract, monitoring, repairs and maintenance; fire suppression and detection maintenance, testing and inspection; generator testing, maintenance and related fuel testing, maintenance and monitoring; roof maintenance contract necessary to sustain the roof warranty; repairs and maintenance of any of the following: doors, door frames, automatic doors, door checks, windows, window frames, floors, Building systems, including without limitation all plumbing and sewage systems, all power systems to the generator, and other systems serving the Building;

maintenance of the parking lots, sidewalks and driveways (including crack-filling, sealing and striping); asphalt replacement; costs associated with any changes in law or of compliance with such new law or changed law(s) pertaining to the Interior of the Building; elevator maintenance, testing and inspections; electrical testing and inspections; snow removal and ice control, landscape and irrigation maintenance repair and replacements; paving material maintenance; supplies; compensation and benefits (including premiums for workers' compensation and other insurance) paid to or on behalf of the employees (not above the position of supervisor) solely involved in the performance of the work specified in this Section. Operating Expense shall also include the amortizing cost over its useful life pursuant to GAAP during the remaining Term of this Lease of equipment/fixtures acquired and used solely for the Premise to reduce energy consumption or to otherwise reduce such costs and expense of operating and maintaining the Premises, up to but not exceeding the amount of such savings.

(b) **Reconciliation.** By April 30th of each year (and as soon as practical after the expiration or termination of this Lease or at any time in the event of a sale of the Building), Landlord shall provide Tenant with a statement of the actual amount of such annual operating costs for the preceding calendar year or part thereof. Landlord or Tenant shall pay to the other the amount of any deficiency or overpayment then due from one to the other or, at Landlord's option; Landlord may credit Tenant's account for any overpayment. Tenant shall have the right to inspect the books and records used by Landlord in calculating the Annual Operating Expenses within sixty (60) days of receipt of the statement during regular business hours after having given Landlord at least 48 hours prior written notice; provided, however, that Tenant shall make all payments of additional rent without delay, and that Tenant's obligation to pay such additional rent shall not be contingent on any such right.

(c) **Impositions.** As used in this Lease the term "impositions" refers to all levies, taxes (including sales taxes and gross receipt taxes) and assessments, which are applicable to the Term, and which are imposed by any authority or under any law, ordinance or regulation thereof, or pursuant to any recorded covenants or agreements, and the reasonable cost of contesting any of the foregoing, upon or with respect to the Building or any part thereof, or any improvements thereto. Tenant shall pay to Landlord with the monthly payment of Minimum Annual Rent any imposition imposed directly upon this Lease or the Rent (defined in Paragraph 4), or against Landlord because of Landlord's estate or interest herein.

(i) Nothing herein contained shall be interpreted as requiring Tenant to pay any income, excess profits or corporate capital stock tax imposed or assessed upon Landlord, unless such tax or any similar tax is levied or assessed in lieu of all or any part of any imposition.

(ii) If it shall not be lawful for Tenant to reimburse Landlord for any of the impositions, the Minimum Annual Rent shall be increased by the amount of the portion of such imposition allocable to Tenant, unless prohibited by law.

TAXES, ASSESSMENTS

6. Commencing on the Rent Commencement Date and continuing throughout the entire Term of the Lease, Tenant agrees to pay as Additional Rent for the Premises (i) all real property taxes and assessments which may hereafter be levied and assessed by any lawful governmental authority against the Land, Building, and/or Premises or any part thereof ("Real Property Taxes"); and (ii) all Replacement Taxes, as hereinafter defined. All such Real Property Taxes and Replacement Taxes shall be paid by Tenant to the Landlord as a part of the operating expenses in accordance with 5(c) on or before the date same becomes delinquent. Landlord shall direct that all invoices for such Real Property Taxes and Replacement Taxes be sent to Tenant and, if Landlord receives ("receipt" of which shall include the making available of the amount of Real Property Taxes and Replacement Taxes on any governmental or other taxing authority's website or other electronic means) any such invoices, shall provide same to Tenant within five (5) business days of receipt. The parties acknowledge that as of the date of this Lease, Real Estate Taxes for the Premises are paid in advance, such that the Real Estate Taxes levied and assessed for a fiscal year (e.g., 2019) are due and payable the prior year (e.g., 2018) in two (2) separate due dates. For the avoidance of doubt, it is expressly understood and agreed that because Real Estate Taxes are paid in advance, the Real Estate Taxes for calendar year 2019 will be due and payable in 2018. The Real Estate Taxes and Replacement Taxes for the first and last years of the Term or any extension thereof will be prorated between Landlord and Tenant so that Tenant will be responsible only for such Real Estate Taxes and Replacement Taxes as may be attributable to the period included in the Term of this Lease (regardless of the date on which they are due and payable). Any special assessments which are Real Estate Tax shall be treated as though paid in installments over the longest period permitted by the taxing authority, and Tenant shall be liable for only those installments which would be payable during the Term and are attributable to the period included in the Term of this Lease. Tenant shall have the right to pay such assessment in equal installments over the longest

available period permitted by the governmental entity levying such assessment.

USE AND OCCUPANCY

7. (a) Tenant shall use the Premises solely for operating a publicly chartered school or academy and for ancillary or directly related uses. No provision of this Lease shall interfere with the Tenant's governing board's exercise of its statutory, contractual and fiduciary responsibilities governing the operation of the Academy. Any other use of the Premises must be approved by Landlord in advance in writing.

If Landlord and Tenant agree upon a permitted use of the Premises by a third party pursuant to the Tenant's Facility Use Policy and Agreement, Tenant is permitted to retain all revenues from such uses unless such use causes an increase in cost to Landlord. In such case, Landlord shall be entitled to retain that portion required to reimburse Landlord for actual expenses associated with the third party's use of the Premises.

(b) Tenant shall not conduct its business in a manner which will cause an increase in fire and extended coverage insurance premiums for the Demised Premises or Building. Tenant shall not use the Demised Premises for any purpose in violation of any law, municipal ordinance, or regulation, nor shall Tenant perform any acts or carry on any practices which may injure the Demised Premises or the Building or be a nuisance, disturbance, or menace. Tenant shall not cause or permit the use, generation, storage or disposal in or about the Demised Premises or the Building of any substances, materials or wastes subject to regulation under federal, state or local laws from time to time in effect concerning hazardous, toxic or radioactive materials, unless Tenant shall have received Landlord's prior written consent, which Landlord may withhold or at any time revoke in its sole and absolute discretion. Upon breach of this agreement, Landlord shall have the right to terminate this Lease forthwith and to reenter and repossess the Demised Premises, but Landlord's right to damages will survive.

UTILITIES AND SERVICES

8. (a) Tenant agrees to pay all charges made against the Premises for water, sewer, gas, heat, electricity and all other utilities consumed by Tenant as and when due during the Term of this Lease. Tenant shall also be responsible for any utility costs related to Tenant's activities in the Premises. Prior to occupancy Tenant shall cause all utility account names and meters for heat, water, gas, electricity or other utilities that solely serve the Premises to be changed, so that such utility services are billed directly to Tenant in Tenant's name. In no event will Tenant be responsible for charges for utilities consumed by Landlord during the Tenant Access Period, and Tenant may invoice Landlord for Landlord's and any of the Landlord's Construction Parties' use of utilities during the Tenant Access Period so long as Tenant provides Landlord all data supporting its calculation and charges. Notwithstanding the foregoing, in the event Tenant is unable to cause the utilities to be changed to Tenant name despite Tenant's commercially reasonable efforts, Landlord will allow Tenant to use Landlord's utilities with Tenant reimbursing Landlord at the billed rates, and the cost thereof will be paid by Tenant as part of the costs of Tenant's Work.

(b) Landlord shall not be responsible or liable for any interruption in utility services, nor shall such interruption affect the continuation or validity of this Lease.

REPAIRS

9. (a) Landlord shall make all necessary repairs and replacements to the Building and to the common areas, including parking areas, heating, air conditioning and electrical systems located therein, and Landlord shall also make all repairs to the Demised Premises which are structural in nature or required due to fire, casualty, or other act of God; provided, however, that Tenant shall make all repairs and replacements arising from its act, neglect or default. Except as provided above, Tenant shall keep the Demised Premises in good repair, including any special equipment installed in the Demised Premises (such as, but not limited to, air conditioners, transformers and plumbing), whether installed by Landlord or Tenant, and Tenant shall upon the expiration of the term of this Lease, yield and deliver up the Demised Premises in like condition as when taken, reasonable use and wear thereof and repairs required to be made by Landlord excepted.

(b) In the event that Landlord shall deem it necessary or be required by any governmental authority to repair, alter, remove, reconstruct or improve any part of the Demised Premises or of the Building (unless the same result from Tenant's act, neglect, default or mode of operation in which event Tenant shall make all such repairs, alterations and improvements), then the same shall be made by Landlord with reasonable dispatch, and should the making of such repairs, alterations or improvements cause any interference with Tenant's use of the Demised Premises, such interference shall not relieve Tenant from the performance of its obligations hereunder nor

shall such interference be deemed an actual or constructive eviction or partial eviction or result in an abatement of rental.

(c) Notwithstanding the foregoing, Tenant shall, at its own cost and expense, make all repairs and provide all maintenance in connection with any alterations, additions or improvements made by Tenant pursuant to Paragraph 10 hereof. Tenant also shall, at its own cost and expense, make all repairs and replacements arising from its act, neglect or default.

ALTERATIONS

10. Tenant shall not make any alterations, additions or improvements to the Demised Premises (whether or not the same may be structural in nature) without Landlord's prior written consent, and all alterations, additions, or improvements made by either party hereto to the Demised Premises, including wiring, cables, risers and similar installations, except movable office furniture and equipment installed at Tenant's expense, shall be the property of Landlord and remain upon and be surrendered with the Demised Premises at the expiration of the term hereof; provided, however, that Landlord may require Tenant to remove any additions made by Tenant to the Demised Premises, including wiring, cables, risers and similar installations and to repair any damage caused by such removal, and provided further, that if Tenant has not removed its property and equipment within ten (10) days after the expiration or termination of this Lease, Landlord may elect to retain the same as abandoned property or remove same and charge the expense of removal against the Tenant. Tenant shall only use contractors approved by Landlord for the permitted alterations to the Demised Premises and shall not permit any construction liens to be placed or remain upon the Demised Premises.

ASSIGNMENT AND SUBLETTING

11. (a) Tenant covenants not to assign or transfer this Lease, hypothecate or mortgage the same or sublet the Demised Premises or any part thereof without the prior written and signed amendment to this Lease. In the event of any such assignment or transfer, Tenant shall remain fully liable to perform all of its obligations under this Lease. Any assignment, transfer (including transfers by operation of law or otherwise), hypothecation, mortgage, or subletting without such written consent shall give Landlord the right to terminate this Lease and to reenter and repossess the Demised Premises but Landlord's right to damages shall survive. No consent by Landlord to any assignment, transfer, hypothecation, mortgage or subletting on any one occasion shall be deemed a consent to any subsequent assignment, transfer, hypothecation, mortgage or subletting by Tenant or by any successors, assigns, transferees, mortgagees or sublessees of Tenant.

(b) If at any time or from time to time during the term of this Lease, Tenant desires to sublet all or any part of the Demised Premises or to assign this Lease, Tenant shall give notice to Landlord setting forth the proposed subtenant or assignee, the terms of the proposed subletting and the space so proposed to be sublet or the terms of the proposed assignment, as the case may be. Landlord shall have the option, exercisable by notice given to Tenant within twenty (20) days after Tenant's notice is given, (i) if Tenant's request relates to a subletting, either to sublet from Tenant such space at the rental and other terms set forth in Tenant's notice, or, if the proposed subletting is for the entire Demised Premises for the balance of the term, to terminate this Lease, or (ii) if Tenant's request relates to an assignment, either to have this Lease assigned to Landlord or to terminate this Lease. If Landlord does not exercise such option, Tenant shall be free for a period of one hundred eighty (180) days thereafter to sublet such space or to assign this Lease to such third party if and only if Landlord shall consent thereto, provided that the sublease or assignment shall be on the same terms set forth in the notice given to Landlord and that the rental to such subtenant as assignee shall not be less than the then market rate for such premises.

(c) In the event Tenant shall so sublet a portion of the Demised Premises, or assign this Lease, all of the sums or other economic consideration received by Tenant as a result of such subletting or assignment whether denominated rentals or otherwise, under the sublease or assignment, which exceed in the aggregate, the total sum which Tenant is obligated to pay Landlord under this Lease (prorated to reflect obligations allocable to that portion of the Demised Premises subject to such sublease) shall be payable to Landlord as additional rental under this Lease without affecting or reducing any other obligation of Tenant hereunder.

(d) If the Tenant intends to sublease all or part of the space, and Tenant requests and or accepts Landlord's assistance in providing a Sub-Tenant and Landlord does in fact provide an acceptable Sub-Tenant, Tenant will pay Landlord a leasing fee of 5% of the rent negotiated between Tenant and Sub-Tenant upon execution of the sublease agreement.

INSURANCE AND INDEMNIFICATION

12. Tenant shall procure and keep in effect during the Term public liability and property damage insurance, having as minimum limits of liability Two Million Dollars (\$2,000,000.00) for damages resulting from one occurrence, and Two Hundred Fifty Thousand Dollars (\$250,000.00) for property damage resulting from any one occurrence. Tenant shall deliver a certificate of such insurance, naming Landlord as an additional insured, and providing that such policies shall not be cancelable without thirty (30) days' prior written notice to Landlord. In the event Tenant shall fail to procure and maintain such insurance, Landlord may at its option procure or maintain the same for the account of Tenant, and the cost thereof shall be paid to Landlord as additional rent upon receipt by Tenant of bills therefor. Tenant shall also procure and keep in effect fire insurance (including standard extended coverage endorsement perils and leakage from fire protective devices) for the full replacement cost of Tenant's trade fixtures, equipment, personal property and leasehold improvements.

FIRE

13. (a) In the event the Demised Premises are damaged or destroyed in whole or in part by fire or other insured casualty during the term hereof, Landlord shall, at its own cost and expense, repair and restore the same to tenable condition with reasonable dispatch, and the rent herein provided shall be reduced in direct proportion to the amount of the Demised Premises so damaged or destroyed until such time as the Demised Premises are restored to tenable condition. If the Demised Premises cannot be restored to tenable condition within a period of one hundred eighty (180) days, Landlord and Tenant shall each have the right to terminate this Lease upon written notice to the other (Tenant's cancellation notice shall be given within 30 days after receipt of written notice from Landlord that the Demised Premises cannot be timely restored), and any rent paid for any period in advance of the date of such damage and destruction shall be refunded to Tenant. If the Demised Premises are damaged due to fire or other casualty Tenant shall at its own cost and expense remove such of its furniture and other belongings from the Demised Premises as Landlord shall require in order to repair and restore the Demised Premises. Landlord shall use reasonable discretion as to the extent of the untenability of the Demised Premises and of the time required for the repair and rebuilding of the same and no such damage or untenability shall be deemed either an actual or constructive eviction or result in an abatement of rent (except as provided herein for insured casualties).

(b) In the event the Building is destroyed to the extent of more than one-half of the then value thereof, Landlord shall have the right to terminate this Lease upon written notice to Tenant. In which event any rent paid in advance of the date of such destruction shall be refunded to Tenant.

(c) Tenant shall procure and keep in effect fire insurance (including standard extended coverage endorsement perils and leakage from fire protective devices) for the full replacement cost of Tenant's trade fixtures, equipment, personal property and leasehold improvements.

(d) Landlord and Tenant do each hereby release the other from any liability resulting from damage by fire or any other peril covered by extended coverage insurance with waiver of subrogation normally available in the State of Michigan irrespective of the cause therefore; provided, however, that if any increase in premium is required for such waiver of subrogation, the other party will pay such increase or the waiver will not be furnished, as permissible by the insurance carrier.

EMINENT DOMAIN

14. If the whole or any substantial part of the Demised Premises or the Building shall be taken by any public authority under the power of eminent domain, then the term of this Lease shall cease on the part so taken on the date possession of that part shall be required for public use, and any rent paid in advance of such date shall be refunded to Tenant, and Landlord and Tenant shall each have the right to terminate this Lease upon written notice to the other, which notice shall be delivered within thirty (30) days following the date notice is received of such taking. In the event that neither party hereto shall terminate this Lease, Landlord shall, to the extent the proceeds of the condemnation award (other than any proceeds awarded for the value of any land taken) are available, make all necessary repairs to the Demised Premises and the Building to render and restore the same to a complete architectural unit and Tenant shall continue in possession of the portion of the Demised Premises not taken under the power of eminent domain, under the same terms and conditions as are herein provided, except that the rent reserved herein shall be reduced in direct proportion to the amount of the Demised Premises so taken. All damages awarded for taking shall belong to and be the property of Landlord, whether such damages be awarded as compensation for diminution in value of the leasehold or to the fee of the Demised Premises; provided, however, Landlord shall not be entitled to any portion of the award made to Tenant for removal and reinstallation of trade fixtures, loss of business, or moving expenses.

RULES AND REGULATIONS

15. The rules and regulations set forth on Exhibit C hereto shall be binding upon Tenant and are hereby expressly made a part of this Lease.

QUIET ENJOYMENT

16. Landlord warrants that Tenant, upon paying the rents hereinbefore provided and in performing each and every covenant hereof, shall peacefully and quietly hold, occupy and enjoy the Demised Premises throughout the term hereof, without molestation or hindrance by any person holding under or through Landlord.

SUBORDINATION

17. Landlord (and its mortgagee(s)) reserves the right to subject and subordinate this Lease at all times to the lien of any mortgage(s) or ground or underlying lease(s) now or hereafter placed upon Landlord's interest in the Demised Premises or on the land and Building, and Tenant agrees upon request to execute an agreement subordinating its interest and/or attornment agreement to such mortgagees and lessors and appoints Landlord its attorney-in-fact to execute and deliver any such instruments; provided, however, that no default by Landlord under any such mortgage or ground lease shall affect Tenant's rights hereunder so long as Tenant shall not be in default. Notwithstanding the foregoing, at the request of Landlord's mortgagee(s) or such ground lessor, this Lease may be made prior and superior mortgage or mortgages and/or such ground lease.

NON-LIABILITY

18. (a) Landlord shall not be responsible or liable to Tenant for any loss or damage resulting to Tenant or its property from burst, stopped or leaking water, gas, sewer or steam pipes, or for any damage or loss of property within the Demised Premises from any cause whatsoever excepting that caused by the negligence of Landlord, its agents or employees and no such occurrence shall be deemed to be an actual or constructive eviction from the Demised Premises or result in an abatement of rental.

(b) In the event of any sale or transfer (including any transfer by operation of law) of the Demised Premises, Landlord may assign this Lease as part of the sale, provided that the transferee assumes in writing all of the obligations of Landlord under this Lease. Landlord (and any subsequent owner of the Demised Premises making such a transfer) shall be relieved from any and all obligations and liabilities under this Lease except such obligations and liabilities as shall have arisen during Landlord's (or such subsequent owner's) respective period of ownership, provided that the transferee assumes in writing all of the obligations of Landlord under this Lease.

(c) If Landlord shall fail to perform any covenant, term or condition of this Lease upon Landlord's part to be performed, and, if as a consequence of such default, Tenant shall recover a money judgment against Landlord, such judgment shall be satisfied only against the right, title and interest of Landlord in the Building and out of rents or other income from the Building receivable by Landlord, or out of the consideration received by Landlord from the sale or other disposition of all or any part of Landlord's right, title and interest in the Building, and neither Landlord nor any of the members of the limited liability company which is the Landlord herein shall be liable for any deficiency.

ENVIRONMENTAL MATTERS

19. (a) Tenant shall not use or store any Hazardous Materials on the Premises, except in compliance with Legal Requirements.

(b) To the extent directly related to the conduct of Tenant, its use of the Premises, or the operation of its business thereon, Tenant shall defend, indemnify (limited to the maximum indemnification allowed by Legal Requirements) and hold harmless Landlord, its employees, agents, officers and directors, from and against any claims, demands, penalties, fines, liabilities, settlements, damages, costs or expenses of whatever kind or nature, known or unknown, contingent or otherwise, arising out of, or in any way related to, (1) the presence, disposal or release of any Hazardous Materials by Tenant, or Tenant's exacerbation of pre-existing conditions, on, over, under, from or affecting the Premises or the soil, water, vegetation, buildings, personal property, persons thereon by reason of Tenant's action or inaction on the Premises; (2) any personal injury (including wrongful death) or property damage (real or personal) arising out of or related to such Hazardous Materials existing on the Premises by reason of Tenant's action; (3) any lawsuit brought or threatened, settlement reached or government order relating to such Hazardous Materials existing on the Premises by reason of Tenant's action; and/or (4) any violation of Legal Requirements based upon or in any way related to such Hazardous Materials existing on the Premises by reason of

Tenant's action including, without limitation, reasonable attorneys' and consultants' fees, investigation and laboratory fees, court costs and litigation expenses.

(c) To the extent directly related to the conduct of Landlord, Landlord's use of the Premises, or the operation of its business thereon, and to the extent permitted by law, Landlord shall defend, indemnify and hold harmless Tenant, its employees, agents, officers and directors, from and against any claims, demands, penalties, fines, liabilities, settlements, damages, costs or expenses of whatever kind or nature, known or unknown, contingent or otherwise, arising out of, or in anyway related to, (1) the presence, disposal or release of any Hazardous Materials by Landlord, or Landlord's exacerbation of pre-existing conditions, on, over, under, from or affecting the Premises or the soil, water, vegetation, buildings, personal property, persons thereon by reason of Landlord's action or inactions on the Premises; (2) any personal injury (including wrongful death) or property damage (real or personal) arising out of or related to such Hazardous Materials existing on the Premises by reason of Landlord's action; (3) any lawsuit brought or threatened, settlement reached or government order relating to such Hazardous Materials existing on the Premises by reason of Landlord's action; and/or (4) any violation of Legal Requirements based upon or in anyway related to such Hazardous Materials existing on the Premises by reason of Landlord's action including, without limitation, reasonable attorney's and consultant's fees, investigation and laboratory fees, court costs and litigation expenses.

(d) Pre-existing Conditions. To the extent permitted by law, Landlord shall defend, indemnify and hold harmless Tenant, its employees, agents, officers and directors, from and against any claims, demands, penalties, fines, liabilities, damages, costs or expenses of whatever kind or nature, arising out of, or in any way related to (1) the presence of any Hazardous Materials on the Premises prior to Landlord's taking title to the Premises; (2) any personal injury (including wrongful death) or property damage (real or personal) arising out of or related to such Hazardous Materials existing on the Premises prior to Landlord's taking title to the Premises; (3) any lawsuit brought or threatened or government order issued relating to such Hazardous Materials existing on the Premises prior to Landlord's taking title to the Premises; and/or (4) any violation of Legal Requirements based upon or in any way related to such Hazardous Materials existing on the Premises prior to Landlord's taking title to the Premises, including, without limitation, reasonable attorneys' and consultants' fees, investigation and laboratory fees, court costs and litigation expenses. If Tenant receives notice of any claim, suit, filing, demand or determination received by Tenant as to any of the foregoing included matters, Tenant has the responsibility to promptly give Landlord written notice and copies of such documents. Landlord shall have the right and option to defend and respond thereto with counsel of its choosing, and contest any such claim, suit, filing, demand and determination.

(e) As used herein, "Hazardous Materials" means and includes petroleum, petroleum products, asbestos, asbestos-containing materials, radioactive materials, waste oils, solvents and chlorinated oils, polychlorinated biphenyls (PCBs), and any other water, material or substance that is defined as hazardous or toxic under or regulated by any federal, state or local agent, law, rule or regulation (whether now existing or hereafter enacted or promulgated, as they may be amended from time to time) pertaining to environmental conditions, the environment, contamination or clean up, including, without limitation, federal, state or local solid waste disposal rules, the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended, the Hazardous Materials Transportation Act, as amended, the Resource Conservation and Recovery Act, as amended, the Toxic Substances Control Act, as amended, the Water Pollution Control Act, as amended, the Clean Air Act, as amended, or any other applicable federal, state or local laws, regulations, publications of Governmental Authorities, or ordinances pertaining to Hazardous Materials (collectively, "Environmental Laws").

(f) Tenant shall promptly notify Landlord as soon as it knows of or suspects that any Hazardous Materials has been released or that there is a threatened release on the Premises and it shall take such action at its sole expense and with due diligence, as is necessary to insure timely compliance with Legal Requirements unless caused by Landlord. Landlord shall promptly notify Tenant as soon as it knows or suspects any Hazardous Materials has been released or that there is a threatened release on or in the Premises and Landlord shall take such action at its sole expense and with due diligence, as is necessary to ensure timely compliance with Legal Requirements unless caused by Tenant.

NON-WAIVER

20. One or more waivers of any covenant or condition by Landlord shall not be construed as a waiver of a subsequent breach of the same covenant or condition, and the consent or approval by Landlord to or of any act by Tenant requiring Landlord's consent or approval shall not be deemed to waive or render unnecessary Landlord's consent or approval to or of any subsequent similar act by Tenant.

BANKRUPTCY

21. (a) In the event the estate created hereby shall be taken in execution or by other process of law, or if Tenant shall be adjudicated insolvent or bankrupt pursuant to the provisions of any state or federal insolvency or bankruptcy law, or if a receiver or trustee of the property of Tenant shall be appointed, or if any assignment shall be made of Tenant's property for the benefit of creditors or if a petition shall be filed by or against Tenant seeking to have Tenant adjudicated insolvent or bankrupt pursuant to the provisions of any state or federal insolvency or bankruptcy law and such petition shall not be withdrawn and the proceedings dismissed within ninety (90) days after the filing of the petition, then and in any of such events, Landlord may terminate this Lease by written notice to Tenant; provided, however, if the order of the court creating any of such disabilities shall not be final by reason of pendency of such proceedings, or appeal from such order, or if the petition shall have been withdrawn or the proceedings dismissed within ninety (90) days after the filing of the petition then Landlord shall not have the right to terminate this Lease so long as Tenant performs its obligations hereunder.

(b) If, as a matter of law, Landlord has no right on the bankruptcy of Tenant to terminate this Lease, then, if Tenant, as debtor, or its trustee, wishes to assume or assign this Lease, in addition to curing or adequately assuring the cure of all defaults existing under this Lease on Tenant's part on the date of filing of the proceeding (such assurances being defined below), Tenant, as debtor, or the trustee or assignee, must also furnish adequate assurances of future performance under this Lease (as defined below). Adequate assurance of curing defaults means the posting with Landlord of a sum in cash sufficient to defray the cost of such a cure. Adequate assurance of future performance under this Lease means posting a deposit equal to three (3) months' rent, including all other charges payable by Tenant hereunder, such as the amounts payable pursuant to Paragraph 5 hereof, and in the case of an assignee, assuring Landlord that the assignee is financially capable of assuming this Lease, and that its use of the Demised Premises will not be detrimental to the other tenants in the Building or Landlord. In reorganization under Chapter 11 of the Bankruptcy Code, the debtor or trustee must assume this Lease or assign it within sixty (60) days from the filing of the proceeding, or he shall be deemed to have rejected and terminated this Lease.

LANDLORD'S REMEDIES

22. (a) In the event Tenant shall fail to pay the rent or any other obligations involving the payment of money reserved herein when due, Landlord shall give Tenant written notice of such default and if Tenant shall fail to cure such default within ten (10) days after receipt of such notice, Landlord shall, in addition to its other remedies provided by law, and in this Lease, have the remedies set forth in Paragraph 22(c) hereof.

(b) If Tenant shall be in default in performing any of the terms of this Lease other than the payment of rent or any other obligation involving the payment of money, Landlord shall give Tenant written notice of such default, and if Tenant shall fail to cure such default within twenty (20) days after the receipt of such notice, or if the default is of such a character as to require more than twenty (20) days to cure, then if Tenant shall fail within said twenty (20) day period to commence and thereafter proceed diligently to cure such default, then and in either of such events, Landlord may (at its option and in addition to its other legal remedies) cure such default for the account of Tenant and any sum so expended by Landlord shall be additional rent for all purposes hereunder, including Paragraph 22(a) hereof, shall be paid by Tenant with the next monthly installment of rent.

(c) If any rent or any other obligation involving the payment of money shall be due and unpaid or Tenant shall be in default upon any of the terms of this Lease, and such default has not been cured after notice and within the time period in Paragraphs 22(a) and (b) hereof, or, if the Demised Premises are abandoned or vacated, then Landlord, in addition to its other remedies, shall have the immediate right of reentry. Should Landlord elect to reenter or take possession pursuant to legal proceedings or any notice provided for by the law, Landlord may either terminate this Lease or from time to time, without terminating this Lease, relet the Demised Premises or any part thereof on such terms and conditions as Landlord shall in its sole discretion deem advisable. The avails of such reletting shall be applied first, to the payment of any indebtedness of Tenant to Landlord other than rent due hereunder; second, to the payment of any reasonable alterations and repairs to the Demised Premises; third, to the payment of rent due and unpaid hereunder; and the residue, if any, shall be held by Landlord and applied in payment of future rent as the same may become due and payable hereunder. Should the avails of such reletting during any month be less than the monthly rent reserved hereunder, then Tenant shall during each such month pay such deficiency to Landlord. Upon any such termination of this Lease, Landlord may recover the worth at such time of the excess, if any, of the amount of rent and charges equivalent to the rent and charges reserved in this Lease for the remainder of the stated term over the then reasonable rental value of the Demised Premises for the remainder of the stated term, which amount shall be immediately due and payable.

(d) All rights and remedies of Landlord hereunder shall be cumulative and none shall be exclusive of any other rights and remedies allowed by law.

(e) If as a result of any breach or default in the performance of any of the provisions of this Lease, Landlord uses the services of an attorney in order to secure compliance with such provisions or recover damages therefor, or to terminate this Lease or evict Tenant, Tenant shall reimburse Landlord upon demand for any and all attorneys' fees and expenses so incurred by Landlord.

HOLDING OVER

23. It is hereby agreed that in the event of Tenant holding over after the terminating of this Lease, thereafter the tenancy shall be from month to month in the absence of a written agreement to the contrary, and Tenant shall pay to Landlord a daily occupancy charge equal to seven percent (7%) of the monthly rental under Paragraph 4 hereof for the last lease year (plus all other charges payable by Tenant under this Lease) for each day from the expiration or termination of this Lease until the date the Demised Premises are delivered in the condition required herein, and Landlord's right to damages for such illegal occupancy shall survive.

ENTIRE AGREEMENT

24. This Lease shall constitute the entire agreement of the parties hereto; all prior agreements between the parties, whether written or oral, are merged herein and shall be of no force and effect. This Lease cannot be changed, modified or discharged orally but only by an agreement in writing, signed by the both Landlord and Tenant.

NOTICES

25. Whenever under this Lease a provision is made for notice of any kind it shall be deemed sufficient notice and service thereof if such notice to Tenant is in writing addressed to Tenant at the address set forth in Paragraph 1(j) hereof, or at the Demised Premises, and deposited in the mail, certified or registered mail, with postage prepaid, and if such notice to Landlord is in writing addressed to Landlord at the address set forth in Paragraph 1(k) hereof and deposited in the mail, certified or registered mail with postage prepaid. Each of Tenant and Landlord may change the address to which notices are sent hereunder by notice to the other. Notice need be sent to only one Tenant or Landlord where Tenant or Landlord is more than one person. Landlord and Tenant also agree to send a courtesy copy of the notice(s) by email to the email address set forth in Paragraph 1(k) and 1(j).

SUCCESSORS

26. This agreement shall inure to the benefit of and be binding upon the parties hereto, their respective heirs, administrators, executors, representatives, successors and assigns.

INABILITY TO PERFORM

27. If, by reason of the occurrence of unavoidable delays due to acts of God, governmental restrictions, strikes, labor disturbances, shortages of materials or supplies or for any other cause or event beyond Landlord's reasonable control, Landlord is unable to furnish or is delayed in furnishing any utility or service required to be furnished by Landlord under the provisions of this Lease, or is unable to perform or make or is delayed in performing or making any installations, decorations, repairs, alterations, additions or improvements required to be performed or made under this Lease, or is unable to fulfill or is delayed in fulfilling any of Landlord's obligations under this Lease, no such inability or delay shall constitute an actual or constructive eviction in whole or in part, or entitle Tenant to any abatement or diminution of rental or other charges due hereunder or relieve Tenant from any of its obligations under this Lease, or impose any liability upon Landlord or its agents by reason of inconvenience or annoyance to Tenant, or injury to or interruption of Tenant's business, or otherwise.

SECURITY DEPOSIT

28. Upon the execution of this Lease, Tenant has deposited with Landlord the deposit set forth in Paragraph 1(l) hereof.

(a) The Deposit shall be returned to Tenant if a Certificate of Occupancy has not been issued by August 16, 2019.

OPTION TO RENEW

29. Tenant shall have an option to renew this lease for an additional five-year period at prevailing fair market rents for buildings of this type in the surrounding communities, provided it gives Landlord nine (9) months written notice.

OPTION TO PURCHASE AND RIGHT OF FIRST REFUSAL

30. Tenant shall also have the right to purchase the building at a prevailing fair market value for buildings of this type in the surrounding communities, provided it gives Landlord nine (9) months written notice.


31. Tenant shall also have the right of first refusal to purchase the Demised Premises in the event Landlord chooses to offer the Premises for sale during the lease term. If, at anytime, Landlord receives a bona fide written offer from any party to purchase all or part of the Demised Premises, Landlord shall send Tenant a copy of the offer and notify Tenant of its intent to accept it. Tenant shall have the right for thirty (30) days to match the terms of the offer, in writing. If Tenant does not elect to match the offer in writing within thirty (30) days, Landlord may then sell the Premises to the first offeror, provided the sale is on the conditions specified in the contract sent to Tenant.

***Signatures on separate page

IN WITNESS WHEREOF, the parties hereto have hereunto set their hands as of the day and year first above written.

WITNESS:

GENOA PROJECT, LLC




Name: Thomas Duke
Its: Managing Member
Date: 5-3-2019

IVYWOOD CLASSICAL ACADEMY





Name: Tyler Horning
Its: Board President
Date: May 3, 2019

EXHIBIT "A"
Architect plans and specifications to be included in exhibit

*****Landlord will make every effort to accommodate any and all changes by Tenant. However, changes to the plans after the lease is signed or to the finishes after selected, will impact tenant costs or rent scheduled in the Lease Agreement.*****

The decision of the Landlord's architect or receipt of a certificate of occupancy shall be final and conclusive as to whether and when the demised premises are substantially completed and ready for occupancy.

Ivywood Classical Academy Choice Schools Associates Interior Remodeling Plymouth, Michigan

CONSTRUCTION DOCUMENTS

April 18, 2019

Directory:

Owner:
GENOA PROJECT LLC, THOMAS ELZE, CORP (A71)
57000 GRAND RIVER AVENUE, SUITE 1500
PARKINGTON HILLS, MI 48375
(248) 476-5700

Architect:
DANIEL P. KANE ARCHITECTS, INC.
20000 WOODLAND DRIVE
KALAMAZOO, MI 49001
(269) 381-6800

Engineer:
STRATEGIC ENERGY SOLUTIONS
10000 WOODLAND DRIVE, SUITE 100
KALAMAZOO, MI 49001
(269) 341-1600

Project Location:

Location:
14966 GENOA COURT
PLYMOUTH, MI 48170

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AC1	CEILING CORRIDOR FLOOR PLAN
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D2	DEVELOPMENT FLOOR PLAN - INT 200
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EP3	ELECTRICAL POWER NEW WORK PLAN - INT 300
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EL1	ELECTRICAL LIGHTING NEW WORK PLAN - INT 100
EL2	ELECTRICAL LIGHTING NEW WORK PLAN - INT 200
ED-1	ELECTRICAL ONE-LINE DIAGRAM
ED-2	ELECTRICAL SCHEDULES AND DETAILS

Kingscott

KALAMAZOO | GRAND RIVERS | CHELSEA
255 EASTMAN AVENUE, SUITE 200
PLYMOUTH, MI 48170
P: 269.341.1600
E: PROJECTS@KINGS-COTT.COM
WWW.KINGS-COTT.COM

Ivywood Classical Academy
Choice Schools Associates
Plymouth Township, Michigan

FUNCTIONS/REVISED	DATE

JOB NO. 2019-03
SHEET 001
NORTH

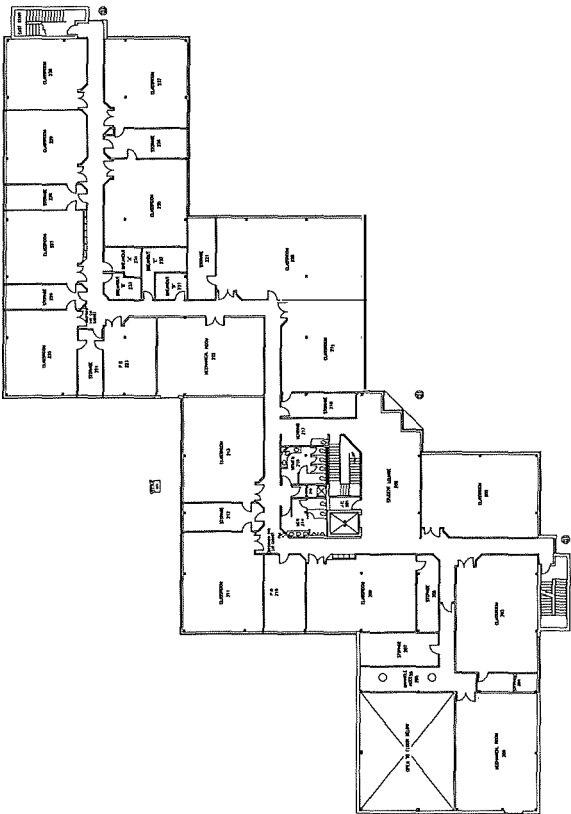
TITLE SHEET



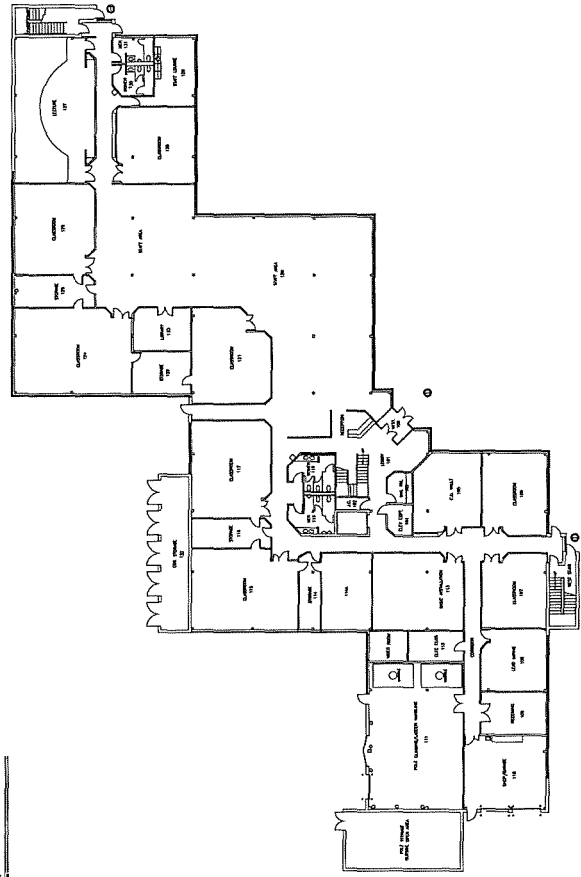
REVISIONS/REVISED	DATE



JOB NO. 301-03
 SHEET TITLE
EXISTING COMPOSITE FLOOR PLANS
 SHEET NO.



2 SECOND FLOOR EXISTING COMPOSITE FLOOR PLAN
 SCALE: 1/16" = 1'-0"



1 FIRST FLOOR EXISTING COMPOSITE FLOOR PLAN
 SCALE: 1/16" = 1'-0"

Ivywood Classical Academy
 Choice Schools Associates
 Plymouth Township, Michigan

REV	DATE	BY
1	11.13.18	AW
2	11.13.18	AW

JOB NO. 301343
 SHEET NO. 1 OF 18
 1ST AND 2ND FLOOR
 CODE COMPLIANCE PLANS
 3 SHEETS

GENERAL NOTES:
 1. ELEVATOR ROOMS ARE NOT REQUIRED BEING FULLY SPRINKLED.
 2. ALL CORRIDOR HALLS SHALL EXTEND TO THE CORNER OF ROOM TO ROOM TO PROVIDE CLEAR PASSAGE.
 3. ALL CORRIDOR HALLS SHALL EXTEND TO THE CORNER OF ROOM TO ROOM TO PROVIDE CLEAR PASSAGE.
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BUILDING CODE INFORMATION:
 MINNESOTA BUILDING CODE 2015
 MINNESOTA FIRE CODE 2015
 MINNESOTA MECHANICAL CODE 2015
 MINNESOTA ELECTRICAL CODE 2015

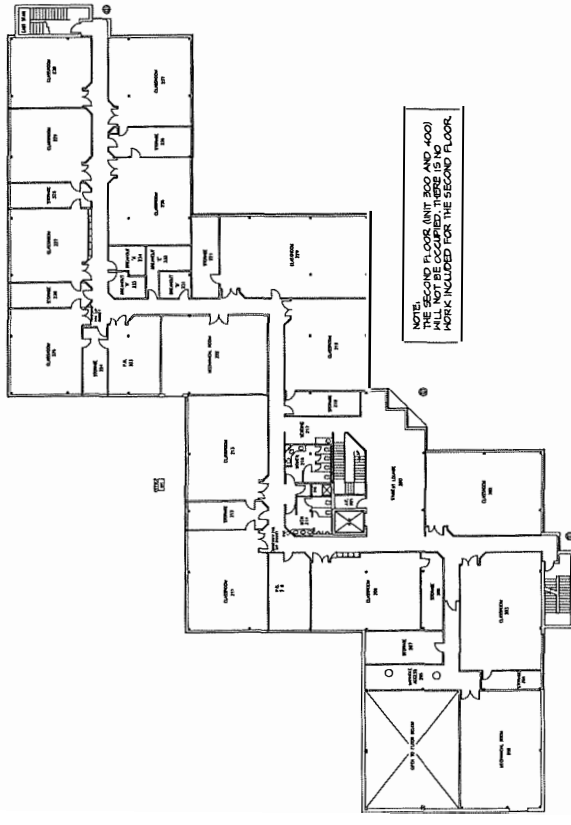
BUILDING AREA - MINNESOTA BUILDING CODE (COMPLIANT):
 OCCUPANCY: S
 CONSTRUCTION TYPE: II
 FIRE SPRINKLER SYSTEM: FULLY SPRINKLED
 MEANS OF EGRESS REQUIREMENTS:
 CORRIDOR FINISH: 1/2" GYP. BOARD
 WALL FINISH: 5/8" GYP. BOARD
 FLOOR FINISH: 2" OF ASPHALT

ALLOWABLE HEIGHT/AREA:
 ALLOWABLE HEIGHT (FLOOR TO FLOOR): 13'-0" (SEE MECHANICAL CODE)
 ALLOWABLE HEIGHT (FLOOR TO ROOF): 22'-0" (SEE MECHANICAL CODE)
 ALLOWABLE AREA (SEE MECHANICAL CODE)
 ALLOWABLE AREA (SEE MECHANICAL CODE)

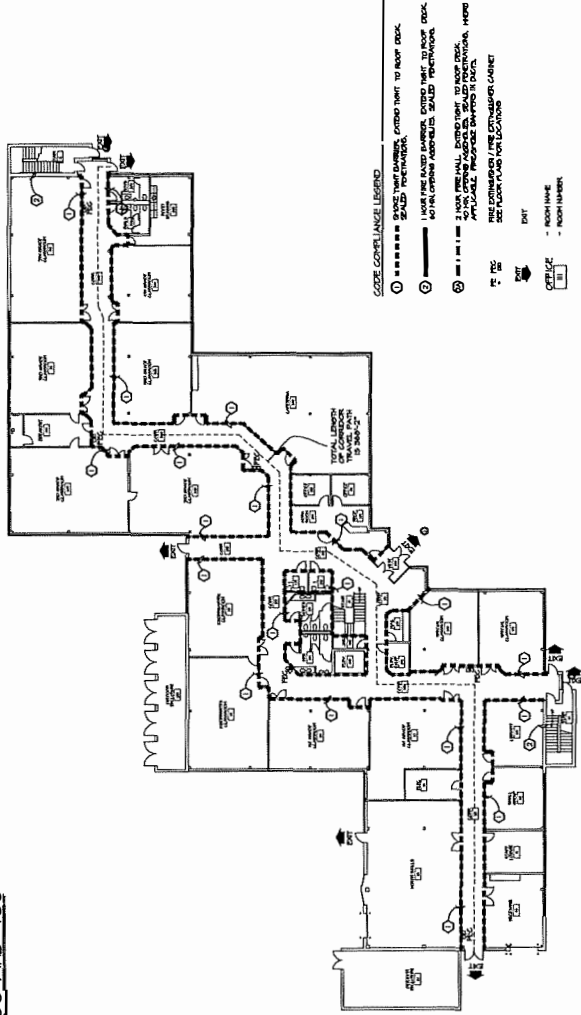
PROVIDE ROOMS OVER:
 200' x 200' (SEE MECHANICAL CODE)
 200' x 200' (SEE MECHANICAL CODE)
 200' x 200' (SEE MECHANICAL CODE)

TOTAL ALLOWABLE BUILDING AREA:
 200' x 200' x 2 = 80,000 SF.
 200' x 200' x 2 = 80,000 SF.
 SEPARATION OF BUILDING AREAS: 30' SEE MECHANICAL CODE.
 MAX. ALLOWABLE SEPARATION: 30' FEET

BUILDING AREAS AND FIRE PROTECTION:
 BUILDING AREA A: 25,000 SF. FULLY SPRINKLED
 BUILDING AREA B: 25,000 SF. FULLY SPRINKLED
 BUILDING AREA C: 25,000 SF. FULLY SPRINKLED



2 SECOND FLOOR CODE COMPLIANCE PLAN - UNIT 300 AND 400
 SCALE: 1/8" = 1'-0"



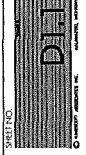
CODE COMPLIANCE LEGEND:
 (Symbol: Dashed circle) ONE HOUR FIRE RATED PARTITION, EXTEND TO ROOF DECK.
 (Symbol: Dotted circle) 2 HOUR FIRE WALL, EXTEND TO ROOF DECK.
 (Symbol: Solid circle) 2 HOUR FIRE WALL, EXTEND TO ROOF DECK.
 (Symbol: Triangle) FIRE COMPARTMENT / FIRE EXTINGUISHER CABINET
 (Symbol: Square) SEE FLOOR PLAN FOR LOCATION
 (Symbol: Diamond) EXIT
 (Symbol: Circle) EXIT
 (Symbol: Square) EXIT
 (Symbol: Circle) EXIT

1 FIRST FLOOR CODE COMPLIANCE PLAN - UNIT 100 AND 200
 SCALE: 1/8" = 1'-0"

Ivywood Classical Academy
 Choice Schools Associates
 Plymouth Township, Michigan

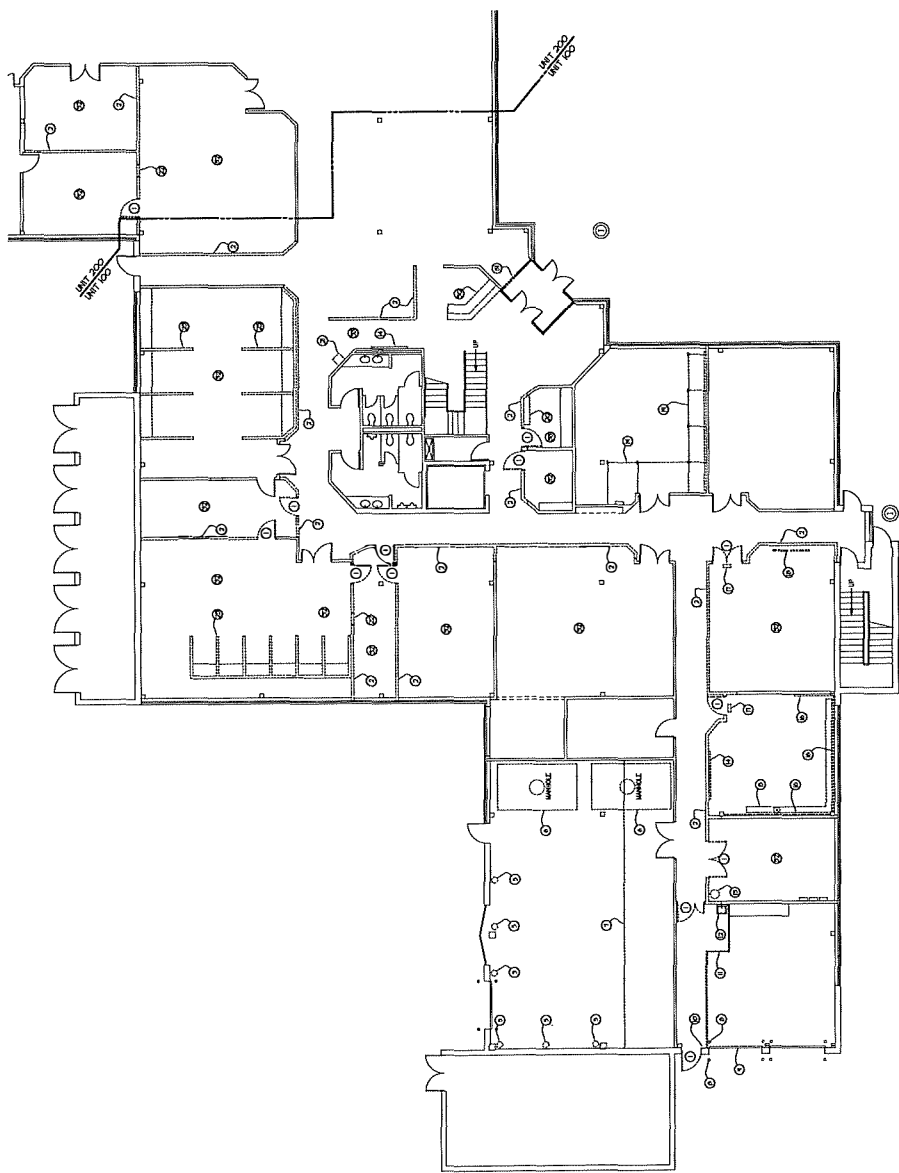
REVISION/REVIEW	DATE
AS BUILT	4/12/20

DATE: 03/15/20
 PROJECT: IVC
 SHEET NO.: DEMOLITION PLAN - UNIT 100



- GENERAL ARCHITECTURAL DEMOLITION NOTES**
1. DEMOLITION SHALL BE ACCORDING TO THE IBC AND ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS. ALL DEMOLITION SHALL BE ACCORDING TO THE IBC AND ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS. ALL DEMOLITION SHALL BE ACCORDING TO THE IBC AND ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.
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 10. ALL DEMOLITION SHALL BE ACCORDING TO THE IBC AND ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS. ALL DEMOLITION SHALL BE ACCORDING TO THE IBC AND ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.



- DEMOLITION NOTES**
1. REMOVE EXISTING ROOF AND FRAME INCLUDING ALL RELATED MATERIALS AND FLASHING AS SHOWN ON DEMOLITION PLAN.
 2. REMOVE EXISTING EXTERIOR WALLS AND ALL RELATED MATERIALS AND FLASHING AS SHOWN ON DEMOLITION PLAN.
 3. REMOVE EXISTING EXTERIOR DOORS AND ALL RELATED MATERIALS AND FLASHING AS SHOWN ON DEMOLITION PLAN.
 4. REMOVE EXISTING EXTERIOR WINDOWS AND ALL RELATED MATERIALS AND FLASHING AS SHOWN ON DEMOLITION PLAN.
 5. REMOVE EXISTING EXTERIOR FINISHES AND ALL RELATED MATERIALS AS SHOWN ON DEMOLITION PLAN.
 6. REMOVE EXISTING EXTERIOR TRIM AND ALL RELATED MATERIALS AS SHOWN ON DEMOLITION PLAN.
 7. REMOVE EXISTING EXTERIOR LIGHT FIXTURES AND ALL RELATED MATERIALS AS SHOWN ON DEMOLITION PLAN.
 8. REMOVE EXISTING EXTERIOR VENTILATION DEVICES AND ALL RELATED MATERIALS AS SHOWN ON DEMOLITION PLAN.
 9. REMOVE EXISTING EXTERIOR HANDICAP COMPLIANCE DEVICES AND ALL RELATED MATERIALS AS SHOWN ON DEMOLITION PLAN.
 10. REMOVE EXISTING EXTERIOR SIGNAGE AND ALL RELATED MATERIALS AS SHOWN ON DEMOLITION PLAN.
 11. REMOVE EXISTING EXTERIOR PAINT AND ALL RELATED MATERIALS AS SHOWN ON DEMOLITION PLAN.
 12. REMOVE EXISTING EXTERIOR STAIRS AND ALL RELATED MATERIALS AS SHOWN ON DEMOLITION PLAN.
 13. REMOVE EXISTING EXTERIOR RAMP AND ALL RELATED MATERIALS AS SHOWN ON DEMOLITION PLAN.
 14. REMOVE EXISTING EXTERIOR BALCONY AND ALL RELATED MATERIALS AS SHOWN ON DEMOLITION PLAN.
 15. REMOVE EXISTING EXTERIOR TERRACE AND ALL RELATED MATERIALS AS SHOWN ON DEMOLITION PLAN.
 16. REMOVE EXISTING EXTERIOR DRIVEWAY AND ALL RELATED MATERIALS AS SHOWN ON DEMOLITION PLAN.
 17. REMOVE EXISTING EXTERIOR SIDEWALK AND ALL RELATED MATERIALS AS SHOWN ON DEMOLITION PLAN.
 18. REMOVE EXISTING EXTERIOR FENCE AND ALL RELATED MATERIALS AS SHOWN ON DEMOLITION PLAN.
 19. REMOVE EXISTING EXTERIOR GROUND COVER AND ALL RELATED MATERIALS AS SHOWN ON DEMOLITION PLAN.
 20. REMOVE EXISTING EXTERIOR UTILITIES AND ALL RELATED MATERIALS AS SHOWN ON DEMOLITION PLAN.
 21. REMOVE EXISTING EXTERIOR FOUNDATION AND ALL RELATED MATERIALS AS SHOWN ON DEMOLITION PLAN.
 22. REMOVE EXISTING EXTERIOR FOUNDATION WALLS AND ALL RELATED MATERIALS AS SHOWN ON DEMOLITION PLAN.
 23. REMOVE EXISTING EXTERIOR FOUNDATION FOOTINGS AND ALL RELATED MATERIALS AS SHOWN ON DEMOLITION PLAN.
 24. REMOVE EXISTING EXTERIOR FOUNDATION BRICKWORK AND ALL RELATED MATERIALS AS SHOWN ON DEMOLITION PLAN.
 25. REMOVE EXISTING EXTERIOR FOUNDATION CONCRETE AND ALL RELATED MATERIALS AS SHOWN ON DEMOLITION PLAN.
 26. REMOVE EXISTING EXTERIOR FOUNDATION BLOCKWORK AND ALL RELATED MATERIALS AS SHOWN ON DEMOLITION PLAN.
 27. REMOVE EXISTING EXTERIOR FOUNDATION CMU AND ALL RELATED MATERIALS AS SHOWN ON DEMOLITION PLAN.
 28. REMOVE EXISTING EXTERIOR FOUNDATION CMU BLOCKS AND ALL RELATED MATERIALS AS SHOWN ON DEMOLITION PLAN.
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 49. REMOVE EXISTING EXTERIOR FOUNDATION CMU BLOCKS AND ALL RELATED MATERIALS AS SHOWN ON DEMOLITION PLAN.
 50. REMOVE EXISTING EXTERIOR FOUNDATION CMU BLOCKS AND ALL RELATED MATERIALS AS SHOWN ON DEMOLITION PLAN.



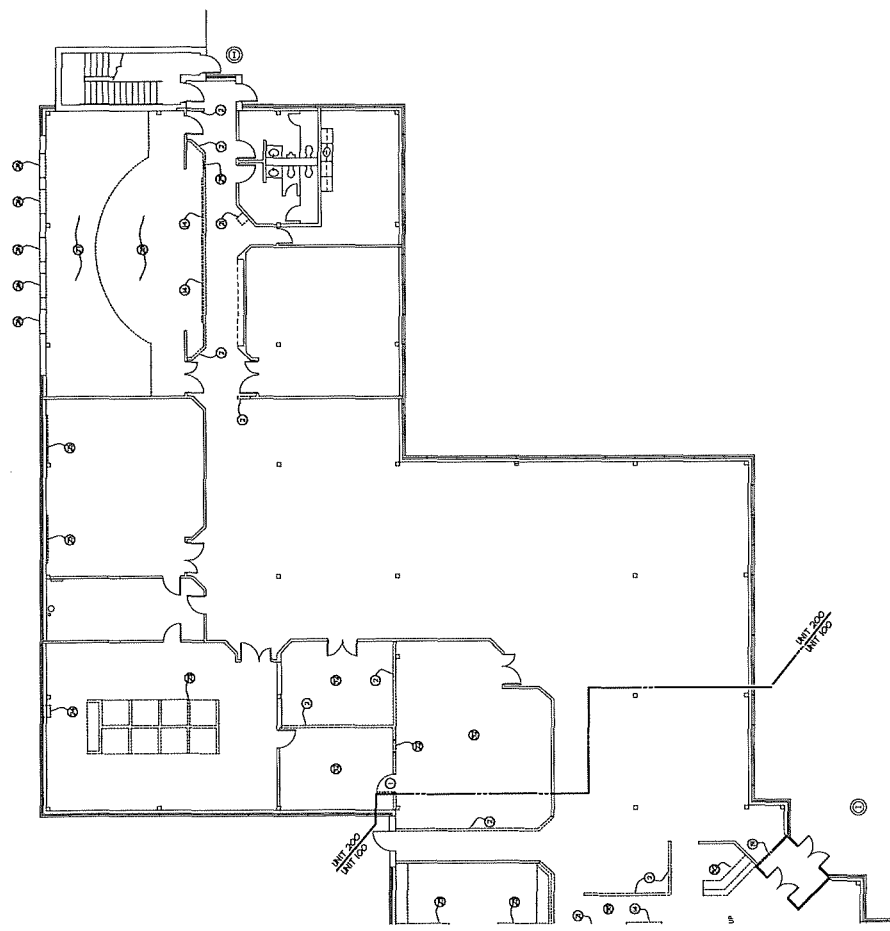
1 DEMOLITION FLOOR PLAN - UNIT 100
 SCALE: 1/8" = 1'-0"

Ivywood Classical Academy
 Choice Schools Associates
 Plymouth Township, Michigan

REVISIONS/REVIEW	DATE

 NORTH
 JOB NO. 201003
 SHEET TITLE
**FIRST FLOOR
 DEMOLITION PLAN - UNIT 200**
 PROJECTS




- GENERAL ARCHITECTURAL DEMOLITION NOTES**
1. CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH ALL OTHER TRADES AND TO OBTAIN ALL NECESSARY PERMITS AND APPROVALS FOR THIS PROJECT. ADDITIONAL DEMOLITION WORK MAY BE REQUIRED ON THIS PROJECT. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FOR THIS PROJECT. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FOR THIS PROJECT. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FOR THIS PROJECT.
 2. THE DEMOLITION WORK SHOWN HEREON IS BASED ON THE INFORMATION PROVIDED BY THE CONTRACTOR. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FOR THIS PROJECT. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FOR THIS PROJECT. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FOR THIS PROJECT.
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 10. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FOR THIS PROJECT. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FOR THIS PROJECT. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FOR THIS PROJECT.



1 DEMOLITION FLOOR PLAN - UNIT 200
 SCALE: 1/8" = 1'-0"

Ivywood Classical Academy
 Choice Schools Associates
 Plymouth Township, Michigan

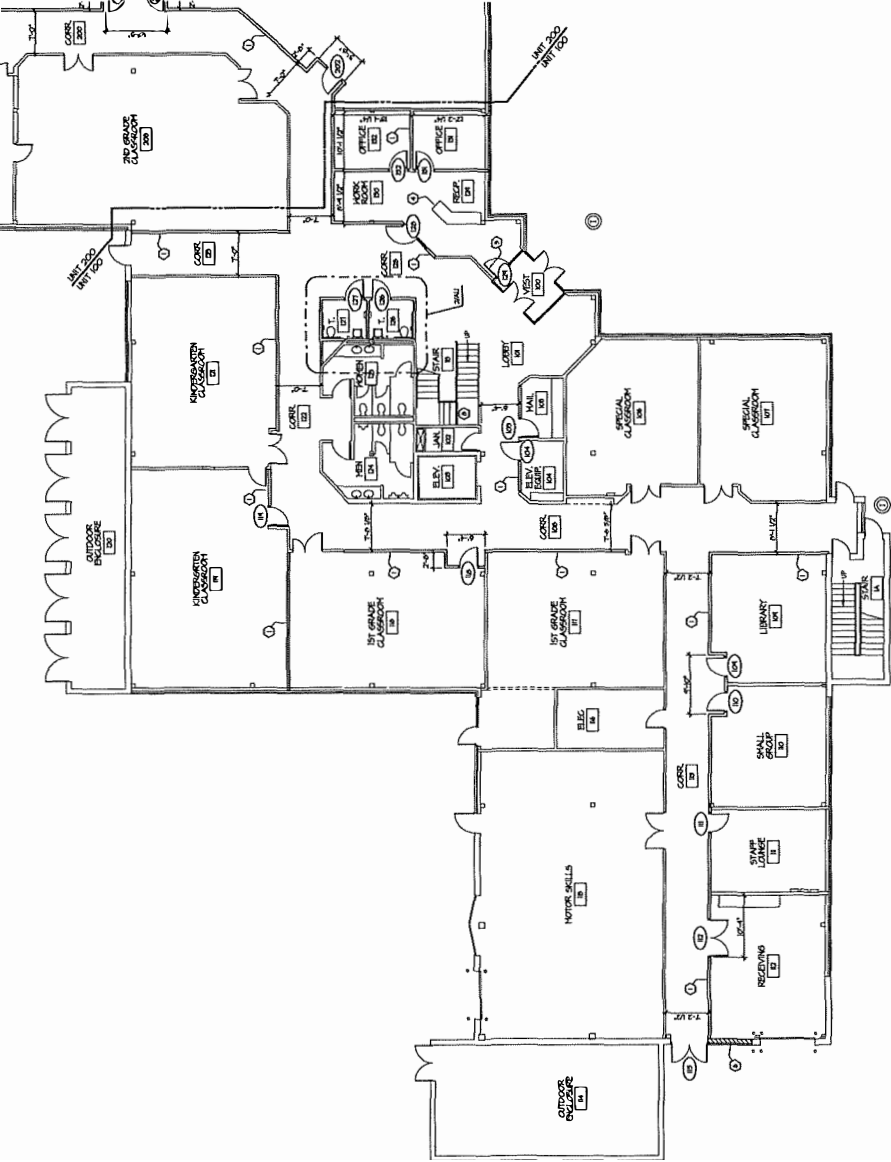
REVISION/VIEW	DATE

 NORTH
 JOB NO. 201503
 SHEET TITLE
**FIRST FLOOR
 ROOM PLAN - UNIT 100**
 SHEETS NO. 

- GENERAL NOTES**
1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE IBC AND ALL APPLICABLE CODES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND INSURANCE.
 2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND INSURANCE.
 3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND INSURANCE.
 4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND INSURANCE.
 5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND INSURANCE.

- ARCHITECTURAL NOTES**
1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE IBC AND ALL APPLICABLE CODES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND INSURANCE.
 2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND INSURANCE.
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 5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND INSURANCE.

- TOILET ACCESSORIES**
- 1. TOILET ACCESSORIES SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITIONS OF THE IBC AND ALL APPLICABLE CODES.
 - 2. TOILET ACCESSORIES SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITIONS OF THE IBC AND ALL APPLICABLE CODES.
 - 3. TOILET ACCESSORIES SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITIONS OF THE IBC AND ALL APPLICABLE CODES.
 - 4. TOILET ACCESSORIES SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITIONS OF THE IBC AND ALL APPLICABLE CODES.
 - 5. TOILET ACCESSORIES SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITIONS OF THE IBC AND ALL APPLICABLE CODES.



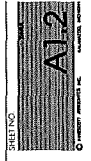
2 ENLARGED TOILET ROOM FLOOR PLAN
 SCALE: 1/4" = 1'-0"

1 FIRST FLOOR PLAN - UNIT 100
 SCALE: 1/8" = 1'-0"

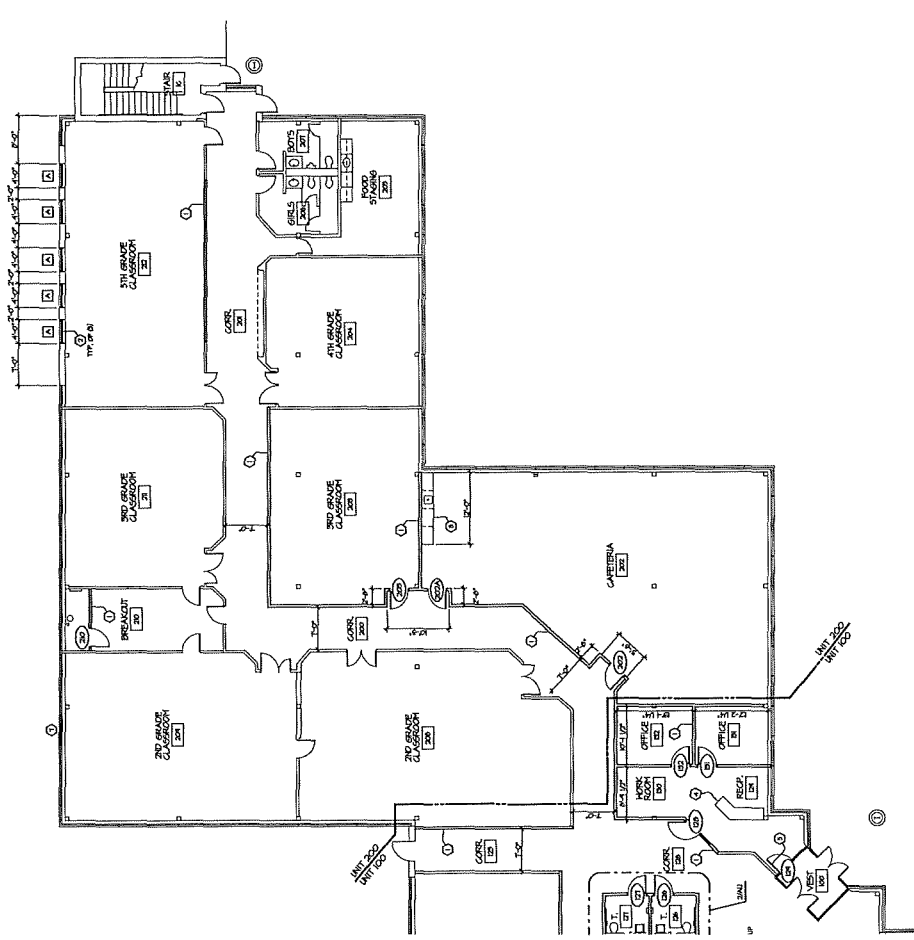
Ivywood Classical Academy
 Choice Schools Associates
 Plymouth Township, Michigan

REVISION/REVIEW	DATE

FOR NO. 3015-03
 SHEET TITLE
 FIRST FLOOR
 FLOOR PLAN - UNIT 200



- GENERAL NOTES:**
1. INCLUDE ALL WALLS, CEILING, FLOOR, AND ROOFING TO BE INSTALLED OR REPAIRED. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE INTERNATIONAL BUILDING CODE (IBC) AND ALL APPLICABLE LOCAL, STATE, AND FEDERAL CODES. ALL MATERIALS SHALL BE APPROVED BY THE ARCHITECT AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. ALL MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE INTERNATIONAL BUILDING CODE (IBC) AND ALL APPLICABLE LOCAL, STATE, AND FEDERAL CODES.
 2. PROVIDE ALL NECESSARY MATERIALS AND LABOR FOR THE INSTALLATION OF ALL WORK. ALL MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. ALL MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE INTERNATIONAL BUILDING CODE (IBC) AND ALL APPLICABLE LOCAL, STATE, AND FEDERAL CODES.
 3. PROVIDE ALL NECESSARY MATERIALS AND LABOR FOR THE INSTALLATION OF ALL WORK. ALL MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. ALL MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE INTERNATIONAL BUILDING CODE (IBC) AND ALL APPLICABLE LOCAL, STATE, AND FEDERAL CODES.
 4. PROVIDE ALL NECESSARY MATERIALS AND LABOR FOR THE INSTALLATION OF ALL WORK. ALL MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. ALL MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE INTERNATIONAL BUILDING CODE (IBC) AND ALL APPLICABLE LOCAL, STATE, AND FEDERAL CODES.
 5. PROVIDE ALL NECESSARY MATERIALS AND LABOR FOR THE INSTALLATION OF ALL WORK. ALL MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. ALL MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE INTERNATIONAL BUILDING CODE (IBC) AND ALL APPLICABLE LOCAL, STATE, AND FEDERAL CODES.
- ASSEMBLY NOTES:**
1. PARTIAL WALLS FOR EXISTING ROOMS OF 8'-0" OR MORE SHALL BE DEMOLISHED TO EXISTING FOOTING. PROVIDE ALL NECESSARY MATERIALS AND LABOR FOR THE RECONSTRUCTION OF ALL EXISTING WALLS TO MATCH EXISTING ADJACENT ROOMS OR BUILDING.
 2. PROVIDE ALL NECESSARY MATERIALS AND LABOR FOR THE RECONSTRUCTION OF ALL EXISTING WALLS TO MATCH EXISTING ADJACENT ROOMS OR BUILDING.
 3. PROVIDE ALL NECESSARY MATERIALS AND LABOR FOR THE RECONSTRUCTION OF ALL EXISTING WALLS TO MATCH EXISTING ADJACENT ROOMS OR BUILDING.
 4. PROVIDE ALL NECESSARY MATERIALS AND LABOR FOR THE RECONSTRUCTION OF ALL EXISTING WALLS TO MATCH EXISTING ADJACENT ROOMS OR BUILDING.
 5. PROVIDE ALL NECESSARY MATERIALS AND LABOR FOR THE RECONSTRUCTION OF ALL EXISTING WALLS TO MATCH EXISTING ADJACENT ROOMS OR BUILDING.



1 FIRST FLOOR PLAN - UNIT 200
 SCALE: 1/8" = 1'-0"

Ivywood Classical Academy Choice Schools Associates Plymouth Township, Michigan

REVISED REVIEW	DATE

JOB NO. 3015-03
 SHEET TITLE
 FIRST FLOOR REFLECTED
 CEILING PLAN - UNIT 100
 SHEET NO.

 NORTH

GENERAL REFLECTED CEILING PLAN NOTES:

1. REFLECTED CEILING PLAN IS TO BE USED FOR ALL ROOMS AND AREAS. ALL ROOMS AND AREAS NOT SPECIFICALLY NOTED OTHERWISE SHALL BE REFLECTED CEILING.

REFLECTED CEILING LEGEND:

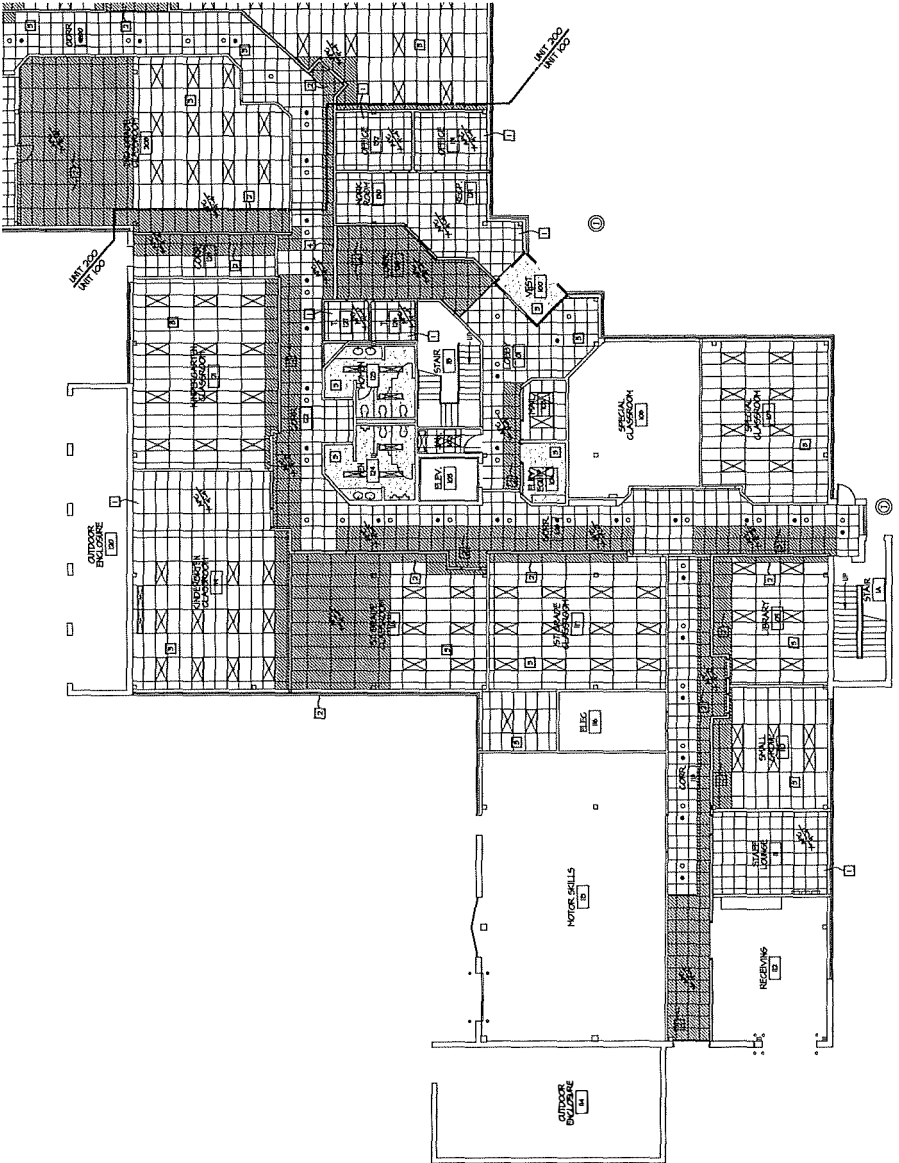
- LAY-IN LIGHT FIXTURE
- SPRUNG-HUNG LIGHT FIXTURE
- SIMPLE DOWNER
- RECESSED DOWNER
- RECESSED PANELS, REFLECTED CEILING
- RECESSED PANELS, HANGERS TO MATCH ADJACENT
- ACoustICAL PANEL, CEILING (APC)
- STRIP BOARD CEILING / BALFOARD

REFLECTED CEILING PLAN NOTES:

- 1. NOT LAY-IN CEILING FIXTURE, HANGERS EXISTING CEILING HANGERS.
- 2. WALL MOUNTED CEILING FIXTURES AND DOWNERS SHALL BE REFLECTED CEILING. HANGERS SHALL BE REFLECTED CEILING.
- 3. EXISTING CEILING TO REMAIN.
- 4. NEW CEILING SHALL BE CEILING, NEW HANGERS SHALL BE HANGERS, NEW HANGERS SHALL BE HANGERS, NEW HANGERS SHALL BE HANGERS.

CEILING MATERIAL SPECIFICATIONS

- LIGHT FIXTURES: ALL NEW
- RECESSED DOWNERS: ALL NEW
- ACoustICAL PANELS: ALL NEW
- HANGERS: ALL NEW

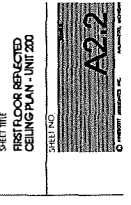


1 REFLECTED CEILING PLAN - UNIT 100
 SCALE: 1/8" = 1'-0"

Ivywood Classical Academy
 Choice Schools Associates
 Plymouth Township, Michigan

REVISION/REVIEW	DATE

JOB NO. 301208
 SHEET TITLE
 FIRST FLOOR REFLECTED
 CEILING PLAN - UNIT 200
 SHEET NO.



GENERAL REFLECTED CEILING PLAN NOTES

1. REFER TO CEILING MATERIAL, FINISHES, JOINTS, AND JOINT TREATMENT FOR ALL CEILING MATERIALS AND FINISHES. ALL CEILING MATERIALS AND FINISHES ARE TO BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.

REFLECTED CEILING LEGEND

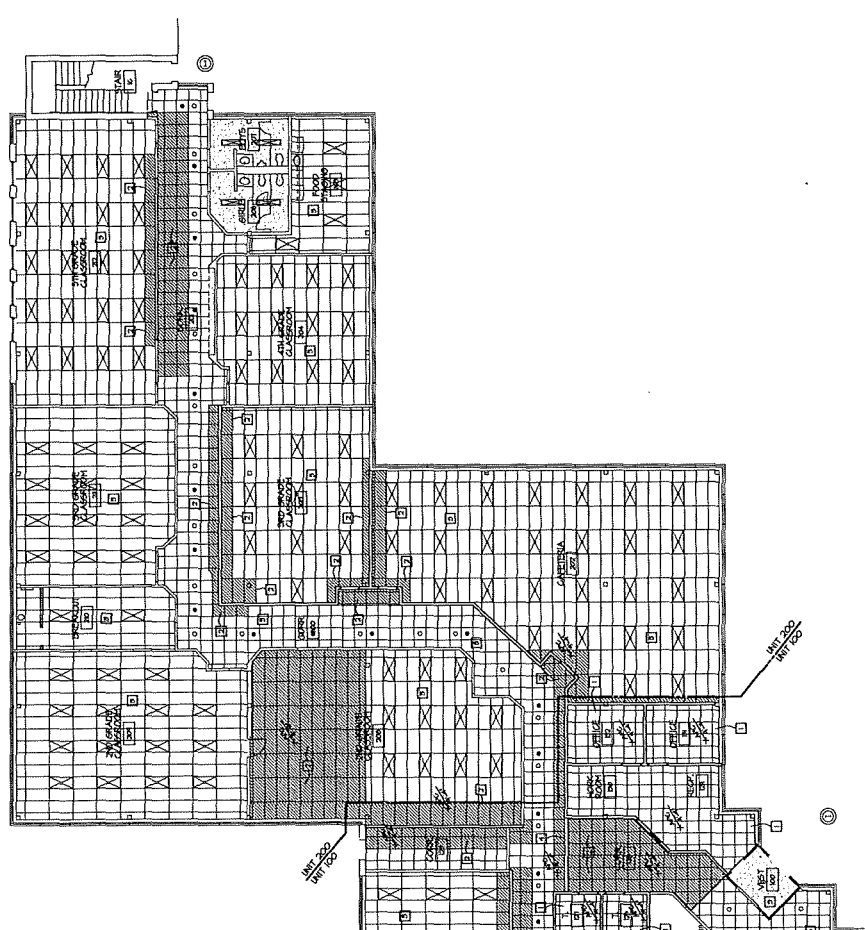
- LAY-IN LIGHT FIXTURE
- SURFACE MOUNTED LIGHT FIXTURE
- SUSPENDED LIGHT FIXTURE
- REPAIR PATCHES
- REPAIR PATCHES WITH GROUT JOINTS
- REPAIR PATCHES WITH MATCH ADJACENT JOINTS
- AZUREAL PANEL CEILING (MOC)
- BRUSH BOARD CEILING / BOARDUP

REFLECTED CEILING PLAN NOTES

- 1. NEW LAY-IN CEILING SYSTEMS: CEILING IDENT.
- 2. NEW LAY-IN CEILING SYSTEMS: CEILING IDENT. AND COMPARTMENT.
- 3. CEILING TO BE REPAIRED.
- 4. NEW CEILING TO BE INSTALLED. SEE FINISH SCHEDULE FOR CEILING IDENT. AND COMPARTMENT.
- 5. REPAIR PATCHES: MATCH ADJACENT JOINTS.
- 6. REPAIR PATCHES: MATCH JOINTS AND CEILING IDENT.

CEILING MATERIAL SPECIFICATIONS

1. ALL CEILING MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. ALL CEILING MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.



REFLECTED CEILING PLAN - UNIT 200
 SCALE: 1/8" = 1'-0"

REVISIONS/REVIEWS

NO.	DATE	BY	DESCRIPTION

SHEET TITLE: NORTH

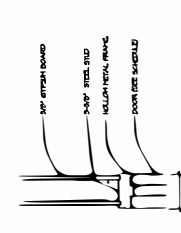
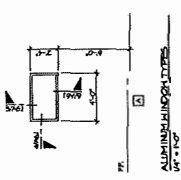
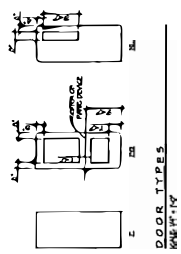
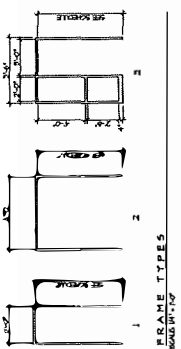
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DOOR SCHEDULE AND DOOR DETAILS

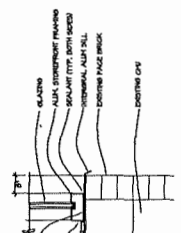
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DOOR SCHEDULE

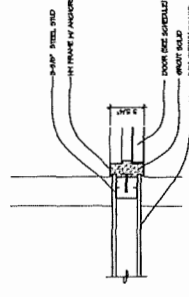
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102	3072	NL	1/2"	AL	1/2"	1/2"	1/2"	1/2"	1/2"
103	3072	NL	1/2"	AL	1/2"	1/2"	1/2"	1/2"	1/2"
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109	3072	NL	1/2"	AL	1/2"	1/2"	1/2"	1/2"	1/2"
110	3072	NL	1/2"	AL	1/2"	1/2"	1/2"	1/2"	1/2"
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112	3072	NL	1/2"	AL	1/2"	1/2"	1/2"	1/2"	1/2"
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114	3072	NL	1/2"	AL	1/2"	1/2"	1/2"	1/2"	1/2"
115	3072	NL	1/2"	AL	1/2"	1/2"	1/2"	1/2"	1/2"
116	3072	NL	1/2"	AL	1/2"	1/2"	1/2"	1/2"	1/2"
117	3072	NL	1/2"	AL	1/2"	1/2"	1/2"	1/2"	1/2"
118	3072	NL	1/2"	AL	1/2"	1/2"	1/2"	1/2"	1/2"
119	3072	NL	1/2"	AL	1/2"	1/2"	1/2"	1/2"	1/2"
120	3072	NL	1/2"	AL	1/2"	1/2"	1/2"	1/2"	1/2"



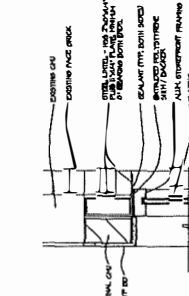
3 HEAD - HOLLOW METAL
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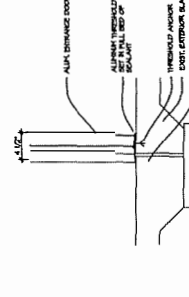
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1/2\"/>



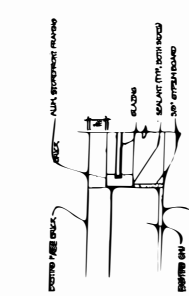
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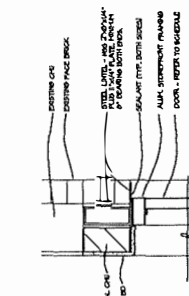
5 HEAD - ALUMINUM
1/2\"/>



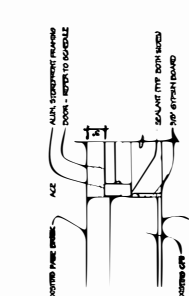
1 SILL - ALUMINUM DOOR
1/2\"/>



4 JAMB - ALUMINUM
1/2\"/>




8 HEAD - ALUMINUM
1/2\"/>




7 JAMB - ALUMINUM
1/2\"/>

Ivywood Classical Academy
 Choice Schools Associates
 Plymouth Township, Michigan

REVISIONS/REVISED	DATE

 NORTH
 JOB NO. 201503
 SHEET TITLE
COLOR LAYOUT PLAN
UNIT 100
 SHEET NO.



A&I
 ARCHITECTURE
 1000 East Main Street
 Grand Rapids, MI 49503
 P: 616.233.3333
 F: 616.233.3334
 www.aandai.com

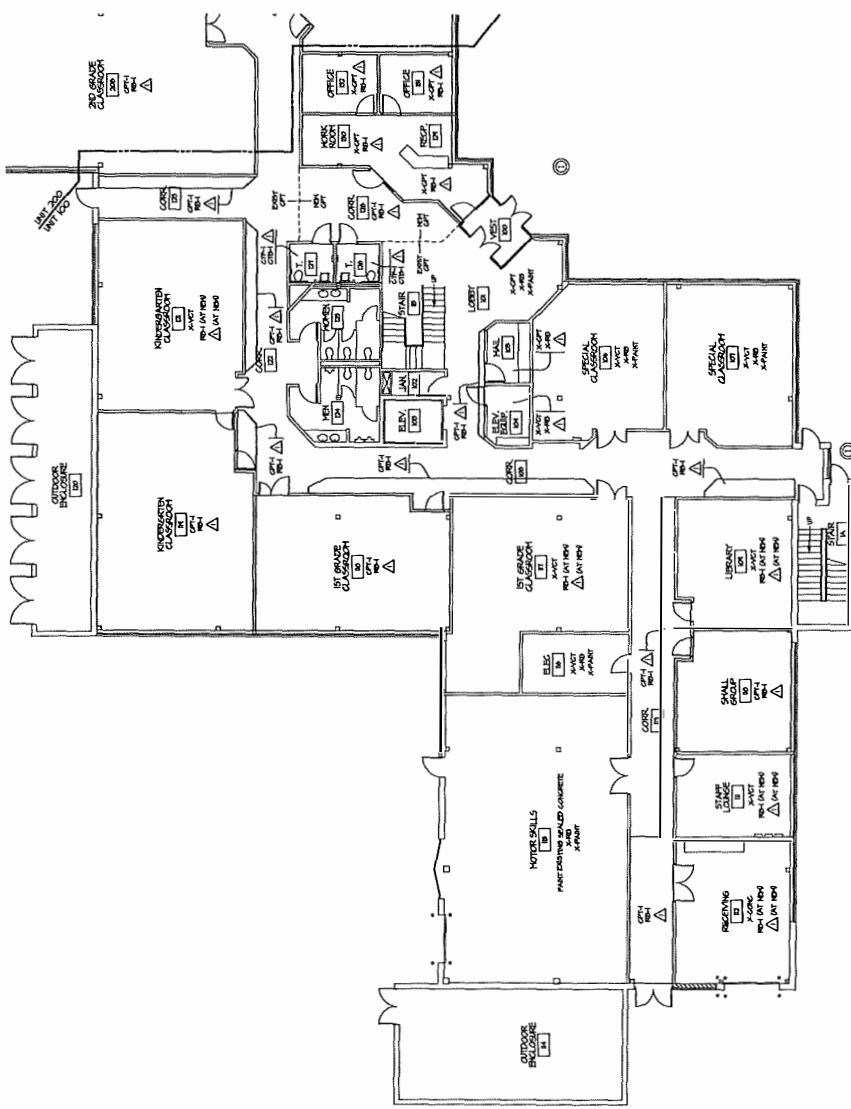
- GENERAL COLOR NOTES:**
1. FINISH SCHEDULES FOR ALL WALLS TO CORRESPOND TO THE FINISH SCHEDULES FOR THE INTERIOR WALLS AND CEILING.
 2. PAINT FINISHES SHALL BE TO MATCH THE FINISHES SHOWN ON THE FINISH SCHEDULES.
 3. PAINT FINISHES SHALL BE TO MATCH THE FINISHES SHOWN ON THE FINISH SCHEDULES.
 4. FINISHES SHALL BE TO MATCH THE FINISHES SHOWN ON THE FINISH SCHEDULES.

- GENERAL MATERIAL SPECIFICATIONS:**
- 1. FINISH SCHEDULES SHALL BE TO MATCH THE FINISHES SHOWN ON THE FINISH SCHEDULES.
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 - 10. FINISH SCHEDULES SHALL BE TO MATCH THE FINISHES SHOWN ON THE FINISH SCHEDULES.

- MATERIAL SPECIFICATIONS:**
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GENERAL NOTES:

- 1. FINISH SCHEDULES SHALL BE TO MATCH THE FINISHES SHOWN ON THE FINISH SCHEDULES.
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- 9. FINISH SCHEDULES SHALL BE TO MATCH THE FINISHES SHOWN ON THE FINISH SCHEDULES.
- 10. FINISH SCHEDULES SHALL BE TO MATCH THE FINISHES SHOWN ON THE FINISH SCHEDULES.



1 COLOR LAYOUT PLAN - UNIT 100
 SCALE: 1/8" = 1'-0"

Ivywood Classical Academy Choice Schools Associates Plymouth Township, Michigan

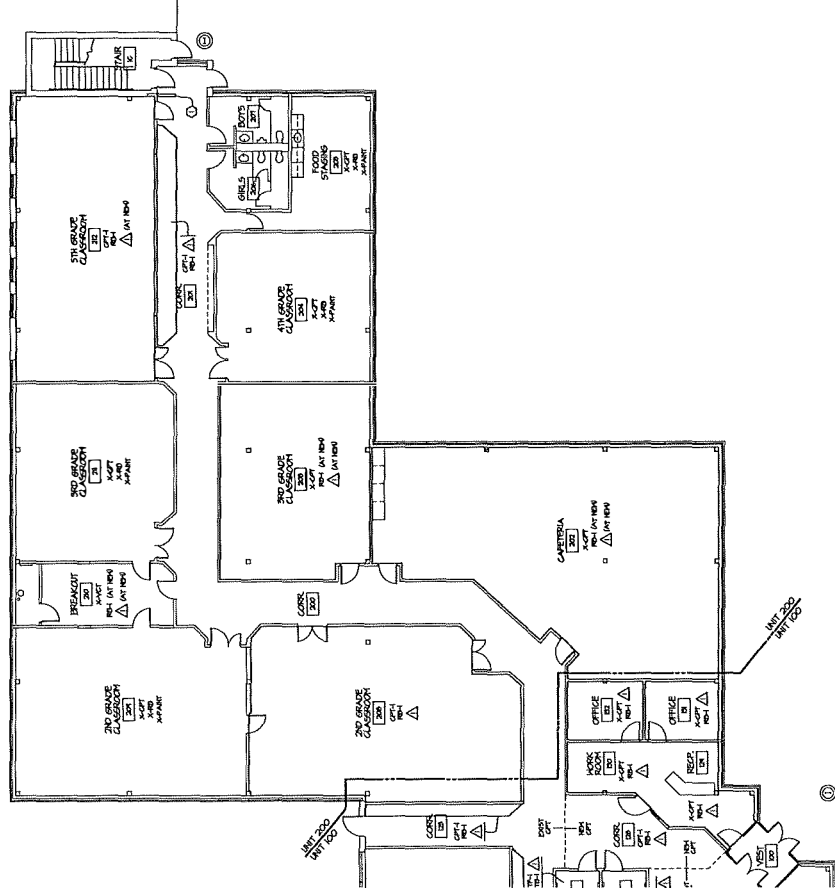
REVISIONS/REVIEWS	DATE

JOB NO: 301303
 SHEET TITLE: COLOR LAYOUT PLAN
 UNIT 200



SHEET NO: A8.2

- GENERAL COLOR NOTES:**
- IN THE EVENT THAT THE CLIENT HAS CHANGED THE COLOR LAYOUT PLAN, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A COLOR LAYOUT PLAN TO THE CLIENT.
 - ALL WALLS AND PARTITIONS SHALL BE FINISHED WITH A COLOR LAYOUT PLAN TO BE SUBMITTED TO THE CLIENT FOR APPROVAL.
 - ALL WALLS AND PARTITIONS SHALL BE FINISHED WITH A COLOR LAYOUT PLAN TO BE SUBMITTED TO THE CLIENT FOR APPROVAL.
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 - ALL WALLS AND PARTITIONS SHALL BE FINISHED WITH A COLOR LAYOUT PLAN TO BE SUBMITTED TO THE CLIENT FOR APPROVAL.
- MATERIAL SPECIFICATIONS:**
- CONCRETE: ALL CONCRETE SHALL BE 4000 PSI COMPRESSIVE STRENGTH. ALL CONCRETE SHALL BE FINISHED WITH A COLOR LAYOUT PLAN TO BE SUBMITTED TO THE CLIENT FOR APPROVAL.
- PAINT: ALL WALLS AND PARTITIONS SHALL BE FINISHED WITH A COLOR LAYOUT PLAN TO BE SUBMITTED TO THE CLIENT FOR APPROVAL.
- FLOORING: ALL FLOORING SHALL BE FINISHED WITH A COLOR LAYOUT PLAN TO BE SUBMITTED TO THE CLIENT FOR APPROVAL.
- COLOR LAYOUT KEY NOTES:**
1. ALL WALLS AND PARTITIONS SHALL BE FINISHED WITH A COLOR LAYOUT PLAN TO BE SUBMITTED TO THE CLIENT FOR APPROVAL.



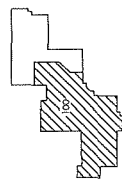
1 COLOR LAYOUT PLAN - UNIT 200
 SCALE: 1/8" = 1'-0"



Ivywood Classical Academy
 Choice Schools Associates
 Plymouth Township, Michigan

REVISION/REVIEW	DATE

KEY PLAN



JOB NO. 3018-00

PROJECT TITLE
 MECHANICAL DEMOLITION PLAN - UNIT 100

SHEET NO.



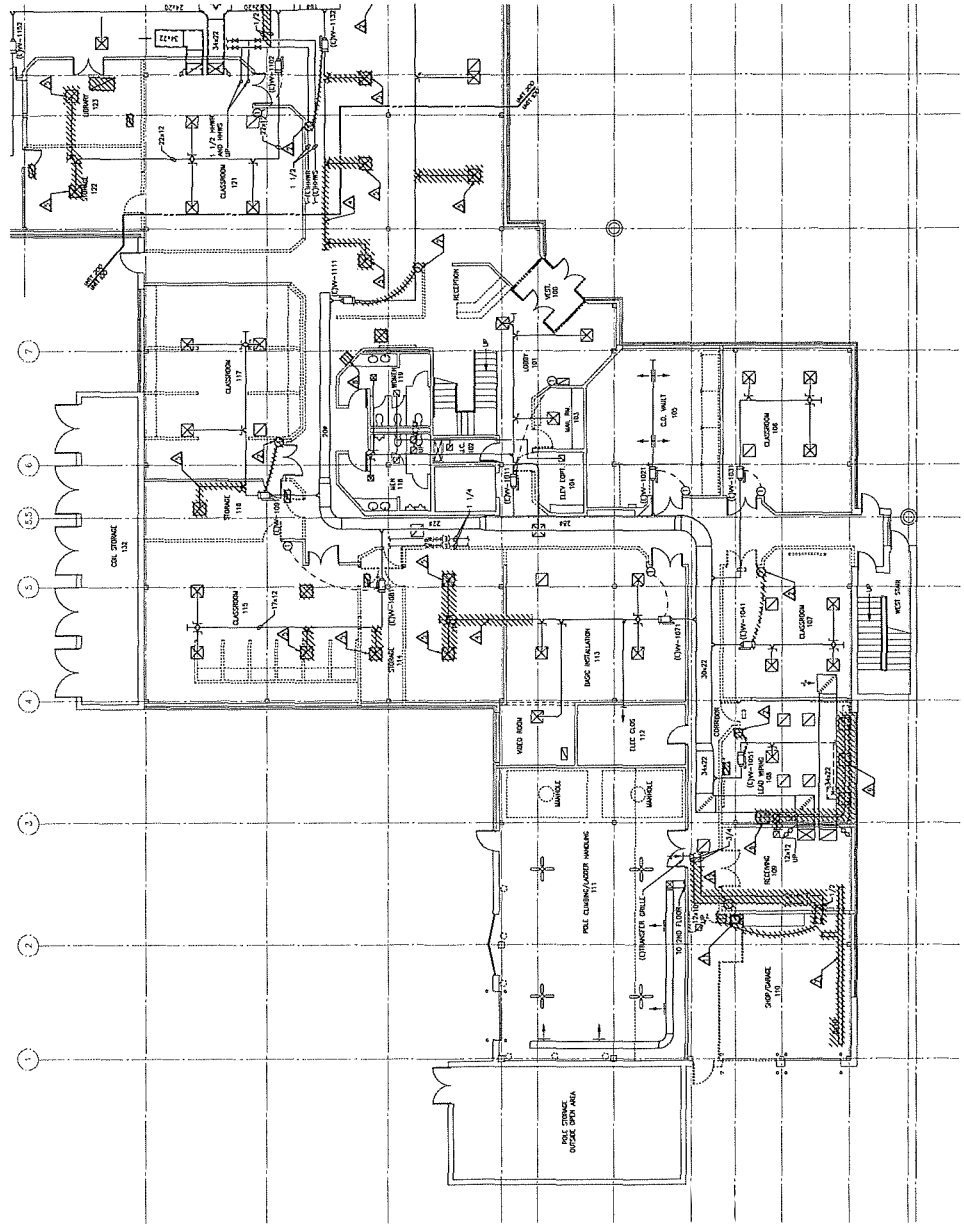
DATE PLOTTED: 11/13/18

MECHANICAL DEMOLITION NOTES

1. EXISTING MECHANICAL SYSTEMS AND EQUIPMENT SHALL BE DEMOLISHED AND REMOVED FROM THE PROJECT SITE AS SHOWN ON THIS PLAN. THE EXACT LOCATION OF DEMOLITION SHALL BE AS SHOWN ON THIS PLAN.
2. PRIOR TO COMMENCEMENT OF WORK, CONTRACTORS SHALL VERIFY THE SET AND EXISTING MECHANICAL SYSTEMS AND EQUIPMENT TO BE DEMOLISHED AND REMOVED FROM THE PROJECT SITE.
3. VERIFY EXISTING MECHANICAL SYSTEMS AND EQUIPMENT TO BE DEMOLISHED AND REMOVED FROM THE PROJECT SITE. VERIFY EXISTING MECHANICAL SYSTEMS AND EQUIPMENT TO BE DEMOLISHED AND REMOVED FROM THE PROJECT SITE.
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9. ALL EXISTING MECHANICAL SYSTEMS AND EQUIPMENT SHALL BE DEMOLISHED AND REMOVED FROM THE PROJECT SITE. VERIFY EXISTING MECHANICAL SYSTEMS AND EQUIPMENT TO BE DEMOLISHED AND REMOVED FROM THE PROJECT SITE.
10. ALL EXISTING MECHANICAL SYSTEMS AND EQUIPMENT SHALL BE DEMOLISHED AND REMOVED FROM THE PROJECT SITE. VERIFY EXISTING MECHANICAL SYSTEMS AND EQUIPMENT TO BE DEMOLISHED AND REMOVED FROM THE PROJECT SITE.
11. ALL EXISTING MECHANICAL SYSTEMS AND EQUIPMENT SHALL BE DEMOLISHED AND REMOVED FROM THE PROJECT SITE. VERIFY EXISTING MECHANICAL SYSTEMS AND EQUIPMENT TO BE DEMOLISHED AND REMOVED FROM THE PROJECT SITE.
12. ALL EXISTING MECHANICAL SYSTEMS AND EQUIPMENT SHALL BE DEMOLISHED AND REMOVED FROM THE PROJECT SITE. VERIFY EXISTING MECHANICAL SYSTEMS AND EQUIPMENT TO BE DEMOLISHED AND REMOVED FROM THE PROJECT SITE.

DEMOLITION KEYED NOTES

1. REMOVE MECHANICAL SYSTEMS AND EQUIPMENT FROM RELOCATION.
2. REMOVE MECHANICAL SYSTEMS AND EQUIPMENT FROM RELOCATION.
3. REMOVE MECHANICAL SYSTEMS AND EQUIPMENT FROM RELOCATION.
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11. REMOVE MECHANICAL SYSTEMS AND EQUIPMENT FROM RELOCATION.
12. REMOVE MECHANICAL SYSTEMS AND EQUIPMENT FROM RELOCATION.

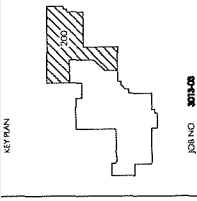


MECHANICAL DEMOLITION PLAN - UNIT 100
 SCALE: 1/8" = 1'-0"



Ivywood Classical Academy
Choice Schools Associates
Plymouth Township, Michigan

REVISION/REVIEW	DATE
	7/17/16



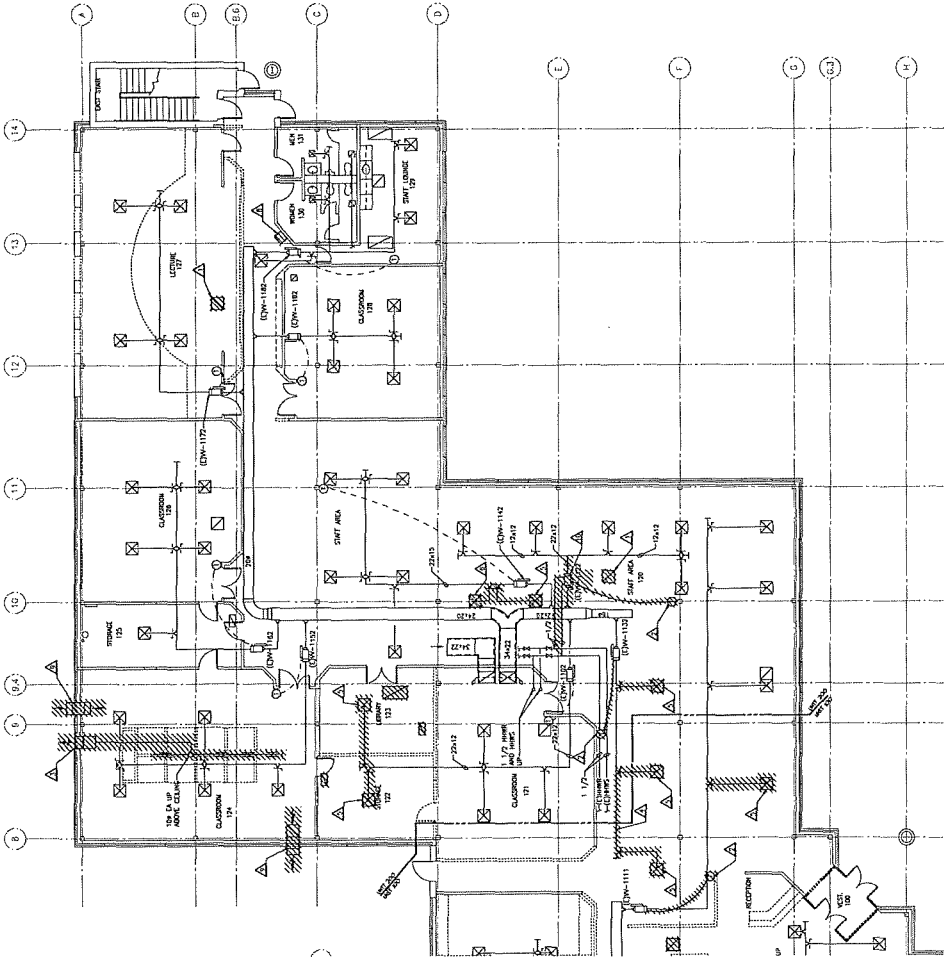
JOB NO.	3019-03
SHEET TITLE	MECHANICAL DEMOLITION PLAN - UNIT 200
SHEET NO.	MD1.2
DATE	7/17/16

MECHANICAL DEMOLITION NOTES

1. EXISTING DEMOLITION SHALL BE PERFORMED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE CONTRACT DOCUMENTS SHALL BE AS SHOWN ON THESE PLANS. THE CONTRACT DOCUMENTS SHALL BE AS SHOWN ON THESE PLANS.
2. PRIOR TO COMMENCEMENT OF WORK, CONTRACTOR SHALL VERIFY THE SIZE AND LOCATION OF ALL EXISTING MECHANICAL EQUIPMENT AND UTILITIES. CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL EXISTING MECHANICAL EQUIPMENT AND UTILITIES.
3. VERIFY EXISTING MECHANICAL EQUIPMENT AND UTILITIES ARE PROTECTED FROM DAMAGE. CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL EXISTING MECHANICAL EQUIPMENT AND UTILITIES.
4. EXISTING MECHANICAL EQUIPMENT AND UTILITIES SHALL BE DEMOLISHED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL EXISTING MECHANICAL EQUIPMENT AND UTILITIES.
5. ALL EXISTING MECHANICAL EQUIPMENT AND UTILITIES SHALL BE DEMOLISHED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL EXISTING MECHANICAL EQUIPMENT AND UTILITIES.
6. ALL EXISTING MECHANICAL EQUIPMENT AND UTILITIES SHALL BE DEMOLISHED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL EXISTING MECHANICAL EQUIPMENT AND UTILITIES.
7. ALL EXISTING MECHANICAL EQUIPMENT AND UTILITIES SHALL BE DEMOLISHED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL EXISTING MECHANICAL EQUIPMENT AND UTILITIES.
8. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL EXISTING MECHANICAL EQUIPMENT AND UTILITIES.

DEMOLITION KEYED NOTES

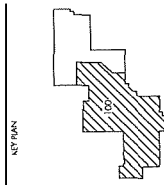
1. REMOVE EXISTING MECHANICAL EQUIPMENT AND UTILITIES IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
2. REMOVE EXISTING MECHANICAL EQUIPMENT AND UTILITIES IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
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11. REMOVE EXISTING MECHANICAL EQUIPMENT AND UTILITIES IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
12. REMOVE EXISTING MECHANICAL EQUIPMENT AND UTILITIES IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.



MECHANICAL DEMOLITION PLAN - UNIT 200
SCALE: 1/8" = 1'-0"

Ivywood Classical Academy
 Choice Schools Associates
 Plymouth Township, Michigan

REVISIONS/REVIEW	DATE



JOB NO. 3019-09
 PROJECT
 PLUMBING NEW WORK PLAN - UNIT 100

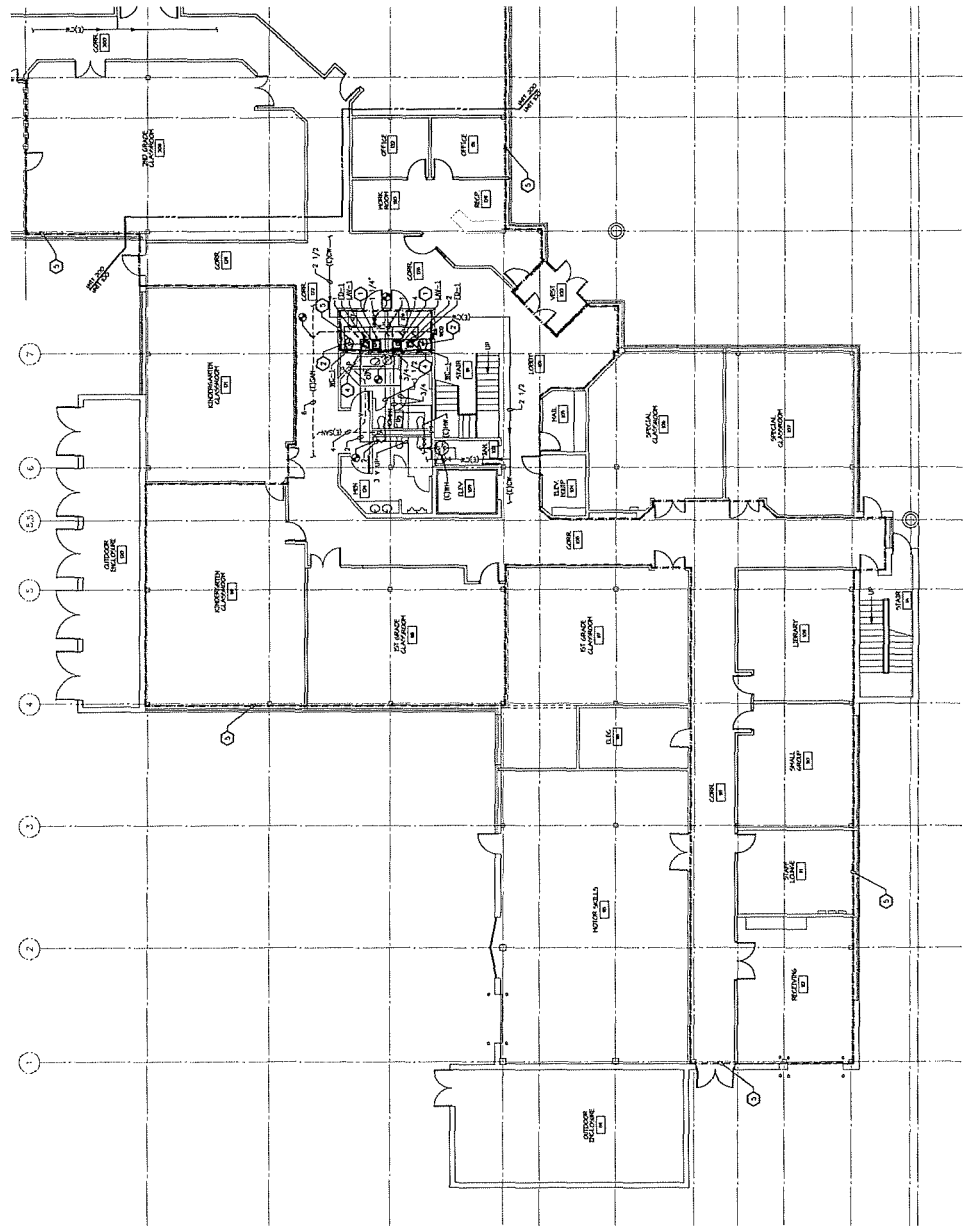
SHEET NO.
PI
 SHEETS

PLUMBING GENERAL NOTES

1. THESE DRAWINGS ARE CONTRACTORS AND INDICATE THE GENERAL SCOPE OF THE WORK. PROVIDE DETAILED CONSTRUCTION DETAILS AND THE PHYSICAL STRUCTURE, ETC.
2. VERIFY ALL DIMENSIONS, FINISHES, TOOLS, MATERIALS AND METHODS TO BE USED IN THE FIELD AND ADDRESS THE CONSULTANT. VERIFY ALL DIMENSIONS WITH THE ARCHITECTURE.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH THE STATE AND LOCAL AGENCIES TO OBTAIN ALL NECESSARY PERMITS AND APPROVALS.
4. VERIFY LOCAL, STATE, FEDERAL AND COUNTY OF ALL UTILITIES IN THE FIELD. VERIFY ALL DIMENSIONS, FINISHES, TOOLS, MATERIALS AND METHODS TO BE USED IN THE FIELD AND ADDRESS THE CONSULTANT. VERIFY ALL DIMENSIONS WITH THE ARCHITECTURE.
5. CONTRACTOR SHALL COORDINATE THE INSTALLATION OF PLUMBING AND FINISHES TO THE ARCHITECTURE'S REQUIREMENTS. VERIFY ALL DIMENSIONS WITH THE ARCHITECTURE.
6. FINISHES SHALL BE NOTED AS MUCH AS POSSIBLE AND SHALL INCLUDE: WALLS, FLOORS, CEILING, ROOFING, INTERIORS, EXTERIORS, AND FINISHES. VERIFY ALL DIMENSIONS WITH THE ARCHITECTURE.
7. PROVIDE SCHEDULE OF ALL DIMENSIONS, FINISHES, TOOLS, MATERIALS AND METHODS TO BE USED IN THE FIELD AND ADDRESS THE CONSULTANT. VERIFY ALL DIMENSIONS WITH THE ARCHITECTURE.
8. PROVIDE SCHEDULE OF ALL DIMENSIONS, FINISHES, TOOLS, MATERIALS AND METHODS TO BE USED IN THE FIELD AND ADDRESS THE CONSULTANT. VERIFY ALL DIMENSIONS WITH THE ARCHITECTURE.
9. PROVIDE SCHEDULE OF ALL DIMENSIONS, FINISHES, TOOLS, MATERIALS AND METHODS TO BE USED IN THE FIELD AND ADDRESS THE CONSULTANT. VERIFY ALL DIMENSIONS WITH THE ARCHITECTURE.
10. PROVIDE SCHEDULE OF ALL DIMENSIONS, FINISHES, TOOLS, MATERIALS AND METHODS TO BE USED IN THE FIELD AND ADDRESS THE CONSULTANT. VERIFY ALL DIMENSIONS WITH THE ARCHITECTURE.
11. SHOW ALL DIMENSIONS AND ROOM FINISHES 3/16" OR LESS AT 1/4" PER FOOT WITH AN ANNOTATION OF THE FINISH TO BE USED. VERIFY ALL DIMENSIONS WITH THE ARCHITECTURE.
12. PROVIDE SCHEDULE OF ALL DIMENSIONS, FINISHES, TOOLS, MATERIALS AND METHODS TO BE USED IN THE FIELD AND ADDRESS THE CONSULTANT. VERIFY ALL DIMENSIONS WITH THE ARCHITECTURE.
13. PROVIDE SCHEDULE OF ALL DIMENSIONS, FINISHES, TOOLS, MATERIALS AND METHODS TO BE USED IN THE FIELD AND ADDRESS THE CONSULTANT. VERIFY ALL DIMENSIONS WITH THE ARCHITECTURE.
14. PROVIDE SCHEDULE OF ALL DIMENSIONS, FINISHES, TOOLS, MATERIALS AND METHODS TO BE USED IN THE FIELD AND ADDRESS THE CONSULTANT. VERIFY ALL DIMENSIONS WITH THE ARCHITECTURE.

KEYED NOTES

1. CONNECT TO DRAINAGE, 1" 1/2" DIA. DOWN IN WALL AND 1" DIA. DOWN IN WALL AND 4" DIA. DOWN AND CONNECT TO WATER CLOSET.
2. 1" DIA. DOWN IN WALL AND 4" DIA. DOWN AND CONNECT TO WATER CLOSET.
3. 1" DIA. DOWN IN WALL AND 4" DIA. DOWN AND CONNECT TO WATER CLOSET.
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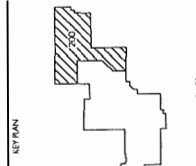


PLUMBING NEW WORK PLAN - UNIT 100
 SCALE: 1/8" = 1'-0"



Ivywood Classical Academy
Choice Schools Associates
Plymouth Township, Michigan

REVISION/REVIEW	DATE



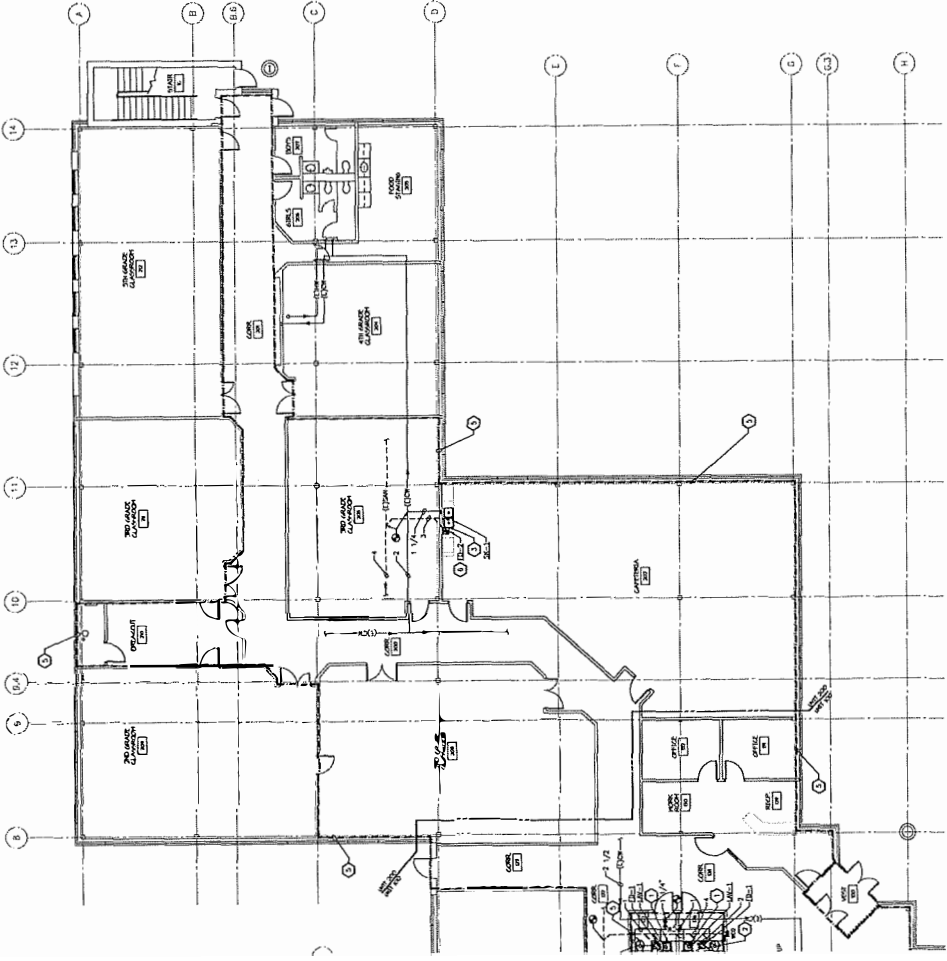
JOB NO. 2019-05
SHEET TITLE
PLUMBING NEW WORK PLAN - UNIT 200
SHEET NO.
P1.2

PLUMBING GENERAL NOTES

1. EXISTING CONDITIONS AND REQUIREMENTS SHALL BE SHOWN ON THE GENERAL NOTES OF THE PLUMBING WORK. ALL NEW WORK SHALL BE SHOWN ON THE PLUMBING WORK. ALL NEW WORK SHALL BE SHOWN ON THE PLUMBING WORK.
2. ALL NEW WORK SHALL BE SHOWN ON THE PLUMBING WORK. ALL NEW WORK SHALL BE SHOWN ON THE PLUMBING WORK.
3. CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE STATE AND LOCAL PLUMBING CODES AND THE MANUFACTURER'S INSTRUCTIONS.
4. ALL NEW WORK SHALL BE SHOWN ON THE PLUMBING WORK. ALL NEW WORK SHALL BE SHOWN ON THE PLUMBING WORK.
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KEYED NOTES

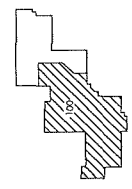
1. CONNECT TO EXISTING 1/2" x 1/2" x 1/2" SDR 15 IN WALL AND
2. BRACE 1" ON DOWN IN WALL AND 1" ON DOWN AND CONNECT TO WATER
3. AND 1/2" x 1/2" x 1/2" SDR 15 IN WALL, BRACE AND CONNECT 1/2" ON 18" DIA
4. AND 1/2" x 1/2" x 1/2" SDR 15 IN WALL, BRACE AND CONNECT IN CORNER
5. BRACE AND CONNECT TO EXISTING 1/2" x 1/2" x 1/2" SDR 15 IN WALL
6. MAKE UP 2" DIA TO FLOOR DRAIN, EXTEND FLOOR DRAIN UP THROUGH
7. EXISTING 1/2" x 1/2" x 1/2" SDR 15 IN WALL



PLUMBING NEW WORK PLAN - UNIT 200
SCALE: 1/8" = 1'-0"

Ivywood Classical Academy
Choice Schools Associates
Plymouth Township, Michigan

REVISIONS/REVIEW	DATE



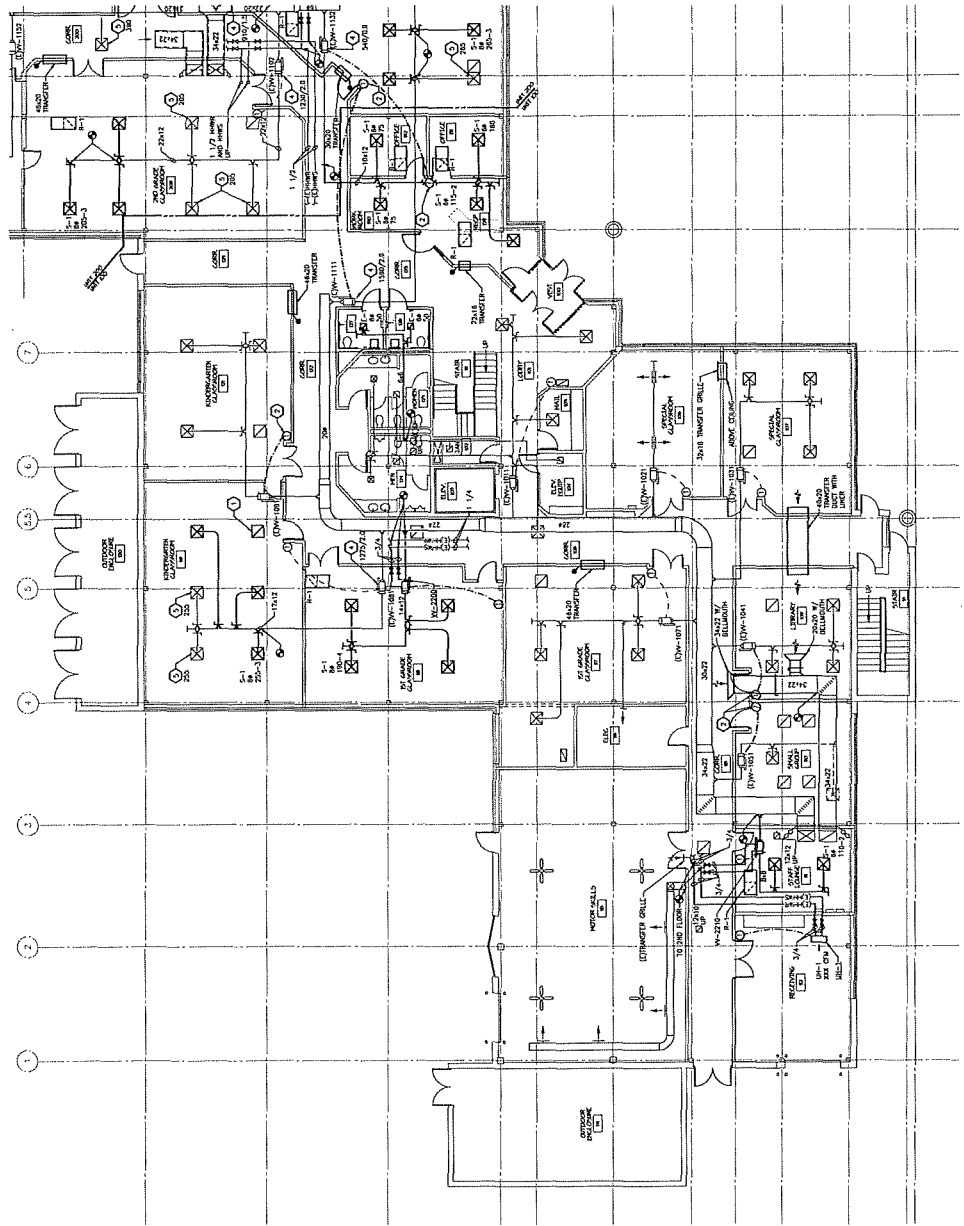
JOB NO. 1803-05
SHEET TITLE
MECHANICAL NETWORK PLAN - LINE 100
SHEET NO.
MIT
MECHANICAL NETWORK PLAN - LINE 100

HVAC GENERAL NOTES

1. THESE DRAWINGS ARE SUPPLEMENTARY AND INDICATE THE GENERAL LAYOUT OF THE MECHANICAL SYSTEMS. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD AND MAKE NECESSARY ADJUSTMENTS TO THE SYSTEMS TO ACCOMMODATE ALL FIELD CONDITIONS. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD AND MAKE NECESSARY ADJUSTMENTS TO THE SYSTEMS TO ACCOMMODATE ALL FIELD CONDITIONS.
2. CONTRACTOR SHALL COORDINATE THIS WORK WITH THE WORK OF ALL OTHER TRADES AND SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS. VERIFY ALL CLEARANCES PRIOR TO THE INSTALLATION OF ANY MECHANICAL EQUIPMENT.
3. MECHANICAL ROOMS SHALL BE LOCATED AS NEAR AS POSSIBLE TO THE EQUIPMENT TO BE SERVED AND SHALL NOT BE LOCATED IN HIGH TRAFFIC AREAS OR NEAR ELEVATORS OR STAIRWAYS. MECHANICAL ROOMS SHALL BE LOCATED AS NEAR AS POSSIBLE TO THE EQUIPMENT TO BE SERVED AND SHALL NOT BE LOCATED IN HIGH TRAFFIC AREAS OR NEAR ELEVATORS OR STAIRWAYS.
4. MECHANICAL ROOMS SHALL NOT BE LOCATED IN A LOCATION THAT INTERFERES WITH THE ACCESS TO MECHANICAL SERVICES REQUIRING ACCESS.
5. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY BRACING AND SUPPORTS FOR ALL MECHANICAL EQUIPMENT AND PIPING. ALL BRACING SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND THE 2015 INTERNATIONAL MECHANICAL CODE (IMC).
6. CONTRACTOR SHALL PROVIDE ALL NECESSARY BRACING AND SUPPORTS FOR ALL MECHANICAL EQUIPMENT AND PIPING. ALL BRACING SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND THE 2015 INTERNATIONAL MECHANICAL CODE (IMC).
7. THE CONTRACTOR SHALL REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EACH ROOM FOR THE LOCATION OF ALL MECHANICAL EQUIPMENT AND PIPING. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD AND MAKE NECESSARY ADJUSTMENTS TO THE SYSTEMS TO ACCOMMODATE ALL FIELD CONDITIONS.
8. CONTRACTOR SHALL PROVIDE ALL NECESSARY BRACING AND SUPPORTS FOR ALL MECHANICAL EQUIPMENT AND PIPING. ALL BRACING SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND THE 2015 INTERNATIONAL MECHANICAL CODE (IMC).
9. CONTRACTOR SHALL PROVIDE ALL NECESSARY BRACING AND SUPPORTS FOR ALL MECHANICAL EQUIPMENT AND PIPING. ALL BRACING SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND THE 2015 INTERNATIONAL MECHANICAL CODE (IMC).
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12. CONTRACTOR SHALL PROVIDE ALL NECESSARY BRACING AND SUPPORTS FOR ALL MECHANICAL EQUIPMENT AND PIPING. ALL BRACING SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND THE 2015 INTERNATIONAL MECHANICAL CODE (IMC).
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14. ALL BRACING SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND THE 2015 INTERNATIONAL MECHANICAL CODE (IMC).

KEYED NOTES

1. RELOCATED DRILL COMPARTMENT FROM LOCATION WITH ARCHITECTURAL FINISHES TO LOCATION WITH ARCHITECTURAL FINISHES.
2. RELOCATED MECHANICAL EQUIPMENT FROM LOCATION WITH ARCHITECTURAL FINISHES TO LOCATION WITH ARCHITECTURAL FINISHES.
3. NOT SHOWN.
4. RE-BRACE EXISTING FIN FINISHED BOX TO CHANGING ROOM.
5. BRACE EXISTING BRIDGE TO OTHER ROOMS.





Ivywood Classical Academy
Choice Schools Associates
Plymouth Township, Michigan

REVISIONS	DATE



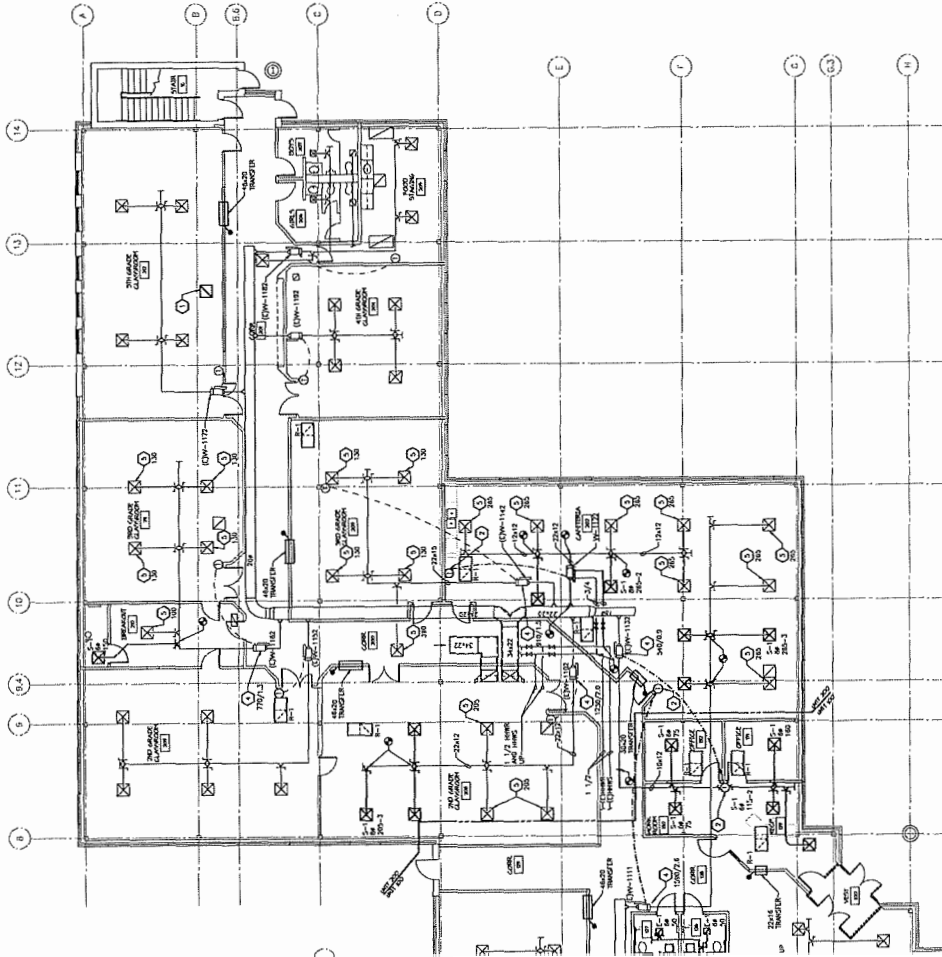
JOB NO. 201803
SHEET NO. 201
MECHANICAL NEW WORK PLAN - UNIT 200
SHEET NO. M1.2

HVAC GENERAL NOTES

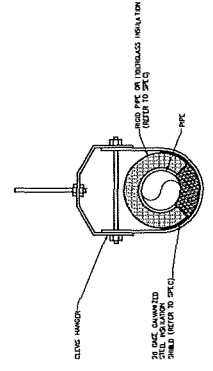
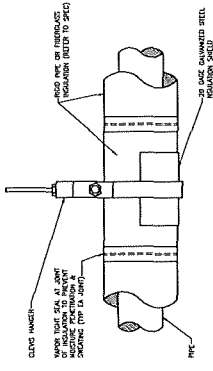
1. THESE NOTES APPLY TO THE ENTIRE PROJECT UNLESS OTHERWISE NOTED. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING MECHANICAL EQUIPMENT AND DUCTWORK. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING MECHANICAL EQUIPMENT AND DUCTWORK. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING MECHANICAL EQUIPMENT AND DUCTWORK.
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14. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING MECHANICAL EQUIPMENT AND DUCTWORK. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING MECHANICAL EQUIPMENT AND DUCTWORK.

KEYED NOTES

1. RELOCATED SHALL COMBINE TON LOCATION WITH VENTILATING TRUNKS.
2. RELOCATED THROUGHOUT, EXCEPT WHERE SHOWN OTHERWISE.
3. RELOCATED THROUGHOUT, EXCEPT WHERE SHOWN OTHERWISE.
4. RELOCATED THROUGHOUT, EXCEPT WHERE SHOWN OTHERWISE.
5. RELOCATED THROUGHOUT, EXCEPT WHERE SHOWN OTHERWISE.

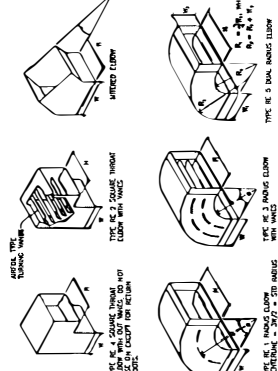


MECHANICAL NEW WORK PLAN - UNIT 200
SCALE: 1/8" = 1'-0"

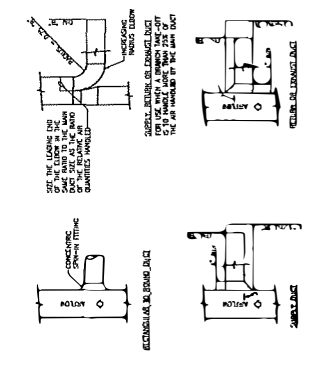


NOTES:
1. INSULATED PIPE WITH INSULATION SHALL BE USED TO INSULATE HANGERS.
2. INSULATED PIPE WITH INSULATION SHALL BE USED TO INSULATE HANGERS.
3. INSULATED PIPE WITH INSULATION SHALL BE USED TO INSULATE HANGERS.

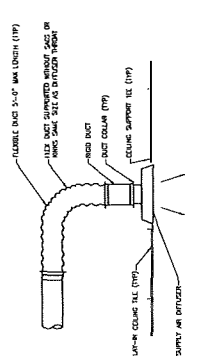
INSULATED PIPE HANGER DETAIL
NO SCALE



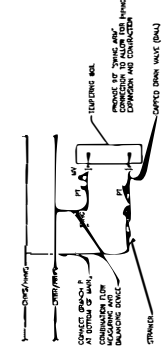
RECTANGULAR SHEET-METAL ELBOWS
NO SCALE



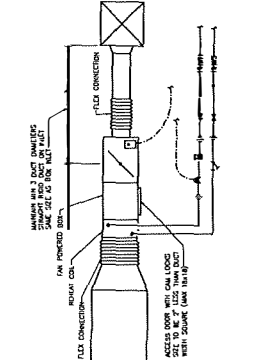
RECTANGULAR DUCT BRANCH TAKE-OFF DETAILS
NO SCALE



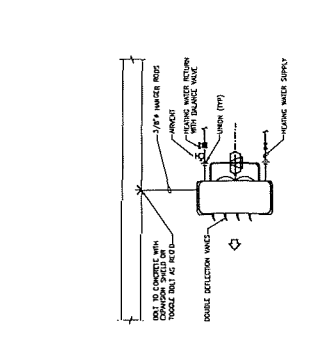
SUPPLY AIR DIFFUSER DETAIL
NO SCALE



TEMPERING COIL PIPING DIAGRAM (2-WAY VALVE)
NO SCALE



FAN POWERED VAV BOX INSTALLATION DETAIL
NO SCALE



HOT WATER UNIT HEATER DETAIL
NO SCALE

REVISIONS/REVIEW	DATE

KEY PLAN

PROJECT TITLE	MECHANICAL
PROJECT NO.	13 2584-04
SHEET NO.	M5.0
DATE	



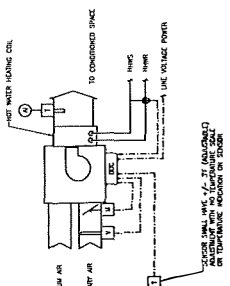
FAN POWERED AIR TERMINAL UNIT SCHEDULE - (HYDRONIC REHEAT)															
UNIT ID	UNIT TYPE	FAN			DOCS			WATER			ELECTRICAL			REMARKS	
		HP	CFM	WHP	SIZE (IN)	SIZE (IN)	SIZE (IN)	TYPE	TYPE	TYPE	TYPE	TYPE	TYPE		
W00001	FAH	1.0	1000	0.05	10	10	10	10	10	10	10	10	10	10	
W00002	FAH	1.0	1000	0.05	10	10	10	10	10	10	10	10	10	10	
W00003	FAH	1.0	1000	0.05	10	10	10	10	10	10	10	10	10	10	

1. MANUFACTURER SHALL PROVIDE FACTORY MOUNTED SWITCHES AND DISCONNECTS.
2. MANUFACTURER SHALL PROVIDE FACTORY MOUNTED SWITCHES AND DISCONNECTS.

HOT WATER UNIT HEATER SCHEDULE														
UNIT ID	UNIT TYPE	WATER			ELECTRICAL			REMARKS						
		TYPE	TYPE	TYPE	TYPE	TYPE	TYPE							
W00001	WH	1.0	1000	0.05	10	10	10							
W00002	WH	1.0	1000	0.05	10	10	10							
W00003	WH	1.0	1000	0.05	10	10	10							

PLUMBING FIXTURE SCHEDULE														
TAG	FIXTURE	WATER			ELECTRICAL			REMARKS						
		TYPE	TYPE	TYPE	TYPE	TYPE	TYPE							
W00001	WASH	1.0	1000	0.05	10	10	10							
W00002	SINK	1.0	1000	0.05	10	10	10							
W00003	TOILET	1.0	1000	0.05	10	10	10							

1. MANUFACTURER SHALL PROVIDE FACTORY MOUNTED SWITCHES AND DISCONNECTS.
2. MANUFACTURER SHALL PROVIDE FACTORY MOUNTED SWITCHES AND DISCONNECTS.
3. MANUFACTURER SHALL PROVIDE FACTORY MOUNTED SWITCHES AND DISCONNECTS.
4. MANUFACTURER SHALL PROVIDE FACTORY MOUNTED SWITCHES AND DISCONNECTS.



1. REFER TO ROOM PLAN FOR LOCATIONS AND NUMBER OF UNITS.
2. AIRFLOW CONTROLS, VELOCITY SENSORS, FLOW ASSESSOR CONTROLLER, AND ALL TYPICAL CONTROL SWITCHES MUST BE INSTALLED BY TERMINAL MANUFACTURER.

WARRANTY DETAILS
1. THE SPACE ZONE, THROUGH THE DOC, ADJUSTS THE VOLUME OF AIR FLOW AT THE AIR TERMINAL UNIT TO MAINTAIN THE SPACE ZONE. THE SPACE ZONE IS MAINTAINED BY THE SPACE ZONE CONTROLLER THROUGH THE DOC. THE SPACE ZONE CONTROLLER IS CONTROLLED BY THE ROOM AIR TERMINAL UNIT. THE SPACE ZONE CONTROLLER IS CONTROLLED BY THE ROOM AIR TERMINAL UNIT. THE SPACE ZONE CONTROLLER IS CONTROLLED BY THE ROOM AIR TERMINAL UNIT.

TYPICAL FAN POWERED VARIABLE VOLUME TERMINAL UNIT W/ REHEAT ROOM CONTROL DETAIL
RD 554E

REVISIONS/REVIEWS
DATE
BY
APP'D

JOB NO: 20190
SHEET TITLE: MECHANICAL ROOMS AND EQUIPMENT CONTROL
SHEET NO: M16.0
DATE: 11/15/2019



Strategic Energy Solutions
400 N. Dixie Road, Suite 100
Farmington Hills, MI 48334
248-854-0100
www.sesinc.com
SES Project #19-024

DRAWING INDEX

SYM. NO.	DESCRIPTION
001	ELECTRICAL GENERAL INFORMATION
002	ELECTRICAL SCHEMATIC DIAGRAM - SEE LIST 100
003	ELECTRICAL SCHEMATIC DIAGRAM - SEE LIST 200
004	ELECTRICAL SCHEMATIC DIAGRAM - SEE LIST 300
005	ELECTRICAL SCHEMATIC DIAGRAM - SEE LIST 400
006	ELECTRICAL SCHEMATIC DIAGRAM - SEE LIST 500
007	ELECTRICAL SCHEMATIC DIAGRAM - SEE LIST 600
008	ELECTRICAL SCHEMATIC DIAGRAM - SEE LIST 700
009	ELECTRICAL SCHEMATIC DIAGRAM - SEE LIST 800
010	ELECTRICAL SCHEMATIC DIAGRAM - SEE LIST 900
011	ELECTRICAL SCHEMATIC DIAGRAM - SEE LIST 1000
012	ELECTRICAL SCHEMATIC DIAGRAM - SEE LIST 1100
013	ELECTRICAL SCHEMATIC DIAGRAM - SEE LIST 1200
014	ELECTRICAL SCHEMATIC DIAGRAM - SEE LIST 1300
015	ELECTRICAL SCHEMATIC DIAGRAM - SEE LIST 1400
016	ELECTRICAL SCHEMATIC DIAGRAM - SEE LIST 1500
017	ELECTRICAL SCHEMATIC DIAGRAM - SEE LIST 1600
018	ELECTRICAL SCHEMATIC DIAGRAM - SEE LIST 1700
019	ELECTRICAL SCHEMATIC DIAGRAM - SEE LIST 1800
020	ELECTRICAL SCHEMATIC DIAGRAM - SEE LIST 1900

1000 IEC #1171, ACCESSIBLE AND CABLE BUNDLES & FASTENERS

DRAWING NOTATION

SYM. NO.	DESCRIPTION
001	LINE TYPE: SOLID
002	LINE TYPE: DASHED
003	LINE TYPE: DOTTED
004	LINE TYPE: LONG DASH SHORT DASH
005	LINE TYPE: WAVE DASH
006	LINE TYPE: WAVE DASH WITH DOTS
007	LINE TYPE: WAVE DASH WITH CIRCLES
008	LINE TYPE: WAVE DASH WITH SQUARES
009	LINE TYPE: WAVE DASH WITH TRIANGLES
010	LINE TYPE: WAVE DASH WITH CROSSES
011	LINE TYPE: WAVE DASH WITH DIAMONDS
012	LINE TYPE: WAVE DASH WITH STARS
013	LINE TYPE: WAVE DASH WITH X'S
014	LINE TYPE: WAVE DASH WITH PLUS SIGNS
015	LINE TYPE: WAVE DASH WITH AT SIGNS
016	LINE TYPE: WAVE DASH WITH PERCENT SIGNS
017	LINE TYPE: WAVE DASH WITH DEGREE SIGNS
018	LINE TYPE: WAVE DASH WITH UNDERLINE SIGNS
019	LINE TYPE: WAVE DASH WITH STRIKE SLOTTED SIGNS
020	LINE TYPE: WAVE DASH WITH SLASH SIGNS

SEE LIST FOR MORE SYMBOLS.

APPLICABLE CODES AND REGULATIONS

YEAR	DESCRIPTION
2017	NEC (2017) NATIONAL ELECTRICAL CODE
2015	NFPA 70B (2015) MAINTENANCE SAFETY PRACTICES FOR POWER DISTRIBUTION
2013	NFPA 70E (2013) SAFETY WITH ENERGY CONVERSION, DISTRIBUTION AND USE EQUIPMENT
2012	IEEE (2012) IEEE STANDARD FOR SAFETY WITH POWER DISTRIBUTION
2011	IEEE (2011) IEEE STANDARD FOR SAFETY WITH POWER DISTRIBUTION
2010	IEEE (2010) IEEE STANDARD FOR SAFETY WITH POWER DISTRIBUTION
2008	IEEE (2008) IEEE STANDARD FOR SAFETY WITH POWER DISTRIBUTION
2005	IEEE (2005) IEEE STANDARD FOR SAFETY WITH POWER DISTRIBUTION
2003	IEEE (2003) IEEE STANDARD FOR SAFETY WITH POWER DISTRIBUTION
2001	IEEE (2001) IEEE STANDARD FOR SAFETY WITH POWER DISTRIBUTION

ELECTRICAL ABBREVIATIONS

SYM.	DESCRIPTION
A	ARCHIVE PHOTO ROOM
AT	ARCHIVE TELEPHONE ROOM
AJ	ARCHIVE JANET ROOM
AI	ARCHIVE INTERCOM ROOM
AI*	ARCHIVE INTERCOM ROOM WITH STAIRS
AI**	ARCHIVE INTERCOM ROOM WITH STAIRS AND BATH
AI***	ARCHIVE INTERCOM ROOM WITH STAIRS, BATH AND KITCHEN
AI****	ARCHIVE INTERCOM ROOM WITH STAIRS, BATH, KITCHEN AND LAUNDRY
AI*****	ARCHIVE INTERCOM ROOM WITH STAIRS, BATH, KITCHEN, LAUNDRY AND OFFICE
AI*****	ARCHIVE INTERCOM ROOM WITH STAIRS, BATH, KITCHEN, LAUNDRY AND OFFICE AND STORAGE
AI*****	ARCHIVE INTERCOM ROOM WITH STAIRS, BATH, KITCHEN, LAUNDRY AND OFFICE AND STORAGE AND GARAGE
AI*****	ARCHIVE INTERCOM ROOM WITH STAIRS, BATH, KITCHEN, LAUNDRY AND OFFICE AND STORAGE AND GARAGE AND DRIVEWAY
AI*****	ARCHIVE INTERCOM ROOM WITH STAIRS, BATH, KITCHEN, LAUNDRY AND OFFICE AND STORAGE AND GARAGE AND DRIVEWAY AND PORCH
AI*****	ARCHIVE INTERCOM ROOM WITH STAIRS, BATH, KITCHEN, LAUNDRY AND OFFICE AND STORAGE AND GARAGE AND DRIVEWAY AND PORCH AND PATIO

POWER SYMBOL LIST

SYM.	DESCRIPTION
1	POWER SYMBOL
2	POWER SYMBOL
3	POWER SYMBOL
4	POWER SYMBOL
5	POWER SYMBOL
6	POWER SYMBOL
7	POWER SYMBOL
8	POWER SYMBOL
9	POWER SYMBOL
10	POWER SYMBOL
11	POWER SYMBOL
12	POWER SYMBOL
13	POWER SYMBOL
14	POWER SYMBOL
15	POWER SYMBOL
16	POWER SYMBOL
17	POWER SYMBOL
18	POWER SYMBOL
19	POWER SYMBOL
20	POWER SYMBOL

AUXILIARY SYST. SYMBOL LIST

SYM.	DESCRIPTION
1	AUXILIARY SYST. SYMBOL
2	AUXILIARY SYST. SYMBOL
3	AUXILIARY SYST. SYMBOL
4	AUXILIARY SYST. SYMBOL
5	AUXILIARY SYST. SYMBOL
6	AUXILIARY SYST. SYMBOL
7	AUXILIARY SYST. SYMBOL
8	AUXILIARY SYST. SYMBOL
9	AUXILIARY SYST. SYMBOL
10	AUXILIARY SYST. SYMBOL
11	AUXILIARY SYST. SYMBOL
12	AUXILIARY SYST. SYMBOL
13	AUXILIARY SYST. SYMBOL
14	AUXILIARY SYST. SYMBOL
15	AUXILIARY SYST. SYMBOL
16	AUXILIARY SYST. SYMBOL
17	AUXILIARY SYST. SYMBOL
18	AUXILIARY SYST. SYMBOL
19	AUXILIARY SYST. SYMBOL
20	AUXILIARY SYST. SYMBOL

FIRE ALARM SYMBOL LIST

SYM.	DESCRIPTION
1	FIRE ALARM SYMBOL
2	FIRE ALARM SYMBOL
3	FIRE ALARM SYMBOL
4	FIRE ALARM SYMBOL
5	FIRE ALARM SYMBOL
6	FIRE ALARM SYMBOL
7	FIRE ALARM SYMBOL
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14	FIRE ALARM SYMBOL
15	FIRE ALARM SYMBOL
16	FIRE ALARM SYMBOL
17	FIRE ALARM SYMBOL
18	FIRE ALARM SYMBOL
19	FIRE ALARM SYMBOL
20	FIRE ALARM SYMBOL

LIGHTING SYMBOL LIST

SYM.	DESCRIPTION
1	LIGHTING SYMBOL
2	LIGHTING SYMBOL
3	LIGHTING SYMBOL
4	LIGHTING SYMBOL
5	LIGHTING SYMBOL
6	LIGHTING SYMBOL
7	LIGHTING SYMBOL
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15	LIGHTING SYMBOL
16	LIGHTING SYMBOL
17	LIGHTING SYMBOL
18	LIGHTING SYMBOL
19	LIGHTING SYMBOL
20	LIGHTING SYMBOL

LIGHTING CONTROLS LEGEND

SYM.	DESCRIPTION
1	LIGHTING CONTROLS LEGEND
2	LIGHTING CONTROLS LEGEND
3	LIGHTING CONTROLS LEGEND
4	LIGHTING CONTROLS LEGEND
5	LIGHTING CONTROLS LEGEND
6	LIGHTING CONTROLS LEGEND
7	LIGHTING CONTROLS LEGEND
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15	LIGHTING CONTROLS LEGEND
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17	LIGHTING CONTROLS LEGEND
18	LIGHTING CONTROLS LEGEND
19	LIGHTING CONTROLS LEGEND
20	LIGHTING CONTROLS LEGEND

LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	MANUFACTURER	MODEL NUMBER	WATTAGE
1	1500 MM X 600 MM RECESSED DOWN LIGHT	HAMILTON	HDL2016R	16W
2	3000 MM X 600 MM RECESSED DOWN LIGHT	HAMILTON	HDL3016R	16W
3	4500 MM X 600 MM RECESSED DOWN LIGHT	HAMILTON	HDL4516R	16W
4	6000 MM X 600 MM RECESSED DOWN LIGHT	HAMILTON	HDL6016R	16W
5	7500 MM X 600 MM RECESSED DOWN LIGHT	HAMILTON	HDL7516R	16W
6	9000 MM X 600 MM RECESSED DOWN LIGHT	HAMILTON	HDL9016R	16W
7	10500 MM X 600 MM RECESSED DOWN LIGHT	HAMILTON	HDL10516R	16W
8	12000 MM X 600 MM RECESSED DOWN LIGHT	HAMILTON	HDL12016R	16W
9	13500 MM X 600 MM RECESSED DOWN LIGHT	HAMILTON	HDL13516R	16W
10	15000 MM X 600 MM RECESSED DOWN LIGHT	HAMILTON	HDL15016R	16W

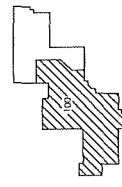
LIGHTING CONTROLS MATRIX

CONTROL	1	2	3	4	5	6	7	8	9	10
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										



Ivywood Classical Academy Choice Schools Associates Plymouth Township, Michigan

REVISIONS/REVIEW	DATE



JOB NO. 301340
SHEET TITLE
ELECTRICAL DEMOLITION PLAN - UNIT 100
SHEET NO.



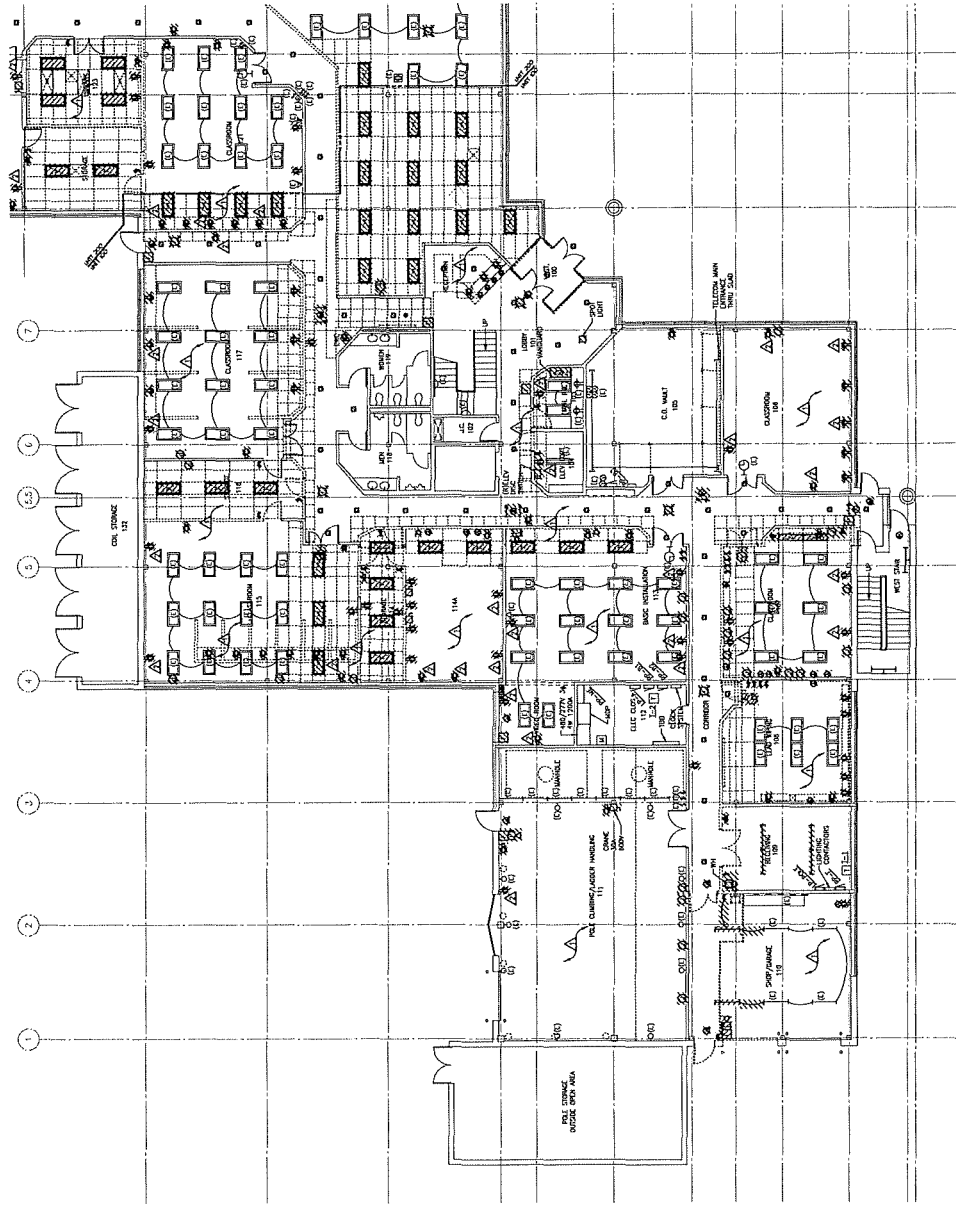
ELECTRICAL DEMOLITION NOTES

1. VERIFY THE SITE PERMITS TO DEMOLITION OF THE EXISTING ELECTRICAL AND THE EXISTING OF DEMOLITION WORK.
2. DEMOLITION OF THE EXISTING ELECTRICAL SYSTEM SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS AND ORDINANCES. THE DEMOLITION WORK SHALL BE COMPLETED WITHIN THE SPECIFIED TIME FRAME.
3. REMOVE LIGHTING FIXTURES AND ELECTRICAL DEVICES AS INDICATED ON PLAN. DEMOLITION SHALL INCLUDE, BUT NOT BE LIMITED TO: THESE DEVICES SHALL INCLUDE:
 - A. EXISTING ELECTRICAL PANELS, ONE (ONE) AND MORE INCLUDING THE EXISTING ELECTRICAL SYSTEM.
 - B. EXISTING ELECTRICAL SERVICE AND CONDUIT REMAINING TO BE DEMOLISHED TO BE SAFE. DEMOLITION SHALL BE COMPLETED WITHIN THE SPECIFIED TIME FRAME.
 - C. EXISTING ELECTRICAL SERVICE AND CONDUIT REMAINING TO BE DEMOLISHED TO BE SAFE. DEMOLITION SHALL BE COMPLETED WITHIN THE SPECIFIED TIME FRAME.
4. DEMOLISH THE SHEET BOX OF ELECTRICAL CONDUIT WITH THE CONDUIT REPRESENTING A MINIMUM OF 72 HOURS PRIOR TO START WORK.
5. DEMOLISH ALL EXISTING ELECTRICAL DEVICES.
6. VERIFY DEMOLITION WORK AFFECTS ELECTRICAL SERVICE TO DEMOLITION ELECTRICAL SYSTEM.
7. REMOVE ALL MATERIALS OFF SITE AND REMOVE ALL DEBRIS FROM THE PROJECT AREA. ALL MATERIALS SHALL BE PROPERLY DISPOSED IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS AND ORDINANCES. DEMOLITION SHALL INCLUDE, BUT NOT BE LIMITED TO: THESE DEVICES SHALL INCLUDE:
 - A. EXISTING ELECTRICAL PANELS, ONE (ONE) AND MORE INCLUDING THE EXISTING ELECTRICAL SYSTEM.
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9. DEMOLITION SHALL INCLUDE, BUT NOT BE LIMITED TO: THESE DEVICES SHALL INCLUDE:
 - A. EXISTING ELECTRICAL PANELS, ONE (ONE) AND MORE INCLUDING THE EXISTING ELECTRICAL SYSTEM.
 - B. EXISTING ELECTRICAL SERVICE AND CONDUIT REMAINING TO BE DEMOLISHED TO BE SAFE. DEMOLITION SHALL BE COMPLETED WITHIN THE SPECIFIED TIME FRAME.
 - C. EXISTING ELECTRICAL SERVICE AND CONDUIT REMAINING TO BE DEMOLISHED TO BE SAFE. DEMOLITION SHALL BE COMPLETED WITHIN THE SPECIFIED TIME FRAME.
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DEMOLITION KEYED NOTES

1. DEMOLITION SHALL INCLUDE, BUT NOT BE LIMITED TO: THESE DEVICES SHALL INCLUDE:
 - A. EXISTING ELECTRICAL PANELS, ONE (ONE) AND MORE INCLUDING THE EXISTING ELECTRICAL SYSTEM.
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EXISTING FIRE ALARM SYSTEM TO BE REMOVED COMPLETE.



ELECTRICAL DEMOLITION PLAN - UNIT 100
SCALE: 1/8" = 1'-0"

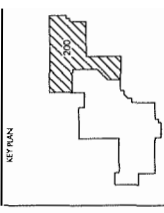


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SES Project #13 0008 04

Ivywood Classical Academy
Choice Schools Associates
Plymouth Township, Michigan

REVISION/REVIEW	DATE



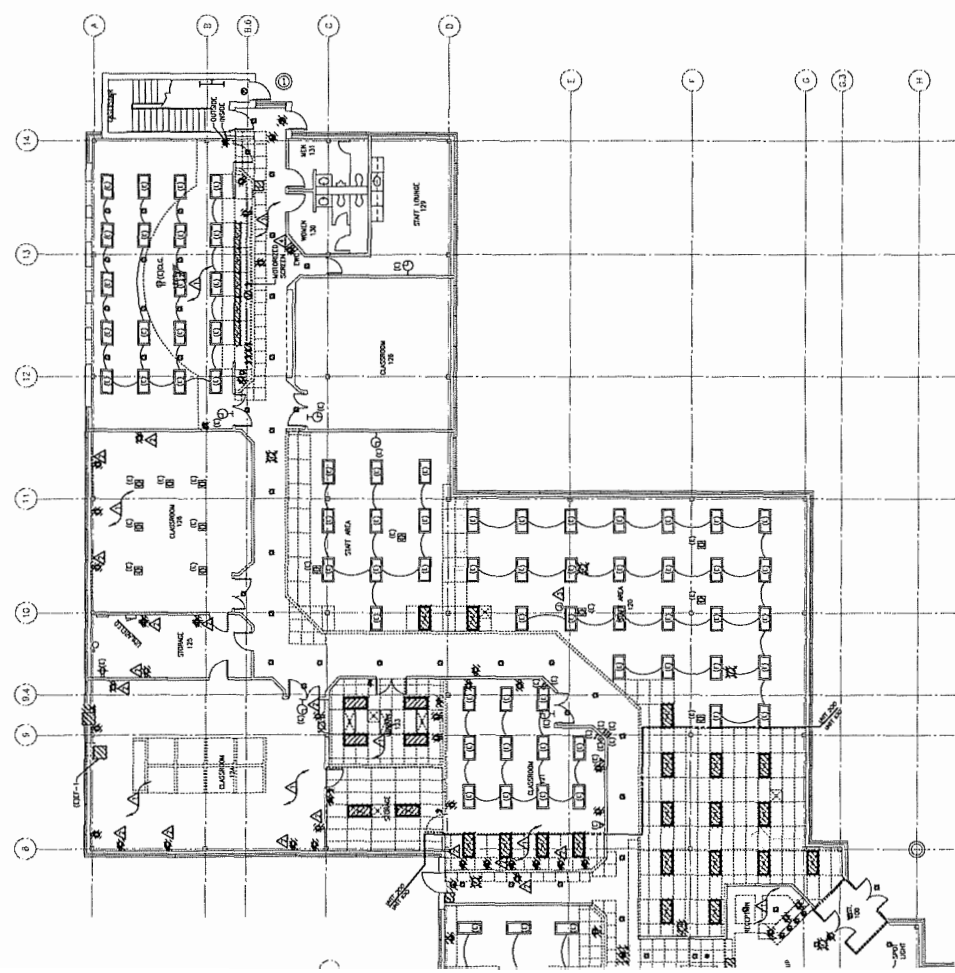
JOB NO.	2013-03
SHEET TITLE	ELECTRICAL DEMOLITION PLAN - UNIT 200
SHEET NO.	ED1.2



- ELECTRICAL DEMOLITION NOTES**
1. VERIFY THE EXISTING DEMOLITION PLAN TO ENSURE THE CORRECT DEMOLITION AND THE SCOPE OF DEMOLITION WORK.
 2. REMOVE THE DEMOLITION OF ALL MATERIALS, INCLUDING ALL ELECTRICAL MATERIALS, FROM THE DEMOLITION PLAN. ALL MATERIALS TO BE DEMOLISHED SHALL BE IDENTIFIED BY A HATCH PATTERN AND A DEMOLITION SYMBOL. ALL MATERIALS TO BE DEMOLISHED SHALL BE IDENTIFIED BY A HATCH PATTERN AND A DEMOLITION SYMBOL. ALL MATERIALS TO BE DEMOLISHED SHALL BE IDENTIFIED BY A HATCH PATTERN AND A DEMOLITION SYMBOL.
 3. REMOVE EXISTING MATERIALS AND ELECTRICAL SYSTEMS AS SHOWN ON THIS PLAN. DEMOLITION SHALL INCLUDE, BUT NOT BE LIMITED TO: TRUNKING, CONDUIT, AND ALL ELECTRICAL MATERIALS. REMOVE ALL MATERIALS TO BE DEMOLISHED FROM THE PROJECT. REMOVE ALL MATERIALS TO BE DEMOLISHED FROM THE PROJECT. REMOVE ALL MATERIALS TO BE DEMOLISHED FROM THE PROJECT.
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- DEMOLITION KEYED NOTES**
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EXISTING FIRE ALARM SYSTEM TO BE REMOVED COMPLETE.



ELECTRICAL DEMOLITION PLAN - UNIT 200
SCALE: 1/8" = 1'-0"

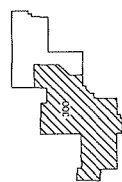


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SES Project #19-0294-04

Ivywood Classical Academy
Choice Schools Associates
Plymouth Township, Michigan

REVISION/VIEW	DATE
	11/17/20

KEY PLAN



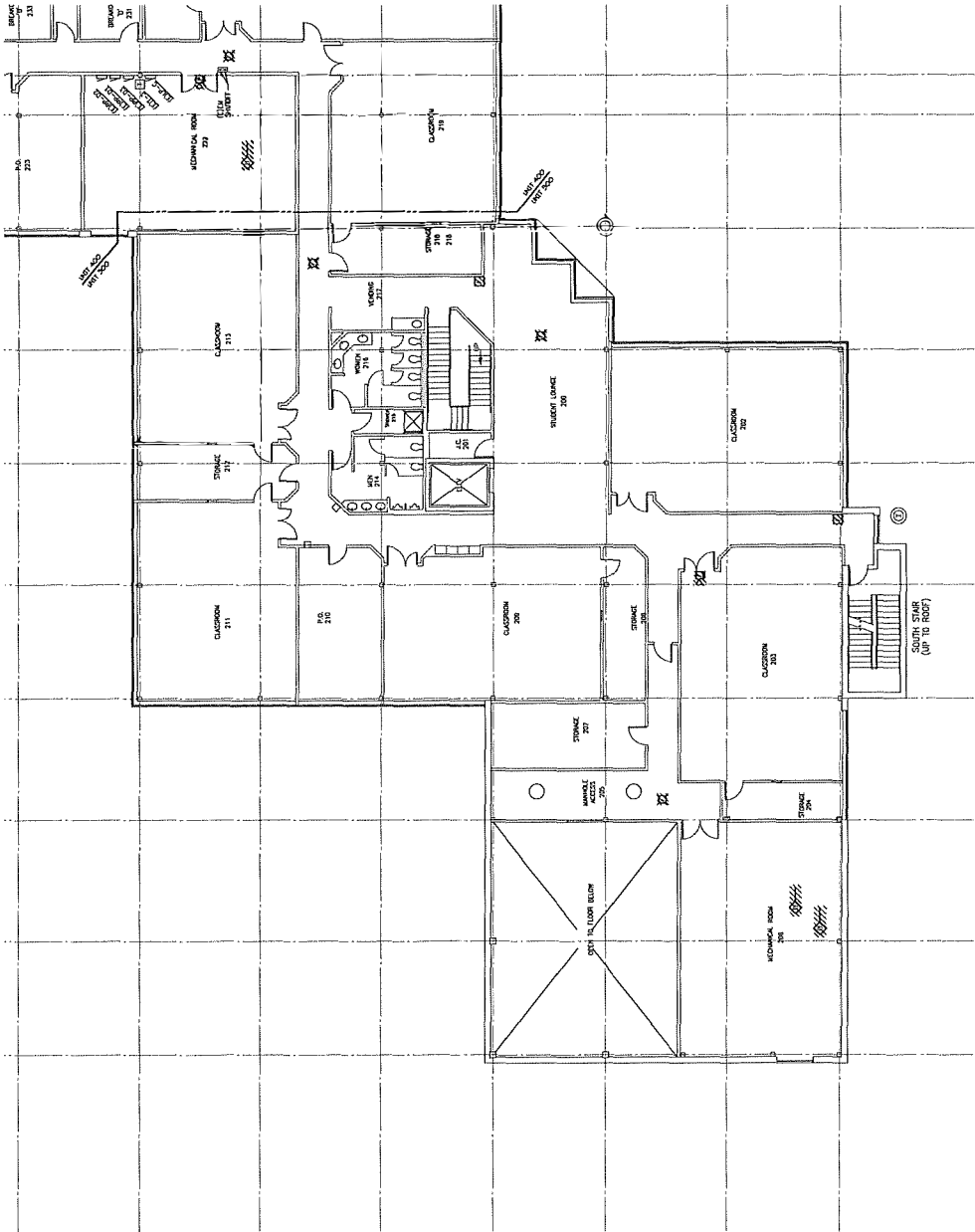
JOB NO. 201908
SHEET TITLE: ELECTRICAL DEMOLITION UNIT 300

SHEET NO.
ED13

ELECTRICAL DEMOLITION NOTES

- VERIFY THE SITE PERM IS SIGNATURE OF A PE TO DEMOLISH THE EXISTING CONDUIT AND THE LOCATION OF DEMOLITION WORK.
- REMOVE ALL EXISTING ELECTRICAL MATERIALS INCLUDING ALL ELECTRICAL CONDUIT, WIRING, PANELS, AND ELECTRICAL DEVICES AS SHOWN ON THIS PLAN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE NECESSARY PERMITS TO FACILITATE THE DEMOLITION WORK OF THESE ITEMS.
- REMOVE LIGHTING FIXTURES AND ELECTRICAL DEVICES AS SHOWN ON PLANS. DEMOLITION SHALL INCLUDE, BUT NOT BE LIMITED TO THOSE DEVICES SHOWN ON THESE PLANS. CONTRACTOR SHALL VERIFY THE LOCATION AND IDENTIFY THE TYPE OF DEMOLITION WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE NECESSARY PERMITS TO FACILITATE THE DEMOLITION WORK OF THESE ITEMS.
- REMOVE ALL EXISTING ELECTRICAL DEVICES AND MATERIALS INCLUDING ALL ELECTRICAL CONDUIT, WIRING, PANELS, AND ELECTRICAL DEVICES AS SHOWN ON THESE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE NECESSARY PERMITS TO FACILITATE THE DEMOLITION WORK OF THESE ITEMS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE NECESSARY PERMITS TO FACILITATE THE DEMOLITION WORK OF THESE ITEMS.
- CONDUCT THE SHUT DOWN OF ELECTRICAL EQUIPMENT WITH THE OWNER'S REPRESENTATIVE. A MINIMUM OF 72 HOURS PRIOR TO SHUT DOWN.
- REMOVE ALL EXISTING ELECTRICAL DEVICES AND MATERIALS INCLUDING ALL ELECTRICAL CONDUIT, WIRING, PANELS, AND ELECTRICAL DEVICES AS SHOWN ON THESE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE NECESSARY PERMITS TO FACILITATE THE DEMOLITION WORK OF THESE ITEMS.
- WHERE DEMOLITION WORK AFFECTS ELECTRICAL SERVICES TO DOMESTIC USE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE NECESSARY PERMITS TO FACILITATE THE DEMOLITION WORK OF THESE ITEMS.
- REMOVE ALL EXISTING ELECTRICAL DEVICES AND MATERIALS INCLUDING ALL ELECTRICAL CONDUIT, WIRING, PANELS, AND ELECTRICAL DEVICES AS SHOWN ON THESE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE NECESSARY PERMITS TO FACILITATE THE DEMOLITION WORK OF THESE ITEMS.
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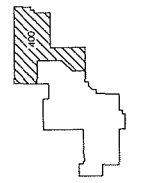
EXISTING FIRE ALARM SYSTEM TO BE REMOVED COMPLETE.



ELECTRICAL DEMOLITION PLAN - UNIT 300
SCALE: 1/8" = 1'-0"



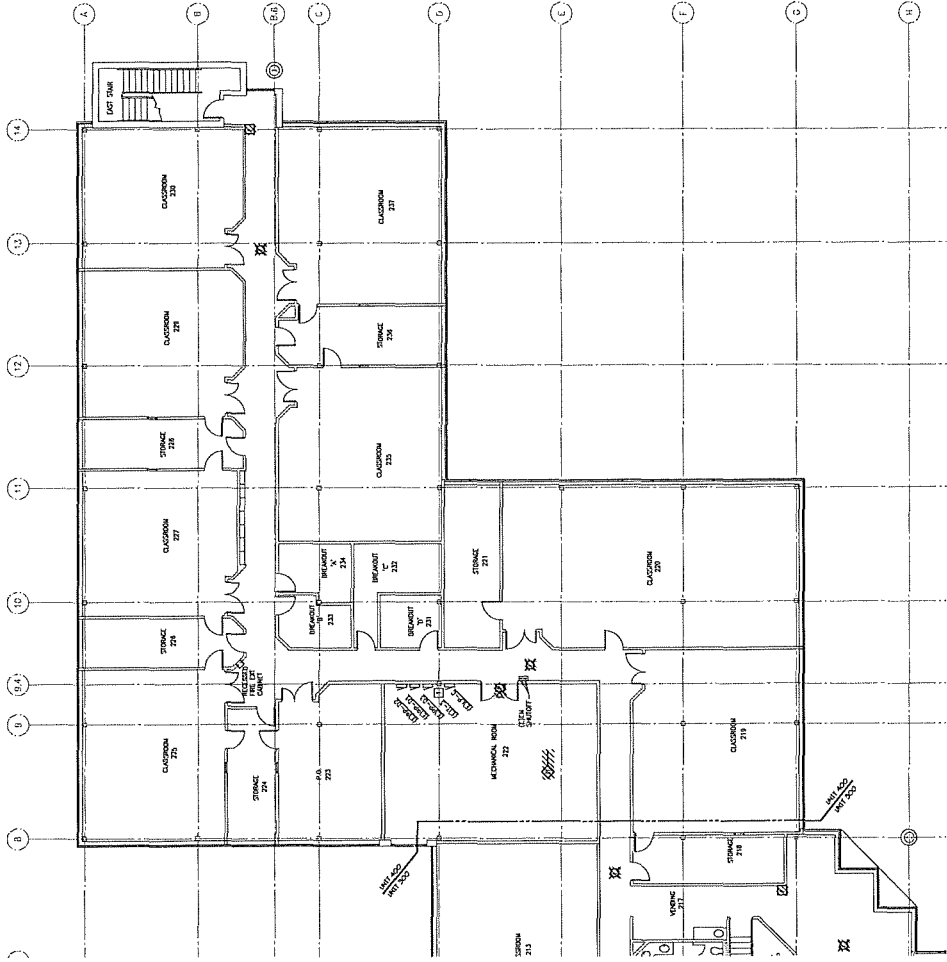
REVISIONS/REVIEWS	DATE



ELECTRICAL DEMOLITION NOTES

- VERIFY THE SITE PRIOR TO DEMOLITION OF BID TO DETERMINE THE EXISTING CONDITION AND THE EXISTING DEMOLITION WORK.
- REMOVE ALL ELECTRICAL MATERIALS FROM THE EXISTING ELECTRICAL SYSTEMS, INCLUDING BUT NOT LIMITED TO, WIRING, CONDUIT, TRAYS, PANELS, AND DEVICES, AND PLACE IN A DESIGNATED AREA FOR DISPOSAL. THE DEMOLITION WORK IS TO BE COMPLETED BY THE END OF THE PROJECT.
- REMOVE EXISTING PANELS AND ELECTRICAL DEVICES AS INDICATED BY MARKING. EXISTING PANELS SHALL NOT BE REUSED TO REUSE EXISTING PANELS.
- REMOVE ALL ELECTRICAL MATERIALS FROM THE EXISTING ELECTRICAL SYSTEM, INCLUDING BUT NOT LIMITED TO, WIRING, CONDUIT, TRAYS, PANELS, AND DEVICES, AND PLACE IN A DESIGNATED AREA FOR DISPOSAL. THE DEMOLITION WORK IS TO BE COMPLETED BY THE END OF THE PROJECT.
- REMOVE ALL ELECTRICAL MATERIALS FROM THE EXISTING ELECTRICAL SYSTEM, INCLUDING BUT NOT LIMITED TO, WIRING, CONDUIT, TRAYS, PANELS, AND DEVICES, AND PLACE IN A DESIGNATED AREA FOR DISPOSAL. THE DEMOLITION WORK IS TO BE COMPLETED BY THE END OF THE PROJECT.
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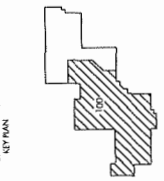
EXISTING FIRE ALARM SYSTEM TO BE REMOVED COMPLETE.



ELECTRICAL DEMOLITION PLAN - UNIT 400
Scale: 1/8" = 1'-0"

Ivywood Classical Academy
 Choice Schools Associates
 Plymouth Township, Michigan

REVISIONS/REVIEW	DATE



JOB NO. 3013-03
 SHEET TITLE
 ELECTRICAL POWER NEW WORK PLAN
 -UNIT 100

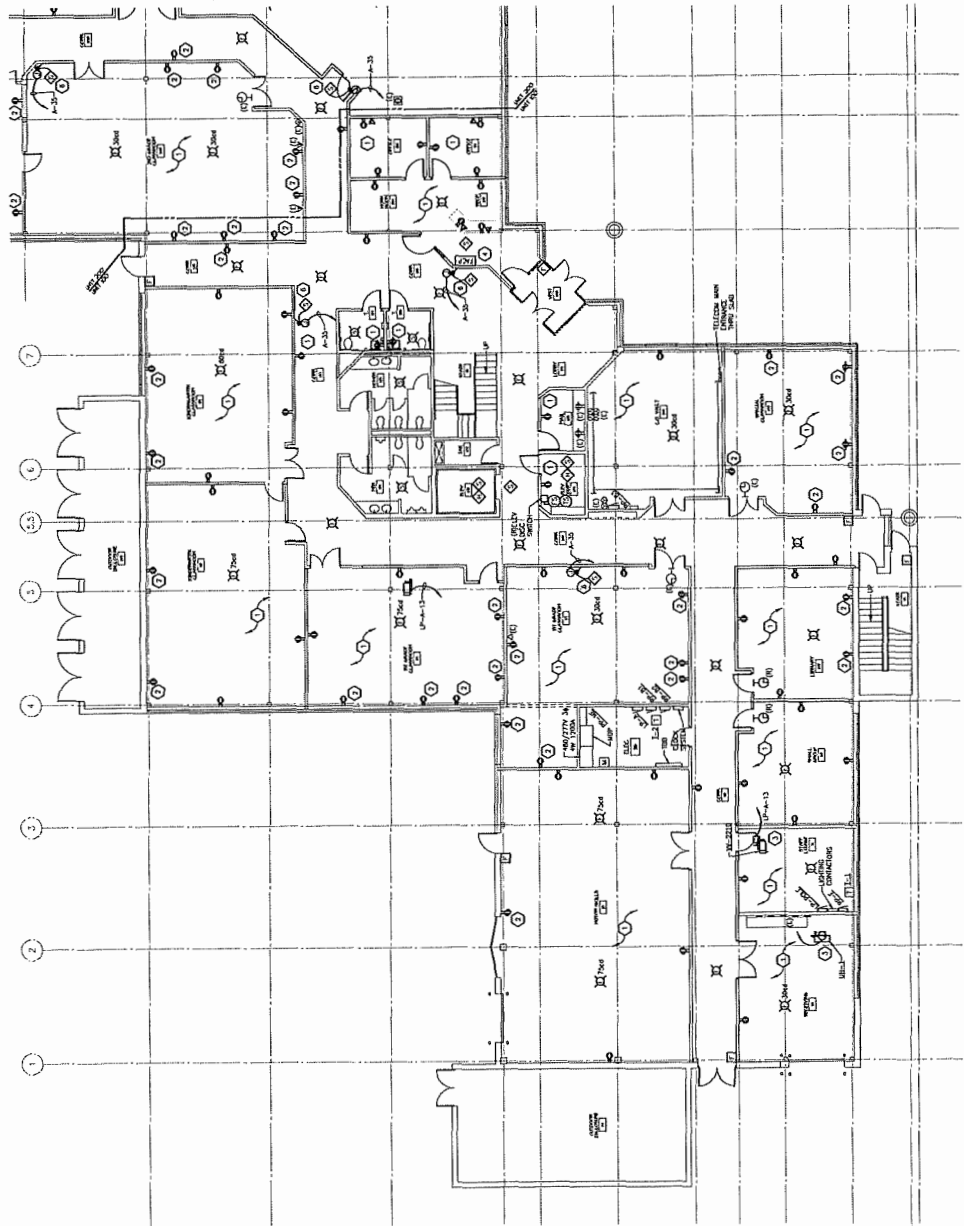
SHEET NO.
EPL-1

POWER GENERAL NOTES

1. ALL ELECTRICAL SYMBOLS SHOWN ON THIS PLAN SHALL BE NEW UNLESS OTHERWISE NOTED.
2. ALL NEW WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE 2017 NEC. ALL NEW WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE 2017 NEC. ALL NEW WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE 2017 NEC.
3. ALL NEW WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE 2017 NEC.
4. REFER TO ARCHITECTURAL FLOOR PLAN AND ELEVATIONS FOR EXACT LOCATION AND DIMENSIONS OF ALL WORK.
5. ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE 2017 NEC.
6. ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE 2017 NEC.
7. ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE 2017 NEC.
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17. ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE 2017 NEC.

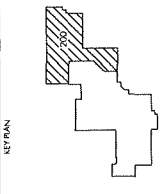
KEYED NOTES

1. REUSE EXISTING CIRCUIT WHERE AVAILABLE FROM REDESIGNED RECEPTACLES.
2. INSTALL NEW RECEPTACLES IN EXISTING BOX, REUSE CIRCUIT.
3. REUSE EXISTING CIRCUIT WHERE AVAILABLE FROM EXISTING AND CONNECT TO NEW RECEPTACLES.
4. CIRCUIT FROM THE MAIN CONTROL PANEL TO EXISTING BRANCHED CIRCUIT THAT IS NOT BEING REDESIGNED SHALL BE KEPT AS IS AND ASSOCIATED NEW RECEPTACLES SHALL BE KEPT AS IS AND KEPT ON THE SAME CIRCUIT.
5. EXISTING CIRCUIT FROM EXISTING PANEL TO NEW POINT OF USE SHALL BE KEPT AS IS AND KEPT ON THE SAME CIRCUIT.
6. EXISTING CIRCUIT FROM EXISTING PANEL TO NEW POINT OF USE SHALL BE KEPT AS IS AND KEPT ON THE SAME CIRCUIT.
7. ALL NEW RECEPTACLES SHALL BE KEPT AS IS AND KEPT ON THE SAME CIRCUIT.



Ivywood Classical Academy
Choice Schools Associates
Plymouth Township, Michigan

REVISION/VIEW	DATE
REVISED	4/17/18



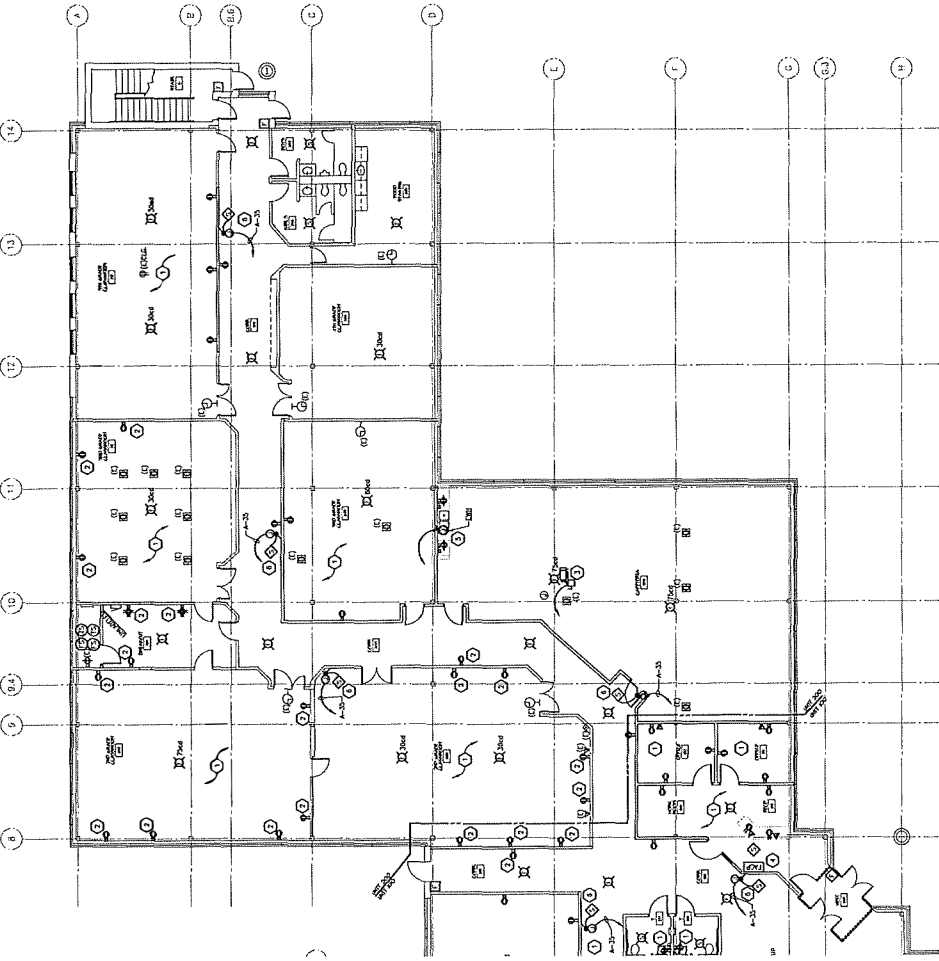
JOB NO. 2018-05
SHEET TITLE
ELECTRICAL POWER NEW WORK PLAN
- UNIT 200

SHEET NO.
EPT-2

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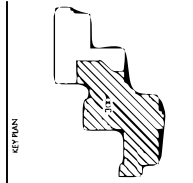
- POWER GENERAL NOTES**
1. ALL ELECTRICAL SERVICES SHOWN ON THIS PLAN SHALL BE NEW UNLESS OTHERWISE NOTED.
 2. ALL ELECTRICAL SERVICES SHALL BE INSTALLED IN ACCORDANCE WITH THE 2017 NATIONAL ELECTRICAL CODE (NEC) AND ALL LOCAL CODES.
 3. ALL ELECTRICAL SERVICES SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL CODES.
 4. REFER TO ARCHITECTURAL FLOOR PLAN AND ELEVATIONS FOR EXACT LOCATION OF ALL ELECTRICAL SERVICES.
 5. ALL ELECTRICAL SERVICES SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL CODES.
 6. ALL 120 VOLT CIRCUITS SHALL UNLESS OTHERWISE NOTED, BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL CODES.
 7. ALL CIRCUITS SERVING 120 VOLTS OR GREATER SHALL INCLUDE A GROUND-Fault Circuit Interrupter (GFCI) PROTECTED CIRCUIT.
 8. ALL RECEPTACLES INSTALLED IN THE CLEANER PIT(S), ELEVATOR MACHINE ROOM(S), AND OTHER MECHANICAL ROOM(S) SHALL BE GROUND-Fault Circuit Interrupter (GFCI) PROTECTED CIRCUITS.
 9. A SEPARATE SINGLE-PHASE RECEPTACLE SERVING A ELEVATOR PIT PUMP SHALL NOT BE A GFCI TYPE RECEPTACLE.
 10. ALL ELECTRICAL SERVICES SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL CODES.
 11. ALL ELECTRICAL SERVICES SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL CODES.
 12. ALL ELECTRICAL SERVICES SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL CODES.
 13. ALL RECEPTACLES INSTALLED OUTSIDE SHALL BE GFCI.
 14. NEW OR RECEPTACLE CIRCUIT FOR ELECTRIC WATER COOLER SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL CODES.
 15. ALL ELECTRICAL SERVICES SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL CODES.
 16. ALL ELECTRICAL SERVICES SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL CODES.
 17. ALL NEW RECEPTACLES SHALL BE TAMPER RESISTANT TYPE.

- KEYED NOTES**
1. REUSE EXISTING CIRCUIT MAKE AVAILABLE FROM DESIGNATED RECEPTACLES.
 2. INSTALL NEW RECEPTACLES IN EXISTING BOX, REUSE CIRCUIT.
 3. REUSE EXISTING MAKE AVAILABLE FROM EXISTING AND CONNECT TO NEW CIRCUIT FOR THE ABOVE CIRCUIT PANEL TO EXISTING BRANCH CIRCUIT THAT IS NOT AVAILABLE FOR REUSE.
 4. EXISTING CIRCUIT FROM ABOVE PANEL TO EXISTING BRANCH CIRCUIT THAT IS NOT AVAILABLE FOR REUSE.
 5. EXISTING CIRCUIT FROM ABOVE PANEL TO EXISTING BRANCH CIRCUIT THAT IS NOT AVAILABLE FOR REUSE.
 6. EXISTING CIRCUIT FROM ABOVE PANEL TO EXISTING BRANCH CIRCUIT THAT IS NOT AVAILABLE FOR REUSE.



ELECTRICAL POWER NEW WORK PLAN - UNIT 200
SCALE: 1/8" = 1'-0"

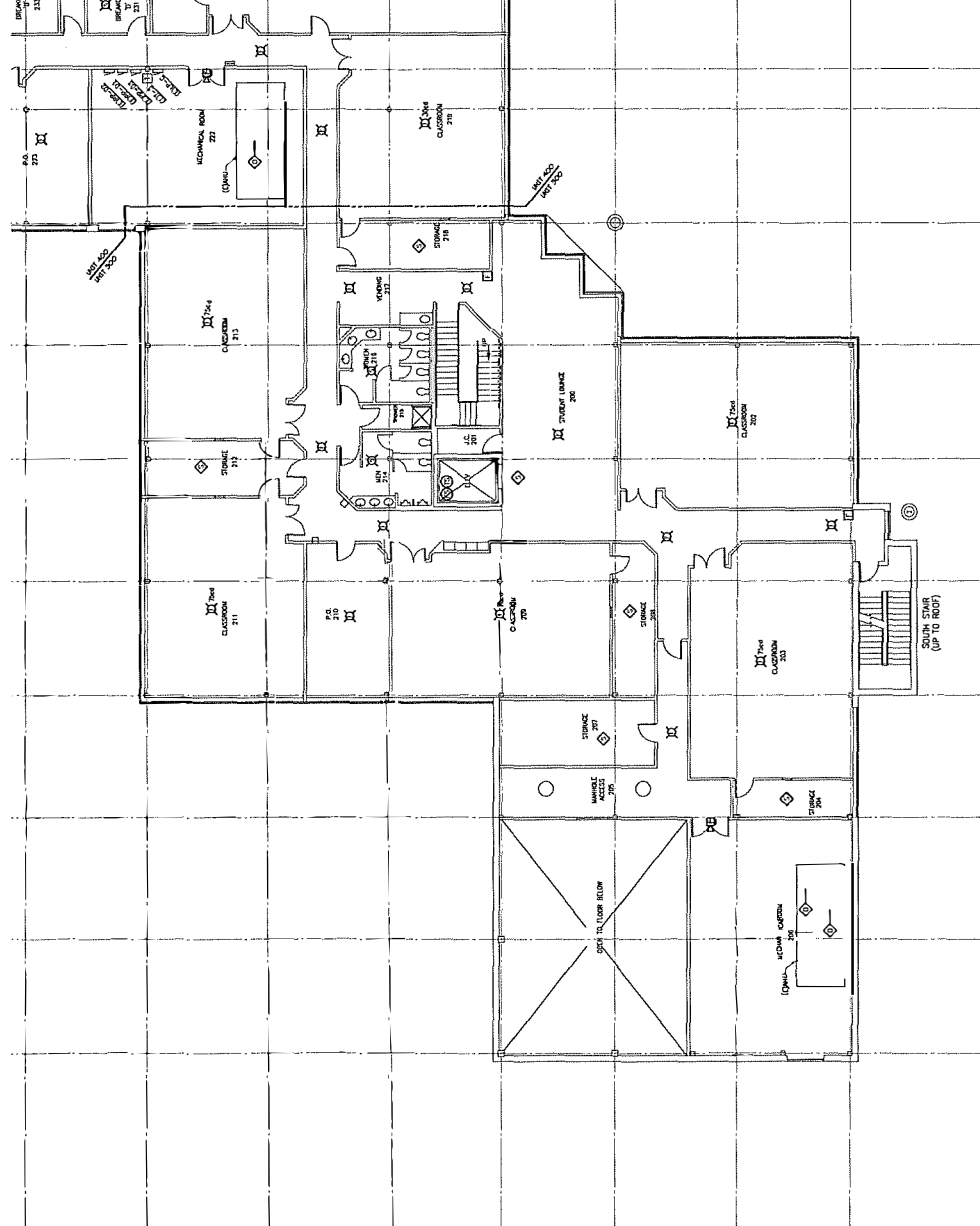




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CON. NO. 103133
SHEET TITLE
ELECTRICAL POWER NEW WORK PLAN
- 11-11-21
SHEET NO.
EPI 1.3

- ### POWER GENERAL NOTES
1. ALL ELECTRICAL WORK SHALL BE PER UNLESS OTHERWISE NOTED.
 2. ALL 120V BRANCH CIRCUIT FEEDS SHALL BE 75% OF LOAD. ALL 240V BRANCH CIRCUIT FEEDS SHALL BE 75% OF LOAD. ALL FEEDS SHALL BE PER LOCAL AND NATIONAL CODES.
 3. ALL NEW FEEDS SHALL BE 6" OR 8" OR OTHER SIZES SHOWN ON THESE PLANS.
 4. REFER TO ARCHITECTURAL FLOOR PLAN AND ELEVATIONS FOR BRACK LOCATION OF DEVICES.
 5. ALL CIRCUIT BREAKERS SHALL BE LABELED.
 6. ALL 120 VOLT CIRCUITS SHALL HAVE A SEPARATE NEUTRAL.
 7. ALL CONDUIT SHALL BE RIGID UNLESS OTHERWISE NOTED. ALL RIGID CONDUIT SHALL BE PVC OR CPVC UNLESS OTHERWISE NOTED.
 8. ALL DEVICES SHALL BE RATED AS SHOWN ON THESE PLANS. ALL DEVICES SHALL BE RATED AS SHOWN ON THESE PLANS.
 9. ALL DEVICES SHALL BE RATED AS SHOWN ON THESE PLANS. ALL DEVICES SHALL BE RATED AS SHOWN ON THESE PLANS.
 10. A REDUCED SHOCK HAZARD SHALL BE PROVIDED FOR BRACK LOCATION OF DEVICES.
 11. ALL CONDUIT SHALL BE RATED AS SHOWN ON THESE PLANS.
 12. ALL BRACK LOCATION SHALL BE 8" O.D. 1/2" DIA. NIPPLE IN 3/4" BRACK.
 13. ALL DEVICES SHALL BE RATED AS SHOWN ON THESE PLANS.
 14. ALL DEVICES SHALL BE RATED AS SHOWN ON THESE PLANS.
 15. ALL 120V, SINGLE-PHASE, 15 AMP TO 20 AMP BRACK CIRCUITS SHALL BE RATED AS SHOWN ON THESE PLANS.
 16. ALL 240V, SINGLE-PHASE, 15 AMP TO 20 AMP BRACK CIRCUITS SHALL BE RATED AS SHOWN ON THESE PLANS.
 17. ALL 240V, SINGLE-PHASE, 15 AMP TO 20 AMP BRACK CIRCUITS SHALL BE RATED AS SHOWN ON THESE PLANS.
 18. ALL DEVICES IN REDUCED HAZARD SHALL BE NOT OPEN CIRCUITS.

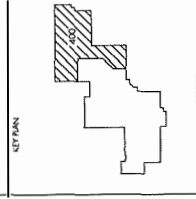


ELECTRICAL POWER NEW WORK PLAN - UNIT 300



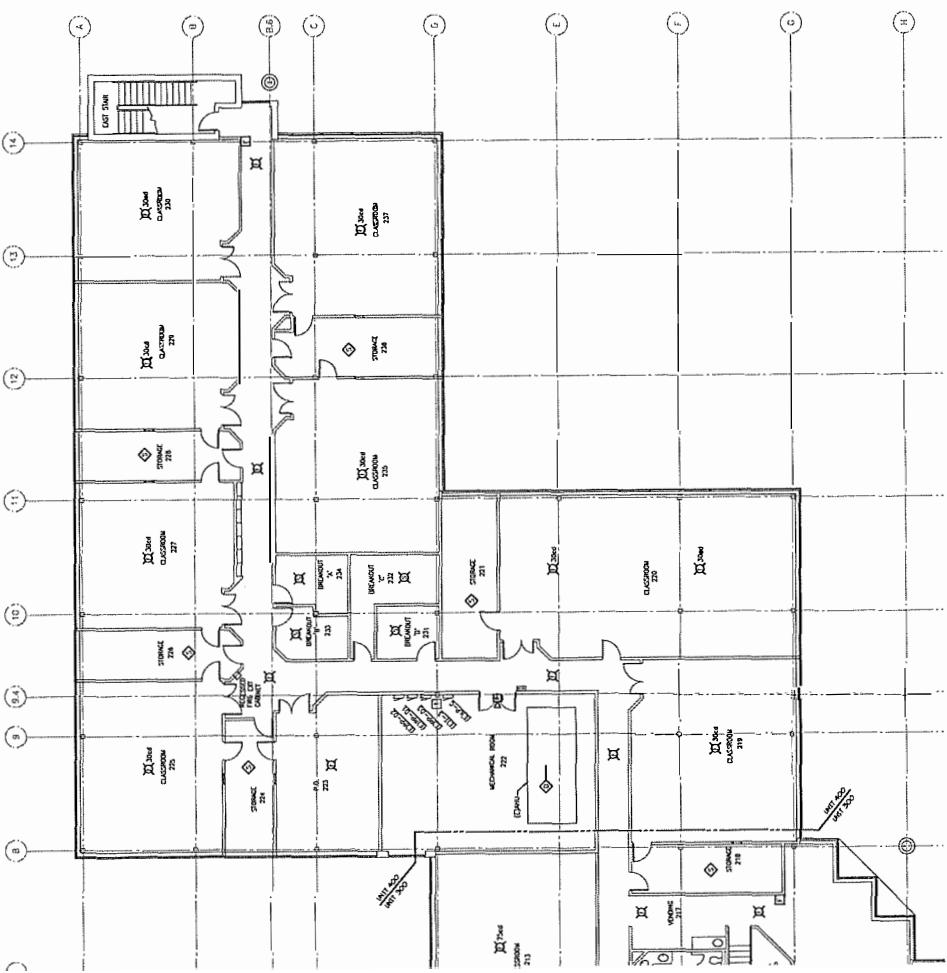
Ivywood Classical Academy
Choice Schools Associates
Plymouth Township, Michigan

REVISIONS/REVIEW	DATE



JOB NO. **201343**
SHEET TITLE
ELECTRICAL POWER WORK PLAN
-LINE 43-
SHEET NO.
EPI.4

- POWER GENERAL NOTES**
1. ALL ELECTRICAL DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND ALL APPLICABLE LOCAL CODES.
 2. ALL WIRING SHALL BE INSTALLED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND ALL APPLICABLE LOCAL CODES.
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 16. ALL WIRING SHALL BE INSTALLED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND ALL APPLICABLE LOCAL CODES.



ELECTRICAL POWER NEW WORK PLAN - UNIT 400
SCALE: 1/8" = 1'-0"

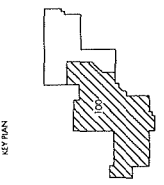


Ivywood Classical Academy

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Plymouth Township, Michigan

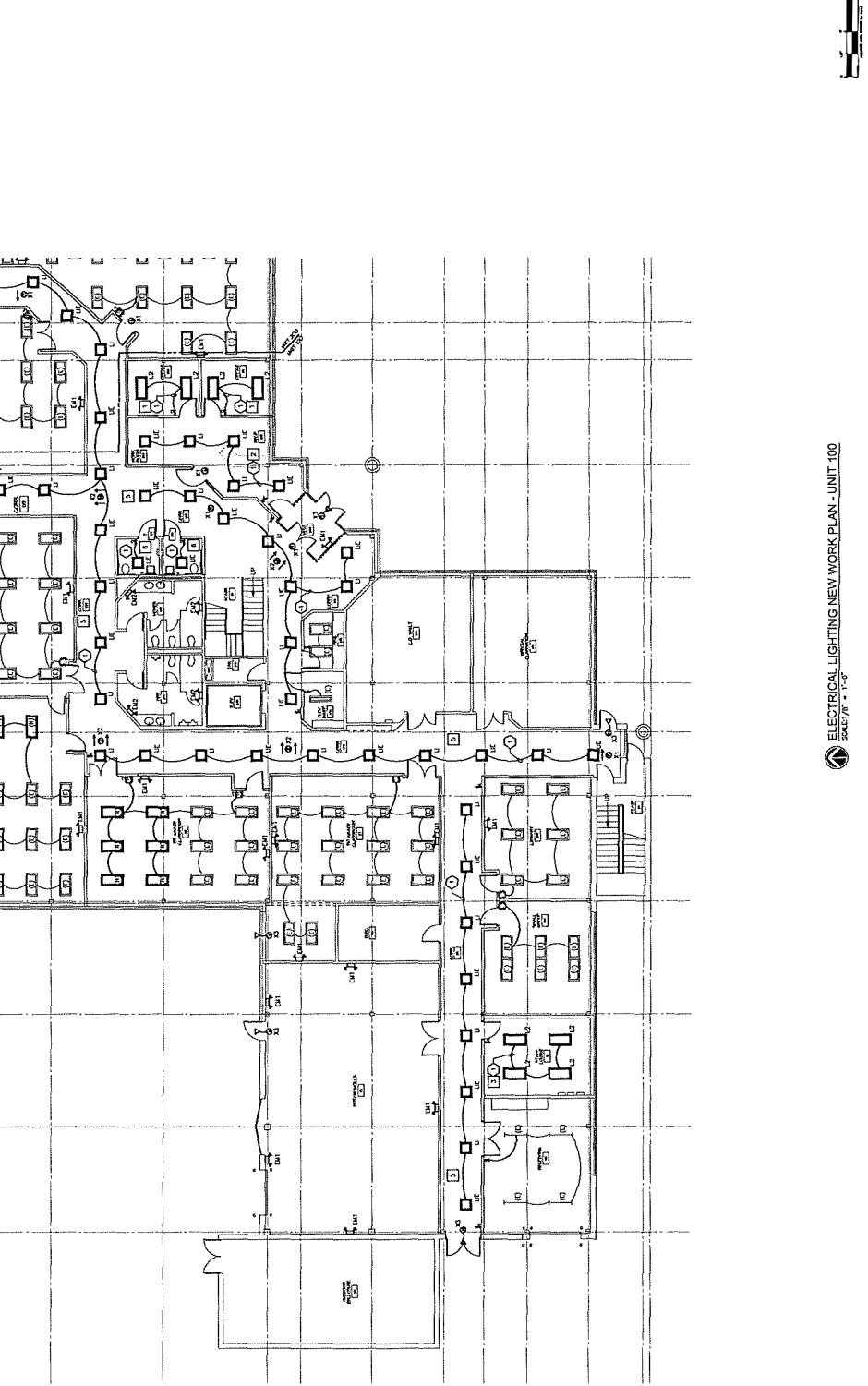
REVISION/REVIEW	DATE



JOB NO. **19-050-04**
 DRAWN BY:
RECORDING NETWORK
 PLAN-UNIT 100
 SHEET NO.
E.I.
 SHEET TITLE

- LIGHTING GENERAL NOTES**
1. REFER TO UNDERGROUND UTILITIES DRAWING FOR THE EXACT LOCATION OF ALL LIGHTING FIXTURES, UNLESS OTHERWISE NOTED.
 2. ALL FIXTURES SHALL BE INSTALLED TO THE CENTER OF THE ROOM UNLESS OTHERWISE NOTED.
 3. ALL LIGHTING SHALL BE INSTALLED TO THE CENTER OF THE ROOM UNLESS OTHERWISE NOTED.
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 10. ALL LIGHTING SHALL BE INSTALLED TO THE CENTER OF THE ROOM UNLESS OTHERWISE NOTED.

- KEYED NOTES**
1. REFER TO UNDERGROUND UTILITIES DRAWING FOR THE EXACT LOCATION OF ALL LIGHTING FIXTURES, UNLESS OTHERWISE NOTED.

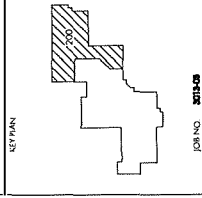


ELECTRICAL LIGHTING NEW WORK PLAN - UNIT 100
SCALE: 1/8" = 1'-0"



Ivywood Classical Academy
Choice Schools Associates
Plymouth Township, Michigan

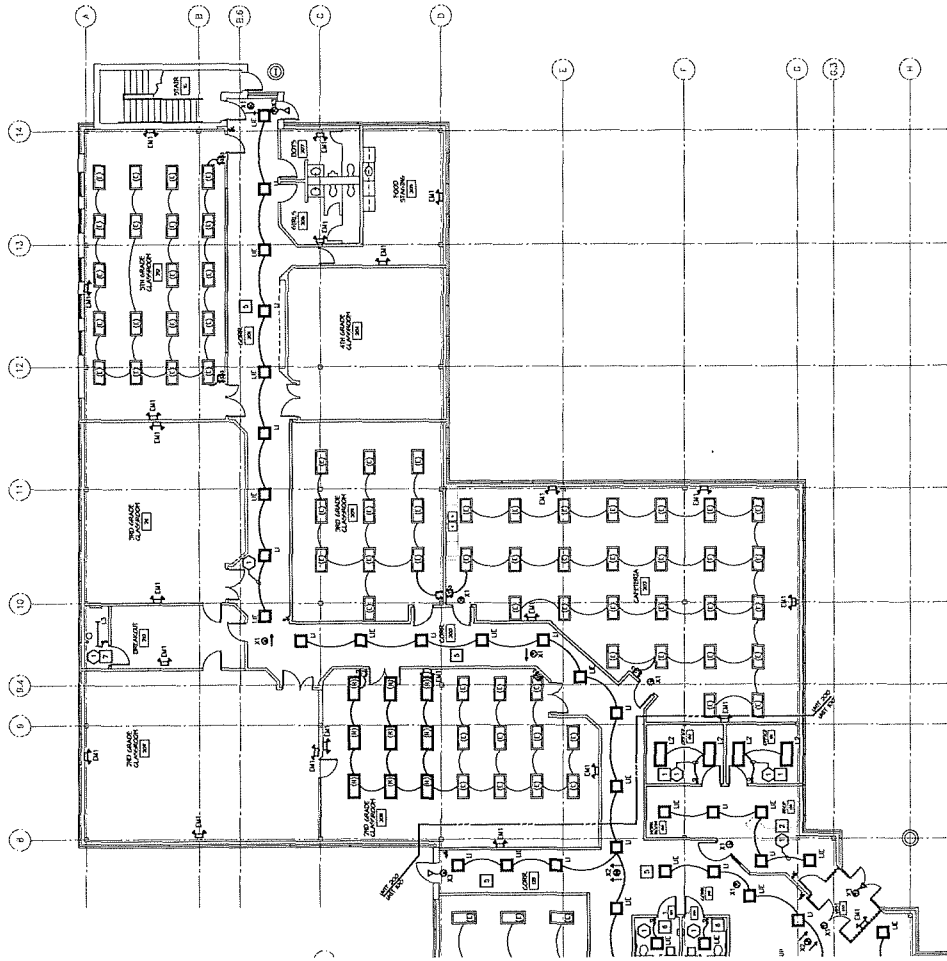
REVISIONS/REVIEW	DATE
	4/22/20



JOB NO.	2019-05
SHEET TITLE	ELECTRICAL LIGHTING NEW WORK
PAN-UNIT 200	
SHEET NO.	
EL12	
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- LIGHTING GENERAL NOTES**
1. REFER TO ADDITIONAL ATTACHED DRAWING PLAN FOR EXACT LOCATION OF ALL LIGHTING FIXTURES UNLESS OTHERWISE NOTED.
 2. EXISTING LIGHTING FIXTURES SHALL BE IDENTIFIED BY A "C" IN A CIRCLE. EXISTING LIGHTING FIXTURES SHALL BE IDENTIFIED BY A "C" IN A CIRCLE. EXISTING LIGHTING FIXTURES SHALL BE IDENTIFIED BY A "C" IN A CIRCLE.
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 6. EXISTING LIGHTING FIXTURES SHALL BE IDENTIFIED BY A "C" IN A CIRCLE. EXISTING LIGHTING FIXTURES SHALL BE IDENTIFIED BY A "C" IN A CIRCLE.
 7. LIGHT FIXTURES ARE LOCATED THROUGHOUT THE PROJECT TO PROVIDE ILLUMINATION TO ALL AREAS OF THE PROJECT. LIGHT FIXTURES ARE LOCATED THROUGHOUT THE PROJECT TO PROVIDE ILLUMINATION TO ALL AREAS OF THE PROJECT.
 8. ALL LIGHTING CONTROLS SHALL BE IDENTIFIED BY A "C" IN A CIRCLE. ALL LIGHTING CONTROLS SHALL BE IDENTIFIED BY A "C" IN A CIRCLE.
 9. ALL LIGHTING CONTROLS SHALL BE IDENTIFIED BY A "C" IN A CIRCLE. ALL LIGHTING CONTROLS SHALL BE IDENTIFIED BY A "C" IN A CIRCLE.
 10. ALL LIGHTING CONTROLS SHALL BE IDENTIFIED BY A "C" IN A CIRCLE. ALL LIGHTING CONTROLS SHALL BE IDENTIFIED BY A "C" IN A CIRCLE.

- KEYED NOTES**
1. LOCATE NEW LIGHTING TO EXISTING BRANCH CIRCUIT THAT FEEDS BRANCH CIRCUIT.



ELECTRICAL LIGHTING NEW WORK PLAN - UNIT 200

Ivywood Classical Academy
 Choice Schools Associates
 Plymouth Township, Michigan

REVISIONS/REVIEW	DATE

KEY PLAN

JOB NO. 3019-03
 SHEET TITLE
 ELECTRICAL ONE LINE DIAGRAM

DATE: 11/16/16

SCALE: NO.

E5.0

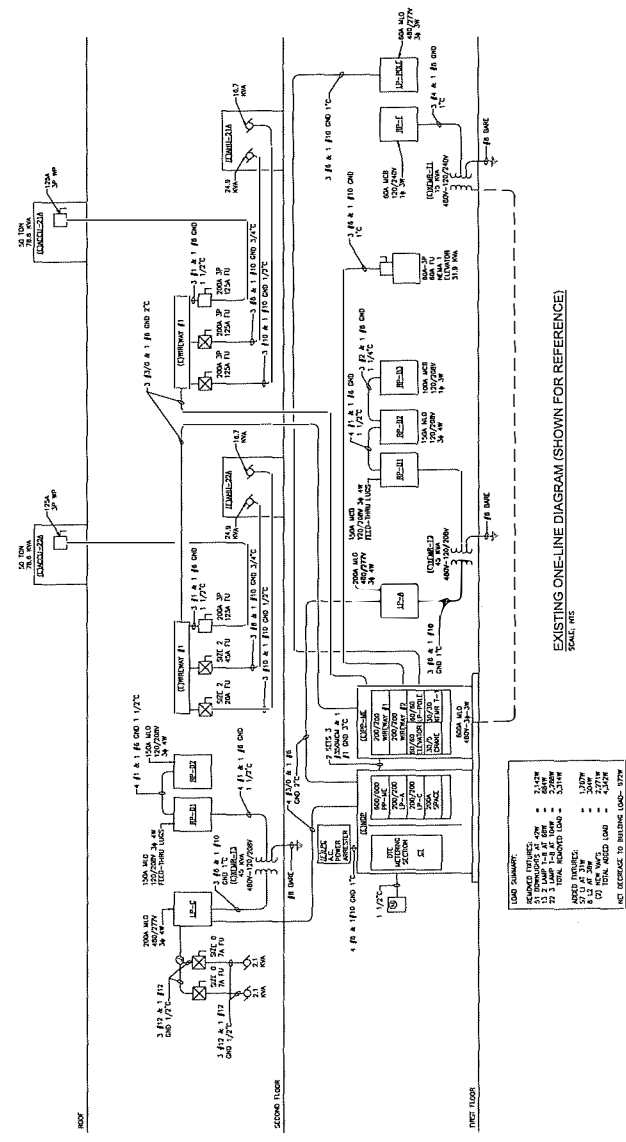


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SECTION 21 0500
COMMON WORK RESULTS FOR FIRE SUPPRESSION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Pipe, valves, fittings, and connections for sprinkler systems.

1.02 RELATED REQUIREMENTS

- A. Division 01 - General Requirements: Project procedural and administrative requirements.
- B. Division 07 - Thermal and Moisture Protection: Firestopping
- C. Section 21 0523 - General-Duty Valves for Water-Based Fire-Suppression Piping.
- D. Section 21 1200 - Fire-Suppression Standpipes: Standpipe design.
- E. Section 21 1300 - Fire Suppression Sprinklers: Sprinkler systems design.

1.03 REFERENCE STANDARDS

- A. ASME BPVC-IX - Boiler and Pressure Vessel Code, Section IX - Welding, Brazing, and Fusing Qualifications; 2015.
- B. ASME B16.1 - Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250; 2010.
- C. ASME B16.3 - Malleable Iron Threaded Fittings: Classes 150 and 300; 2011.
- D. ASME B16.4 - Gray Iron Threaded Fittings: Classes 125 and 250; 2011.
- E. ASME B16.5 - Pipe Flanges and Flanged Fittings NPS 1/2 Through NPS 24 Metric/Inch Standard; 2013.
- F. ASME B16.9 - Factory-Made Wrought Buttwelding Fittings; 2012.
- G. ASME B16.11 - Forged Fittings, Socket-welding and Threaded; 2011.
- H. ASME B16.25 - Buttwelding Ends; 2012.
- I. ASME B36.10M - Welded and Seamless Wrought Steel Pipe; 2004.
- J. ASTM A47/A47M - Standard Specification for Ferritic Malleable Iron Castings; 1999 (Reapproved 2014).
- K. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2012.
- L. ASTM A135/A135M - Standard Specification for Electric-Resistance-Welded Steel Pipe; 2009 (Reapproved 2014).
- M. ASTM A234/A234M - Standard Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and High Temperature Service; 2015.
- N. ASTM A536 - Standard Specification for Ductile Iron Castings; 1984 (Reapproved 2014).
- O. ASTM A795/A795M - Standard Specification for Black and Hot-Dipped Zinc-Coated (Galvanized) Welded and Seamless Steel Pipe for Fire Protection Use; 2013.
- P. ASTM E814 - Standard Test Method for Fire Tests of Through-Penetration Fire Stops; 2013a.
- Q. AWS D1.1/D1.1M - Structural Welding Code - Steel; 2015.
- R. AWWA C105/A21.5 - Polyethylene Encasement for Ductile-Iron Pipe Systems; 2010.
- S. AWWA C606 - Grooved and Shouldered Joints; 2011.
- T. NFPA 13 - Standard for the Installation of Sprinkler Systems; 2016.
- U. UL (DIR) - Online Certifications Directory; current listings at database.ul.com.

1.04 SUBMITTALS

- A. Contractor shall provide submittals for equipment listed herein. Refer to Division 01 - General Requirements for submittal procedures.
- B. Product Data: Provide manufacturers catalogue information. Indicate valve data and ratings.
- C. Shop Drawings: Indicate pipe materials used, jointing methods, supports, floor and wall penetration seals. Indicate installation, layout, weights, mounting and support details, and piping connections.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.
- B. Installer Qualifications: Company specializing in performing work of the type specified this section.
 - 1. Minimum three years experience.
- C. Conform to UL requirements.
- D. Valves: Bear UL label or marking. Provide manufacturer's name and pressure rating marked on valve body.
- E. Products Requiring Electrical Connection: Listed and classified as suitable for the purpose specified and indicated.

PART 2 PRODUCTS

2.01 FIRE PROTECTION SYSTEMS

- A. Sprinkler Systems: Conform to NFPA 13.
- B. Welding Materials and Procedures: Conform to ASME BPVC-IX.

2.02 BURIED PIPING

- A. Steel Pipe: ASTM A53/A53M Schedule 40, ASTM A135/A135M Schedule 10, ASTM A795/A795M Standard Weight, or ASME B36.10M Schedule 40, black, with AWWA C105/A21.5 polyethylene jacket, or double layer, half-lapped polyethylene tape.
 - 1. Steel Fittings: ASME B16.9, wrought steel, buttwelded, ASME B16.25, buttweld ends, ASTM A234/A234M, wrought carbon steel or alloy steel, ASME B16.5, steel flanges and fittings, or ASME B16.11, forged steel socket welded and threaded; with double layer, half-lapped polyethylene tape.
 - 2. Cast Iron Fittings: ASME B16.1, flanges and flanged fittings.
 - 3. Joints: Welded in accordance with AWS D1.1/D1.1M.
 - 4. Casing: Closed glass cell insulation.

2.03 ABOVE GROUND PIPING

- A. Steel Pipe: ASTM A53 Schedule 40 or ASTM A135/A135M Schedule 10, black.
 - 1. Cast Iron Fittings: ASME B16.1, flanges and flanged fittings and ASME B16.4, threaded fittings.
 - 2. Malleable Iron Fittings: ASME B16.3, threaded fittings and ASTM A47/A47M.
 - 3. Mechanical Grooved Couplings: Malleable iron housing clamps to engage and lock, "C" shaped elastomeric sealing gasket, steel bolts, nuts, and washers; galvanized for galvanized pipe.
 - 4. Mechanical Formed Fittings: Carbon steel housing with integral pipe stop and O-ring pocked and O-ring, uniformly compressed into permanent mechanical engagement onto pipe.

2.04 PIPE SLEEVES

- A. Vertical Piping:
 - 1. Sleeve Length: 1 inch above finished floor.

2. Provide sealant for watertight joint.
- B. Plastic, Sheet Metal, or Moisture-Resistant Fiber: Pipe passing through interior walls, partitions, and floors, unless steel or brass sleeves are specified below.
- C. Pipe Passing Through Below Grade Exterior Walls:
 1. Zinc coated or cast iron pipe.
 2. Provide watertight space with link rubber or modular seal between sleeve and pipe on both pipe ends.
- D. Clearances:
 1. Provide allowance for insulated piping.
 2. Wall, Floor, Floor, Partitions, and Beam Flanges: 1 inch greater than external; pipe diameter.
 3. All Rated Openings: Caulked tight with fire stopping material conforming to ASTM E814 in accordance with Section 07 8400 to prevent the spread of fire, smoke, and gases.

2.05 MANUFACTURED SLEEVE-SEAL SYSTEMS

- A. Modular/Mechanical Seal:
 1. Synthetic rubber interlocking links continuously fill annular space between pipe and wall/casing opening.
 2. Provide watertight seal between pipe and wall/casing opening.
 3. Elastomer element size and material in accordance with manufacturer's recommendations.
 4. Glass reinforced plastic pressure end plates.

2.06 PIPE HANGERS AND SUPPORTS

- A. Hangers for Pipe Sizes 1/2 to 1-1/2 inch: Malleable iron, adjustable swivel, split ring.
- B. Hangers for Pipe Sizes 2 inches and Over: Carbon steel, adjustable, clevis.
- C. Multiple or Trapeze Hangers: Steel channels with welded spacers and hanger rods.
- D. Wall Support for Pipe Sizes to 3 inches: Cast iron hook.
- E. Wall Support for Pipe Sizes 4 inches and Over: Welded steel bracket and wrought steel clamp.
- F. Vertical Support: Steel riser clamp.
- G. Floor Support: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.

2.07 MECHANICAL COUPLINGS

- A. Rigid Mechanical Couplings for Grooved Joints:
 1. Dimensions and Testing: Comply with AWWA C606.
 2. Minimum Working Pressure: 300 psig.
 3. Housing Material: Fabricate of ductile iron conforming to ASTM A536.
 4. Housing Coating: Factory applied orange enamel or _____.
 5. Gasket Material: EPDM suitable for operating temperature range from minus 30 degrees F to 230 degrees F.
 6. Bolts and Nuts: Hot dipped galvanized or zinc electroplated steel.

2.08 REDUCED PRESSURE BACKFLOW PREVENTER

- A. Assembly shall consist of a pressure differential relief valve located in a zone between two positive seating check valves and captured springs. Back siphonage protection shall include provision to admit air directly into the reduced pressure zone via a separate channel from the water discharge channel. The assembly shall include two tightly closing shutoff valves before and after the valve and test cocks.

PART 3 EXECUTION

3.01 PREPARATION

- A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.
- B. Remove scale and foreign material, from inside and outside, before assembly.
- C. Prepare piping connections to equipment with flanges or unions.

3.02 INSTALLATION

- A. Install sprinkler system and service main piping, hangers, and supports in accordance with NFPA 13.
- B. Route piping in orderly manner, plumb and parallel to building structure. Maintain gradient.
- C. Install piping to conserve building space, to not interfere with use of space and other work.
- D. Group piping whenever practical at common elevations.
- E. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.
- F. Pipe Hangers and Supports:
 - 1. Install hangers to provide minimum 1/2 inch space between finished covering and adjacent work.
 - 2. Place hangers within 12 inches of each horizontal elbow.
 - 3. Use hangers with 1-1/2 inch minimum vertical adjustment. Design hangers for pipe movement without disengagement of supported pipe.
 - 4. Support vertical piping at every other floor. Support riser piping independently of connected horizontal piping.
 - 5. Where several pipes can be installed in parallel and at same elevation, provide multiple or trapeze hangers.
- G. Slope piping and arrange systems to drain at low points. Use eccentric reducers to maintain top of pipe level.
- H. Prepare pipe, fittings, supports, and accessories for finish painting. Where pipe support members are welded to structural building framing, scrape, brush clean, and apply one coat of zinc rich primer to welding.
- I. Do not penetrate building structural members unless indicated.
- J. Provide sleeves when penetrating footings, floors, walls, and partitions and seal pipe and sleeve penetrations to achieve fire resistance equivalent to fire separation required.
- K. Manufactured Sleeve-Seal Systems:
 - 1. Install manufactured sleeve-seal systems in sleeves located in grade slabs and exterior concrete walls at piping entrances into building.
 - 2. Provide sealing elements of the size, quantity, and type required for the piping and sleeve inner diameter or penetration diameter.
 - 3. Locate piping in center of sleeve or penetration.
 - 4. Install field assembled sleeve-seal system components in annular space between sleeve and piping.
 - 5. Tighten bolting for a water-tight seal.
 - 6. Install in accordance with manufacturer's recommendations.
- L. Escutcheons:
 - 1. Install and firmly attach escutcheons at piping penetrations into finished spaces.
 - 2. Provide escutcheons on both sides of partitions separating finished areas through which piping passes.
 - 3. Use chrome plated escutcheons in occupied spaces and to conceal openings in construction.

- M. When installing more than one piping system material, ensure system components are compatible and joined to ensure the integrity of the system. Provide necessary joining fittings. Ensure flanges, union, and couplings for servicing are consistently provided.

3.03 CLEANING

- A. Upon completion of work, clean all parts of the installation.
- B. Clean equipment, pipes, valves, and fittings of grease, metal cuttings, and sludge that may have accumulated from the installation and testing of the system.

END OF SECTION

SECTION 21 1300
FIRE SUPPRESSION SPRINKLERS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Wet-pipe sprinkler system.
- B. System design, installation, and certification.

1.02 RELATED REQUIREMENTS

- A. Division 01 - General Requirements: Project procedural and administrative requirements.
- B. Division 07 - Thermal and Moisture Protection: Firestopping, smoke and fire curtains.
- C. Section 21 0500 - Common Work Results for Fire Suppression: Pipe and fittings.
- D. Section 21 0523 - General-Duty Valves for Water-Based Fire-Suppression Piping.
- E. Section 21 0553 - Identification for Fire Suppression Piping and Equipment.
- F. Section 21 1200 - Fire-Suppression Standpipes.
- G. Section 21 3000 - Fire Pumps.
- H. Section 28 4600 - Fire Detection and Alarm.

1.03 REFERENCE STANDARDS

- A. NFPA 13 - Standard for the Installation of Sprinkler Systems; 2016.
- B. UL (DIR) - Online Certifications Directory; current listings at database.ul.com.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meeting: Convene one week before starting work of this section.

1.05 SUBMITTALS

- A. Contractor shall provide submittals for equipment listed herein. Refer to Division 01 - General Requirements for submittal procedures.
- B. Product Data: Provide data on sprinklers, valves, and specialties, including manufacturers catalog information. Submit performance ratings, rough-in details, weights, support requirements, and piping connections.
- C. Shop Drawings:
 - 1. Submit preliminary layout of finished ceiling areas indicating only sprinkler locations coordinated with ceiling installation.
 - 2. Indicate hydraulic calculations, detailed pipe layout, hangers and supports, sprinklers, components and accessories. Indicate system controls.
 - 3. Submit shop drawings to Authorities Having Jurisdiction for approval. Submit proof of approval to Strategic Energy Solutions, Inc..
- D. Manufacturer's Certificate: Certify that system has been tested and meets or exceeds specified requirements and code requirements.
- E. Operation and Maintenance Data: Include components of system, servicing requirements, record drawings, inspection data, replacement part numbers and availability, and location and numbers of service depot.
- F. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. See Section 01 6000 - Product Requirements, for additional provisions.
 - 2. Extra Sprinklers: Type and size matching those installed, in quantity required by referenced NFPA design and installation standard.
 - 3. Sprinkler Wrenches: For each sprinkler type.

1.06 QUALITY ASSURANCE

- A. Conform to FM (AG) requirements.
- B. Designer Qualifications: Design system under direct supervision of a Professional Engineer experienced in design of this type of work and licensed in LOCATION.
- C. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Sprinklers, Valves, and Equipment:
 - 1. Tyco Fire Protection Products, a Tyco Business: www.tyco-fire.com.
 - 2. Viking Corporation: www.vikinggroupinc.com.
 - 3. Reliable Automatic Sprinkler Co., Inc.

2.02 SPRINKLER SYSTEM

- A. Sprinkler System: Provide coverage for building areas noted.
- B. Occupancy: Light hazard; comply with NFPA 13.
- C. Water Supply: Determine volume and pressure from water flow test data.
- D. Interface system with building fire and smoke alarm system.
- E. Provide fire department connections where indicated.
- F. Storage Cabinet for Spare Sprinklers and Tools: Steel, located adjacent to alarm valve.

2.03 SPRINKLERS

- A. Suspended Ceiling Type: Fully-Recessed Concealed pendant type with matching push on escutcheon plate.
 - 1. Response Type: Quick.
 - 2. Coverage Type: Standard.
 - 3. Fusible Link: Fusible solder link type temperature rated for specific area hazard.
- B. Exposed Area Type: Pendant upright type.
 - 1. Response Type: Quick.
 - 2. Coverage Type: Standard.
- C. Flexible Drop System: Stainless steel, multiple use, open gate type.
 - 1. Application: Use to properly locate sprinkler heads.
 - 2. Include all supports and bracing.
 - 3. Provide braided type tube as required for the application.
 - 4. Manufacturers:

2.04 PIPING SPECIALTIES

- A. Wet Pipe Sprinkler Alarm Valve: Check type valve with divided seat ring, rubber faced clapper to automatically actuate water motor alarm, pressure retard chamber and variable pressure trim with the following additional capabilities and features:
 - 1. Activate electric alarm.
 - 2. Test and drain valve.
 - 3. Replaceable internal components without removing valve from installed position.
- B. Test Connections:
 - 1. Inspector's Test Connection for Preaction Systems:
 - a. Provide test connections approximately 6 ft above floor for each or portion of each sprinkler system equipped with an alarm device, located at the most remote part of each system.

- b. Route test connection to an open-site drain location, excluding janitor sinks, accepting full flow without negative consequences.
- c. Supply discharge orifice with same size as corresponding sprinkler orifice.
- d. Limit vertical height of exterior wall penetration to 2 ft above finished grade.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install in accordance with referenced NFPA design and installation standard.
- B. Install equipment in accordance with manufacturer's instructions.
- C. Place pipe runs to minimize obstruction to other work.
- D. Place piping in concealed spaces above finished ceilings.
- E. Center sprinklers in two directions in ceiling tile and provide piping offsets as required.
- F. Apply masking tape or paper cover to ensure concealed sprinklers, cover plates, and sprinkler escutcheons do not receive field paint finish. Remove after painting. Replace painted sprinklers.
- G. Flush entire piping system of foreign matter.
- H. Hydrostatically test entire system.
- I. Require test be witnessed by Fire Marshal.

3.02 INTERFACE WITH OTHER PRODUCTS

- A. Ensure required devices are installed and connected as required to fire alarm system.

END OF SECTION

SECTION 22 0005
BASIC PLUMBING REQUIREMENTS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. This section applies to all sections of Division 22.
- B. Drawings and general provisions of the contract, including Division 00 and Division 01 specification sections, apply to work of this section.
- C. Provide all items, articles, materials, operations or methods listed, mentioned or scheduled on drawings and/or herein, including all labor, materials, equipment and incidentals necessary and required for their completion.
- D. The items in this section are supplementary to the requirements set forth in other portions of the specifications as indicated under item "A" above.

1.02 APPLICATION

- A. This section applies to all plumbing work. The contractors involved shall check all sections of the specifications in addition to the particular section covering their specific trade. Each distinct section of the specifications aimed for one trade may have detailed information with regards to other trades, therefore, it is imperative that all sections be reviewed to get a complete picture of all other trades' functions and work required.
- B. The plumbing contractor is responsible for the installation and operation of the plumbing systems.
- C. The plumbing contractor is responsible for receiving, unloading and placement of all of the owner provided equipment.

1.03 INSPECTION OF SITE

- A. Visit the site, examine and verify the conditions under which the work must be conducted before submitting proposal.
- B. The submitting of a proposal implies that the contractor has visited the site and understands the conditions under which the work must be conducted.

1.04 ALTERNATES AND SUBSTITUTIONS

- A. Refer to Division 01 - General Requirements for procedures.

1.05 MATERIALS

- A. Plumbing equipment is to be furnished with motors, electrical controls and protective devices, and integral operating devices which are normally included by the manufacturer or required by the Contract Documents.
- B. The Plumbing trades shall provide all control wiring, 120 volts and less, for the equipment and devices furnished under Division 22 of these specifications, including all wiring devices, transformers, conduit, etc. Any conduits used for control wiring shall meet the specifications as indicated in Division 26.
- C. Power wiring 120 volts and greater shall be by the Electrical Trades.

1.06 DRAWINGS

- A. The drawings are diagrammatic and show general location and arrangement of all the equipment and piping.
- B. Do not scale drawings for measurements.
- C. Field verifications of actual existing conditions are required by the contractor since actual locations, distances, and levels will be governed by actual field conditions. All measurements shall be verified at the site.

- D. Examine the drawings of other trades and verify the conditions governing the work on the job site. Arrange work accordingly, providing such fittings, traps, valves and accessories as may be required to meet such conditions.
- E. The plumbing contractor shall check all documents including architectural, structural, plumbing, heating, ventilation, air conditioning, and electrical plans to avert possible installation conflicts.
- F. If during field verification, the contractor identifies that there may require substantial changes from the original plans, the contractor shall notify the architect for agreement on necessary adjustment before the installation is started.
- G. Discrepancies shown between plans, or between plans and actual field conditions, or between plans and specifications shall promptly be brought to the attention of the architect for a decision.
- H. Drawings and specifications are intended to cover the completed installation of systems to function as described. The omission of the expressed reference to any item of labor and material necessary to comply with practice codes, ordinances, etc., shall not relieve the contractor from providing such additional labor and material at no cost to Owner.
- I. The drawings show the location and general arrangement of equipment, piping and related items. They shall be followed as closely as elements of the construction will permit.
- J. Deviations from the drawings, with the exception of minor changes in routing and other such incidental changes that do not affect the functioning or serviceability of the systems, shall not be made without the written approval of the Architect.
- K. The architectural and structural drawings take precedence in all matters pertaining to the building structure, plumbing drawings in all matters pertaining to plumbing trades, mechanical drawings in all matters pertaining to mechanical trades and electrical drawings in all matters pertaining to electrical trades. Where there are conflicts or differences between the drawings for the various trades, report such conflicts or differences to the Architect for resolution.

1.07 CODES, PERMITS AND FEES

- A. Unless otherwise indicated, all required permits, licenses, inspections, approvals and fees for plumbing work shall be secured and paid for by the contractor. All work shall conform to all applicable codes, rules and regulations. Applicable publications listed in all sections of Division 22 shall be the latest issue, unless otherwise noted.
- B. Rules of local utility companies and municipalities shall be complied with. Check with the utility company and/or municipality supplying service to the installation and determine all devices including, but not limited to: meters, regulators, valves which will be required and include the cost of all such items in the proposal.
- C. All work shall be executed in accordance with the rules and regulations set forth in local and state codes. Prepare any detailed drawings or diagrams which may be required by the governing authorities. Where the drawings and/or specifications indicate materials or construction in excess of code requirements, the drawings and/or specifications shall govern.

1.08 MAINTENANCE

- A. Provide 40 hours of instruction to the owner's designated personnel in the maintenance and operation of equipment and systems.
- B. Provide complete maintenance and operating instructional manuals covering all mechanical equipment herein specified, together with parts lists. Maintenance and operating instructional manuals shall be job specific to this project. Generic manuals are not acceptable. Manuals shall be submitted in electronic format for review. When approved, four (4) bound hard copies and an indexed electronic PDF shall be provided to the owner. Maintenance and operating instructional manuals shall be provided when construction is approximately 75% complete.

1.09 WARRANTY AND GUARANTEE

- A. Contractor shall guarantee all work installed by him or his subcontractors to be free from defect in material and workmanship for a period of one year from date of final acceptance of the work, unless a longer period is stipulated under specific headings. Contractor shall repair or replace at no additional cost to the owner, any material or equipment developing defects and shall also make good any damage caused by such defects or the correction of defects. Repairs or replacements shall bear additional guarantee, as originally called for, dated from the final acceptance of the repair or replacement. This requirement shall be binding even though it will exceed product guarantees normally furnished by some manufacturers. Contractor shall submit his own and each equipment manufacturers written certificates, warranting that each item of equipment furnished complies with all requirements of the drawings and specifications. Note that guarantee shall run from date of final acceptance of the work, not from date of installation of a device or piece of equipment.

1.10 SUBMITTALS

- A. Refer to Division 01 - General Requirements for procedures.
- B. Contractor shall provide submittals where items are referred to by symbolic designation on the drawings. All submittals shall bear the same designation (plumbing piping, plumbing fixtures, etc.). Refer to other sections of the electrical specifications for additional requirements.
- C. Engineer WILL NOT REVIEW:
1. Submittals not specified.
 2. Submittals not reviewed by Contractor; including Contractor stamp with signature comments.
 3. Submittals made after work is delivered to site and/or installed.
 4. Submittal resubmissions unless resubmission is required by Architect/Engineer.
- D. Installation of any item that requires submittal approval by the engineer shall be installed at the contractors risk. The contractor, at his cost, shall remove all work installed prior to approval of the submittal.
- E. The engineer will not be responsible for errors in quantities, or dimensions required to fit the job condition, details of fabrication to insure proper assembly at the job, or for errors resulting from errors in submittals.
- F. For underground piping, record dimensions and invert elevations of all piping, including all offsets, fittings, cathodic protection and accessories. Locate dimensions from benchmarks that will be preserved after construction is complete.

1.11 RECORD DRAWINGS

- A. Refer to Division 01 - General Requirements for procedures. All literature shall be furnished in accordance with requirements listed in Division 01.
- B. Contractor shall provide the following record drawings as part of the Project closeout document process:
1. Contract Documents, specifications and submittals, indicating "As-Built" conditions and actual products selected for use.
 2. Product and Maintenance manuals for all equipment listed within this specification manual and in Contract Documents. Provide with parts lists as applicable.

1.12 QUALITY ASSURANCE

- A. Other referenced standards:
1. Comply with referenced standards, guidelines, data sheets from various associations, including NFPA, ANSI, ASTM, ASME, ASHRAE.

PART 2 PRODUCTS

2.01 SLEEVES AND ESCUTCHEONS

- A. Provide sleeves wherever pipes pass through exterior wall and floors. Sleeves shall be schedule 40 steel pipe cut to length. Sleeves shall terminate flush with walls, partitions and ceilings in finished areas. All sleeves through floor shall extend 2" above floor. Provide cast brass nickel-plated escutcheons with positive catches on each visible sleeve penetration. Sleeves are to be sealed at each installation with a 3M approved sealant. The space between the inside of the sleeve and the outside of the pipe or conduit within the sleeve shall be sealed at each installation with a 3M approved sealant.

2.02 DIELECTRIC UNIONS

- A. Dielectric unions shall be used to connect dissimilar metals (such as steel and copper) to prevent electrolytic action.

2.03 BUILDING ATTACHMENTS FOR PLUMBING WORK SUPPORTS

- A. General Requirements:
1. Provide building attachments required for supporting plumbing work, suitably selected and installed for the loads applied with a minimum additional safety factor of 3.
 2. Where specified attachments are not suitable for conditions, submit to Engineer for approval, proposal for alternate building attachments.
 3. Approved Manufacturers: Grinnell, or equivalent products by Michigan Hanger and B-Line.
 4. Provide supplemental trapeze supports where necessary. Design trapeze to support all trades. Coordinate loads, and supports with all trades. Size trapeze for maximum deflection of 1/64 of the span.
- B. Attachments to Structural Steel:
1. Support plumbing work from building structural steel where possible and approved. No welding or bolting to structural steel is permitted unless authorized by Architect. C-clamps are not permitted.
 - a. Center beam clamp - for loads over 120 lb.: Malleable center hung Grinnell Fig. 228.
 - b. Side beam clamp with retaining clips - for loads up to 120 lb.
- C. Cast in Place Concrete Inserts:
1. Provide inserts selected for applied load of present load plus 100% for future, and coordinated with concrete work. Except as detailed on drawings, inserts shall be Unistrut or Grinnell. Plan, lay out and coordinate setting of inserts prior to concrete pour. Use Grinnell Fig. 285 lightweight concrete insert for loads up to 400# or Grinnell Fig. 281 Wedge Type concrete insert for loads up to 1200#
- D. Drilled Insert Anchors:
1. Where plumbing work cannot be supported from structural steel, or cast in place concrete inserts, provide drilled concrete insert anchors. Submit for approval, project specific installation drawings for all loads over 100 lbs. Install inserts in web of beam if possible and approved. Insert depth shall not exceed two thirds the thickness of the concrete. Where existing concrete appears to be deteriorating, or where applied load at insert exceeds 1000 lbs., conduct test of concrete to determine derated capacity of insert. Anchors may be adhesive or expansion type up to 1000 lbs., and shall be adhesive type for loads over 1000 lbs.
 2. Manufacturers: Hilti

PART 3 EXECUTION

3.01 GENERAL

- A. Demolition of plumbing equipment shall include all existing piping, valves, controls, supports and equipment where such items are not required for reuse. Plumbing equipment not specified for reuse shall be removed by the Plumbing contractor from the site.

- B. Existing piping: when encountered during the course of work, protect, brace and support existing piping where required for proper execution of the work.
- C. Interruption of existing active piping: when the course of work makes shut-down of services unavoidable, the plumbing contractor shall schedule the shut-down at such time as approved by the owners representative, which will cause least interference with established operating routine.
- D. Arrange work accordingly, providing such fittings as duct transitions traps, valves and accessories necessary to complete all construction in an orderly fashion.
- E. Install all equipment in strict accordance all directions and recommendations furnished by the manufacturer.

3.02 ACCESSIBILITY

- A. Do not locate traps, controls, unions, pull boxes, etc. in any system at a location that will be inaccessible after construction is completed. Maintain accessibility for all components in mechanical, electrical, and plumbing systems.

3.03 ACCESS PANELS:

- A. Refer to Division 08 - Openings; Provide access doors in locations as required by applicable codes and as indicated below. Coordinate locations with architectural trades.
- B. Furnish access panels to access valves, traps, control valves or devices, dampers, damper motors, etc. Access panels shall be sized as necessary for ample access, or as indicated on drawings, but no smaller than 12" x 12" where devices are within easy reach of operator, and at least 24"x24" when operator must pass through opening in order to reach the devices. Architectural Trades shall install access panels coordinated with Mechanical Trades.
- C. Access panels in fire rated walls or ceiling must be U.L. labeled for intended use. Unless otherwise indicated on plans, access doors shall be hinged flush type steel framed panel, 14 gauge minimum for frame, and with anchor straps. Only narrow border shall be exposed. Hinges shall be concealed type. Locking device shall be flush type and screw driver operated. Metal surfaces shall be prime coated with rust-inhibitive paint. Panels shall be compatible with architectural adjacent materials.
 - 1. Manufacturer: Milcor, Bilco.

3.04 CUTTING, PATCHING AND DAMAGE TO OTHER WORK

- A. Refer to Division 01 - General Requirements.
- B. All cutting required shall be done by the contractor whose work is involved, without extra cost the owner. All patching and restoration including the furnishing and installation of access panels in ceiling, walls; etc. Within the building lines shall be done by the respective, responsible contractor. No cutting of structural steel, concrete, or wood shall be done without prior approval and explicit directions of the architect patched by the respective, responsible contractor.

3.05 EXCAVATION AND BACKFILLING

- A. Provide all excavation, trenching, tunneling, removal of materials, de-watering and backfilling required for the proper laying of pipes and plumbing work. Coordinate the work with other excavating and backfilling in same area.

3.06 ROUGH-IN FOR CONNECTION TO EQUIPMENT

- A. It shall be the responsibility of each contractor to study the architectural, structural, electrical, and mechanical drawings, conferring with the various trades involved and checking with the supplier of equipment in order to properly rough-in for all equipment.

3.07 MATERIAL AND EQUIPMENT

- A. All material and equipment shall be new and of the best quality used for the purpose in good commercial practice, and shall be the standard product of reputable manufacturers. The

material and equipment must meet approval of state and local codes in the area it is being used. Roof decks shall not be used to support piping, conduit, equipment, devices, etc.

3.08 SEAL PENETRATIONS

- A. Seal the space around pipes in sleeves and around duct openings through walls, floors and ceilings. Provide adequate clearance to allow for proper sealing.

3.09 FIRESTOPPING

- A. Refer to Division 07 - Thermal and Moisture Protection for more information.
- B. Provide UL classified firestopping system for plumbing penetrations through rated walls and floors to maintain the fire rating.

3.10 CONTROL WIRING

- A. All control wiring for plumbing and electrical equipment, including motor starters, shall be 120 volt maximum and wired with one side of the coil grounded and the operating contacts in the north side of the circuit. All control wiring shall be installed in conduit.

3.11 CLEANING

- A. Refer to Division 01 - General Requirements; all plumbing equipment and components shall be cleaned as frequently as necessary through the construction process and again prior to project completion.

3.12 DELIVERY, STORAGE AND PROTECTION OF EQUIPMENT AND MATERIALS

- A. Refer to Division 01 - General Requirements; all equipment and materials shall be delivered, stored and secured per manufacturer's recommendations.
- B. On-site storage shall be coordinated with Construction Manager/General Contractor and be performed in a manner as to avoid damage, deterioration and loss.

END OF SECTION

SECTION 22 0505
SELECTIVE DEMOLITION FOR PLUMBING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Demolition and extension of existing plumbing work.

1.02 RELATED REQUIREMENTS

- A. Division 01 - General Requirements: Project administrative and procedural requirements.
- B. Division 02 - Existing Conditions: Demolition, cleaning and disposal requirements, cutting and patching requirements, repairs.

1.03 SUMMARY

- A. The work covered under this section consists of the furnishing of all necessary labor, supervision, materials, equipment, and services to completely execute the system of minor electrical demolition as described in this specification.
- B. The demolition documents plans and specification have been prepared from existing non-as built documents and cursory non-invasive field investigation.
- C. It is the contractors obligation to become familiar with the extent of demolition and the existing condition before submitting their bid.
- D. During demolition if the contractor discovers unforeseen significant non-code compliance conditions of the existing installation they shall notify the Architect and Engineer immediately in writing.
- E. The contractor shall become familiar with the drawings and scope of work of other trades as the work scope of those trades relates to mechanical equipment and connection requirements.
- F. During demolition the contractor shall record on site as-builts all plumbing sanitary, waste and domestic hot, cold and hot water recirculation capped branches for reuse in renovated project space.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Materials and equipment for patching and extending work: As specified in individual sections.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that piping to be demolished serve only equipment and facilities within the demolition areas.
- B. Demolition drawings are based on casual field observation and existing record documents.
- C. Report discrepancies to Owner before disturbing existing installation.
- D. Beginning of demolition means installer accepts existing conditions.

3.02 PREPARATION

- A. Identify locations for capping plumbing piping before any demolition work commences.
- B. Confirm isolation valve locations for domestic water piping. Repair leaking isolation valves or replace inoperable valves before commencing piping demolition.

3.03 DEMOLITION AND EXTENSION OF EXISTING PLUMBING WORK

- A. Remove, relocate, and extend existing plumbing piping to accommodate new construction.
- B. Remove domestic water piping back to isolation valve.
- C. Remove sanitary and waste piping to branch connection fitting to negate any dead ends.

3.04 CLEANING AND REPAIR

- A. Refer to Division 01 - General Requirements for procedures.
- B. Clean and repair existing materials and equipment that remain or that are to be reused.

END OF SECTION

SECTION 22 0553
IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Nameplates.
- B. Tags.

1.02 RELATED REQUIREMENTS

- A. Division 01 - General Requirements
- B. Division 09 - Finishes: Identification painting.

1.03 REFERENCE STANDARDS

1.04 SUBMITTALS

- A. Contractor shall provide submittals for equipment listed herein. Refer to Division 01 - General Requirements for submittal procedures.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Brady Corp.
- B. Champion-America, Inc.
- C. Seton Identification Products.

2.02 NAMEPLATES

- A. Description: Laminated three-layer plastic with engraved letters.
 - 1. Letter Color: White.
 - 2. Letter Height: 1/4 inch.
 - 3. Background Color: Black.

2.03 TAGS

- A. Metal Tags: Brass with stamped letters; tag size minimum 1-1/2 inch diameter with smooth edges.
- B. Chart: Typewritten letter size list in anodized aluminum frame.

PART 3 EXECUTION

3.01 PREPARATION

- A. Degrease and clean surfaces to receive adhesive for identification materials.

3.02 INSTALLATION

- A. Install plastic nameplates with corrosive-resistant mechanical fasteners, or adhesive. Apply with sufficient adhesive to ensure permanent adhesion and seal with clear lacquer.
- B. Install tags with corrosion resistant chain.
- C. Install plastic tape pipe markers complete around pipe in accordance with manufacturer's instructions.

3.03 SCHEDULES

- A. Identify all plumbing equipment and piping with nameplates, tags and markers.

END OF SECTION

SECTION 22 0719
PLUMBING PIPING INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Piping insulation.
- B. Jackets and accessories.

1.02 RELATED REQUIREMENTS

- A. Division 01 - General Requirements: Project administrative and procedural requirements.
- B. Division 02 - Existing Conditions: Demolition, cleaning and disposal requirements, cutting and patching requirements, and repairs.
- C. Division 07 - Thermal and Moisture Protection: Firestopping requirements.
- D. Division 09 - Finishes: Identification painting.
- E. Section 22 1005 - Plumbing Piping: Placement of hangers and hanger inserts.

1.03 REFERENCE STANDARDS

- A. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2014.
- B. ASTM B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate [Metric]; 2014.
- C. ASTM C177 - Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus; 2013.
- D. ASTM C195 - Standard Specification for Mineral Fiber Thermal Insulating Cement; 2007 (Reapproved 2013).
- E. ASTM C534/C534M - Standard Specification for Preformed Flexible Elastomeric Cellular Thermal Insulation in Sheet and Tubular Form; 2014.
- F. ASTM C547 - Standard Specification for Mineral Fiber Pipe Insulation; 2015.
- G. ASTM C795 - Standard Specification for Thermal Insulation for Use in Contact with Austenitic Stainless Steel; 2008 (Reapproved 2013).
- H. ASTM D1056 - Standard Specification for Flexible Cellular Materials--Sponge or Expanded Rubber; 2014.
- I. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2015a.
- J. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials; 2014.
- K. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials; Current Edition, Including All Revisions.

1.04 SUBMITTALS

- A. Contractor shall provide submittals for equipment listed herein. Refer to Division 01 - General Requirements for submittal procedures.
- B. Product Data: Provide product description, thermal characteristics, list of materials and thickness for each service, and locations.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with not less than three years of documented experience.

PART 2 PRODUCTS

2.01 REGULATORY REQUIREMENTS

- A. Surface Burning Characteristics: Flame spread index/Smoke developed index of 25/50, maximum, when tested in accordance with ASTM E84 or UL 723.

2.02 GLASS FIBER

- A. Manufacturers:
 - 1. Knauf Insulation: www.knaufusa.com.
- B. Insulation: ASTM C547 and ASTM C795; rigid molded, noncombustible.
 - 1. 'K' Value: ASTM C177, 0.24 at 75 degrees F.
 - 2. Maximum Service Temperature: 850 degrees F.
 - 3. Maximum Moisture Absorption: 0.2 percent by volume.
 - 4. Density: 3.5 lb/cu. ft
- C. Vapor Barrier Jacket:
 - 1. White kraft paper with glass fiber yarn, bonded to aluminized film; moisture vapor transmission when tested in accordance with ASTM E 96 of 0.02 perm-inches.
- D. Tie Wire:
 - 1. 0.048 inch stainless steel with twisted ends on maximum 12 inch centers.
- E. Vapor Barrier Lap Adhesive: Compatible with insulation.
 - 1. Vapor Barrier Lap Adhesive shall be compatible with the insulation and as recommended by the insulation manufacturer
- F. Insulating Cement/Mastic: ASTM C195; hydraulic setting on mineral wool.
- G. Fibrous Glass Fabric:
 - 1. Cloth: Untreated; 9 oz/sq yd weight.
 - 2. Blanket: 1.0 lb/cu ft density.
 - 3. Weave: 5 by 5.
- H. Indoor Vapor Barrier Finish:
 - 1. Vinyl emulsion type acrylic, compatible with insulation, white color.

2.03 JACKETS

- A. PVC Plastic.
 - 1. Manufacturers:
 - a. Johns Manville Corporation: www.jm.com.
 - b. Protto
 - c. Ceelco
 - 2. Jacket: One piece molded type fitting covers and sheet material, off-white color.
 - a. Minimum Service Temperature: 0 degrees F.
 - b. Maximum Service Temperature: 150 degrees F.
 - c. Moisture Vapor Permeability: 0.002 perm inch, maximum, when tested in accordance with ASTM E96/E96M.
 - d. Thickness: 10 mil.
 - e. Connections: Brush on welding adhesive.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that piping has been tested before applying insulation materials.
- B. Verify that surfaces are clean and dry, with foreign material removed.

3.02 INSTALLATION

- A. Install in accordance with manufacturer's instructions.

- B. Install in accordance with North American Insulation Manufacturers Association (NAIMA) National Insulation Standards.
- C. Exposed Piping: Locate insulation and cover seams in least visible locations.
- D. Glass fiber insulated pipes conveying fluids below ambient temperature:
 - 1. Provide vapor barrier jackets, factory-applied or field-applied. Secure with self-sealing longitudinal laps and butt strips with pressure sensitive adhesive. Secure with outward clinch expanding staples and vapor barrier mastic.
 - 2. Insulate fittings, joints, and valves with molded insulation of like material and thickness as adjacent pipe. Finish with glass cloth and vapor barrier adhesive or PVC fitting covers.
- E. Glass fiber insulated pipes conveying fluids above ambient temperature:
 - 1. Provide standard jackets, with vapor barrier, factory-applied or field-applied. Secure with self-sealing longitudinal laps and butt strips with pressure sensitive adhesive. Secure with outward clinch expanding staples.
 - 2. Insulate fittings, joints, and valves with insulation of like material and thickness as adjoining pipe. Finish with glass cloth and adhesive or PVC fitting covers.
- F. Continue insulation through walls, sleeves, pipe hangers, and other pipe penetrations. Finish at supports, protrusions, and interruptions.

3.03 SCHEDULES

- A. Plumbing Systems:
 - 1. Domestic Hot Water Supply and Return
 - a. Glass Fiber Insulation:
 - 1) Pipe Size Range: 1/2-1 1/4 inch.
 - 2) Thickness: 1 inch.
 - b. Glass Fiber Insulation:
 - 1) Pipe Size Range: 1 1/2-8 inch.
 - 2) Thickness: 1 1/2 inch.
 - 2. Domestic Potable and non Potable Cold Water:
 - a. Glass Fiber Insulation:
 - 1) Pipe Size Range: 3 inch.
 - (a) Thickness: 1 inch.

END OF SECTION

SECTION 22 1005
PLUMBING PIPING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Pipe, pipe fittings, specialties, and connections for piping systems.
 - 1. Sanitary sewer.
 - 2. Domestic water.
 - 3. Pipe hangers and supports.
 - 4. Valves.

1.02 RELATED REQUIREMENTS

- A. Division 01 - General Requirements: Project administrative and procedural requirements.
- B. Division 02 - Existing Conditions: Demolition, cleaning and disposal requirements, cutting and patching requirements, and repairs.
- C. Section 22 0553 - Identification for Plumbing Piping and Equipment.
- D. Section 22 0719 - Plumbing Piping Insulation.
- E. Division 31 - Earthwork.
- F. Division 33 - Utilities.

1.03 REFERENCE STANDARDS

- A. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings; 2012.
- B. ASME B16.22 - Wrought Copper and Copper Alloy Solder-Joint Pressure Fittings; 2013.
- C. ASME B31.9 - Building Services Piping; 2014.
- D. ASME BPVC-IX - Boiler and Pressure Vessel Code, Section IX - Welding, Brazing, and Fusing Qualifications; 2015.
- E. ASTM B32 - Standard Specification for Solder Metal; 2008 (Reapproved 2014).
- F. ASTM B88 - Standard Specification for Seamless Copper Water Tube; 2014.
- G. ASTM B88M - Standard Specification for Seamless Copper Water Tube (Metric); 2013.
- H. ASTM B813 - Standard Specification for Liquid and Paste Fluxes for Soldering of Copper and Copper Alloy Tube; 2010.
- I. ASTM B828 - Standard Practice for Making Capillary Joints by Soldering of Copper and Copper Alloy Tube and Fittings; 2002 (Reapproved 2010).
- J. ASTM D2564 - Standard Specification for Solvent Cements for Poly(Vinyl Chloride) (PVC) Plastic Piping Systems; 2012.
- K. ASTM D2665 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings; 2014.
- L. ASTM D3034 - Standard Specification for Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings; 2015.
- M. AWWA C651 - Disinfecting Water Mains; 2005.
- N. CISPI 301 - Standard Specification for Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste and Vent Piping Applications; 2009.
- O. CISPI 310 - Specification for Coupling for Use in Connection with Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications; 2011.
- P. MSS SP-58 - Pipe Hangers and Supports - Materials, Design, Manufacture, Selection, Application, and Installation; 2009.

- Q. MSS SP-110 - Ball Valves Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends; 2010.
- R. NSF 61 - Drinking Water System Components - Health Effects; 2014 (Errata 2015).
- S. NSF 372 - Drinking Water System Components - Lead Content; 2011.

1.04 SUBMITTALS

- A. Contractor shall provide submittals for equipment listed herein. Refer to Division 01 - General Requirements for submittal procedures.
- B. Product Data: Provide data on pipe materials, pipe fittings, valves, and accessories. Provide manufacturers catalog information. Indicate valve data and ratings.
- C. Welder Certificate: Include welders certification of compliance with ASME BPVC-IX.
- D. Sustainable Design Documentation: For soldered copper joints, submit installer's certification that the specified installation method and materials were used.

1.05 QUALITY ASSURANCE

- A. Perform Work in accordance with State of Michigan standards.
- B. Welding Materials and Procedures: Conform to ASME BPVC-IX and applicable state labor regulations.
- C. Welder Qualifications: Certified in accordance with ASME BPVC-IX.

1.06 REGULATORY REQUIREMENTS

- A. Perform Work in accordance with State of Michigan plumbing code.
- B. Conform to applicable code for installation of backflow prevention devices.
- C. Provide certificate of compliance from authority having jurisdiction indicating approval of installation of backflow prevention devices.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. Potable Water Supply Systems: Provide piping, pipe fittings, and solder and flux (if used), that comply with NSF 61 and NSF 372 for maximum lead content; label pipe and fittings.

2.02 SANITARY SEWER PIPING, BURIED WITHIN 5 FEET OF BUILDING

- A. Cast Iron Pipe: CISPI 301 (latest edition), hubless.
 - 1. Fittings: Cast iron.
 - 2. Joints: CISPI 310 (latest edition) bearing the markings of NSF International, neoprene gasket and stainless steel clamp and shield assemblies.
- B. PVC Pipe: ASTM D2665 or ASTM D3034.
 - 1. Fittings: PVC.
 - 2. Joints: Solvent welded, with ASTM D2564 solvent cement.

2.03 SANITARY SEWER AND VENT PIPING, ABOVE GRADE

- A. Cast Iron Pipe: CISPI 301 (latest edition), hubless, service weight.
 - 1. Fittings: Cast iron.
 - 2. Joints: CISPI 310 (latest edition) bearing the markings of NSF International, neoprene gaskets and stainless steel clamp-and-shield assemblies.
- B. PVC Pipe: ASTM D2665.
 - 1. Fittings: PVC.
 - 2. Joints: Solvent welded, with ASTM D2564 solvent cement.

2.04 DOMESTIC WATER PIPING, ABOVE GRADE

- A. Copper Tube: ASTM B88 (ASTM B88M), Type L (B), Drawn (H).

1. Fittings: ASME B16.18, cast copper alloy or ASME B16.22, wrought copper and bronze.
2. Joints: ASTM B32, alloy Sn95 solder.

2.05 PIPE HANGERS AND SUPPORTS

- A. Provide hangers and supports that comply with MSS SP-58.
 1. If type of hanger or support for a particular situation is not indicated, select appropriate type using MSS SP-58 recommendations.
 2. Overhead Supports: Individual steel rod hangers attached to structure or to trapeze hangers.
 3. Trapeze Hangers: Welded steel channel frames attached to structure.
 4. Vertical Pipe Support: Steel riser clamp.
- B. Plumbing Piping - Drain, Waste, and Vent:
 1. Hangers for Pipe Sizes 1/2 Inch to 1-1/2 Inches: Malleable iron, adjustable swivel, split ring.
 2. Hangers for Pipe Sizes 2 Inches and Over: Carbon steel, adjustable, clevis.
 3. Multiple or Trapeze Hangers: Steel channels with welded spacers and hanger rods.
 4. Vertical Support: Steel riser clamp.
- C. Plumbing Piping - Water:
 1. Conform to ASME B31.9.
 2. Hangers for Pipe Sizes 1/2 Inch to 1-1/2 Inches: Malleable iron, adjustable swivel, split ring.
 3. Multiple or Trapeze Hangers: Steel channels with welded supports or spacers and hanger rods.
 4. Wall Support for Pipe Sizes to 3 Inches: Cast iron hook.
 5. Vertical Support: Steel riser clamp.
 6. Copper Pipe Support: Carbon steel ring, adjustable, copper plated.

2.06 BALL VALVES

- A. Manufacturers:
 1. Tyco Flow Control: www.tycoflowcontrol.com.
 2. Bonomi North America
 3. Conbraco Industries, Inc: www.apollovalves.com.
 4. Kitz Corporation of America
 5. Nibco, Inc: www.nibco.com.
 6. Milwaukee Valve Company: www.milwaukeevalve.com.
- B. Construction, 4 Inches and Smaller: MSS SP-110, Class 150, 600 psi CWP, dezincification resistant, lead free bronze body, 304 stainless steel or chrome plated brass ball, full port, teflon seats and stuffing box ring, blow-out proof stem, lever handle with balancing stops, solder or threaded ends.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that excavations are to required grade, dry, and not over-excavated.

3.02 PREPARATION

- A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.
- B. Remove scale and dirt, on inside and outside, before assembly.
- C. Prepare piping connections to equipment with flanges or unions.

3.03 INSTALLATION

- A. Install in accordance with manufacturer's instructions. Cast iron soil pipe installed in accordance to CISPI's Handbook.

- B. Provide non-conducting dielectric connections wherever jointing dissimilar metals.
- C. Route piping in orderly manner and maintain gradient. Route parallel and perpendicular to walls.
- D. Install piping to maintain headroom, conserve space, and not interfere with use of space.
- E. Group piping whenever practical at common elevations.
- F. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings.
- G. Provide access where valves and fittings are not exposed.
- H. Where pipe support members are welded to structural building framing, scrape, brush clean, and apply one coat of zinc rich primer to welding.
- I. Provide support for utility meters in accordance with requirements of utility companies.
- J. Install valves with stems upright or horizontal, not inverted. Refer to Section 22 0523.
- K. Copper Pipe and Tube: Make soldered joints in accordance with ASTM B828, using specified solder, and flux meeting ASTM B813; in potable water systems use flux also complying with NSF 61 and NSF 372.
- L. Sleeve pipes passing through partitions, walls and floors.
- M. Pipe Hangers and Supports:
 - 1. Install in accordance with ASME B31.9.
 - 2. Support horizontal piping as indicated.
 - 3. Install hangers to provide minimum 1/2 inch space between finished covering and adjacent work.
 - 4. Place hangers within 12 inches of each horizontal elbow.
 - 5. Use hangers with 1-1/2 inch minimum vertical adjustment. Design hangers for pipe movement without disengagement of supported pipe.
 - 6. Where several pipes can be installed in parallel and at same elevation, provide multiple or trapeze hangers.
 - 7. Provide copper plated hangers and supports for copper piping.
 - 8. Prime coat exposed steel hangers and supports. Hangers and supports located in crawl spaces, pipe shafts, and suspended ceiling spaces are not considered exposed.

3.04 APPLICATION

- A. Install unions downstream of valves and at equipment or apparatus connections.
- B. Install brass male adapters each side of valves in copper piped system. Solder adapters to pipe.
- C. Install ball valves for shut-off and to isolate equipment, part of systems, or vertical risers.
- D. Provide spring loaded check valves on discharge of water pumps.
- E. Provide flow controls in water recirculating systems where indicated.

3.05 TOLERANCES

- A. Drainage Piping: Establish invert elevations within 1/2 inch vertically of location indicated and slope to drain at minimum of 1/8 inch per foot slope.
- B. Water Piping: Slope at minimum of 1/32 inch per foot and arrange to drain at low points.

3.06 DISINFECTION OF DOMESTIC WATER PIPING SYSTEM

- A. Disinfect water distribution system in accordance with Section 33 0110.58.
- B. Prior to starting work, verify system is complete, flushed and clean.
- C. Ensure acidity (pH) of water to be treated is between 7.4 and 7.6 by adding alkali (caustic soda or soda ash) or acid (hydrochloric).

- D. Inject disinfectant, free chlorine in liquid, powder, tablet or gas form, throughout system to obtain 50 to 80 mg/L residual.
- E. Bleed water from outlets to ensure distribution and test for disinfectant residual at minimum 15 percent of outlets.
- F. Maintain disinfectant in system for 24 hours.
- G. If final disinfectant residual tests less than 25 mg/L, repeat treatment.
- H. Flush disinfectant from system until residual equal to that of incoming water or 1.0 mg/L.
- I. Take samples no sooner than 24 hours after flushing, from 10 percent of outlets and from water entry, and analyze in accordance with AWWA C651.

3.07 SCHEDULES

- A. Pipe Hanger Spacing:
 - 1. Metal Piping:
 - a. Pipe Size: 1/2 inches to 1-1/4 inches:
 - 1) Maximum Hanger Spacing: 6.5 ft.
 - 2) Hanger Rod Diameter: 3/8 inches.
 - b. Pipe Size: 1-1/2 inches to 2 inches:
 - 1) Maximum Hanger Spacing: 10 ft.
 - 2) Hanger Rod Diameter: 3/8 inch.
 - 2. Plastic Piping:
 - a. All Sizes:
 - 1) Maximum Hanger Spacing: 6 ft.
 - 2) Hanger Rod Diameter: 3/8 inch.

END OF SECTION

SECTION 22 4000
PLUMBING FIXTURES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Water closets
- B. Lavatories
- C. Sinks

1.02 RELATED REQUIREMENTS

- A. Division 01 - General Requirements: Project administrative and procedural requirements.
- B. Division 02 - Existing Conditions: Demolition, cleaning and disposal requirements, cutting and patching requirements, and repairs.
- C. Division 07 - Thermal and Moisture Protection: Sealing joints between fixtures, walls and floors.
- D. Section 22 1005 - Plumbing Piping.
- E. Section 22 1006 - Plumbing Piping Specialties.
- F. Section 22 3000 - Plumbing Equipment.

1.03 REFERENCE STANDARDS

- A. ARI 1010 - Self-Contained, Mechanically-Refrigerated Drinking-Water Coolers; Air-Conditioning and Refrigeration Institute; 2002.
- B. ASME A112.18.1 - Plumbing Supply Fittings; 2012.
- C. ASME A112.19.2 - Ceramic Plumbing Fixtures; 2013.
- D. ASME A112.19.5 - Flush Valves and Spuds for Water Closets, Urinals, and Tanks; 2011.
- E. NSF 61 - Drinking Water System Components - Health Effects; 2014 (Errata 2015).
- F. NSF 372 - Drinking Water System Components - Lead Content; 2011.

1.04 SUBMITTALS

- A. Contractor shall provide submittals for equipment listed herein. Refer to Division 01 - General Requirements for submittal procedures.
- B. Product Data: Provide catalog illustrations of fixtures, sizes, rough-in dimensions, utility sizes, trim, and finishes.
- C. Maintenance Data: Include fixture trim exploded view and replacement parts lists.
- D. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience.

1.06 REGULATORY REQUIREMENTS

- A. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories Inc., as suitable for the purpose specified and indicated.

1.07 WARRANTY

- A. Provide five year manufacturer warranty for electric water cooler.
- B. Supply two sets of faucet washers.

PART 2 PRODUCTS

2.01 GENERAL

- A. Potable Water Systems: Provide plumbing fittings and faucets that comply with NSF 61 and NSF 372 for maximum lead content; label pipe and fittings.

2.02 FLUSH VALVE WATER CLOSETS (WC-1)

- A. Bowl:
1. Manufacturers:
 - a. Sloan
 - b. American Standard Inc.
 - c. Kohler.
 - d. Zurn.
 2. ASME A112.19.2M; wall hung, siphon jet vitreous china closet bowl, with elongated rim, 1-1/2 inch top spud, china bolt caps.
- B. Flush Valve Manufacturers:
1. Delta Tech; Model 81T201
 2. Sloan Valve Company; Model "Optima Plus" 8111..
 3. Zurn Industries, Inc..
- C. Exposed Flush Valve:
1. ASME A112.18.1M; exposed chrome plated, diaphragm type with oscillating handle, escutcheon, seat bumper, integral screwdriver stop and vacuum breaker; maximum 1.6 gallon flush volume.
- D. Seat:
1. Manufacturers:
 - a. Beneke.
 - b. Church; Model 9500c.
 - c. Centoco.
 - d. Substitutions: See Section 01600 - Product Requirements.
 2. Solid white plastic, open front, extended back, self-sustaining hinge, brass bolts, without cover.

2.03 LAVATORIES (LAV-1)

- A. Manufacturers:
1. American Standard; Model "Roxalyn" 195.073 (Vitreous Wall Hung).
 2. Kohler.
 3. Zurn.
 4. Sloan
- B. Vitreous China Wall Hung Basin:
1. ASME A112.19.2M; vitreous china wall hung lavatory 19 x 17 inch minimum, rectangular basin with splash lip, front overflow, and soap depression.
- C. Supply Faucet Manufacturers:
1. American Standard Inc; Model 7881.732 "Hampton": www.americanstandard.com..
 2. Delta; Model 22C121.
 3. Elkay.
 4. Kohler.
 5. Symmons;.
- D. Supply Faucet:
1. ASME A112.18.1M; chrome plated supply fitting with open grid strainer, water economy aerator with maximum 1.5 GPM flow, single lever handle.
- E. Supply Faucet:

1. ASME A112.18.1; cast brass valve bodies, chrome plated supply fitting with pop-up waste, 1/4 turn washerless ceramic disk valve cartridges, cast brass spout, 1/2" male inlet shanks with brass coupling nuts, water economy aerator with maximum 2.0 gpm flow, single lever handles. Polished chrome finish.
- F. Accessories:
1. Chrome plated 17 gage brass P-trap with clean-out plug and arm with escutcheon.
 2. Offset waste with perforated open strainer.
 3. Screwdriver stops.
 4. Rigid supplies.
 5. Carrier:
 - a. Manufacturers:
 - 1) JOSAM Company.
 - 2) J.R. Smith.
 - 3) Wade.
 - 4) Sloan Valve Company.
 - 5) Zurn Industries, Inc..
 - b. ASME A112.6.1M; cast iron and steel frame with tubular legs, lugs for floor and wall attachment, threaded studs for fixture hanger, bearing plate and studs.

2.04 SINKS (SK-1)

- A. Manufacturers:
1. American Standard.
 2. Just.
 3. Elkay.
 4. Substitutions: See Section 01600 - Product Requirements.
- B. Double Compartment Bowl: ADA Compliant
1. ASME A112.19.3M; [38] x [18] x [9] inch outside dimensions 18 gage thick, Type 302 stainless steel, Offset drains, self-rimming and undercoated with heavy duty sound guard, with ledge back drilled for trim.
 - a. Drain: 3-1/2 inch crumb cup and tailpiece.
- C. Supply Faucet Manufacturers:
1. Elkay
 2. Kohler
 3. Delta
 4. Just
- D. Supply Faucet:
1. 9 1/2 " Swing Spout. ASME A112.18.1M; chrome plated supply fitting with water economy aerator with maximum 2.0 gpm (7.5 L/m) flow, wrist blade handles model 372 H.
- E. Accessories: Chrome plated 17 gage brass P-trap with clean-out plug and arm with escutcheon, screwdriver stop, rigid supplies.
- F. Accessories: Point of use tank water heater located in cabinet. Insinkerator: HWT-00.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that walls and floor finishes are prepared and ready for installation of fixtures.
- B. Verify that electric power is available and of the correct characteristics.
- C. Confirm that millwork is constructed with adequate provision for the installation of counter top lavatories and sinks.

3.02 PREPARATION

- A. Rough-in fixture piping connections in accordance with minimum sizes indicated in fixture rough-in schedule for particular fixtures.

3.03 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install each fixture with trap, easily removable for servicing and cleaning.
- C. Provide chrome plated rigid or flexible supplies to fixtures with screwdriver stops, reducers, and escutcheons.
- D. Install components level and plumb.
- E. Install and secure fixtures in place with wall supports and bolts.
- F. Solidly attach water closets to floor with lag screws. Lead flashing is not intended hold fixture in place.

3.04 INTERFACE WITH WORK OF OTHER SECTIONS

- A. Review millwork shop drawings. Confirm location and size of fixtures and openings before rough-in and installation.

3.05 ADJUSTING

- A. Adjust stops or valves for intended water flow rate to fixtures without splashing, noise, or overflow.

3.06 CLEANING

- A. Clean plumbing fixtures and equipment.

3.07 PROTECTION

- A. Protect installed products from damage due to subsequent construction operations.
- B. Do not permit use of fixtures by construction personnel.
- C. Repair or replace damaged products before Date of Substantial Completion.

END OF SECTION

SECTION 23 0005
BASIC HVAC REQUIREMENTS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. This section applies to all sections of Division 23.
- B. Drawings and general provisions of the contract, including Division 00 and Division 01 specification sections, apply to work of this section.
- C. Provide all items, articles, materials, operations or methods listed, mentioned or scheduled on drawings and/or herein, including all labor, materials, equipment and incidentals necessary and required for their completion.
- D. The items in this section are supplementary to the requirements set forth in other portions of the specifications as indicated under item "A" above.

1.02 APPLICATION

- A. This section applies to all mechanical work. The contractors involved shall check all sections of the specifications in addition to the particular section covering their specific trade. Each distinct section of the specifications aimed for one trade may have detailed information with regards to other trades, therefore, it is imperative that all sections be reviewed to get a complete picture of all other trades' functions and work required.
- B. The mechanical contractor is responsible for the installation and operation of the hvac systems and temperature control systems.
- C. The mechanical contractor is responsible for receiving, unloading and placement of all of the owner provided equipment.

1.03 INSPECTION OF SITE

- A. Visit the site, examine and verify the conditions under which the work must be conducted before submitting proposal.
- B. The submitting of a proposal implies that the contractor has visited the site and understands the conditions under which the work must be conducted.

1.04 ALTERNATES AND SUBSTITUTIONS

- A. Refer to Division 01 - General Requirements for procedures.

1.05 MATERIALS

- A. Mechanical equipment is to be furnished with motors, electrical controls and protective devices, and integral operating devices which are normally included by the manufacturer or required by the Contract Documents.
- B. The Mechanical Trades shall provide all control wiring, 120 volts and less, for the equipment and devices furnished under Division 22, and 23 of these specifications, including all wiring devices, conduit, etc.
- C. Power wiring 120 volts and greater shall be by the Electrical Trades.

1.06 DRAWINGS

- A. The drawings show the location and general arrangement of all equipment, piping and related items. They shall be followed as closely as elements of the construction will permit.
- B. Examine the drawings of other trades and verify the conditions governing the work on the job site. Arrange work accordingly, providing such fittings, traps, valves and accessories as may be required to meet such conditions.

- C. Deviations from the drawings, with the exception of minor changes in routing and other such incidental changes that do not affect the functioning or serviceability of the systems, shall not be made without the written approval of the Architect.
- D. The architectural and structural drawings take precedence in all matters pertaining to the building structure, mechanical drawings in all matters pertaining to mechanical trades and electrical drawings in all matters pertaining to electrical trades. Where there are conflicts or differences between the drawings for the various trades, report such conflicts or differences to the Architect for resolution.
- E. Do not scale drawings for measurements.
- F. Field verifications of actual existing conditions are required by the contractor since actual locations, distances, and levels will be governed by actual field conditions. All measurements shall be verified at the site.
- G. If during field verification, the contractor identifies that there may require substantial changes from the original plans, the contractor shall notify the architect for agreement on necessary adjustment before the installation is started
- H. Discrepancies shown between plans, or between plans and actual field conditions, or between plans and specifications shall promptly be brought to the attention of the architect for a decision.
- I. Drawings and specifications are intended to cover the completed installation of systems to function as described. The omission of the expressed reference to any item of labor and material necessary to comply with practice codes, ordinances, etc., shall not relieve the contractor from providing such additional labor and material at no cost to Owner.

1.07 CODES, PERMITS AND FEES

- A. Unless otherwise indicated, all required permits, licenses, inspections, approvals and fees for mechanical work shall be secured and paid for by the contractor. All work shall conform to all applicable codes, rules and regulations. Applicable publications listed in all sections of Division 23 shall be the latest issue, unless otherwise noted.
- B. Rules of local utility companies and municipalities shall be complied with. Check with the utility company and/or municipality supplying service to the installation and determine all devices including, but not limited to: meters, regulators, valves which will be required and include the cost of all such items in the proposal.
- C. All work shall be executed in accordance with the rules and regulations set forth in local and state codes. Prepare any detailed drawings or diagrams which may be required by the governing authorities. Where the drawings and/or specifications indicate materials or construction in excess of code requirements, the drawings and/or specifications shall govern.

1.08 MAINTENANCE

- A. Provide 40 hours of instruction to the owner's designated personnel in the maintenance and operation of equipment and systems.
- B. Provide complete maintenance and operating instructional manuals covering all mechanical equipment herein specified, together with parts lists. Maintenance and operating instructional manuals shall be job specific to this project. Generic manuals are not acceptable. Four (4) copies of all literature shall be furnished for owner and shall be bound in book or ring binder form. Maintenance and operating instructional manuals shall be provided when construction is approximately 75% complete.

1.09 WARRANTY AND GUARANTEE

- A. Contractor shall guarantee all work installed by themselves or their subcontractors to be free from defect in material and workmanship for a period of one year from date of final acceptance of the work, unless a longer period is stipulated under specific headings. Contractor shall repair or replace at no additional cost to the owner, any material or equipment developing defects and shall also make good any damage caused by such defects or the correction of defects. Repairs

or replacements shall bear additional guarantee, as originally called for, dated from the final acceptance of the repair or replacement. This requirement shall be binding even though it will exceed product guarantees normally furnished by some manufacturers. Contractor shall submit his own and each equipment manufacturers written certificates, warranting that each item of equipment furnished complies with all requirements of the drawings and specifications. Note that guarantee shall run from date of final acceptance of the work, not from date of installation of a device or piece of equipment.

1.10 SUBMITTALS

- A. Refer to Division 01 - General Requirements for procedures.
- B. Contractor shall provide submittals where items are referred to by symbolic designation on the drawings. All submittals shall bear the same designation (hvac equipment, piping equipment, etc.). Refer to other sections of the mechanical specifications for additional requirements.
- C. Engineer WILL NOT REVIEW:
 - 1. Submittals not specified.
 - 2. Submittals not reviewed by Contractor, including Contractor stamp with signature comments.
 - 3. Submittals made after work is delivered to site and/or installed.
 - 4. Submittal resubmissions unless resubmission is required by Architect/Engineer.
- D. Types of submittals include the following:
 - 1. Shop Drawings
 - 2. Product Data Sheets
 - 3. Samples
 - 4. Manufacturers Instructions
 - 5. Maintenance Data
 - 6. Warranty
- E. Installation of any item that requires submittal approval by the engineer shall be installed at the contractors risk. The contractor, at his cost, shall remove all work installed prior to approval of the submittal.
- F. The engineer will not be responsible for errors in quantities, or dimensions required to fit the job condition, details of fabrication to insure proper assembly at the job, or for errors resulting from mistakes in submittals.

1.11 RECORD DRAWINGS

- A. Refer to Division 01 - General Requirements for procedures.
- B. Contractor shall provide the following record drawings as part of the Project closeout document process:
 - 1. Contract Documents, specifications and submittals, indicating "As-Built" conditions and actual products selected for use.
 - 2. Product and Maintenance manuals for all equipment listed within this specification manual and in Contract Documents. Provide with parts lists as applicable.
- C. Record drawings shall be maintained by the contractor up to date as the project progresses.
- D. Recording all deviations from the contract documents, indicate exact locations of all buried services both inside and outside of the building; include concealed piping and equipment in the entire contract. Final record drawings shall reflect the as-built conditions.

1.12 QUALITY ASSURANCE

- A. Other referenced standards:
 - 1. Comply with referenced standards, guidelines, data sheets from various associations, including NFPA, ANSI, ASTM, ASME, ASHRAE

PART 2 PRODUCTS

2.01 SLEEVES AND ESCUTCHEONS

- A. Provide sleeves wherever pipes pass through exterior wall, and floors. Sleeves shall be schedule 40 steel pipe cut to length. Sleeves shall terminate flush with walls, partitions and ceilings in finished areas. All sleeves through floor shall extend 2" above floor. Provide cast brass nickel-plated escutcheons with positive catches on each visible sleeve penetration. Sleeves are to be sealed at each installation with a 3M approved sealant. The space between the inside of the sleeve and the outside of the pipe or conduit within the sleeve shall be sealed at each installation with a 3M approved sealant.

2.02 DIELECTRIC UNIONS

- A. Dielectric unions shall be used to connect dissimilar metals (such as steel and copper) to prevent electrolytic action.

2.03 FILTERS

- A. Provide and maintain filters in air handling systems throughout the construction period and prior to final acceptance of the building. Do not run air handling equipment without all prefilters and final filters as specified. Immediately prior to final building acceptance by the owner, contractor shall replace all disposable type air filters with new.

2.04 BUILDING ATTACHMENTS FOR MECHANICAL WORK SUPPORTS

- A. General Requirements:
1. Provide building attachments required for supporting mechanical work, suitably selected and installed for the loads applied with a minimum additional safety factor of 3.
 2. Where specified attachments are not suitable for conditions, submit to Engineer for approval, proposal for alternate building attachments.
 3. Approved Manufacturers: Grinnell, or equivalent products by Michigan Hanger and B-Line.
 4. Provide supplemental trapeze supports where necessary. Design trapeze to support all trades. Coordinate loads, and supports with all trades. Size trapeze for maximum deflection of 1/64 of the span.
- B. Attachments to Structural Steel:
1. Support mechanical work from building structural steel where possible and approved. No welding or bolting to structural steel is permitted unless authorized by Architect. C-clamps are not permitted.
 - a. Center beam clamp - for loads over 120 lb.: Malleable center hung Grinnell Fig. 228.
 - b. Side beam clamp with retaining clips - for loads up to 120 lb.
- C. Cast in Place Concrete Inserts:
1. Provide inserts selected for applied load of present load plus 100% for future, and coordinated with concrete work. Except as detailed on drawings, inserts shall be Unistrut or Grinnell. Plan, lay out and coordinate setting of inserts prior to concrete pour. Use Grinnell Fig. 285 lightweight concrete insert for loads up to 400# or Grinnell Fig. 281 Wedge Type concrete insert for loads up to 1200#
- D. Drilled Insert Anchors:
1. Where mechanical work cannot be supported from structural steel, or cast in place concrete inserts, provide drilled concrete insert anchors. Submit for approval, project specific installation drawings for all loads over 100 lbs. Install inserts in web of beam if possible and approved. Insert depth shall not exceed two thirds the thickness of the concrete. Where existing concrete appears to be deteriorating, or where applied load at insert exceeds 1000 lbs., conduct test of concrete to determine derated capacity of insert. Anchors may be adhesive or expansion type up to 1000 lbs., and shall be adhesive type for loads over 1000 lbs.
 2. Manufacturers: Hilti

PART 3 EXECUTION

3.01 GENERAL

- A. Demolition of mechanical equipment shall include all existing piping, valves, controls, supports and equipment where such items are not required for reuse. Mechanical equipment not specified for reuse shall be removed by the mechanical contractor from the site.
- B. Existing piping and ductwork: when encountered during the course of work, protect, brace and support existing piping and ductwork where required for proper execution of the work.
- C. Interruption of existing active piping and ductwork: when the course of work makes shut-down of services unavoidable, the mechanical contractor shall schedule the shut-down at such time as approved by the owners representative, which will cause least interference with established operating routine.
- D. Arrange work accordingly, providing such fittings as duct transitions traps, valves and accessories necessary to complete all construction in an orderly fashion.
- E. Install all equipment in strict accordance all directions and recommendations furnished by the manufacturer.

3.02 ACCESSIBILITY

- A. Do not locate traps, controls, unions, pull boxes, etc. in any system at a location that will be inaccessible after construction is completed. Maintain accessibility for all components in mechanical, electrical, and plumbing systems.

3.03 ACCESS DOORS AND PANELS

- A. Refer to Division 08 - Openings; Provide access doors in locations as required by applicable codes and as indicated below. Coordinate locations with architectural trades.
- B. Furnish access panels to access valves, traps, control valves or devices, dampers, damper motors, etc. Access panels shall be sized as necessary for ample access, or as indicated on drawings, but no smaller than 12" x 12" where devices are within easy reach of operator, and at least 24"x24" when operator must pass through opening in order to reach the devices. Architectural Trades shall install access panels coordinated with Mechanical Trades.
- C. Access panels in fire rated walls or ceiling must be U.L. labeled for intended use. Unless otherwise indicated on plans, access doors shall be hinged flush type steel framed panel, 14 gauge minimum for frame, and with anchor straps. Only narrow border shall be exposed. Hinges shall be concealed type. Locking device shall be flush type and screw driver operated. Metal surfaces shall be prime coated with rust-inhibitive paint. Panels shall be compatible with architectural adjacent materials Manufacturer: Milcor, Bilco.

3.04 CUTTING AND PATCHING

- A. Refer to Division 01 - General Requirements and Division 02 - Existing Conditions.
- B. All cutting required shall be done by the contractor whose work is involved, without extra cost the owner. All patching and restoration including the furnishing and installation of access panels in ceiling, walls; etc. Within the building lines shall be done by the respective, responsible contractor. No cutting of structural steel, concrete, or wood shall be done without prior approval and explicit directions of the architect patched by the respective, responsible contractor.
- C. The contractor, under whose jurisdiction the work may fall, shall provide labor, material, and tools required to cut, repair, protect, cap, or relocate existing pipes, conduits, or utilities interfering with or uncovered during work, per regulations of the authorities having jurisdiction.

3.05 ROUGH-IN FOR CONNECTION TO EQUIPMENT

- A. It shall be the responsibility of each contractor to study the architectural, structural, electrical, and mechanical drawings, conferring with the various trades involved and checking with the supplier of equipment in order to properly rough-in for all equipment.

3.06 MATERIAL AND EQUIPMENT

- A. All material and equipment shall be new and of the best quality used for the purpose in good commercial practice, and shall be the standard product of reputable manufacturers. The material and equipment must meet approval of state and local codes in the area it is being used. Roof decks shall not be used to support piping, conduit, equipment, devices, etc.

3.07 SEAL PENETRATIONS

- A. Seal the space around pipes in sleeves and around duct openings through walls, floors and ceilings. Provide adequate clearance to allow for proper sealing.

3.08 FIRESTOPPING

- A. Refer to Division 07 - Thermal and Moisture Protection for more information.
- B. Provide UL classified firestopping system for mechanical penetrations through rated walls and floors to maintain the fire rating.

3.09 DELIVERY, STORAGE AND HANDLING OF EQUIPMENT AND MATERIALS

- A. Refer to Division 01 - General Requirements; All equipment and materials shall be delivered, stored and secured per manufacturer's recommendations.
- B. On-site storage shall be coordinated with Construction Manager and be performed in a manner as to avoid damage, deterioration and loss.
- C. Contractor shall provide temporary protection for installed equipment prior to project completion.
- D. Provide temporary end caps and closures on piping and fittings. Maintain in place until installation.
- E. All equipment shall be inspected prior to installation to assure that equipment is free from defect and damage.
- F. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work, and isolating parts of completed system.
- G. Protect dampers, grilles, louvers from damage to operating linkages and blades.

3.10 CLEANING

- A. Refer to Division 01 - General Requirements; all mechanical equipment and components shall be cleaned as frequently as necessary through the construction process and again prior to project completion.

3.11 CONTROL WIRING

- A. All control wiring for mechanical and electrical equipment, including motor starters, shall be 120 volt maximum and wired with one side of the coil grounded and the operating contacts in the north side of the circuit. All control wiring shall be installed in conduit.

END OF SECTION

**SECTION 23 0505
SELECTIVE DEMOLITION FOR HVAC**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Demolition and extension of existing mechanical work.

1.02 RELATED REQUIREMENTS

- A. Division 01 - General Requirements: Project administrative and procedural requirements.
- B. Division 02 - Existing Conditions: Demolition, cleaning and disposal requirements, cutting and patching requirements, repairs.

1.03 SUMMARY

- A. The work covered under this section consists of the furnishing of all necessary labor, supervision, materials, equipment, and services to completely execute the system of minor electrical demolition as described in this specification.
- B. The demolition documents plans and specification have been prepared from existing non-as built documents and cursory non-invasive field investigation.
- C. It is the contractors obligation to become familiar with the extent of demolition and the existing condition before submitting their bid.
- D. During demolition if the contractor discovers unforeseen significant non-code compliance conditions of the existing installation they shall notify the Architect and Engineer immediately in writing.
- E. The contractor shall become familiar with the drawings and scope of work of other trades as the work scope of those trades relates to mechanical equipment and connection requirements.
- F. During demolition the contractor shall record on site as-builts all hydronic system piping capped branches, capped supply air, return air and exhaust ducts for reuse in renovated project space.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Materials and equipment for patching and extending work: As specified in individual sections.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that piping and ductwork to be demolished serve only equipment and facilities within the demolition areas.
- B. Demolition drawings are based on casual field observation and existing record documents.
- C. Report discrepancies to Owner before disturbing existing installation.
- D. Beginning of demolition means installer accepts existing conditions.

3.02 PREPARATION

- A. Identify locations for capping piping and ductwork before any demolition work commences.
- B. Confirm isolation valve locations for hydronic piping. Repair leaking isolation valves or replace inoperable valves before commencing piping demolition.
- C. Cap and seal air-tight supply, return and exhaust air ductwork at shaft walls before commencing sheet metal demolition

3.03 DEMOLITION AND EXTENSION OF EXISTING MECHANICAL WORK

- A. Remove, relocate, and extend existing mechanical piping or sheet metal work to accommodate new construction.

- B. Remove hydronic water piping back to isolation valve.
- C. Remove all supply, return and exhaust air ductwork back to main connection.

3.04 CLEANING AND REPAIR

- A. Refer to Division 01 - General Requirements for procedures.
- B. Clean and repair existing materials and equipment that remain or that are to be reused.

END OF SECTION

SECTION 23 0553
IDENTIFICATION FOR HVAC PIPING AND EQUIPMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Nameplates.
- B. Tags.

1.02 RELATED REQUIREMENTS

- A. Division 01 - General Requirements: Project procedural and administrative requirements.
- B. Division 09 - Finishes.
- C. Section 23 0005 - Basic HVAC Requirements.

1.03 REFERENCE STANDARDS

1.04 SUBMITTALS

- A. Contractor shall provide submittals for equipment listed herein. Refer to Division 01 - General Requirements for submittal procedures.
- B. List: Submit list of wording, symbols, letter size, and color coding for mechanical identification.
- C. Chart and Schedule: Submit valve chart and schedule, including valve tag number, location, function, and valve manufacturer's name and model number.
- D. Product Data: Provide manufacturers catalog literature for each product required.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Brady Corporation: www.bradycorp.com.
- B. Champion America, Inc: www.Champion-America.com.
- C. Seton Identification Products: www.seton.com/aec.

2.02 NAMEPLATES

- A. Description: Laminated three-layer plastic with engraved letters.
 - 1. Letter Color: White.
 - 2. Letter Height: 1/4 inch.
 - 3. Background Color: Black.

2.03 TAGS

- A. Plastic Tags: Laminated three-layer plastic with engraved black letters on light contrasting background color. Tag size minimum 1-1/2 inch diameter.
- B. Metal Tags: Brass with stamped letters; tag size minimum 1-1/2 inch diameter with smooth edges.
- C. Valve Tag Chart: Typewritten letter size list in anodized aluminum frame.

PART 3 EXECUTION

3.01 PREPARATION

- A. Degrease and clean surfaces to receive adhesive for identification materials.

3.02 INSTALLATION

- A. Install nameplates with corrosive-resistant mechanical fasteners, or adhesive. Apply with sufficient adhesive to ensure permanent adhesion and seal with clear lacquer.
- B. Install tags with corrosion resistant chain.
- C. Install plastic pipe markers in accordance with manufacturer's instructions.

- D. Install underground plastic pipe markers 6 to 8 inches below finished grade, directly above buried pipe.
- E. Identify air handling units, pumps, heat transfer equipment, tanks, and water treatment devices with plastic nameplates. Small devices, such as in-line pumps, may be identified with tags.
- F. Identify control panels and major control components outside panels with plastic nameplates.
- G. Identify thermostats relating to terminal boxes or valves with nameplates.
- H. Identify valves in main and branch piping with tags.
- I. Identify air terminal units and radiator valves with numbered tags.

END OF SECTION

SECTION 23 0593
TESTING, ADJUSTING, AND BALANCING FOR HVAC

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Testing, adjustment, and balancing of air systems.
- B. Testing, adjustment, and balancing of hydronic systems.
- C. Measurement of final operating condition of HVAC systems.

1.02 RELATED REQUIREMENTS

- A. Division 01 - General Requirements: Project administrative and procedural requirements.
- B. Section 23 0005 - Basic HVAC Requirements.

1.03 REFERENCE STANDARDS

- A. AABC (NSTSB) - AABC National Standards for Total System Balance, 7th Edition; 2016.
- B. ASHRAE Std 111 - Measurement, Testing, Adjusting, and Balancing of Building HVAC Systems; 2008.
- C. NEBB (TAB) - Procedural Standards for Testing Adjusting and Balancing of Environmental Systems; 2015, Eighth Edition.
- D. SMACNA (TAB) - HVAC Systems Testing, Adjusting and Balancing; 2002.

1.04 SUBMITTALS

- A. Contractor shall provide submittals for equipment listed herein. Refer to Division 01 - General Requirements for submittal procedures.
- B. TAB Plan: Submit a written plan indicating the testing, adjusting, and balancing standard to be followed and the specific approach for each system and component.
 - 1. Include at least the following in the plan:
 - a. List of all air flow, water flow, sound level, system capacity and efficiency measurements to be performed and a description of specific test procedures, parameters, formulas to be used.
 - b. Copy of field checkout sheets and logs to be used, listing each piece of equipment to be tested, adjusted and balanced with the data cells to be gathered for each.
 - c. Discussion of what notations and markings will be made on the duct and piping drawings during the process.
 - d. Final test report forms to be used.
 - e. Details of how TOTAL flow will be determined; for example:
 - 1) Air: Sum of terminal flows via control system calibrated readings or via hood readings of all terminals, supply (SA) and return air (RA) pitot traverse, SA or RA flow stations.
 - 2) Water: Pump curves, circuit setter, flow station, ultrasonic, etc.
 - f. Specific procedures that will ensure that both air and water side are operating at the lowest possible pressures and methods to verify this.
 - g. Exhaust fan balancing and capacity verifications, including any required room pressure differentials.
 - h. Procedures for formal deficiency reports, including scope, frequency and distribution.
- C. Final Report: Indicate deficiencies in systems that would prevent proper testing, adjusting, and balancing of systems and equipment to achieve specified performance.
 - 1. Revise TAB plan to reflect actual procedures and submit as part of final report.
 - 2. Submit draft copies of report for review prior to final acceptance of Project. Provide final copies for Strategic Energy Solutions, Inc. and for inclusion in operating and maintenance manuals.

3. Include actual instrument list, with manufacturer name, serial number, and date of calibration.
 4. Form of Test Reports: Where the TAB standard being followed recommends a report format use that; otherwise, follow ASHRAE Std 111.
 5. Units of Measure: Report data in both I-P (inch-pound) and SI (metric) units.
 6. Include the following on the title page of each report:
 - a. Name of Testing, Adjusting, and Balancing Agency.
 - b. Address of Testing, Adjusting, and Balancing Agency.
 - c. Telephone number of Testing, Adjusting, and Balancing Agency.
 - d. Project name.
 - e. Project location.
 - f. Report date.
- D. Project Record Documents: Record actual locations of flow measuring stations and balancing valves and rough setting.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 GENERAL REQUIREMENTS

- A. Perform total system balance in accordance with one of the following:
 1. AABC (NSTSB), AABC National Standards for Total System Balance.
 2. ASHRAE Std 111, Practices for Measurement, Testing, Adjusting and Balancing of Building Heating, Ventilation, Air-Conditioning, and Refrigeration Systems.
 3. NEBB Procedural Standards for Testing Adjusting Balancing of Environmental Systems.
 4. SMACNA (TAB).
- B. Begin work after completion of systems to be tested, adjusted, or balanced and complete work prior to Substantial Completion of the project.
- C. Where HVAC systems and/or components interface with life safety systems, including fire and smoke detection, alarm, and control, coordinate scheduling and testing and inspection procedures with the authorities having jurisdiction.
- D. TAB Agency Qualifications:
 1. Company specializing in the testing, adjusting, and balancing of systems specified in this section.
 2. Certified by one of the following:
 - a. AABC, Associated Air Balance Council: www.aabc.com/#sle; upon completion submit AABC National Performance Guaranty.
 - b. NEBB, National Environmental Balancing Bureau: www.nebb.org/#sle.
 - c. TABB, The Testing, Adjusting, and Balancing Bureau of National Energy Management Institute: www.tabbcertified.org/#sle.
- E. TAB Supervisor and Technician Qualifications: Certified by same organization as TAB agency.

3.02 EXAMINATION

- A. Verify that systems are complete and operable before commencing work. Ensure the following conditions:
 1. Systems are started and operating in a safe and normal condition.
 2. Temperature control systems are installed complete and operable.
 3. Proper thermal overload protection is in place for electrical equipment.
 4. Final filters are clean and in place. If required, install temporary media in addition to final filters.
 5. Duct systems are clean of debris.
 6. Fans are rotating correctly.
 7. Fire and volume dampers are in place and open.

8. Air coil fins are cleaned and combed.
9. Access doors are closed and duct end caps are in place.
10. Air outlets are installed and connected.
11. Duct system leakage is minimized.
12. Hydronic systems are flushed, filled, and vented.
13. Service and balance valves are open.

B. Beginning of work means acceptance of existing conditions.

3.03 ADJUSTMENT TOLERANCES

- A. Air Outlets and Inlets: Adjust total to within plus 10 percent and minus 5 percent of design to space. Adjust outlets and inlets in space to within plus or minus 10 percent of design.
- B. Hydronic Systems: Adjust to within plus or minus 10 percent of design.

3.04 RECORDING AND ADJUSTING

- A. Ensure recorded data represents actual measured or observed conditions.
- B. Permanently mark settings of valves, dampers, and other adjustment devices allowing settings to be restored. Set and lock memory stops.
- C. Mark on drawings the locations where traverse and other critical measurements were taken and cross reference the location in the final report.
- D. After adjustment, take measurements to verify balance has not been disrupted or that such disruption has been rectified.
- E. Leave systems in proper working order, replacing belt guards, closing access doors, closing doors to electrical switch boxes, and restoring thermostats to specified settings.

3.05 AIR SYSTEM PROCEDURE

- A. Adjust air handling and distribution systems to provide required or design supply, return, and exhaust air quantities at site altitude.
- B. Make air quantity measurements in ducts by Pitot tube traverse of entire cross sectional area of duct.
- C. Measure air quantities at air inlets and outlets.
- D. Adjust distribution system to obtain uniform space temperatures free from objectionable drafts and noise.
- E. Use volume control devices to regulate air quantities only to extend that adjustments do not create objectionable air motion or sound levels. Effect volume control by duct internal devices such as dampers and splitters.
- F. Vary total system air quantities by adjustment of fan speeds. Provide drive changes required. Vary branch air quantities by damper regulation.
- G. Provide system schematic with required and actual air quantities recorded at each outlet or inlet.
- H. Measure static air pressure conditions on air supply units, including filter and coil pressure drops, and total pressure across the fan. Make allowances for 50 percent loading of filters.
- I. Adjust outside air automatic dampers, outside air, return air, and exhaust dampers for design conditions.
- J. Measure temperature conditions across outside air, return air, and exhaust dampers to check leakage.
- K. Where modulating dampers are provided, take measurements and balance at extreme conditions. Balance variable volume systems at maximum air flow rate, full cooling, and at minimum air flow rate, full heating.

- L. For variable air volume system powered units set volume controller to air flow setting indicated. Confirm connections properly made and confirm proper operation for automatic variable air volume temperature control.
- M. On fan powered VAV boxes, adjust air flow switches for proper operation.

3.06 WATER SYSTEM PROCEDURE

- A. Adjust water systems to provide required or design quantities.
- B. Use calibrated Venturi tubes, orifices, or other metered fittings and pressure gages to determine flow rates for system balance. Where flow metering devices are not installed, base flow balance on temperature difference across various heat transfer elements in the system.
- C. Adjust systems to provide specified pressure drops and flows through heat transfer elements prior to thermal testing. Perform balancing by measurement of temperature differential in conjunction with air balancing.
- D. Effect system balance with automatic control valves fully open to heat transfer elements.
- E. Effect adjustment of water distribution systems by means of balancing cocks, valves, and fittings. Do not use service or shut-off valves for balancing unless indexed for balance point.
- F. Where available pump capacity is less than total flow requirements or individual system parts, full flow in one part may be simulated by temporary restriction of flow to other parts.

3.07 SCOPE

- A. Test, adjust, and balance the following:
 - 1. Terminal Heat Transfer Units.
 - 2. Fans.
 - 3. Air Inlets and Outlets.

3.08 MINIMUM DATA TO BE REPORTED

- A. Electric Motors:
 - 1. Manufacturer.
 - 2. Model/Frame.
 - 3. HP/BHP.
 - 4. Phase, voltage, amperage; nameplate, actual, no load.
 - 5. RPM.
 - 6. Service factor.
- B. Duct Traverses:
 - 1. System zone/branch.
 - 2. Duct size.
 - 3. Area.
 - 4. Design velocity.
 - 5. Design air flow.
 - 6. Test velocity.
 - 7. Test air flow.
 - 8. Duct static pressure.
 - 9. Air temperature.
 - 10. Air correction factor.
- C. Air Distribution Tests:
 - 1. Air terminal number.
 - 2. Room number/location.
 - 3. Terminal type.
 - 4. Terminal size.
 - 5. Area factor.
 - 6. Design velocity.

Kingscott Associates, Inc.
Architects/Engineers
Kalamazoo, Michigan

Ivywood Classical Academy
Choice Schools
Plymouth Twp., Michigan

7. Design air flow.
8. Test (final) velocity.
9. Test (final) air flow.
10. Percent of design air flow.

END OF SECTION

SECTION 23 0713
DUCT INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Duct insulation.
- B. Duct liner.

1.02 RELATED REQUIREMENTS

- A. Division 01 - General Requirements: Project procedural and administrative requirements.
- B. Division 07 - Thermal and Moisture Protection: Firestopping.
- C. Section 23 0005 - Basic HVAC Requirements.
- D. Section 23 3100 - HVAC Ducts and Casings: Glass fiber ducts.

1.03 REFERENCE STANDARDS

- A. ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus; 2010.
- B. ASTM C553 - Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications; 2013.
- C. ASTM C612 - Standard Specification for Mineral Fiber Block and Board Thermal Insulation; 2014.
- D. ASTM C916 - Standard Specification for Adhesives for Duct Thermal Insulation; 2014.
- E. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2015a.
- F. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials; 2014.
- G. SMACNA (DCS) - HVAC Duct Construction Standards Metal and Flexible; 2005.
- H. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials; Current Edition, Including All Revisions.

1.04 SUBMITTALS

- A. Contractor shall provide submittals for equipment listed herein. Refer to Division 01 - General Requirements for submittal procedures.
- B. Product Data: Provide product description, thermal characteristics, list of materials and thickness for each service, and locations.
- C. Manufacturer's Instructions: Indicate installation procedures necessary to ensure acceptable workmanship and that installation standards will be achieved.

1.05 QUALITY ASSURANCE

- A. Applicator Qualifications: Company specializing in performing the type of work specified in this section and approved by manufacturer.

PART 2 PRODUCTS

2.01 REGULATORY REQUIREMENTS

- A. Surface Burning Characteristics: Flame spread index/Smoke developed index of 25/50, maximum, when tested in accordance with ASTM E84 or UL 723.

2.02 GLASS FIBER, FLEXIBLE WRAP

- A. Manufacturer:
 - 1. Knauf Insulation: www.knaufusa.com.
 - 2. Johns Manville: www.jm.com.

3. Owens Corning Corporation: www.ocbuildingspec.com.
 4. CertainTeed Corporation: www.certainteed.com/#sle.
- B. Insulation: ASTM C553; flexible, noncombustible blanket.
1. 'K' value: 0.31 at 75 degrees F, when tested in accordance with ASTM C518.
 2. Maximum Service Temperature: 1200 degrees F.
 3. Maximum Water Vapor Absorption: 5.0 percent by weight.
- C. Insulation shall be 1.5 lb/cu. ft. density. Refer to Schedule below for thickness.
- D. Vapor Barrier Jacket:
1. Kraft paper with glass fiber yarn and bonded to aluminized film.
 2. Secure with pressure sensitive tape.
- E. Vapor Barrier Tape:
1. Kraft paper reinforced with glass fiber yarn and bonded to aluminized film, with pressure sensitive rubber based adhesive.
- F. Tie Wire: Annealed steel, 16 gage, 0.0508 inch diameter.

2.03 GLASS FIBER, RIGID (EXTERIOR BOARD DUCT INSULATION)

- A. Manufacturer:
1. Knauf Insulation: www.knaufusa.com.
 2. Johns Manville: www.jm.com.
 3. Owens Corning Corporation: www.ocbuildingspec.com/#sle.
 4. CertainTeed Corporation: www.certainteed.com.
- B. Insulation: ASTM C612; rigid, noncombustible blanket.
1. 'K' Value: 0.24 at 75 degrees F, when tested in accordance with ASTM C518.
 2. Maximum Service Temperature: 450 degrees F.
 3. Maximum Water Vapor Absorption: 5.0 percent.
- C. Vapor Barrier Jacket:
1. Kraft paper with glass fiber yarn and bonded to aluminized film.
 2. Moisture Vapor Permeability: 0.029 ng/Pa s m (0.02 perm inch), when tested in accordance with ASTM E96/E96M.
 3. Secure with two coats of vapor barrier mastic and glass tape.
- D. Vapor Barrier Tape:
1. Kraft paper reinforced with glass fiber yarn and bonded to aluminized film, with pressure sensitive rubber based adhesive. The use of duct tape is prohibited.

2.04 DUCT LINER

- A. Manufacturers:
1. Knauf Insulation: www.knaufusa.com.
 2. Johns Manville: www.jm.com.
 3. Owens Corning Corporation: www.ocbuildingspec.com.
 4. CertainTeed Corporation: www.certainteed.com/#sle.
- B. Insulation: ASTM C 1071; flexible, noncombustible blanket with poly vinyl acetate polymer impregnated surface and edge coat.
1. Apparent Thermal Conductivity: Maximum of 0.31 at 75 degrees F.
 2. Service Temperature: Up to 250 degrees F.
 3. Rated Velocity on Coated Air Side for Air Erosion: 5,000 fpm, minimum.
 4. Maximum Velocity on Coated Air Side: 5,000 fpm.
 5. Minimum Noise Reduction Coefficients:
 6. 1 inch Thickness: 0.45.
- C. Adhesive: Waterproof, fire-retardant type, ASTM C916.
- D. Liner Fasteners: Galvanized steel, self-adhesive pad with integral head.

1. Density: 1.5 lb/cu ft
2. Liner shall meet Anti-Bacterial Requirements of ASTM C 1071, ASTM G 21 and ASTM G 22
3. Liner shall be cleanable in accordance with NAIMA "Duct Cleaning Guide."

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that ducts have been pressure and leak tested before applying insulation materials.
- B. Verify that surfaces are clean, foreign material removed, and dry.

3.02 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install in accordance with NAIMA National Insulation Standards.
- C. Insulated ducts conveying air below ambient temperature:
 1. Provide insulation with vapor barrier jackets.
 2. Finish with tape and vapor barrier jacket.
 3. Continue insulation through walls penetrtrions and at hanger connections.
 4. Insulate entire system including fittings, joints, flanges, fire dampers, flexible connections, and expansion joints.
- D. Duct and Plenum Liner Application:
 1. Adhere insulation with adhesive for 90 percent coverage.
 2. Secure insulation with mechanical liner fasteners. Refer to SMACNA (DCS) for spacing.
 3. Seal and smooth joints. Seal and coat transverse joints.
 4. Seal liner surface penetrations with adhesive.
 5. Duct dimensions indicated are net inside dimensions required for air flow. Increase duct size to allow for insulation thickness.
 6. Provide nosing on all exposed fibergalss edges.

3.03 SCHEDULES

- A. Supply Ductwork (located in plenum or unconditioned spaces):
 1. Flexible Glass Fiber Duct Insulation: 1-1/2 inches thick.

END OF SECTION

SECTION 23 0719
HVAC PIPING INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Piping insulation.
- B. Flexible removable and reusable blanket insulation.
- C. Jackets and accessories.

1.02 RELATED REQUIREMENTS

- A. Division 01 - General Requirements: Project procedural and administrative requirements.
- B. Division 07 - Thermal and Moisture Protection.
- C. Section 22 1005 - Plumbing Piping: Placement of hangers and hanger inserts.
- D. Section 23 0005 - Basic HVAC Requirements.
- E. Section 23 2113 - Hydronic Piping: Placement of hangers and hanger inserts.

1.03 REFERENCE STANDARDS

- A. ASTM C177 - Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus; 2013.
- B. ASTM C195 - Standard Specification for Mineral Fiber Thermal Insulating Cement; 2007 (Reapproved 2013).
- C. ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus; 2010.
- D. ASTM C547 - Standard Specification for Mineral Fiber Pipe Insulation; 2015.
- E. ASTM C585 - Standard Practice for Inner and Outer Diameters of Thermal Insulation for Nominal Sizes of Pipe and Tubing; 2010.
- F. ASTM C591 - Standard Specification for Unfaced Preformed Rigid Cellular Polyisocyanurate Thermal Insulation; 2015.
- G. ASTM C795 - Standard Specification for Thermal Insulation for Use in Contact with Austenitic Stainless Steel; 2008 (Reapproved 2013).
- H. ASTM D2842 - Standard Test Method for Water Absorption of Rigid Cellular Plastics; 2012.
- I. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2015a.
- J. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials; 2014.
- K. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials; Current Edition, Including All Revisions.

1.04 SUBMITTALS

- A. Product Data: Provide product description, thermal characteristics, list of materials and thickness for each service, and locations.
- B. Manufacturer's Instructions: Indicate installation procedures that ensure acceptable workmanship and installation standards will be achieved.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with not less than three years of documented experience.

PART 2 PRODUCTS

2.01 REGULATORY REQUIREMENTS

- A. Surface Burning Characteristics: Flame spread index/Smoke developed index of 25/50, maximum, when tested in accordance with ASTM E84 or UL 723.

2.02 GLASS FIBER

- A. Manufacturers:
 - 1. CertainTeed Corporation: www.certainteed.com.
 - 2. Knauf Insulation: www.knaufinsulation.com.
- B. Insulation: ASTM C547 and ASTM C795; rigid molded, noncombustible.
 - 1. 'K' Value: ASTM C177, 0.24 at 75 degrees F.
 - 2. Maximum Service Temperature: 850 degrees F.
 - 3. Maximum Moisture Absorption: 0.2 percent by volume.
- C. Tie Wire: 0.048 inch stainless steel with twisted ends on maximum 12 inch centers.
- D. Vapor Barrier Lap Adhesive: Compatible with insulation.
- E. Insulating Cement/Mastic: ASTM C195; hydraulic setting on mineral wool.
- F. Indoor Vapor Barrier Finish:
 - 1. Vinyl emulsion type acrylic, compatible with insulation, black color.

2.03 HYDROUS CALCIUM SILICATE

- A. Insulation: ASTM C533 and ASTM C795; rigid molded, asbestos free, gold color.
 - 1. 'K' Value: 0.40 at 300 degrees F, when tested in accordance with ASTM C177 or ASTM C518.
 - 2. Maximum Service Temperature: 1200 degrees F.
 - 3. Density: 15 lb/cu ft.
- B. Tie Wire: 0.048 inch stainless steel with twisted ends on maximum 12 inch centers.

2.04 POLYISOCYANURATE CELLULAR PLASTIC

- A. Insulation Material: ASTM C591, rigid molded modified polyisocyanurate cellular plastic.
 - 1. Dimension: Comply with requirements of ASTM C585.
 - 2. 'K' Value: 0.18 at 75 degrees F, when tested in accordance with ASTM C518.
 - 3. Minimum Service Temperature: Minus 70 degrees F.
 - 4. Maximum Service Temperature: 300 degrees F.
 - 5. Water Absorption: 0.5 percent by volume, maximum, when tested in accordance with ASTM D2842.
 - 6. Moisture Vapor Transmission: 4.0 perm inch.
 - 7. Connection: Waterproof vapor barrier adhesive.

2.05 JACKETS

- A. PVC Plastic.
 - 1. Jacket: One piece molded type fitting covers and sheet material, off-white color.
 - a. Minimum Service Temperature: 0 degrees F.
 - b. Maximum Service Temperature: 150 degrees F.
 - c. Moisture Vapor Permeability: 0.002 perm inch, maximum, when tested in accordance with ASTM E96/E96M.
 - d. Thickness: 10 mil.
 - e. Connections: Brush on welding adhesive.
 - 2. Covering Adhesive Mastic: Compatible with insulation.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that piping has been tested before applying insulation materials.
- B. Verify that surfaces are clean and dry, with foreign material removed.

3.02 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install in accordance with NAIMA National Insulation Standards.
- C. Exposed Piping: Locate insulation and cover seams in least visible locations.
- D. Insulated pipes conveying fluids below ambient temperature: Insulate entire system including fittings, valves, unions, flanges, strainers, flexible connections, and expansion joints. Maintain continuous thermal and vapor-retarder integrity, unless otherwise noted.
- E. Insulate pipe elbows using preformed fitting insulation or mitered fittings made from same material and density as adjacent pipe insulation. Each piece shall be butted tightly against adjoining piece and bonded with adhesive. Fill joints, seams, voids, and irregular surfaces with insulating cement finished to a smooth, hard, and uniform contour that is uniform with adjoining pipe insulation.
- F. Glass fiber insulated pipes conveying fluids below ambient temperature:
 - 1. Provide vapor barrier jackets, factory-applied or field-applied; secure with self-sealing longitudinal laps and butt strips with pressure sensitive adhesive. Secure with outward clinch expanding staples and vapor barrier mastic.
 - 2. Insulate fittings, joints, and valves with molded insulation of like material and thickness as adjacent pipe. Finish with glass cloth and vapor barrier adhesive or PVC fitting covers.
 - 3. Do not bury hangers in the insulation. Insulation vapor barrier shall not be broken.
- G. For hot piping conveying fluids 140 degrees F or less, do not insulate flanges and unions at equipment, but bevel and seal ends of insulation.
- H. For hot piping conveying fluids over 140 degrees F, insulate flanges and unions at equipment.
- I. Glass fiber insulated pipes conveying fluids above ambient temperature:
 - 1. Provide standard jackets, with or without vapor barrier, factory-applied or field-applied. Secure with self-sealing longitudinal laps and butt strips with pressure sensitive adhesive. Secure with outward clinch expanding staples.
 - 2. Insulate fittings, joints, and valves with insulation of like material and thickness as adjoining pipe. Finish with glass cloth and adhesive or PVC fitting covers.
- J. Inserts and Shields:
 - 1. Application: Piping 2 inches diameter or larger.
 - 2. Shields: Galvanized steel between pipe hangers or pipe hanger rolls and inserts.
 - 3. Insert location: Between support shield and piping and under the finish jacket.
 - 4. Insert Configuration: Minimum 6 inches long, of same thickness and contour as adjoining insulation; may be factory fabricated.
 - 5. Insert Material: Hydrous calcium silicate insulation or other heavy density insulating material suitable for the planned temperature range.
- K. Continue insulation through walls, sleeves, pipe hangers, and other pipe penetrations. Finish at supports, protrusions, and interruptions. At fire separations, refer to Section 07 8400.
- L. Exterior Applications: Provide vapor barrier jacket. Insulate fittings, joints, and valves with insulation of like material and thickness as adjoining pipe, and finish with glass mesh reinforced vapor barrier cement. Cover with aluminum jacket with seams located on bottom side of horizontal piping. Provide two coats of UV resistant finish for flexible elastomeric cellular insulation without jacketing.

3.03 SCHEDULE

- A. Heating Systems:
 - 1. Heating Water Supply and Return:
 - a. Pipe Size Range: 3/4-1 1/2 inch
 - 1) Thickness: 1 1/2 inch
 - b. Pipe Size Range: 2-6 inch
 - 1) Thickness: 2 inch

END OF SECTION

SECTION 23 2113
HYDRONIC PIPING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Hydronic system requirements.
- B. Heating water piping, above grade.
- C. Pipe hangers and supports.
- D. Unions, flanges, mechanical couplings, and dielectric connections.
- E. Valves:
 - 1. Ball valves.
 - 2. Butterfly valves.
 - 3. Check valves.

1.02 RELATED REQUIREMENTS

- A. Division 01 - General Requirements: Project administrative and procedural requirements.
- B. Division 07 - Thermal and Moisture Protection: Firestopping.
- C. Division 08 - Openings: Access Doors and Panels.
- D. Division 09 - Finishes: Painting.
- E. Section 23 0005 - Basic HVAC Requirements.
- F. Section 23 0553 - Identification for HVAC Piping and Equipment.
- G. Section 23 0719 - HVAC Piping Insulation.
- H. Section 23 2114 - Hydronic Specialties.
- I. Section 23 2500 - HVAC Water Treatment: Pipe cleaning.

1.03 REFERENCE STANDARDS

- A. ASME BPVC-IX - Boiler and Pressure Vessel Code, Section IX - Welding, Brazing, and Fusing Qualifications; 2015.
- B. ASME B16.3 - Malleable Iron Threaded Fittings: Classes 150 and 300; 2011.
- C. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings; 2012.
- D. ASME B16.22 - Wrought Copper and Copper Alloy Solder-Joint Pressure Fittings; 2013.
- E. ASME B31.9 - Building Services Piping; 2014.
- F. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2012.
- G. ASTM A234/A234M - Standard Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and High Temperature Service; 2015.
- H. ASTM B32 - Standard Specification for Solder Metal; 2008 (Reapproved 2014).
- I. ASTM B88 - Standard Specification for Seamless Copper Water Tube; 2014.
- J. ASTM B88M - Standard Specification for Seamless Copper Water Tube (Metric); 2013.
- K. ASTM F708 - Standard Practice for Design and Installation of Rigid Pipe Hangers; 1992 (Reapproved 2008).
- L. ASTM F1476 - Standard Specification for Performance of Gasketed Mechanical Couplings for Use in Piping Applications; 2007 (Reapproved 2013).
- M. AWS A5.8M/A5.8 - Specification for Filler Metals for Brazing and Braze Welding; 2011-AMD 1.
- N. AWS D1.1/D1.1M - Structural Welding Code - Steel; 2015.

- O. AWWA C606 - Grooved and Shouldered Joints; 2011.
- P. MSS SP-58 - Pipe Hangers and Supports - Materials, Design, Manufacture, Selection, Application, and Installation; 2009.

1.04 SUBMITTALS

- A. Contractor shall provide submittals for equipment listed herein. Refer to Division 01 - General Requirements for submittal procedures.
- B. Product Data: Include data on pipe materials, pipe fittings, valves, and accessories. Provide manufacturers catalogue information. Indicate valve data and ratings.
- C. Welders Certificate: Include welders certification of compliance with ASME BPVC-IX.
- D. Product Data:
 - 1. Include data on pipe materials, pipe fittings, valves, and accessories.
 - 2. Provide manufacturers catalogue information.
 - 3. Indicate valve data and ratings.
- E. Manufacturer's Installation Instructions: Indicate hanging and support methods, joining procedures.
- F. Project Record Documents: Record actual locations of valves.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products of the type specified in this section, with minimum three years of documented experience.
- B. Provide all grooved joint couplings, fittings, valves, specialties, and grooving tools from a single manufacturer.
- C. Coupling Manufacturer:
 - 1. Perform on-site training by factory-trained representative to the Contractor's field personnel in the proper use of grooving tools and installation of grooved joint products.
 - 2. Periodic job site visits by factory-trained representative to ensure best practices in grooved joint installation.
- D. Welder Qualifications: Certify in accordance with ASME BPVC-IX.

PART 2 PRODUCTS

2.01 HYDRONIC SYSTEM REQUIREMENTS

- A. Comply with ASME B31.9 and applicable federal, state, and local regulations.
- B. Piping: Provide piping, fittings, hangers and supports as required, as indicated, and as follows:
 - 1. Where more than one piping system material is specified, provide joining fittings that are compatible with piping materials and ensure that the integrity of the system is not jeopardized.
 - 2. Use non-conducting dielectric connections whenever jointing dissimilar metals.
 - 3. Provide pipe hangers and supports in accordance with ASME B31.9 or MSS SP-58 unless indicated otherwise.
 - 4. Provide pipe hangers and supports in accordance with ASME B31.9 unless indicated otherwise.
- C. Pipe-to-Valve and Pipe-to-Equipment Connections: Use flanges, unions, or grooved couplings to allow disconnection of components for servicing; do not use direct welded, soldered, or threaded connections.
- D. Valves: Provide valves where indicated:
 - 1. Provide drain valves where indicated, and if not indicated provide at least at main shut-off, low points of piping, bases of vertical risers, and at equipment. Use 3/4 inch ball valves with cap; pipe to nearest floor drain.
 - 2. For shut-off and to isolate parts of systems or vertical risers, use ball valves.

- E. Performance Requirements:
1. Hydronic piping components and installation shall be capable of withstanding the following minimum working pressure and temperature unless otherwise indicated.
 - a. Heating water piping: 150 psig @ 200 deg F.

2.02 HEATING WATER PIPING, ABOVE GRADE

- A. Steel Pipe: ASTM A53/A53M, Schedule 40, black, using one of the following joint types:
1. Welded Joints: ASTM A234/A234M, wrought steel welding type fittings; AWS D1.1/D1.1M welded.
 2. Threaded Joints: ASME B16.3, malleable iron fittings.
 3. Grooved Mechanical Joint Fittings and Couplings:
 - a. Joint Fittings: ASTM A 536, Grade 65-45-12 ductile iron; ASTM A 47/A 47M, Grade 325110 malleable iron; ASTM A 53/A 53M, Type F, E, or S, Grade B fabricated steel; or ASTM A 106/A 106M, Grade B steel fittings with grooves or shoulders constructed to accept grooved-end couplings; with nuts, bolts, locking pins, locking toggle, or lugs to secure grooved pipe fittings.
 - b. Couplings: Ductile or malleable iron housing and EPDM or nitrile gasket of central cavity pressure responsive design; with nuts, bolts, locking pin, locking toggle, or lugs to secure grooved pipe and fittings.
- B. Copper Tube: ASTM B88 (ASTM B88M), Type L (B), drawn, using one of the following joint types:
1. Solder Joints: ASME B16.18 cast brass/bronze or ASME B16.22 solder wrought copper fittings.
 - a. Solder: ASTM B32 lead-free solder, HB alloy (95-5 tin-antimony) or tin and silver.
 - b. Braze: AWS A5.8M/A5.8 BCuP copper/silver alloy.
 2. Tee Connections: Mechanically extracted collars with notched and dimpled branch tube.

2.03 PIPE HANGERS AND SUPPORTS

- A. Provide hangers and supports that comply with MSS SP-58.
1. If type of hanger or support for a particular situation is not indicated, select appropriate type using MSS SP-58 recommendations.
- B. Conform to ASME B31.9.
- C. Hangers for Pipe Sizes 1/2 to 1-1/2 Inch: Malleable iron, adjustable swivel, split ring.
- D. Multiple or Trapeze Hangers: Steel channels with welded spacers and hanger rods.
- E. Vertical Support: Steel riser clamp.
- F. Copper Pipe Support: Carbon steel ring, adjustable, copper plated.
- G. Hanger Rods: Mild steel threaded both ends, threaded one end, or continuous threaded.
- H. In grooved installations, use rigid couplings with offsetting angle-pattern bolt pads or with wedge shaped grooves in header piping to permit support and hanging in accordance with ASME B31.9.

2.04 UNIONS, FLANGES, MECHANICAL COUPLINGS, AND DIELECTRIC CONNECTIONS

- A. Unions for Pipe 2 Inches and Less:
1. Ferrous Piping: 150 psig malleable iron, threaded.
 2. Copper Pipe: Bronze, soldered joints.
- B. Mechanical Couplings for Grooved and Shouldered Joints: Two or more curved housing segments with continuous key to engage pipe groove, circular C-profile gasket, and bolts to secure and compress gasket.
1. Dimensions and Testing: In accordance with AWWA C606.
 2. Mechanical Couplings: Comply with ASTM F1476.
 3. Bolts and Nuts: Hot dipped galvanized or zinc-electroplated steel.

4. When pipe is field grooved, provide coupling manufacturer's grooving tools.
5. Manufacturers:
 - a. Grinnell Products, a Tyco Business: www.grinnell.com.
 - b. Shurjoint Piping Products, Inc., a Tyco Business: www.shurjoint.com.
 - c. Victaulic Company: www.victaulic.com.
- C. Dielectric Connections: Union or waterway fitting with water impervious isolation barrier and one galvanized or plated steel end and one copper tube end, end types to match pipe joint types used.

2.05 GATE VALVES

- A. Not allowed.

2.06 BALL VALVES

- A. Manufacturers:
 1. Apollo Valves: www.apollovalves.com/#sle.
 2. Binomi North America
 3. Tyco Flow Control: www.tycoflowcontrol.com.
 4. Grinnell Products, a Tyco Business: www.grinnell.com.
 5. Victaulic Company: www.victaulic.com.
 6. Milwaukee Valve Company: www.milwaukeevalve.com.
 7. Kitz Corporation of America
- B. Up To and Including 2 Inches:
 1. Bronze two piece body, chrome plated brass ball, teflon seats and stuffing box ring, lever handle with balancing stops, solder or threaded ends with union.

2.07 BUTTERFLY VALVES

- A. Manufacturers:
 1. Tyco Flow Control: www.tycoflowcontrol.com.
 2. ABZ Valves and Controls
 3. Hammond Valve: www.hammondvalve.com.
 4. Grinnell Products, a Tyco Business: www.grinnell.com.
 5. Victaulic Company: www.victaulic.com.
- B. Body: Cast or ductile iron with resilient replaceable EPDM seat, lug or grooved ends, extended neck.
- C. Disc: Construct of aluminum bronze, chrome plated ductile iron, stainless steel, ductile iron with EPDM encapsulation, or Buna-N encapsulation.
- D. Stem: Stainless steel with stem offset from the centerline to provide full 360 degree circumferential setting.
- E. Operator: 10 position lever handle.

2.08 SWING CHECK VALVES

- A. Manufacturers:
 1. Grinnell Products, a Tyco Business: www.grinnell.com.
 2. Kitz Corporation of America
 3. Tyco Flow Control: www.tycoflowcontrol.com.
 4. Victaulic Company: www.victaulic.com.
- B. Up To and Including 2 Inches:
 1. Bronze body, bronze trim, bronze rotating swing disc, with composition disc, solder ends.
- C. Over 2 Inches:
 1. Iron body, bronze trim, stainless steel, bronze, or bronze faced rotating swing disc, renewable disc and seat, flanged or grooved ends.

2. Iron body, bronze trim, bronze or bronze faced rotating swing disc, renewable disc and seat, flanged ends.

2.09 SPRING LOADED CHECK VALVES

- A. Manufacturers:
 1. Tyco Flow Control: www.tycoflowcontrol.com.
 2. Crane Co.: www.cranvalve.com.
 3. Kitz Corporation of America
 4. Victaulic Company: www.victaulic.com.
- B. Iron body, bronze trim, split plate, hinged with stainless steel spring, resilient seal bonded to body, wafer or threaded lug ends.

2.10 COMBINATION FLOW MEASURING AND BALANCING VALVE

- A. Manufacturers:
 1. Griswold Controls
 2. Nexus.
 3. Preso.
 4. Flow Design.
- B. Construction:
 1. Manual Flow Control devices shall be a fixed orifice venturi, modified venturi, or pitot balancing type accurate to at least $\pm 3\%$.
 2. Valves $2\frac{1}{2}$ " and smaller shall be modified venturi style, forged brass body and with integrated ball valve, (2) pressure/temperature test ports, additional port for air vent or drain valve, a tag indicating the model and Cv, memory stop with graduated scale, blowout proof stem with dual o-ring seals, interchangeable union end with o-ring seal, hard chrome plated ball with Teflon seats, and rated at 600 PSI WOG, 325 degrees F.
 3. Valves $2\frac{1}{2}$ " and larger shall be venturi or pitot balancing type accurate to at least $\pm 3\%$.
 - a. Venturi balancing type shall be a flanged carbon steel ST37 body (per ASME B16.5, Class 150 Flanges); butterfly valve with infinite position memory stop and 316 stainless steel disc. Valve shall have (2) $\frac{1}{4}$ " NPT ports and be rated for at 230 PSI, 250 degrees F.
 - b. Pitot tube balancing type shall be a flanged cast iron body (per ASTM A126, Class B Flanges) metering station with stainless steel pitot tube; a tag indicating the model and Cv; butterfly valve with infinite position memory stop and 316 stainless steel disc. Valve shall have at minimum, (2) $\frac{1}{4}$ " NPT ports, (1) $\frac{1}{2}$ " NPT port and (1) additional $\frac{3}{4}$ " NPT port. Valve shall be rated for at 175 PSI, 275 degrees F.

PART 3 EXECUTION

3.01 PREPARATION

- A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.
- B. Prepare pipe for grooved mechanical joints as required by coupling manufacturer.
- C. Remove scale and dirt on inside and outside before assembly.
- D. Prepare piping connections to equipment using jointing system specified.
- E. Keep open ends of pipe free from scale and dirt. Protect open ends with temporary plugs or caps.
- F. After completion, fill, clean, and treat systems. Refer to Section 23 2500 for additional requirements.

3.02 PIPING APPLICATIONS

- A. Heating water piping, above ground:
 1. Pipe sizes $\frac{3}{4}$ " - 2 $\frac{1}{2}$ ": Copper, soldered/brazed joints.

3.03 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Route piping in orderly manner, parallel to building structure, and maintain gradient.
- C. Install piping to conserve building space and to avoid interfere with use of space.
- D. Group piping whenever practical at common elevations.
- E. Sleeve pipe passing through partitions, walls and floors.
- F. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified.
- G. Slope piping and arrange to drain at low points.
- H. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment. Refer to Section 23 0516.
- I. Grooved Joints:
 - 1. Install in accordance with the manufacturer's latest published installation instructions.
 - 2. Gaskets to be suitable for the intended service, molded, and produced by the coupling manufacturer.
- J. Pipe Hangers and Supports:
 - 1. Install in accordance with ASME B31.9, ASTM F708, or MSS SP-58.
 - 2. Support horizontal piping as scheduled.
 - 3. Install hangers to provide minimum 1/2 inch space between finished covering and adjacent work.
 - 4. Place hangers within 12 inches of each horizontal elbow.
 - 5. Use hangers with 1-1/2 inch minimum vertical adjustment. Design hangers for pipe movement without disengagement of supported pipe.
 - 6. Where several pipes can be installed in parallel and at same elevation, provide multiple or trapeze hangers.
 - 7. Provide copper plated hangers and supports for copper piping.
 - 8. Prime coat exposed steel hangers and supports. Refer to Section 09 9123. Hangers and supports located in crawl spaces, pipe shafts, and suspended ceiling spaces are not considered exposed.
 - 9. For piping over 2", provide inserts and shields. Do not bury hangers in piping.
- K. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings. Refer to Section 23 0719.
- L. Provide access where valves and fittings are not exposed. Coordinate size and location of access doors with Section 08 3100.
- M. Use eccentric reducers to maintain top of pipe level.
- N. Where pipe support members are welded to structural building framing, scrape, brush clean, and apply one coat of zinc rich primer to welds.
- O. Install valves with stems upright or horizontal, not inverted.

3.04 FIELD QUALITY CONTROL

- A. Prepare hydronic piping according to ASME B31.9 and as follows:
 - 1. Leave joints, including welds, uninsulated and exposed for examination during test.
 - 2. Provide temporary restraints for expansion joints that cannot sustain reactions due to test pressure. If temporary restraints are impractical, isolate expansion joints from testing.
 - 3. Flush hydronic piping systems with clean water; then remove and clean or replace strainer screens.

4. Isolate equipment from piping. If a valve is used to isolate equipment, its closure shall be capable of sealing against test pressure without damage to valve. Install blinds in flanged joints to isolate equipment.
 5. Install safety valve, set at a pressure no more than one-third higher than test pressure, to protect against damage by expanding liquid or other source of overpressure during test.
- B. Perform the following tests on hydronic piping:
1. Use ambient temperature water as a testing medium unless there is risk of damage due to freezing. Another liquid that is safe for workers and compatible with piping may be used.
 2. While filling system, use vents installed at high points of system to release air. Use drains installed at low points for complete draining of test liquid.
 3. Isolate expansion tanks and determine that hydronic system is full of water.
 4. Subject piping system to hydrostatic test pressure that is not less than 1.5 times the system's working pressure. Test pressure shall not exceed maximum pressure for any vessel, pump, valve, or other component in system under test. Verify that stress due to pressure at bottom of vertical runs does not exceed 90 percent of specified minimum yield strength or 1.7 times the "SE" value in Appendix A in ASME B31.9, "Building Services Piping."
 5. After hydrostatic test pressure has been applied for at least 4 hours, examine piping, joints, and connections for leakage. Eliminate leaks by tightening, repairing, or replacing components, and repeat hydrostatic test until there are no leaks.
 6. Prepare written report of testing.
- C. Perform the following before operating the system:
1. Open manual valves fully.
 2. Inspect pumps for proper rotation. Set makeup pressure-reducing valves for required system pressure.
 3. Inspect air vents at high points of system and determine if all are installed and operating freely (automatic type), or bleed air completely (manual type).
 4. Set temperature controls so all coils are calling for full flow.
 5. Inspect and set operating temperatures of hydronic equipment, such as boilers, chillers, cooling towers, to specified values.
 6. Verify lubrication of motors and bearings.

3.05 SCHEDULES

- A. Hanger Spacing for Copper Tubing.
1. 1/2 inch and 3/4 inch: Maximum span, 5 feet; minimum rod size, 1/4 inch.
 2. 1 inch: Maximum span, 6 feet; minimum rod size, 1/4 inch.
- B. Hanger Spacing for Steel Piping.

END OF SECTION

SECTION 23 3100
HVAC DUCTS AND CASINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Single-wall rectangular ducts and fittings.
- B. Single-wall round ducts and fittings.
- C. Sheet metal materials.
- D. Sealants and gaskets.
- E. Hangers and supports.

1.02 RELATED REQUIREMENTS

- A.
- B. Division 03 - Concrete
- C. Division 07 - Thermal and Moisture Protection: Firestopping.
- D. Section 23 0005 - Basic HVAC Requirements.
- E. Section 23 0593 - Testing, Adjusting, and Balancing for HVAC.
- F. Section 23 0713 - Duct Insulation: External insulation and duct liner.
- G. Section 23 3300 - Air Duct Accessories.
- H. Section 23 3700 - Air Outlets and Inlets.

1.03 REFERENCE STANDARDS

- A. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2014.
- B. ASTM A276/A276M - Standard Specification for Stainless Steel Bars and Shapes; 2016.
- C. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015.
- D. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2014.
- E. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2014.
- F. NFPA 90A - Standard for the Installation of Air-Conditioning and Ventilating Systems; 2015.
- G. NFPA 96 - Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations; 2014.
- H. SMACNA (DCS) - HVAC Duct Construction Standards Metal and Flexible; 2005.
- I. UL 181 - Standard for Factory-Made Air Ducts and Air Connectors; current edition, including all revisions.
- J. UL 1978 - Grease Ducts; Current Edition, Including All Revisions.

1.04 PERFORMANCE REQUIREMENTS

- A. Delegated Duct Design: Duct construction, including sheet metal thicknesses, seam and joint construction, reinforcements, and hangers and supports, shall comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" and performance requirements and design criteria indicated in "Duct Schedule" Article.
- B. Structural Performance: Duct hangers and supports shall withstand the effects of gravity loads and stresses within limits and under conditions described in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" and ASCE/SEI 7.

- C. Airstream Surfaces: Surfaces in contact with the airstream shall comply with requirements in ASHRAE 62.1.

1.05 SUBMITTALS

- A. Contractor shall provide submittals for equipment listed herein. Refer to Division 01 - General Requirements for submittal procedures.

1.06 REGULATORY REQUIREMENTS

- A. Construct ductwork to SMACNA (DCS) - HVAC Duct Construction Standards - Metal and Flexible; Sheet Metal and Air Conditioning Contractors' National Association; 1995, Second Edition with Addendum No. 1.

PART 2 PRODUCTS

2.01 SINGLE-WALL RECTANGULAR DUCT AND FITTING ASSEMBLIES

- A. Regulatory Requirements: Construct ductwork to NFPA 90A standards.
- B. General Fabrication Requirements: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" based on indicated static-pressure class unless otherwise indicated.
- C. Transverse Joints: Select joint types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 2-1, "Rectangular Duct/Transverse Joints," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."
- D. Longitudinal Seams: Select seam types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 2-2, "Rectangular Duct/Longitudinal Seams," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."
- E. Elbows, Transitions, Offsets, Branch Connections, and Other Duct Construction: Select types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Chapter 4, "Fittings and Other Construction," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

2.02 SINGLE-WALL ROUND DUCT AND FITTING ASSEMBLIES

- A. General Fabrication Requirements: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Chapter 3, "Round, Oval, and Flexible Duct," based on indicated static-pressure class unless otherwise indicated.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. McGill AirFlow LLC.
 - b. Spiral Manufacturing Co., Inc.
- B. Transverse Joints: Select joint types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 3-1, "Round Duct Transverse Joints," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."
 - 1. Transverse Joints in Ducts Larger Than 60 Inches in Diameter: Flanged.
- C. Longitudinal Seams: Select seam types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 3-2, "Round Duct Longitudinal Seams," for static-pressure class, applicable sealing requirements, materials involved, duct-support

intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

1. Fabricate round ducts larger than 90 inches in diameter with butt-welded longitudinal seams.

- D. Tees and Laterals: Select types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 3-5, "90 Degree Tees and Laterals," and Figure 3-6, "Conical Tees," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

2.03 MATERIALS

- A. Galvanized Steel for Ducts: Hot-dipped galvanized steel sheet, ASTM A653/A653M FS Type B, with G60/Z180 coating.
- B. General Material Requirements: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" for acceptable materials, material thicknesses, and duct construction methods unless otherwise indicated. Sheet metal materials shall be free of pitting, seam marks, roller marks, stains, discolorations, and other imperfections.
- C. Galvanized Sheet Steel: Comply with ASTM A 653/A 653M.
1. Galvanized Coating Designation: G90.
 2. Finishes for Surfaces Exposed to View: Mill phosphatized.
- D. Carbon-Steel Sheets: Comply with ASTM A 1008/A 1008M, with oiled, matte finish for exposed ducts.
- E. Stainless-Steel Sheets: Comply with ASTM A 480/A 480M, Type 304 or 316, as indicated in the "Duct Schedule" Article; cold rolled, annealed, sheet. Exposed surface finish shall be No. 2B, No. 2D, No. 3, or No. 4 as indicated in the "Duct Schedule" Article.
- F. Reinforcement Shapes and Plates: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.
1. Where black- and galvanized-steel shapes and plates are used to reinforce aluminum ducts, isolate the different metals with butyl rubber, neoprene, or EPDM gasket materials.
- G. Tie Rods: Galvanized steel, 1/4-inch minimum diameter for lengths 36 inches or less; 3/8-inch minimum diameter for lengths longer than 36 inches.

2.04 SEALANTS AND GASKETS

- A. General Sealant and Gasket Requirements: Surface-burning characteristics for sealants and gaskets shall be a maximum flame-spread index of 25 and a maximum smoke-developed index of 50 when tested according to UL 723; certified by an NRTL.
- B. Two-Part Tape Sealing System:
1. Tape: Woven cotton fiber impregnated with mineral gypsum and modified acrylic/silicone activator to react exothermically with tape to form hard, durable, airtight seal.
 2. Tape Width: 3 inches.
 3. Sealant: Modified styrene acrylic.
 4. Water resistant.
 5. Mold and mildew resistant.
 6. Maximum Static-Pressure Class: 10-inch wg, positive and negative.
 7. Service: Indoor and outdoor.
 8. Service Temperature: Minus 40 to plus 200 deg F.
 9. Substrate: Compatible with galvanized sheet steel (both PVC coated and bare), stainless steel, or aluminum.
 10. For indoor applications, sealant shall have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

11. Sealant shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
- C. Water-Based Joint and Seam Sealant:
1. Application Method: Brush on.
 2. Solids Content: Minimum 65 percent.
 3. Shore A Hardness: Minimum 20.
 4. Water resistant.
 5. Mold and mildew resistant.
 6. VOC: Maximum 75 g/L (less water).
 7. Maximum Static-Pressure Class: 10-inch wg, positive and negative.
 8. Service: Indoor or outdoor.
 9. Substrate: Compatible with galvanized sheet steel (both PVC coated and bare), stainless steel, or aluminum sheets.
- D. Flanged Joint Sealant: Comply with ASTM C 920.
1. General: Single-component, acid-curing, silicone, elastomeric.
 2. Type: S.
 3. Grade: NS.
 4. Class: 25.
 5. Use: O.
 6. For indoor applications, sealant shall have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
 7. Sealant shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
- E. Flange Gaskets: Butyl rubber, neoprene, or EPDM polymer with polyisobutylene plasticizer.
- F. Round Duct Joint O-Ring Seals:
1. Seal shall provide maximum leakage class of 3 cfm/100 sq. ft. at 1-inch wg and shall be rated for

2.05 HANGERS AND SUPPORTS

- A. Hanger Rods for Noncorrosive Environments: Cadmium-plated steel rods and nuts.
- B. Hanger Rods for Corrosive Environments: Electrogalvanized, all-thread rods or galvanized rods with threads painted with zinc-chromate primer after installation.
- C. Strap and Rod Sizes: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Table 5-1, "Rectangular Duct Hangers Minimum Size," and Table 5-2, "Minimum Hanger Sizes for Round Duct."
- D. Steel Cables for Galvanized-Steel Ducts: Galvanized steel complying with ASTM A 603.
- E. Steel Cables for Stainless-Steel Ducts: Stainless steel complying with ASTM A 492.
- F. Steel Cable End Connections: Cadmium-plated steel assemblies with brackets, swivel, and bolts designed for duct hanger service; with an automatic-locking and clamping device.
- G. Duct Attachments: Sheet metal screws, blind rivets, or self-tapping metal screws; compatible with duct materials.
- H. Trapeze and Riser Supports:
1. Supports for Galvanized-Steel Ducts: Galvanized-steel shapes and plates.
 2. Supports for Stainless-Steel Ducts: Stainless-steel shapes and plates.
 3. Supports for Aluminum Ducts: Aluminum or galvanized steel coated with zinc chromate.

2.06 DUCTWORK FABRICATION

- A. Provide duct material, gages, reinforcing, and sealing for operating pressures indicated.

- B. Provide turning vanes in all mitered elbows.
- C. Construct T's, bends, and elbows with radius of not less than 1-1/2 times width of duct on centerline. Where not possible and where rectangular elbows must be used, provide air foil turning vanes of perforated metal with glass fiber insulation.
- D. T's, bends, and elbows: Construct according to SMACNA (DCS).
- E. Increase duct sizes gradually, not exceeding 15 degrees divergence wherever possible; maximum 30 degrees divergence upstream of equipment and 45 degrees convergence downstream.
- F. Fabricate continuously welded round and oval duct fittings in accordance with SMACNA (DCS).
- G. Fabricate continuously welded round and oval duct fittings two gages heavier than duct gages indicated in SMACNA Standard. Joints shall be minimum 4 inch cemented slip joint, brazed or electric welded. Prime coat welded joints.
- H. Provide standard 45 degree lateral wye takeoffs unless otherwise indicated where 90 degree conical tee connections may be used.
- I. Where ducts are connected to exterior wall louvers and duct outlet is smaller than louver frame, provide blank-out panels sealing louver area around duct. Use same material as duct, painted black on exterior side; seal to louver frame and duct.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install, support, and seal ducts in accordance with SMACNA (DCS).
- B. Install in accordance with manufacturer's instructions.
- C. Drawing plans, schematics, and diagrams indicate general location and arrangement of duct system. Indicated duct locations, configurations, and arrangements were used to size ducts and calculate friction loss for air-handling equipment sizing and for other design considerations. Install duct systems as indicated unless deviations to layout are approved on Shop Drawings and Coordination Drawings.
- D. Install ducts according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" unless otherwise indicated.
- E. Install round ducts in maximum practical lengths.
- F. Install ducts with fewest possible joints.
- G. Install factory- or shop-fabricated fittings for changes in direction, size, and shape and for branch connections.
- H. Unless otherwise indicated, install ducts vertically and horizontally, and parallel and perpendicular to building lines.
- I. Install ducts close to walls, overhead construction, columns, and other structural and permanent enclosure elements of building.
- J. Install ducts with a clearance of 1 inch, plus allowance for insulation thickness.
- K. Route ducts to avoid passing through transformer vaults and electrical equipment rooms and enclosures.
- L. Where ducts pass through non-fire-rated interior partitions and exterior walls and are exposed to view, cover the opening between the partition and duct or duct insulation with sheet metal flanges of same metal thickness as the duct. Overlap openings on four sides by at least 1-1/2 inches.
- M. Where ducts pass through fire-rated interior partitions and exterior walls, install fire dampers. Comply with requirements in Section 233300 "Air Duct Accessories" for fire and smoke dampers.

- N. Protect duct interiors from moisture, construction debris and dust, and other foreign materials. Comply with SMACNA's "IAQ Guidelines for Occupied Buildings Under Construction," Appendix G, "Duct Cleanliness for New Construction Guidelines."
- O. During construction provide temporary closures of metal or taped polyethylene on open ductwork to prevent construction dust from entering ductwork system.
- P. Duct sizes indicated are inside clear dimensions. For lined ducts, maintain sizes inside lining.
- Q. Use crimp joints with or without bead for joining round duct sizes 8 inch and smaller with crimp in direction of air flow.
- R. Use double nuts and lock washers on threaded rod supports.

3.02 HANGER AND SUPPORT INSTALLATION

- A. Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Chapter 5, "Hangers and Supports."
- B. Building Attachments: Concrete inserts, powder-actuated fasteners, or structural-steel fasteners appropriate for construction materials to which hangers are being attached.
 - 1. Where practical, install concrete inserts before placing concrete.
 - 2. Install powder-actuated concrete fasteners after concrete is placed and completely cured.
 - 3. Use powder-actuated concrete fasteners for standard-weight aggregate concretes or for slabs more than 4 inches thick.
 - 4. Do not use powder-actuated concrete fasteners for lightweight-aggregate concretes or for slabs less than 4 inches thick.
 - 5. Do not use powder-actuated concrete fasteners for seismic restraints.
- C. Hanger Spacing: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Table 5-1, "Rectangular Duct Hangers Minimum Size," and Table 5-2, "Minimum Hanger Sizes for Round Duct," for maximum hanger spacing; install hangers and supports within 24 inches of each elbow and within 48 inches of each branch intersection.
- D. Hangers Exposed to View: Threaded rod and angle or channel supports.
- E. Support vertical ducts with steel angles or channel secured to the sides of the duct with welds, bolts, sheet metal screws, or blind rivets; support at each floor and at a maximum intervals of 16 feet.
- F. Install upper attachments to structures. Select and size upper attachments with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.

3.03 DUCT SEALING

- A. Seal ducts for duct static-pressure, seal classes, and leakage classes specified in "Duct Schedule" Article according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."
- B. Seal ducts to the following seal classes according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible":
 - 1. Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."
 - 2. Unconditioned Space, Supply-Air Ducts in Pressure Classes 2-Inch and Lower: Seal Class B.
 - 3. Unconditioned Space, Supply-Air Ducts in Pressure Classes Higher Than 2-Inch wg: Seal Class A.

3.04 DUCT CLEANING

- A. Clean new duct system(s) before testing, adjusting, and balancing.
- B. Use service openings for entry and inspection.

1. Create new openings and install access panels appropriate for duct static-pressure class if required for cleaning access. Provide insulated panels for insulated or lined duct. Patch insulation and liner as recommended by duct liner manufacturer. Comply with Section 233300 "Air Duct Accessories" for access panels and doors.
 2. Disconnect and reconnect flexible ducts as needed for cleaning and inspection.
 3. Remove and reinstall ceiling to gain access during the cleaning process.
- C. Particulate Collection and Odor Control:
1. When venting vacuuming system inside the building, use HEPA filtration with 99.97 percent collection efficiency for 0.3-micron-size (or larger) particles.
 2. When venting vacuuming system to outdoors, use filter to collect debris removed from HVAC system, and locate exhaust downwind and away from air intakes and other points of entry into building.
- D. Clean the following components by removing surface contaminants and deposits:
1. Air outlets and inlets (registers, grilles, and diffusers).
 2. Supply, return, and exhaust fans including fan housings, plenums (except ceiling supply and return plenums), scrolls, blades or vanes, shafts, baffles, dampers, and drive assemblies.
 3. Air-handling unit internal surfaces and components including mixing box, coil section, air wash systems, spray eliminators, condensate drain pans, humidifiers and dehumidifiers, filters and filter sections, and condensate collectors and drains.
 4. Coils and related components.
 5. Return-air ducts, dampers, actuators, and turning vanes except in ceiling plenums and mechanical equipment rooms.
 6. Supply-air ducts, dampers, actuators, and turning vanes.
 7. 7. Dedicated exhaust and ventilation components and makeup air systems.
- E. Mechanical Cleaning Methodology:
1. Clean metal duct systems using mechanical cleaning methods that extract contaminants from within duct systems and remove contaminants from building.
 2. Use vacuum-collection devices that are operated continuously during cleaning. Connect vacuum device to downstream end of duct sections so areas being cleaned are under negative pressure.
 3. Use mechanical agitation to dislodge debris adhered to interior duct surfaces without damaging integrity of metal ducts, duct liner, or duct accessories.
 4. Clean fibrous-glass duct liner with HEPA vacuuming equipment; do not permit duct liner to get wet. Replace fibrous-glass duct liner that is damaged, deteriorated, or delaminated or that has friable material, mold, or fungus growth.
 5. Clean coils and coil drain pans according to NADCA 1992. Keep drain pan operational. Rinse coils with clean water to remove latent residues and cleaning materials; comb and straighten fins.
 6. Provide drainage and cleanup for wash-down procedures.
 7. Antimicrobial Agents and Coatings: Apply EPA-registered antimicrobial agents if fungus is present. Apply antimicrobial agents according to manufacturer's written instructions after removal of surface deposits and debris.

3.05 FIELD QUALITY CONTROLS

- A. Perform tests and inspections.
- B. Leakage Tests:
1. Comply with SMACNA's "HVAC Air Duct Leakage Test Manual." Submit a test report for each test.
 2. Test the following systems:

- a. Ducts with a Pressure Class Higher Than 3-Inch wg: Test representative duct sections, selected by Architect from sections installed, totaling no less than 25 percent of total installed duct area for each designated pressure class.
 3. Disassemble, reassemble, and seal segments of systems to accommodate leakage testing and for compliance with test requirements.
 4. Keep open ends of ductwork covered during construction.
 5. Test for leaks before applying external insulation.
 6. Conduct tests at static pressures equal to maximum design pressure of system or section being tested. If static-pressure classes are not indicated, test system at maximum system design pressure. Do not pressurize systems above maximum design operating pressure.
 7. Give seven days' advance notice for testing.
- C. Duct System Cleanliness Tests:
1. Visually inspect duct system to ensure that no visible contaminants are present.
 2. Test sections of metal duct system, chosen randomly by Owner, for cleanliness according to "Vacuum Test" in NADCAACR, "Assessment, Cleaning and Restoration of HVAC Systems."
 - a. Acceptable Cleanliness Level: Net weight of debris collected on the filter media shall not exceed 0.75 mg/100 sq. cm.
- D. Duct system will be considered defective if it does not pass tests and inspections.
- E. Prepare test and inspection reports.

3.06 SCHEDULES

- A. Supply Ducts:
1. Ducts Connected to Fan Coil Units, Furnaces, Heat Pumps, and Terminal Units:
 - a. Pressure Class: Positive 1-inch wg.
 - b. Minimum SMACNA Seal Class: C.
 - c. SMACNA Leakage Class for Rectangular: 12.
 - d. SMACNA Leakage Class for Round and Flat Oval: 6.
- B. Exhaust Ducts:
1. Ducts Connected to Fans Exhausting (ASHRAE 62.1, Class 1 and 2) Air:
 - a. Pressure Class: Negative 2-inch wg.
 - b. Minimum SMACNA Seal Class: C if negative pressure, and A if positive pressure.
 - c. SMACNA Leakage Class for Rectangular: 24.
- C. Elbow Configuration:
1. Rectangular Duct: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 4-2, "Rectangular Elbows."
 - a. Velocity 1000 fpm or Lower:
 - 1) Radius Type RE 1 with minimum 0.5 radius-to-diameter ratio.
 - 2) Mitered Type RE 4 without vanes.
 2. Rectangular Duct: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 4-2, "Rectangular Elbows."
 - a. Radius Type RE 1 with minimum 1.5 radius-to-diameter ratio.
 - b. Radius Type RE 3 with minimum 1.0 radius-to-diameter ratio and two vanes.
 - c. Mitered Type RE 2 with vanes complying with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 4-3, "Vanes and Vane Runners," and Figure 4-4, "Vane Support in Elbows."
 3. Round Duct: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 3-4, "Round Duct Elbows."
 - a. Minimum Radius-to-Diameter Ratio and Elbow Segments: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Table 3-1, "Mitered Elbows." Elbows with less than 90-degree change of direction have proportionately fewer segments.

- 1) Velocity 1000 fpm or Lower: 0.5 radius-to-diameter ratio and three segments for 90 degree elbow.
 - 2) Velocity 1000 to 1500 fpm: 1.0 radius-to-diameter ratio and four segments for 90 degree elbow.
 - 3) Velocity 1500 fpm or Higher: 1.5 radius-to-diameter ratio and five segments for 90 degree elbow.
 - 4) Radius-to Diameter Ratio: 1.5.
 - b. Round Elbows, 12 Inches and Smaller in Diameter: Stamped or pleated.
 - c. Round Elbows, 14 Inches and Larger in Diameter: Welded.
- D. Branch Configuration:
1. Rectangular Duct: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 4-6, "Branch Connection."
 - a. Rectangular Main to Rectangular Branch: 45-degree entry.
 - b. Rectangular Main to Round Branch: Spin in.
 - 1) Round and Flat Oval: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 3-5, "90 Degree Tees and Laterals," and Figure 3-6, "Conical Tees." Saddle taps are permitted in existing duct.
 - c. Velocity 1000 fpm or Lower: 90-degree tap.
 - d. Velocity 1000 to 1500 fpm: Conical tap.
 - e. Velocity 1500 fpm or Higher: 45-degree lateral.

END OF SECTION

SECTION 23 3300
AIR DUCT ACCESSORIES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Air turning devices/extractors.
- B. Duct test holes.
- C. Flexible duct connections.
- D. Volume control dampers.

1.02 RELATED REQUIREMENTS

- A. Division 01 - General Requirements: Project procedural and administrative requirements.
- B. Division 07 - Thermal and Moisture Protection: Firestopping.
- C. Section 23 0005 - Basic HVAC Requirements.
- D. Section 23 3100 - HVAC Ducts and Casings.
- E. Section 23 3600 - Air Terminal Units: Pressure regulating damper assemblies.

1.03 REFERENCE STANDARDS

- A. NFPA 90A - Standard for the Installation of Air-Conditioning and Ventilating Systems; 2015.
- B. SMACNA (DCS) - HVAC Duct Construction Standards Metal and Flexible; 2005.

1.04 SUBMITTALS

- A. Contractor shall provide submittals for equipment listed herein. Refer to Division 01 - General Requirements for submittal procedures.
- B. Product Data: Provide for shop fabricated assemblies including volume control dampers. Include electrical characteristics and connection requirements.

1.05 QUALITY ASSURANCE

- A. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.

PART 2 PRODUCTS

2.01 AIR TURNING DEVICES/EXTRACTORS

- A. Multi-blade device with blades aligned in short dimension; steel construction; with individually adjustable blades, mounting straps.

2.02 DUCT TEST HOLES

- A. Temporary Test Holes: Cut or drill in ducts as required. Cap with neat patches, neoprene plugs, threaded plugs, or threaded or twist-on metal caps.
- B. Permanent Test Holes: Factory fabricated, air tight flanged fittings with screw cap. Provide extended neck fittings to clear insulation.

2.03 FLEXIBLE DUCT CONNECTIONS

- A. Fabricate in accordance with SMACNA (DCS) and as indicated.
- B. Flexible Duct Connections: Fabric crimped into metal edging strip.

2.04 VOLUME CONTROL DAMPERS

- A. Fabricate in accordance with SMACNA (DCS) and as indicated.
- B. Single Blade Dampers:
 - 1. Blade: 24 gage, 0.0239 inch, minimum.

- C. Multi-Blade Damper: Fabricate of opposed blade pattern with maximum blade sizes 8 by 72 inch. Assemble center and edge crimped blades in prime coated or galvanized channel frame with suitable hardware.
 - 1. Blade: 18 gage, 0.0478 inch, minimum.
- D. End Bearings: Except in round ducts 12 inches and smaller, provide end bearings. On multiple blade dampers, provide oil-impregnated nylon, thermoplastic elastomer, or sintered bronze bearings.
- E. Quadrants:
 - 1. Provide locking, indicating quadrant regulators on single and multi-blade dampers.
 - 2. On insulated ducts mount quadrant regulators on stand-off mounting brackets, bases, or adapters.
 - 3. Where rod lengths exceed 30 inches provide regulator at both ends.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install accessories in accordance with manufacturer's instructions, NFPA 90A, and follow SMACNA (DCS). Refer to Section 23 3100 for duct construction and pressure class.
- B. Provide duct test holes where indicated and required for testing and balancing purposes.
- C. At fans and motorized equipment associated with ducts, provide flexible duct connections immediately adjacent to the equipment.
- D. Provide balancing dampers at points on supply, return, and exhaust systems where branches are taken from larger ducts as required for air balancing. Install minimum 2 duct widths from duct take-off.
- E. Provide balancing dampers on duct take-off to diffusers, grilles, and registers, regardless of whether dampers are specified as part of the diffuser, grille, or register assembly.

END OF SECTION

SECTION 23 3600
AIR TERMINAL UNITS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Fan-powered units.

1.02 RELATED REQUIREMENTS

- A. Division 01 - General Requirements: Project procedural and administrative requirements.
- B. Section 22 0513 - Common Motor Requirements for Plumbing Equipment.
- C. Section 22 0548 - Vibration and Seismic Controls for Plumbing Piping and Equipment.
- D. Section 23 0005 - Basic HVAC Requirements.
- E. Section 23 0513 - Common Motor Requirements for HVAC Equipment.
- F. Section 23 0548 - Vibration and Seismic Controls for HVAC Piping and Equipment.
- G. Section 23 2113 - Hydronic Piping: Connections to heating coils.
- H. Section 23 2114 - Hydronic Specialties: Connections to heating coils.
- I. Section 23 3100 - HVAC Ducts and Casings.
- J. Section 23 3300 - Air Duct Accessories.
- K. Section 23 3700 - Air Outlets and Inlets.

1.03 REFERENCE STANDARDS

- A. AHRI 410 - Standard for Forced-Circulation Air-Cooling and Air-Heating Coils; 2001 (R2011).
- B. AHRI 880 (I-P) - Performance Rating of Air Terminals; 2011 with Addendum 1.
- C. ASHRAE Std 52.2 - Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size; 2012, with 2015 amendments.
- D. ASHRAE Std 62.1 - Laboratory Method of Testing to Determine the Sound Power in a Duct; 2013.
- E. ASHRAE Std 130 - Methods of Testing Air Terminal Units; 2008 (R2014).
- F. ASTM A492 - Standard Specification for Stainless Steel Rope Wire; 1995 (Reapproved 2013).
- G. ASTM A603 - Standard Specification for Zinc-Coated Steel Structural Wire Rope; 1998 (Reapproved 2014).
- H. ASTM C1071 - Standard Specification for Fibrous Glass Duct Lining Insulation (Thermal and Sound Absorbing Material); 2012.
- I. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- J. NFPA 90A - Standard for the Installation of Air-Conditioning and Ventilating Systems; 2015.
- K. SMACNA (SRM) - Seismic Restraint Manual Guidelines for Mechanical Systems; Sheet Metal and Air Conditioning Contractors' National Association; 2008.
- L. UL 181 - Standard for Factory-Made Air Ducts and Air Connectors; current edition, including all revisions.
- M. UL 94 - Tests for Flammability of Plastic Materials for Parts in Devices and Appliances; Current Edition, Including All Revisions.

1.04 SUBMITTALS

- A.

- B. Product Data: Provide data indicating configuration, general assembly, and materials used in fabrication. Include catalog performance ratings that indicate air flow, static pressure, and NC designation. Include electrical characteristics and connection requirements.
- C. Shop Drawings: Indicate configuration, general assembly, and materials used in fabrication, and electrical characteristics and connection requirements.
- D. Manufacturer's Installation Instructions: Indicate support and hanging details, installation instructions, recommendations, and service clearances required.
- E. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience.
- B. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.06 WARRANTY

- A. Provide five year manufacturer warranty for air terminal units.

PART 2 PRODUCTS

2.01 FAN-POWERED SERIES UNITS

- A. General:
 - 1. Factory-assembled and wired, AHRI 880 (I-P) rated, horizontal fan-powered terminal unit with blower, blower motor, mixing plenum, and primary air damper contained in a single unit housing.
- B. Unit Casing:
 - 1. Minimum 22 gage, 0.0299 inch galvanized steel.
 - 2. Primary Air Inlet Collar: Suitable for standard flexible duct sizes.
 - 3. Unit Discharge: Rectangular, suitable for flanged duct connection.
 - 4. Acceptable Liners:
 - a. 1/2 inch thick, coated, fibrous-glass complying with ASTM C1071.
 - 1) Secure with adhesive.
 - 2) Coat edges exposed to airstream with NFPA 90A approved sealant.
 - 3) Cover liner with non-porous foil.
- C. Primary Air Damper Assembly:
 - 1. Heavy-gage, galvanized steel or extruded aluminum construction with solid shaft rotating in bearings.
 - 2. Provide indicator on damper shaft or alternative method for indicating damper position over full range of 90 degrees.
 - 3. Incorporate low leak (2 percent) damper blades for tight airflow shutoff.
 - 4. Fan(s): Forward curved, centrifugal type.
 - 5. Fan Motor:
 - a. ECM (Electrically Commutated Motor):
 - 1) Brushless DC controlled by an integrated controller/inverter that operates the wound stator and senses rotor position to electrically commutate the stator.
 - b. Fan motor shaft directly connected to fan and isolated from unit casing to prevent transmission of vibration.
- D. Hot Water Heating Coil:
 - 1. Coil Casing: Minimum 22 gage, 0.0299 inch galvanized steel, factory-installed on terminal unit with flanged discharge for attachment to downstream ductwork.

2. Heavy-gage aluminum fins, mechanically bonded to tubes.
 3. Copper Tubes: 0.016 inch minimum wall thickness with male solder header connections.
 4. Coil leak tested to minimum 305 psig.
 5. Base performance data on tests run in accordance with AHRI 410.
- E. Electrical Requirements:
1. Single-point power connection.
 2. Equipment wiring to comply with requirements of NFPA 70.
- F. Controls:
1. Electric:
 - a. Wall-mounted electric thermostat including 24 volt damper actuator and mounting hardware.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install the inlets of air terminal units and air flow sensors a minimum of four duct diameters from elbows, transitions, and duct takeoffs.
- C. Provide ceiling access doors or locate units above easily removable ceiling components.
- D. Support units individually from structure with wire rope complying with ASTM A492 and ASTM A603 in accordance with SMACNA (SRM). See Section 23 0548.
- E. Do not support from ductwork.
- F. Connect to ductwork in accordance with Section 23 3100.

END OF SECTION

SECTION 26 0005
BASIC ELECTRICAL REQUIREMENTS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. This section applies to all sections of Division 26 and Division 28.
- B. Drawings and general provisions of the contract, including Division 00 and Division 01 specification sections, apply to work of this section.
- C. Provide all items, articles, materials, operations or methods listed, mentioned or scheduled on drawings and/or herein, including all labor, materials, equipment and incidentals necessary and required for their completion.
- D. The items in this section are supplementary to the requirements set forth in other portions of the specifications as indicated under Item "A" above.

1.02 DRAWINGS

- A. The drawings show the location and general arrangement of equipment, electrical systems and related items. They shall be followed as closely as elements of the construction will permit.
- B. Examine the drawings of other trades and verify the conditions governing the work on the job site. Arrange work accordingly, providing such fittings, conduit, junction boxes and accessories as may be required to meet such conditions.
- C. Deviations from the drawings, with the exception of minor changes in routing and other such incidental changes that do not affect the functioning or serviceability of the systems, shall not be made without the written approval of the Architect/Engineer.
- D. The architectural and structural drawings take precedence in all matters pertaining to the building structure, mechanical drawings in all matters pertaining to mechanical trades and electrical drawings in all matters pertaining to electrical trades. Where there are conflicts or differences between the drawings for the various trades, report such conflicts or differences to the Architect/Engineer for resolution.

1.03 INSPECTION OF SITE

- A. Visit the site, examine and verify the conditions under which the work must be conducted before submitting proposal.
- B. The submitting of a proposal implies that the contractor has visited the site and understands the conditions under which the work must be conducted.

1.04 TEMPORARY FACILITIES

- A. Provide and remove upon completion of the project, in accordance with the general conditions, a complete temporary electrical and telephone service during construction.

1.05 ALTERNATES

- A. Refer to Division 01 - General Requirements for procedures.

1.06 GUARANTEE

- A. Contractor guarantees that the installation is free from defects and agrees to replace or repair, any part of this installation which becomes defective within a period of one year following final acceptance, unless noted otherwise, provided that such failure is due to defects in the equipment, material or installation or to follow the specifications and drawings. File with the Owner any and all guarantees from the equipment manufacturers.

1.07 CODES, PERMITS AND FEES

- A. Unless otherwise indicated, all required permits, licenses, inspections, approvals and fees for electrical work shall be secured and paid for by the contractor. All work shall conform to all

applicable codes, rules and regulations. Applicable publications listed in all sections of Division 26 shall be the latest issue, unless otherwise noted.

- B. Rules of local utility companies shall be complied with. Check with the utility company supplying service to the installation and determine all devices including, but not limited to, all current and potential transformers, meter boxes, C.T. cabinets and meters which will be required and include the cost of all such items in proposal.
- C. All work shall be executed in accordance with the rules and regulations set forth in local and state codes. Prepare any detailed drawings or diagrams which may be required by the governing authorities. Where the drawings and/or specifications indicate materials or construction in excess of code requirements, the drawings and/or specifications shall govern.

1.08 STANDARDS OF MATERIAL AND WORKMANSHIP:

- A. All materials shall be new, unless noted otherwise. The electrical and physical properties of all materials, and the design, performance characteristics, and methods of construction of all items of equipment, shall be in accordance with the latest issue of the various, applicable standard specifications of the following recognized authorities:
 - 1. A.N.S.I. - American National Standards Institute
 - 2. A.S.T.M. - American Society for Testing Materials
 - 3. I.C.E.A. - Insulated Cable Engineers Association
 - 4. I.E.E.E. - Institute of Electrical and Electronics Engineers
 - 5. N.E.C. - National Electrical Code (NFPA 70)
 - 6. N.E.C.A. - National Electrical Contractors Association
 - 7. N.E.M.A. - National Electrical Manufacturer's Association
 - 8. N.F.P.A. - National Fire Protection Association
 - 9. U.L. - Underwriters Laboratories, Inc.
- B. Perform all work in a first class and workmanlike manner, in accordance with the latest accepted standards and practices for the Trades involved.
- C. All equipment of the same or similar systems shall be by the same manufacturer.

1.09 RECORD DRAWINGS

- A. Refer to Division 01 - General Requirements for procedures. All literature shall be furnished in accordance with requirements listed in Division 01.
- B. Contractor shall provide the following record drawings as part of the Project closeout document process:
 - 1. Contract Documents, specifications and submittals, indicating "As-Built" conditions and actual products selected for use.
 - 2. Product and Maintenance manuals for all equipment listed within this specification manual and in Contract Documents. Provide with parts lists as applicable.

1.10 SUBMITTALS

- A. Refer to Division 01 - General Requirements for procedures.
- B. Contractor shall provide submittals where items are referred to by symbolic designation on the drawings. All submittals shall bear the same designation (light fixtures, wiring devices, etc.). Refer to other sections of the electrical specifications for additional requirements.
 - 1. Disconnect Switches
 - 2. Wiring Devices
 - 3. Lighting Fixtures
 - 4. Fire Alarm System
- C. Engineer WILL NOT REVIEW:
 - 1. Submittals not specified.
 - 2. Submittals which do not indicate optional equipment being provided.

3. Submittals not reviewed by Contractor; including Contractor stamp with signature comments.
4. Submittals made after work is delivered to site and/or installed.
5. Submittal resubmissions unless resubmission is required by Architect/Engineer.

1.11 MANUFACTURERS LISTED

- A. The listing of specific manufacturers does not imply acceptance of their products that do not meet the specified ratings, features and functions. Manufacturers listed are not relieved from meeting these specifications in their entirety.
- B. Products in compliance with the specification and manufactured by others not named will be considered only if pre-approved by the Engineer five (5) days prior to bid date.

1.12 USE OF EQUIPMENT

- A. The use of any equipment, or any part thereof for purposes other than testing even with the Owner's consent, shall not be construed to be an acceptance of the work on the part of the Owner, nor be construed to obligate the Owner in any way to accept improper work or defective materials.
- B. Do not use Owner's light fixtures for temporary lighting except as allowed and directed by the Owner.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 INSTALLATION OF EQUIPMENT

- A. Install all equipment in strict accordance with all directions and recommendations furnished by the manufacturer. Where such directions are in conflict with the drawings and specifications, report such conflicts to the Architect/Engineer for resolution.
- B. Equipment location shall be as close as practical to locations shown on the drawings.
- C. Working clearances shall not be less than specified in NFPA 70 (National Electric Code).

3.02 COORDINATION

- A. Install work to avoid interference with work of other trades including, but not limited to, architectural and mechanical trades. Remove and relocate any work that causes an interference at Contractor's expense. Disputes regarding the cause of an interference will be resolved by the Construction Manager or Architect/Engineer.

3.03 CUTTING, PATCHING AND DAMAGE TO OTHER WORK

- A. Refer to Division 01 - General Requirements and Division 02 - Existing Conditions.
- B. All cutting, patching and repair work shall be performed by the contractor through approved, qualified subcontractors. Contractor shall include full cost of same in bid.

3.04 EQUIPMENT FOUNDATION AND SUPPORTS

- A. Shall be as required or as shown on plans or specified.
- B. Provide concrete house keeping bases 4" above finished floor, with leveling channels, where noted, for floor-mounted equipment. Coordinate requirements with Division 03 - Concrete.
- C. For equipment suspended from ceilings or walls, furnish and install all inserts, rods, structural steel frames, brackets and platforms required.

3.05 EQUIPMENT CONNECTIONS

- A. Make connections to equipment, motors, lighting fixtures, and other items included in the work in accordance with the approved shop drawings and rough-in measurements furnished by the manufacturers of the particular equipment furnished. All additional connections not shown on the drawings, but called out by the equipment manufacturer's shop drawings shall be provided.

3.06 ACCESS DOORS AND PANELS

- A. Refer to Division 08 - Openings; Provide access doors in locations as required per N.E.C. Coordinate locations with architectural trades.

3.07 CLEANING

- A. Refer to Division 01 - General Requirements; All equipment shall be cleaned as frequently as necessary through the construction process and again prior to project completion.
- B. Final cleanup shall include, but not be limited to, washing of fixture lenses or louvers, switchboards, substations, motor control centers, panels, etc. Fixture reflectors and lenses or louvers shall be left with no water marks or cleaning streaks.

3.08 DELIVERY, STORAGE AND PROTECTION OF EQUIPMENT AND MATERIALS

- A. Refer to Division 01 - General Requirements; All equipment and materials shall be delivered, stored and secured per manufacturer's recommendations.
- B. On-site storage shall be coordinated with Construction Manager and be performed in a manner as to avoid damage, deterioration and loss.

3.09 DRAWINGS AND MEASUREMENTS

- A. Electrical drawings are not intended to be scaled for rough-in measurements nor to serve as submittals. Field measurements necessary for ordering materials and fitting the installation to the building construction and arrangement shall be taken by the Contractor.

END OF SECTION

SECTION 26 0505
SELECTIVE DEMOLITION FOR ELECTRICAL

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Demolition and extension of existing electrical work.

1.02 RELATED REQUIREMENTS

- A. Division 01 - General Requirements: Project administrative and procedural requirements.
- B. Division 02 - Existing Conditions: Demolition, cleaning and disposal requirements, cutting and patching requirements, repairs.
- C. Section 26 0005 - Basic Electrical Requirements.

1.03 SUMMARY

- A. The work covered under this section consists of the furnishing of all necessary labor, supervision, materials, equipment, and services to completely execute the system of minor electrical demolition as described in this specification.
- B. The demolition documents plans and specification have been prepared from existing non-as built documents and cursory non-invasive field investigation.
- C. It is the contractors obligation to become familiar with the extent of demolition and the existing condition before submitting their bid.
- D. During demolition if the contractor discovers unforeseen significant non-code compliance conditions of the existing installation they shall notify the Architect and Engineer immediately in writing.
- E. During demolition the contractor shall record on the as-builts all demolished circuits numbers that can be used for new circuiting.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that abandoned wiring and equipment serve only abandoned facilities.
- B. Demolition drawings are based on casual field observation and existing record documents.
- C. Report discrepancies to Owner before disturbing existing installation.
- D. Beginning of demolition means installer accepts existing conditions.

3.02 PREPARATION

- A. Disconnect electrical systems in walls, floors, and ceilings to be removed.
- B. Coordinate utility service outages with utility company.
- C. Provide temporary wiring and connections to maintain existing systems in service during construction. When work must be performed on energized equipment or circuits, use personnel experienced in such operations.
- D. Existing Fire Alarm System: Maintain existing system in service until new system is accepted. Disable system only to make switchovers and connections. Minimize outage duration.
 - 1. Notify Owner before partially or completely disabling system.
 - 2. Notify local fire service.
 - 3. Make notifications at least 24 hours in advance.
 - 4. Make temporary connections to maintain service in areas adjacent to work area.

3.03 DEMOLITION AND EXTENSION OF EXISTING ELECTRICAL WORK

- A. Perform work for removal and disposal of equipment and materials containing toxic substances regulated under the Federal Toxic Substances Control Act (TSCA) in accordance with applicable federal, state, and local regulations. Applicable equipment and materials include, but are not limited to:
 - 1. PCB-containing electrical equipment, including transformers, capacitors, and switches.
 - 2. PCB- and DEHP-containing lighting ballasts.
 - 3. Mercury-containing lamps and tubes, including fluorescent lamps, high intensity discharge (HID), arc lamps, ultra-violet, high pressure sodium, mercury vapor, ignitron tubes, neon, and incandescent.
- B. Remove, relocate, and extend existing installations to accommodate new construction.
- C. Remove abandoned wiring to source of supply.
- D. Remove exposed abandoned conduit, including abandoned conduit above accessible ceiling finishes. Cut conduit flush with walls and floors, and patch surfaces.
- E. Disconnect abandoned outlets and remove devices. Remove abandoned outlets if conduit servicing them is abandoned and removed. Provide blank cover for abandoned outlets that are not removed.
- F. Disconnect and remove panelboards and distribution equipment indicated as being demolished on drawings.
- G. Disconnect and remove electrical devices and equipment serving utilization equipment that has been removed.
- H. Disconnect and remove abandoned luminaires indicated as being demolished on drawings.. Remove brackets, stems, hangers, and other accessories.
- I. Repair adjacent construction and finishes damaged during demolition and extension work.
- J. Maintain access to existing electrical installations that remain active. Modify installation or provide access panel as appropriate.
- K. Extend existing installations using materials and methods compatible with existing electrical installations, or as specified.

3.04 CLEANING AND REPAIR

- A. Refer to Division 01 - General Requirements.
- B. Clean and repair existing materials and equipment that remain or that are to be reused.
- C. Panelboards: Clean exposed surfaces and check tightness of electrical connections. Replace damaged circuit breakers and provide closure plates for vacant positions. Provide typed circuit directory showing revised circuiting arrangement.

END OF SECTION

SECTION 26 0519

LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Single conductor building wire.
- B. Metal-clad cable.
- C. Wiring connectors.
- D. Electrical tape.
- E. Wire pulling lubricant.
- F. Cable ties.

1.02 RELATED REQUIREMENTS

- A. Division 01 - General Requirements: Project administrative and procedural requirements.
- B. Division 02 - Existing Conditions: Demolition, cleaning and disposal requirements, cutting and patching requirements, and repairs.
- C. Section 26 0005 - Basic Electrical Requirements.
- D. Section 26 0505 - Selective Demolition for Electrical: Disconnection, removal, and/or extension of existing electrical conductors and cables.
- E. Section 26 0526 - Grounding and Bonding for Electrical Systems: Additional requirements for grounding conductors and grounding connectors.
- F. Section 26 0553 - Identification for Electrical Systems: Identification products and requirements.
- G. Section 28 4600 - Fire Detection and Alarm: Fire alarm system conductors and cables.
- H. Division 31 - Earthwork: Excavating, trenching and fill.

1.03 REFERENCE STANDARDS

- A. ASTM B3 - Standard Specification for Soft or Annealed Copper Wire; 2013.
- B. ASTM B8 - Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft; 2011.
- C. ASTM B33 - Standard Specification for Tin-Coated Soft or Annealed Copper Wire for Electrical Purposes; 2010 (Reapproved 2014).
- D. ASTM B787/B787M - Standard Specification for 19 Wire Combination Unilay-Stranded Copper Conductors for Subsequent Insulation; 2004 (Reapproved 2014).
- E. ASTM D3005 - Standard Specification for Low-Temperature Resistant Vinyl Chloride Plastic Pressure-Sensitive Electrical Insulating Tape; 2010.
- F. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2010.
- G. NECA 120 - Standard for Installing Armored Cable (AC) and Metal-Clad Cable (MC); 2012.
- H. NEMA WC 70 - Nonshielded Power Cable 2000 V or Less for the Distribution of Electrical Energy; 2009.
- I. NETA ATS - Acceptance Testing Specifications for Electrical Power Equipment and Systems; 2013.
- J. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- K. UL 44 - Thermoset-Insulated Wires and Cables; Current Edition, Including All Revisions.
- L. UL 83 - Thermoplastic-Insulated Wires and Cables; Current Edition, Including All Revisions.

- M. UL 486A-486B - Wire Connectors; Current Edition, Including All Revisions.
- N. UL 486C - Splicing Wire Connectors; Current Edition, Including All Revisions.
- O. UL 486D - Sealed Wire Connector Systems; Current Edition, Including All Revisions.
- P. UL 510 - Polyvinyl Chloride, Polyethylene, and Rubber Insulating Tape; Current Edition, Including All Revisions.
- Q. UL 1569 - Metal-Clad Cables; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate sizes of raceways, boxes, and equipment enclosures installed under other sections with the actual conductors to be installed, including adjustments for conductor sizes increased for voltage drop.
 - 2. Coordinate the installation of direct burial cable with other trades to avoid conflicts with piping or other potential conflicts.
 - 3. Coordinate with electrical equipment installed under other sections to provide terminations suitable for use with the conductors to be installed.
 - 4. Notify Strategic Energy Solutions, Inc. of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

1.05 SUBMITTALS

- A. Contractor shall provide submittals for equipment listed herein. Refer to Division 01 for submittal procedures.

1.06 FIELD CONDITIONS

- A. Do not install or otherwise handle thermoplastic-insulated conductors at temperatures lower than 14 degrees F, unless otherwise permitted by manufacturer's instructions. When installation below this temperature is unavoidable, notify Strategic Energy Solutions, Inc. and obtain direction before proceeding with work.

PART 2 PRODUCTS

2.01 CONDUCTOR AND CABLE APPLICATIONS

- A. Do not use conductors and cables for applications other than as permitted by NFPA 70 and product listing.
- B. Provide single conductor building wire installed in suitable raceway unless otherwise indicated, permitted, or required.
- C. Nonmetallic-sheathed cable is not permitted.
- D. Underground feeder and branch-circuit cable is not permitted.
- E. Service entrance cable is not permitted.
- F. Armored cable is not permitted.
- G. Metal-clad cable is permitted only as follows:
 - 1. Where not otherwise restricted, may be used:
 - a. Where concealed above accessible ceilings for final connections from junction boxes to luminaires.
 - 1) Maximum Length: 6 feet.

2.02 CONDUCTOR AND CABLE GENERAL REQUIREMENTS

- A. Provide products that comply with requirements of NFPA 70.
- B. Provide products listed, classified, and labeled as suitable for the purpose intended.
- C. Unless specifically indicated to be excluded, provide all required conduit, boxes, wiring, connectors, etc. as required for a complete operating system.

- D. Comply with NEMA WC 70.
- E. Thermoplastic-Insulated Conductors and Cables: Listed and labeled as complying with UL 83.
- F. Thermoset-Insulated Conductors and Cables: Listed and labeled as complying with UL 44.
- G. Conductor Material:
 - 1. Provide copper conductors only. Aluminum conductors are not acceptable for this project. Conductor sizes indicated are based on copper.
 - 2. Copper Conductors: Soft drawn annealed, 98 percent conductivity, uncoated copper conductors complying with ASTM B3, ASTM B8, or ASTM B787/B787M unless otherwise indicated.
 - 3. Tinned Copper Conductors: Comply with ASTM B33.
- H. Minimum Conductor Size:
 - 1. Branch Circuits: 12 AWG.
 - a. Exceptions:
 - 1) 20 A, 120 V circuits longer than 75 feet: 10 AWG, for voltage drop.
 - 2) 20 A, 120 V circuits longer than 150 feet: 8 AWG, for voltage drop.
 - 3) 20 A, 277 V circuits longer than 150 feet: 10 AWG, for voltage drop.
- I. Where conductor size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.
- J. Conductor Color Coding:
 - 1. Color code conductors as indicated unless otherwise required by the authority having jurisdiction. Maintain consistent color coding throughout project.
 - 2. Color Coding Method: Integrally colored insulation.
 - 3. Color Code:
 - a. 480Y/277 V, 3 Phase, 4 Wire System:
 - 1) Phase A: Brown.
 - 2) Phase B: Orange.
 - 3) Phase C: Yellow.
 - 4) Neutral/Grounded: Gray.
 - b. 208Y/120 V, 3 Phase, 4 Wire System:
 - 1) Phase A: Black.
 - 2) Phase B: Red.
 - 3) Phase C: Blue.
 - 4) Neutral/Grounded: White.
 - c. Equipment Ground, All Systems: Green.
 - d. For modifications or additions to existing wiring systems, comply with existing color code when existing code complies with NFPA 70 and is approved by the authority having jurisdiction.

2.03 SINGLE CONDUCTOR BUILDING WIRE

- A. Manufacturers:
 - 1. Copper Building Wire:
 - a. Cerro Wire LLC: www.cerrowire.com/#sle.
 - b. Encore Wire Corporation: www.encorewire.com/#sle.
 - c. Southwire Company: www.southwire.com/#sle.
- B. Description: Single conductor insulated wire.
- C. Conductor Stranding:
 - 1. Feeders and Branch Circuits: Stranded.
- D. Insulation Voltage Rating: 600 V.
- E. Insulation:

1. Copper Building Wire: Type THHN/THWN or THHN/THWN-2, except as indicated below.

2.04 METAL-CLAD CABLE

- A. Manufacturers:
 1. AFC Cable Systems Inc: www.afcweb.com/#sle.
 2. Encore Wire Corporation: www.encorewire.com/#sle.
 3. Southwire Company: www.southwire.com/#sle.
- B. Description: NFPA 70, Type MC cable listed and labeled as complying with UL 1569, and listed for use in classified firestop systems to be used.
- C. Conductor Stranding:
 1. Size 10 AWG and Smaller: Stranded.
 2. Size 8 AWG and Larger: Stranded.
- D. Insulation Voltage Rating: 600 V.
- E. Insulation: Type THHN, THHN/THWN, or THHN/THWN-2.
- F. Provide oversized neutral conductors where indicated or required.
- G. Grounding: Full-size integral equipment grounding conductor.
- H. Armor: Steel, interlocked tape.

2.05 WIRING CONNECTORS

- A. Description: Wiring connectors appropriate for the application, suitable for use with the conductors to be connected, and listed as complying with UL 486A-486B or UL 486C as applicable.
- B. Connectors for Grounding and Bonding: Comply with Section 26 0526.
- C. Wiring Connectors for Splices and Taps:
 1. Copper Conductors Size 8 AWG and Smaller: Use twist-on insulated spring connectors.
 2. Copper Conductors Size 6 AWG and Larger: Use mechanical connectors or compression connectors.
- D. Wiring Connectors for Terminations:
 1. Provide terminal lugs for connecting conductors to equipment furnished with terminations designed for terminal lugs.
 2. Provide compression adapters for connecting conductors to equipment furnished with mechanical lugs when only compression connectors are specified.
 3. Where over-sized conductors are larger than the equipment terminations can accommodate, provide connectors suitable for reducing to appropriate size, but not less than required for the rating of the overcurrent protective device.
 4. Copper Conductors Size 8 AWG and Larger: Use mechanical connectors or compression connectors where connectors are required.
- E. Twist-on Insulated Spring Connectors: Rated 600 V, 221 degrees F for standard applications and 302 degrees F for high temperature applications; pre-filled with sealant and listed as complying with UL 486D for damp and wet locations.
- F. Mechanical Connectors: Provide bolted type or set-screw type.
- G. Compression Connectors: Provide circumferential type or hex type crimp configuration.

2.06 WIRING ACCESSORIES

- A. Electrical Tape:
 1. Vinyl Insulating Electrical Tape: Complying with ASTM D3005 and listed as complying with UL 510; minimum thickness of 7 mil; resistant to abrasion, corrosion, and sunlight; conformable for application down to 0 degrees F and suitable for continuous temperature environment up to 221 degrees F.

- B. Wire Pulling Lubricant: Listed; suitable for use with the conductors or cables to be installed and suitable for use at the installation temperature.
- C. Cable Ties: Material and tensile strength rating suitable for application.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that interior of building has been protected from weather.
- B. Verify that work likely to damage wire and cable has been completed.
- C. Verify that raceways, boxes, and equipment enclosures are installed and are properly sized to accommodate conductors and cables in accordance with NFPA 70.
- D. Verify that field measurements are as indicated.
- E. Verify that conditions are satisfactory for installation prior to starting work.

3.02 PREPARATION

- A. Clean raceways thoroughly to remove foreign materials before installing conductors and cables.

3.03 INSTALLATION

- A. Circuiting Requirements:
 - 1. Unless dimensioned, circuit routing indicated is diagrammatic.
 - 2. When circuit destination is indicated without specific routing, determine exact routing required.
 - 3. Arrange circuiting to minimize splices.
 - 4. Include circuit lengths required to install connected devices within 10 ft of location indicated.
 - 5. Maintain separation of wiring for emergency systems in accordance with NFPA 70.
 - 6. Circuiting Adjustments: Unless otherwise indicated, when branch circuits are indicated as separate, combining them together in a single raceway is permitted, under the following conditions:
 - a. Provide no more than six current-carrying conductors in a single raceway. Dedicated neutral conductors are considered current-carrying conductors.
 - b. Increase size of conductors as required to account for ampacity derating.
 - c. Size raceways, boxes, etc. to accommodate conductors.
 - 7. Common Neutrals: Unless otherwise indicated, sharing of neutral/grounded conductors among up to three single phase branch circuits of different phases installed in the same raceway is permitted where not otherwise prohibited, except for the following:
 - a. Branch circuits fed from ground fault circuit interrupter (GFCI) circuit breakers.
 - b. Branch circuits fed from feed-through protection of GFI receptacles.
 - c. Branch circuits with dimming controls.
 - d. Branch circuits with isolated grounding conductor.
- B. Install products in accordance with manufacturer's instructions.
- C. Perform work in accordance with NECA 1 (general workmanship).
- D. Install metal-clad cable (Type MC) in accordance with NECA 120.
- E. Installation in Raceway:
 - 1. Tape ends of conductors and cables to prevent infiltration of moisture and other contaminants.
 - 2. Pull all conductors and cables together into raceway at same time.
 - 3. Do not damage conductors and cables or exceed manufacturer's recommended maximum pulling tension and sidewall pressure.
 - 4. Use suitable wire pulling lubricant where necessary, except when lubricant is not recommended by the manufacturer.

- F. Secure and support conductors and cables in accordance with NFPA 70 using suitable supports and methods approved by the authority having jurisdiction. Provide independent support from building structure. Do not provide support from raceways, piping, ductwork, or other systems.
 - 1. Installation Above Suspended Ceilings: Do not provide support from ceiling support system. Do not provide support from ceiling grid or allow conductors and cables to lay on ceiling tiles.
 - 2. Installation in Vertical Raceways: Provide supports where vertical rise exceeds permissible limits as indicated in NFPA 70.
- G. Terminate cables using suitable fittings.
 - 1. Metal-Clad Cable (Type MC):
 - a. Use listed fittings.
 - b. Cut cable armor only using specialized tools to prevent damaging conductors or insulation. Do not use hacksaw or wire cutters to cut armor.
- H. Install conductors with a minimum of 12 inches of slack at each outlet.
- I. Where conductors are installed in enclosures for future termination by others, provide a minimum of 5 feet of slack.
- J. Neatly train and bundle conductors inside boxes, wireways, panelboards and other equipment enclosures.
- K. Group or otherwise identify neutral/grounded conductors with associated ungrounded conductors inside enclosures in accordance with NFPA 70.
- L. Make wiring connections using specified wiring connectors.
 - 1. Make splices and taps only in accessible boxes. Do not pull splices into raceways or make splices in conduit bodies or wiring gutters.
 - 2. Remove appropriate amount of conductor insulation for making connections without cutting, nicking or damaging conductors.
 - 3. Do not remove conductor strands to facilitate insertion into connector.
 - 4. Clean contact surfaces on conductors and connectors to suitable remove corrosion, oxides, and other contaminates. Do not use wire brush on plated connector surfaces.
 - 5. Mechanical Connectors: Secure connections according to manufacturer's recommended torque settings.
 - 6. Compression Connectors: Secure connections using manufacturer's recommended tools and dies.
- M. Insulate splices and taps that are made with uninsulated connectors using methods suitable for the application, with insulation and mechanical strength at least equivalent to unspliced conductors.
- N. Insulate ends of spare conductors using vinyl insulating electrical tape.
- O. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified by Division 07 .
- P. Unless specifically indicated to be excluded, provide final connections to all equipment and devices, including those furnished by others, as required for a complete operating system.

3.04 FIELD QUALITY CONTROL

- A. Inspect and test in accordance with NETA ATS, except Section 4.
- B. Perform inspections and tests listed in NETA ATS, Section 7.3.2. The insulation resistance test is required for all conductors. The resistance test for parallel conductors listed as optional is not required.
- C. Correct deficiencies and replace damaged or defective conductors and cables.

END OF SECTION

SECTION 26 0526
GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Grounding and bonding requirements.
- B. Conductors for grounding and bonding.
- C. Connectors for grounding and bonding.

1.02 RELATED REQUIREMENTS

- A. Division 01 - General Requirements: Project administrative and procedural requirements.
- B. Division 02 - Existing Conditions: Demolition, cleaning and disposal requirements, cutting and patching requirements, repairs.
- C. Section 26 0005 - Basic Electrical Requirements.
- D. Section 26 0519 - Low-Voltage Electrical Power Conductors and Cables: Additional requirements for conductors for grounding and bonding, including conductor color coding.
- E. Section 26 0553 - Identification for Electrical Systems: Identification products and requirements.
- F. Section 26 5600 - Exterior Lighting: Additional grounding and bonding requirements for pole-mounted luminaires.
- G. Division 31 - Earthwork: Excavating, trenching and fill.

1.03 REFERENCE STANDARDS

- A. IEEE 81 - IEEE Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Grounding System; 2012.
- B. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2010.
- C. NETA ATS - Acceptance Testing Specifications for Electrical Power Equipment and Systems; 2013.
- D. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- E. UL 467 - Grounding and Bonding Equipment; Current Edition, Including All Revisions.

PART 2 PRODUCTS

2.01 GROUNDING AND BONDING REQUIREMENTS

- A. Existing Work: Where existing grounding and bonding system components are indicated to be reused, they may be reused only where they are free from corrosion, integrity and continuity are verified, and where acceptable to the authority having jurisdiction.
- B. Do not use products for applications other than as permitted by NFPA 70 and product listing.
- C. Unless specifically indicated to be excluded, provide all required components, conductors, connectors, conduit, boxes, fittings, supports, accessories, etc. as necessary for a complete grounding and bonding system.
- D. Where conductor size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.
- E. Grounding System Resistance:
 - 1. Achieve specified grounding system resistance under normally dry conditions unless otherwise approved by Strategic Energy Solutions, Inc.. Precipitation within the previous 48 hours does not constitute normally dry conditions.

2. Grounding Electrode System: Not greater than 5 ohms to ground, when tested according to IEEE 81 using "fall-of-potential" method.
 3. Between Grounding Electrode System and Major Electrical Equipment Frames, System Neutral, and Derived Neutral Points: Not greater than 0.5 ohms, when tested using "point-to-point" methods.
- F. Grounding Electrode System:
1. Provide connection to required and supplemental grounding electrodes indicated to form grounding electrode system.
 - a. Provide continuous grounding electrode conductors without splice or joint.
 - b. Install grounding electrode conductors in raceway where exposed to physical damage. Bond grounding electrode conductor to metallic raceways at each end with bonding jumper.
- G. Bonding and Equipment Grounding:
1. Provide bonding for equipment grounding conductors, equipment ground busses, metallic equipment enclosures, metallic raceways and boxes, device grounding terminals, and other normally non-current-carrying conductive materials enclosing electrical conductors/equipment or likely to become energized as indicated and in accordance with NFPA 70.
 2. Provide insulated equipment grounding conductor in each feeder and branch circuit raceway. Do not use raceways as sole equipment grounding conductor.
 3. Where circuit conductor sizes are increased for voltage drop, increase size of equipment grounding conductor proportionally in accordance with NFPA 70.
 4. Unless otherwise indicated, connect wiring device grounding terminal to branch circuit equipment grounding conductor and to outlet box with bonding jumper.
 5. Terminate branch circuit equipment grounding conductors on solidly bonded equipment ground bus only. Do not terminate on neutral (grounded) or isolated/insulated ground bus.
 6. Provide bonding jumper across expansion or expansion/deflection fittings provided to accommodate conduit movement.

2.02 GROUNDING AND BONDING COMPONENTS

- A. General Requirements:
1. Provide products listed, classified, and labeled as suitable for the purpose intended.
 2. Provide products listed and labeled as complying with UL 467 where applicable.
- B. Conductors for Grounding and Bonding, in Addition to Requirements of Section 26 0526:
1. Use insulated copper conductors unless otherwise indicated.
 - a. Exceptions:
 - 1) Use bare copper conductors where installed underground in direct contact with earth.
 - 2) Use bare copper conductors where directly encased in concrete (not in raceway).
- C. Connectors for Grounding and Bonding:
1. Description: Connectors appropriate for the application and suitable for the conductors and items to be connected; listed and labeled as complying with UL 467.
 2. Unless otherwise indicated, use exothermic welded connections for underground, concealed and other inaccessible connections.
 3. Unless otherwise indicated, use mechanical connectors, compression connectors, or exothermic welded connections for accessible connections.
 4. Manufacturers - Mechanical and Compression Connectors:
 - a. Advanced Lightning Technology (ALT): www.altfab.com.
 - b. Burndy LLC: www.burndy.com.
 - c. Thomas & Betts Corporation: www.tnb.com.
 5. Manufacturers - Exothermic Welded Connections:

- a. Burndy LLC: www.burndy.com.
- b. Cadweld, a brand of Erico International Corporation: www.erico.com.
- c. ThermOweld, a brand of Continental Industries, Inc: www.thermoweld.com.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that work likely to damage grounding and bonding system components has been completed.
- B. Verify that field measurements are as indicated.
- C. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Perform work in accordance with NECA 1 (general workmanship).
- C. Make grounding and bonding connections using specified connectors.
 1. Remove appropriate amount of conductor insulation for making connections without cutting, nicking or damaging conductors. Do not remove conductor strands to facilitate insertion into connector.
 2. Remove nonconductive paint, enamel, or similar coating at threads, contact points, and contact surfaces.
 3. Mechanical Connectors: Secure connections according to manufacturer's recommended torque settings.
 4. Compression Connectors: Secure connections using manufacturer's recommended tools and dies.
- D. Identify grounding and bonding system components in accordance with Section 26 0553.

3.03 FIELD QUALITY CONTROL

- A. Inspect and test in accordance with NETA ATS except Section 4.
- B. Perform inspections and tests listed in NETA ATS, Section 7.13.
- C. Investigate and correct deficiencies where measured ground resistances do not comply with specified requirements.

END OF SECTION

SECTION 26 0529
HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Support and attachment requirements and components for equipment, conduit, cable, boxes, and other electrical work.

1.02 RELATED REQUIREMENTS

- A. Division 01 - General Requirements: Project administrative and procedural requirements.
- B. Division 02 - Existing Conditions: Demolition, cleaning and disposal requirements, and cutting and patching requirements.
- C. Section 26 0005 - Basic Electrical Requirements.
- D. Section 26 0533.13 - Conduit for Electrical Systems: Additional support and attachment requirements for conduits.
- E. Section 26 0533.16 - Boxes for Electrical Systems: Additional support and attachment requirements for boxes.
- F. Section 26 5100 - Interior Lighting: Additional support and attachment requirements for interior luminaires.

1.03 REFERENCE STANDARDS

- A. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2015.
- B. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2009.
- C. MFMA-4 - Metal Framing Standards Publication; 2004.
- D. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2010.
- E. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- F. UL 5B - Strut-Type Channel Raceways and Fittings; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate sizes and arrangement of supports and bases with the actual equipment and components to be installed.
 - 2. Coordinate the work with other trades to provide additional framing and materials required for installation.
 - 3. Coordinate compatibility of support and attachment components with mounting surfaces at the installed locations.
 - 4. Coordinate the arrangement of supports with ductwork, piping, equipment and other potential conflicts installed under other sections or by others.
 - 5. Notify Strategic Energy Solutions, Inc. of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

1.05 SUMMARY

- A. The work covered under this section consists of the furnishing of all necessary labor, supervision, materials, equipment, and services to completely execute the system of conduit hangers and supports as described in this specification.
- B. Rated Strength: Adequate in tension, shear, and pullout force to resist maximum loads calculated or imposed for this project, with a minimum structural safety factor of five times the applied force.

1.06 COORDINATION

- A. Coordinate size and location of concrete bases. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified in Division 03.
- B. Coordinate installation of roof curbs, equipment supports, and roof penetrations.

PART 2 PRODUCTS

2.01 SUPPORT AND ATTACHMENT COMPONENTS

- A. General Requirements:
 - 1. Provide all required hangers, supports, anchors, fasteners, fittings, accessories, and hardware as necessary for the complete installation of electrical work.
 - 2. Provide products listed, classified, and labeled as suitable for the purpose intended, where applicable.
 - 3. Where support and attachment component types and sizes are not indicated, select in accordance with manufacturer's application criteria as required for the load to be supported. Include consideration for vibration, equipment operation, and shock loads where applicable.
 - 4. Do not use products for applications other than as permitted by NFPA 70 and product listing.
 - 5. Steel Components: Use corrosion resistant materials suitable for the environment where installed.
 - a. Zinc-Plated Steel: Electroplated in accordance with ASTM B633.
 - b. Galvanized Steel: Hot-dip galvanized after fabrication in accordance with ASTM A123/A123M or ASTM A153/A153M.
- B. Conduit and Cable Supports: Straps, clamps, etc. suitable for the conduit or cable to be supported.
 - 1. Conduit Straps: One-hole or two-hole type; steel or malleable iron.
 - 2. Conduit Clamps: Bolted type unless otherwise indicated.
 - 3. Manufacturers:
 - a. Cooper Crouse-Hinds, a division of Eaton Corporation: www.cooperindustries.com/#sle.
 - b. Erico International Corporation: www.erico.com/#sle.
 - c. O-Z/Gedney, a brand of Emerson Electric Co: www.emerson.com/#sle.
 - d. Thomas & Betts Corporation: www.tnb.com/#sle.
- C. Outlet Box Supports: Hangers, brackets, etc. suitable for the boxes to be supported.
 - 1. Manufacturers:
 - a. Cooper Crouse-Hinds, a division of Eaton Corporation: www.cooperindustries.com/#sle.
 - b. Erico International Corporation: www.erico.com/#sle.
 - c. O-Z/Gedney, a brand of Emerson Electric Co: www.emerson.com/#sle.
 - d. Thomas & Betts Corporation: www.tnb.com/#sle.
- D. Metal Channel (Strut) Framing Systems: Factory-fabricated continuous-slot metal channel (strut) and associated fittings, accessories, and hardware required for field-assembly of supports.
 - 1. Comply with MFMA-4.
 - 2. Channel (Strut) Used as Raceway (only where specifically indicated): Listed and labeled as complying with UL 5B.
 - 3. Manufacturers:
 - a. Cooper B-Line, a division of Eaton Corporation: www.cooperindustries.com/#sle.
 - b. Thomas & Betts Corporation: www.tnb.com/#sle.
 - c. Unistrut, a brand of Atkore International Inc: www.unistrut.com/#sle.

- d. Source Limitations: Furnish channels (struts) and associated fittings, accessories, and hardware produced by a single manufacturer.
- E. Hanger Rods: Threaded zinc-plated steel unless otherwise indicated.
 1. Minimum Size, Unless Otherwise Indicated or Required:
 - a. Equipment Supports: 1/2 inch diameter.
 - b. Single Conduit up to 1 inch (27 mm) trade size: 1/4 inch diameter.
- F. Anchors and Fasteners:
 1. Unless otherwise indicated and where not otherwise restricted, use the anchor and fastener types indicated for the specified applications.
 2. Manufacturers - Powder-Actuated Fastening Systems:
 - a. Hilti, Inc: www.us.hilti.com/#sle.
 - b. ITW Ramset, a division of Illinois Tool Works, Inc: www.ramset.com/#sle.
 - c. Powers Fasteners, Inc: www.powers.com/#sle.
 - d. Simpson Strong-Tie Company Inc: www.strongtie.com/#sle.
- G. Hangers, Supports, Anchors, and Fasteners - General: Protective zinc coating either Electro-Plated (ASTM B633 SCI or SC3), Pre-Galvanized (ASTM a525 coating designation G90) or Hot-Dip Galvanized after fabrication (ASTM A123). The minimum thickness of zinc coating shall be 0.2 mill (5 micrometers)..
- H. Provide materials of size and type adequate to carry the loads of equipment and conduit, including weight of wire in conduit.
 1. Product: Pre-galvanized strut.
 2. Product: Hilti DX Series
- I. Conduit Hangers:
 1. Shall have a vertical load limit of 100 lbs, and a horizontal load limit of 25 lbs..
 2. Shall be available with either a plain hole for 1/4" bolt or a 1/4-20 thread impression.
 3. Shall be available for 3/8" through 2" EMT, rigid, and aluminum conduit.
 4. Shall be available pre-assembled with manufacturer's specialty fasteners for connection to building structures like beam, flange, drop wire/rod, wood structure, concrete and acoustical tee grid.
- J. Wire Rope Hangers:
 1. Wire rope hanger assemblies shall be made of galvanized steel.
 2. Hanger shall meet the fire rating requirements for DIN 4102-2 for 30 minutes at 30 percent of rated load.
 3. Rope hangers shall have a minimum safety factor of 5:1.
 4. Rope hangers are not permitted to support conduits.
 5. Rope hangers are permitted to hang light fixtures, were applicable.
 6. Hangers shall be fully adjustable.
 7. Manufacturer of wire rope hangers shall be:
 - a. ERICO, INC., Speed Link series.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.
- B. Unless specifically indicated or approved by Strategic Energy Solutions, Inc., do not provide support from suspended ceiling support system or ceiling grid.
- C. Unless specifically indicated or approved by Strategic Energy Solutions, Inc., do not provide support from roof deck.
- D. Do not penetrate or otherwise notch or cut structural members without approval of Structural Engineer.

- E. Equipment Support and Attachment:
 - 1. Use metal fabricated supports or supports assembled from metal channel (strut) to support equipment as required.
 - 2. Use metal channel (strut) secured to studs to support equipment surface-mounted on hollow stud walls when wall strength is not sufficient to resist pull-out.
 - 3. Use metal channel (strut) to support surface-mounted equipment in wet or damp locations to provide space between equipment and mounting surface.
 - 4. Securely fasten floor-mounted equipment. Do not install equipment such that it relies on its own weight for support.
- F. Secure fasteners according to manufacturer's recommended torque settings.
- G. Remove temporary supports.

3.02 FIELD QUALITY CONTROL

- A. Inspect support and attachment components for damage and defects.
- B. Repair cuts and abrasions in galvanized finishes using zinc-rich paint recommended by manufacturer. Replace components that exhibit signs of corrosion.
- C. Correct deficiencies and replace damaged or defective support and attachment components.
- D. Mounting and Anchorage of surface-mounted equipment and components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:
 - 1. To wood: Fasten with lag screws or through bolts.
 - 2. To new concrete: Bolt to concrete inserts
 - 3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
 - 4. Instead of expansion anchors, powder-actuated driven threaded studs provided with lock washers and nuts may be used in existing standard-weight concrete 4-inches thick or greater. Do not use for anchorage to lightweight-aggregate concrete or for slabs less than 4 inches thick.
 - 5. To Steel: Beam clamps (MSS type 19,21,23,25,or 27) complying with MSS SP-69.
 - 6. To light steel: Sheet metal screws.

END OF SECTION

SECTION 26 0533.13
CONDUIT FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Galvanized steel rigid metal conduit (RMC).
- B. Aluminum rigid metal conduit (RMC).
- C. Flexible metal conduit (FMC).
- D. Rigid polyvinyl chloride (PVC) conduit.
- E. Conduit fittings.
- F. Accessories.
- G. Conduit, fittings and conduit bodies.

1.02 RELATED REQUIREMENTS

- A. Division 01 - General Requirements: Project administrative and procedural requirements.
- B. Division 02 - Existing Conditions: Demolition, cleaning and disposal requirements, cutting and patching requirements, and repairs.
- C. Division 07 - Thermal and Moisture Protection: Firestopping.
- D. Section 26 0005 - Basic Electrical Requirements.
- E. Section 26 0519 - Low-Voltage Electrical Power Conductors and Cables.
- F. Section 26 0526 - Grounding and Bonding for Electrical Systems.
- G. Section 26 0529 - Hangers and Supports for Electrical Systems.
- H. Section 26 0533.16 - Boxes for Electrical Systems.
- I. Section 26 0553 - Identification for Electrical Systems: Identification products and requirements.
- J. Division 31 - Earthwork: Excavating, trenching and fill.

1.03 REFERENCE STANDARDS

- A. ANSI C80.1 - American National Standard for Electrical Rigid Steel Conduit (ERSC); 2005.
- B. ANSI C80.3 - American National Standard for Steel Electrical Metallic Tubing (EMT); 2005.
- C. ANSI C80.5 - American National Standard for Electrical Rigid Aluminum Conduit (ERAC); 2005.
- D. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2010.
- E. NECA 101 - Standard for Installing Steel Conduits (Rigid, IMC, EMT); 2013.
- F. NECA 102 - Standard for Installing Aluminum Rigid Metal Conduit; 2004.
- G. NECA 111 - Standard for Installing Nonmetallic Raceways (RNC, ENT, LFNC); 2003.
- H. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable; 2012.
- I. NEMA TC 2 - Electrical Polyvinyl Chloride (PVC) Conduit; 2013.
- J. NEMA TC 3 - Polyvinyl Chloride (PVC) Fittings for Use with Rigid PVC Conduit and Tubing; 2015.
- K. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- L. UL 1 - Flexible Metal Conduit; Current Edition, Including All Revisions.
- M. UL 6 - Electrical Rigid Metal Conduit-Steel; Current Edition, Including All Revisions.

- N. UL 6A - Electrical Rigid Metal Conduit-Aluminum, Red Brass, and Stainless Steel; Current Edition, Including All Revisions.
- O. UL 514B - Conduit, Tubing, and Cable Fittings; Current Edition, Including All Revisions.
- P. UL 651 - Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings; Current Edition, Including All Revisions.

PART 2 PRODUCTS

2.01 CONDUIT APPLICATIONS

- A. Do not use conduit and associated fittings for applications other than as permitted by NFPA 70 and product listing.
- B. Unless otherwise indicated and where not otherwise restricted, use the conduit types indicated for the specified applications. Where more than one listed application applies, comply with the most restrictive requirements. Where conduit type for a particular application is not specified, use galvanized steel rigid metal conduit.
- C. Underground:
 - 1. Under Slab on Grade: Use galvanized steel rigid metal conduit or rigid PVC conduit.
 - 2. Exterior, Direct-Buried: Use galvanized steel rigid metal conduit or rigid PVC conduit.
 - 3. Exterior, Embedded Within Concrete: Use galvanized steel rigid metal conduit or rigid PVC conduit.
 - 4. Where rigid polyvinyl (PVC) conduit is provided, transition to galvanized steel rigid metal conduit where emerging from underground.
 - 5. Where rigid polyvinyl (PVC) conduit larger than 2 inch (53 mm) trade size is provided, use galvanized steel rigid metal conduit elbows for bends.
- D. Embedded Within Concrete:
 - 1. Within Slab on Grade (within structural slabs only where approved by Structural Engineer): Use galvanized steel rigid metal conduit or rigid PVC conduit.
 - 2. Where rigid polyvinyl (PVC) conduit is provided, transition to galvanized steel rigid metal conduit where emerging from concrete.
- E. Concealed Within Masonry Walls: Use galvanized steel rigid metal conduit or electrical metallic tubing (EMT).
- F. Concealed Within Hollow Stud Walls: Use galvanized steel rigid metal conduit or electrical metallic tubing (EMT).
- G. Concealed Above Accessible Ceilings: Use galvanized steel rigid metal conduit or electrical metallic tubing (EMT).
- H. Interior, Damp or Wet Locations: Use galvanized steel rigid metal conduit.
- I. Exposed, Interior, Not Subject to Physical Damage: Use galvanized steel rigid metal conduit, intermediate metal conduit (IMC), or electrical metallic tubing (EMT).
- J. Exposed, Interior, Subject to Physical Damage: Use galvanized steel rigid metal conduit or Schedule 80 PVC conduit.
 - 1. Locations subject to physical damage include, but are not limited to:
 - a. Where exposed below 8 feet, except within electrical and communication rooms or closets.
- K. Connections to Luminaires Above Accessible Ceilings: Use flexible metal conduit.
 - 1. Maximum Length: 6 feet.
- L. Connections to Vibrating Equipment:
 - 1. Dry Locations: Use flexible metal conduit.
 - 2. Damp, Wet, or Corrosive Locations: Use liquidtight flexible metal conduit.
 - 3. Maximum Length: 6 feet unless otherwise indicated.
 - 4. Vibrating equipment includes, but is not limited to:

- a. Transformers.
- b. Motors.

2.02 CONDUIT REQUIREMENTS

- A. Existing Work: Where existing conduits are indicated to be reused, they may be reused only where they comply with specified requirements, are free from corrosion, and integrity is verified by pulling a mandrel through them.
- B. Provide all conduit, fittings, supports, and accessories required for a complete raceway system.
- C. Provide products listed, classified, and labeled as suitable for the purpose intended.
- D. Minimum Conduit Size, Unless Otherwise Indicated:
 - 1. Branch Circuits: 3/4 inch (21 mm) trade size.
 - 2. Flexible Connections to Luminaires: 1/2 inch (16 mm) trade size.
 - 3. Underground, Interior: 1 inch (27 mm) trade size.
 - 4. Underground, Exterior: 1 inch (27 mm) trade size.
- E. Where conduit size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.

2.03 GALVANIZED STEEL RIGID METAL CONDUIT (RMC)

- A. Manufacturers:
 - 1. Allied Tube & Conduit: www.alliedeg.com/#sle.
 - 2. Republic Conduit: www.republic-conduit.com/#sle.
 - 3. Wheatland Tube, a Division of Zekelman Industries: www.wheatland.com/#sle.
- B. Description: NFPA 70, Type RMC galvanized steel rigid metal conduit complying with ANSI C80.1 and listed and labeled as complying with UL 6.
- C. Fittings:
 - 1. Non-Hazardous Locations: Use fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
 - 2. Material: Use steel or malleable iron.
 - 3. Connectors and Couplings: Use threaded type fittings only. Threadless set screw and compression (gland) type fittings are not permitted.

2.04 ALUMINUM RIGID METAL CONDUIT (RMC)

- A. Manufacturers:
 - 1. Allied Tube & Conduit: www.alliedeg.com/#sle.
 - 2. Republic Conduit: www.republic-conduit.com/#sle.
 - 3. Wheatland Tube, a Division of Zekelman Industries: www.wheatland.com/#sle.
- B. Description: NFPA 70, Type RMC aluminum rigid metal conduit complying with ANSI C80.5 and listed and labeled as complying with UL 6A.
- C. Fittings:
 - 1. Manufacturers:
 - a. Bridgeport Fittings Inc: www.bptfittings.com/#sle.
 - b. O-Z/Gedney, a brand of Emerson Electric Co: www.emerson.com/#sle.
 - c. Thomas & Betts Corporation: www.tnb.com/#sle.
 - 2. Non-Hazardous Locations: Use fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
 - 3. Material: Use aluminum.
 - 4. Connectors and Couplings: Use threaded type fittings only. Threadless set screw and compression (gland) type fittings are not permitted.

2.05 FLEXIBLE METAL CONDUIT (FMC)

- A. Manufacturers:

1. AFC Cable Systems, Inc: www.afcweb.com.
 2. Electri-Flex Company: www.electriflex.com.
 3. International Metal Hose: www.metalhose.com.
- B. Description: NFPA 70, Type FMC standard wall steel flexible metal conduit listed and labeled as complying with UL 1, and listed for use in classified firestop systems to be used.
- C. Fittings:
1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
 2. Material: Use steel or malleable iron.
- D. Description: Interlocked steel construction.
- E. Fittings: NEMA FB 1.

2.06 RIGID POLYVINYL CHLORIDE (PVC) CONDUIT

- A. Manufacturers:
1. Cantex Inc: www.cantexinc.com/#sle.
 2. Carlon, a brand of Thomas & Betts Corporation: www.carlon.com/#sle.
 3. JM Eagle: www.jmeagle.com/#sle.
- B. Description: NFPA 70, Type PVC rigid polyvinyl chloride conduit complying with NEMA TC 2 and listed and labeled as complying with UL 651; Schedule 40 unless otherwise indicated, Schedule 80 where subject to physical damage; rated for use with conductors rated 90 degrees C.
- C. Fittings:
1. Manufacturer: Same as manufacturer of conduit to be connected.
 2. Description: Fittings complying with NEMA TC 3 and listed and labeled as complying with UL 651; material to match conduit.

2.07 ACCESSORIES

- A. Conduit Joint Compound: Corrosion-resistant, electrically conductive; suitable for use with the conduit to be installed.
- B. Solvent Cement for PVC Conduit and Fittings: As recommended by manufacturer of conduit and fittings to be installed.
- C. Pull Strings: Use nylon cord with average breaking strength of not less than 200 pound-force.
- D. Sealing Compound for Sealing Fittings: Listed for use with the particular fittings to be installed.
- E. Modular Seals for Conduit Penetrations: Rated for minimum of 40 psig; Suitable for the conduits to be installed.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that field measurements are as indicated.
- B. Verify that mounting surfaces are ready to receive conduits.
- C. Verify that conditions are satisfactory for installation prior to starting work.
- D. Verify routing and termination locations of conduit prior to rough-in.
- E. Conduit routing is shown on drawings in approximate locations unless dimensioned. Route as required to complete wiring system.

3.02 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Perform work in accordance with NECA 1 (general workmanship).
- C. Install galvanized steel rigid metal conduit (RMC) in accordance with NECA 101.

- D. Install aluminum rigid metal conduit (RMC) in accordance with NECA 102.
- E. Install rigid polyvinyl chloride (PVC) conduit in accordance with NECA 111.
- F. Conduit Routing:
 - 1. Unless dimensioned, conduit routing indicated is diagrammatic.
 - 2. When conduit destination is indicated without specific routing, determine exact routing required.
 - 3. Conceal all conduits unless specifically indicated to be exposed.
 - 4. Conduits in the following areas may be exposed, unless otherwise indicated:
 - a. Electrical rooms.
 - b. Mechanical equipment rooms.
 - c. Within joists in areas with no ceiling.
 - 5. Unless otherwise approved, do not route conduits exposed:
 - a. Across floors.
 - b. Across roofs.
 - c. Across top of parapet walls.
 - d. Across building exterior surfaces.
 - 6. Conduits installed underground or embedded in concrete may be routed in the shortest possible manner unless otherwise indicated. Route all other conduits parallel or perpendicular to building structure and surfaces, following surface contours where practical.
 - 7. Arrange conduit to maintain adequate headroom, clearances, and access.
 - 8. Arrange conduit to provide no more than the equivalent of four 90 degree bends between pull points.
 - 9. Arrange conduit to prevent moisture traps. Provide drain fittings at low points and at sealing fittings where moisture may collect.
 - 10. Group parallel conduits in the same area together on a common rack.
- G. Conduit Support:
 - 1. Secure and support conduits in accordance with NFPA 70 and Section 26 0529 using suitable supports and methods approved by the authority having jurisdiction.
 - 2. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.
 - 3. Installation Above Suspended Ceilings: Do not provide support from ceiling support system. Do not provide support from ceiling grid or allow conduits to lay on ceiling tiles.
 - 4. Use conduit strap to support single surface-mounted conduit.
 - a. Use clamp back spacer with conduit strap for damp and wet locations to provide space between conduit and mounting surface.
 - 5. Use metal channel (strut) with accessory conduit clamps to support multiple parallel surface-mounted conduits.
 - 6. Use conduit clamp to support single conduit from beam clamp or threaded rod.
 - 7. Use trapeze hangers assembled from threaded rods and metal channel (strut) with accessory conduit clamps to support multiple parallel suspended conduits.
 - 8. Use of wire for support of conduits is not permitted.
- H. Connections and Terminations:
 - 1. Use approved zinc-rich paint or conduit joint compound on field-cut threads of galvanized steel conduits prior to making connections.
 - 2. Where two threaded conduits must be joined and neither can be rotated, use three-piece couplings or split couplings. Do not use running threads.
 - 3. Use suitable adapters where required to transition from one type of conduit to another.
 - 4. Terminate threaded conduits in boxes and enclosures using threaded hubs or double lock nuts for dry locations and raintight hubs for wet locations.

5. Provide insulating bushings or insulated throats at all conduit terminations to protect conductors.
 6. Secure joints and connections to provide maximum mechanical strength and electrical continuity.
- I. Penetrations:
1. Do not penetrate or otherwise notch or cut structural members, including footings and grade beams, without approval of Structural Engineer.
 2. Make penetrations perpendicular to surfaces unless otherwise indicated.
 3. Provide sleeves for penetrations as indicated or as required to facilitate installation. Set sleeves flush with exposed surfaces unless otherwise indicated or required.
 4. Conceal bends for conduit risers emerging above ground.
 5. Seal interior of conduits entering the building from underground at first accessible point to prevent entry of moisture and gases.
 6. Where conduits penetrate waterproof membrane, seal as required to maintain integrity of membrane.
 7. Make penetrations for roof-mounted equipment within associated equipment openings and curbs where possible to minimize roofing system penetrations. Where penetrations are necessary, seal as indicated or as required to preserve integrity of roofing system and maintain roof warranty. Include proposed locations of penetrations and methods for sealing with submittals.
 8. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Division 07.
- J. Embedment Within Structural Concrete Slabs (only where approved by Structural Engineer):
1. Secure conduits to prevent floating or movement during pouring of concrete.
- K. Concrete Encasement: Where conduits not otherwise embedded within concrete are indicated to be concrete-encased, provide concrete in accordance with Division 03 _____ with minimum concrete cover of 2 inches on all sides unless otherwise indicated.
- L. Conduit Movement Provisions: Where conduits are subject to movement, provide expansion and expansion/deflection fittings to prevent damage to enclosed conductors or connected equipment. This includes, but is not limited to:
1. Where conduits cross structural joints intended for expansion, contraction, or deflection.
 2. Where calculated in accordance with NFPA 70 for rigid polyvinyl chloride (PVC) conduit installed above ground to compensate for thermal expansion and contraction.
 3. Where conduits are subject to earth movement by settlement or frost.
- M. Condensation Prevention: Where conduits cross barriers between areas of potential substantial temperature differential, provide sealing fitting or approved sealing compound at an accessible point near the penetration to prevent condensation. This includes, but is not limited to:
1. Where conduits pass from outdoors into conditioned interior spaces.
 2. Where conduits pass from unconditioned interior spaces into conditioned interior spaces.
- N. Provide pull string in all empty conduits and in conduits where conductors and cables are to be installed by others. Leave minimum slack of 12 inches at each end.
- O. Provide grounding and bonding in accordance with Section 26 0526.
- P. Identify conduits in accordance with Section 26 0553.

3.03 PROTECTION

- A. Immediately after installation of conduit, use suitable manufactured plugs to provide protection from entry of moisture and foreign material and do not remove until ready for installation of conductors.

END OF SECTION

SECTION 26 0533.16
BOXES FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Outlet and device boxes up to 100 cubic inches, including those used as junction and pull boxes.
- B. Cabinets and enclosures, including junction and pull boxes larger than 100 cubic inches.

1.02 RELATED REQUIREMENTS

- A. Division 01 - General Requirements: Project administrative and procedural requirements.
- B. Division 05 - Metals: Access Doors.
- C. Division 07 - Thermal and Moisture Protection: Firestopping.
- D. Division 08 - Openings: Access Doors.
- E. Section 26 0005 - Basic Electrical Requirements.
- F. Section 26 0529 - Hangers and Supports for Electrical Systems.
- G. Section 26 0533.13 - Conduit for Electrical Systems:
- H. Section 26 0553 - Identification for Electrical Systems: Identification products and requirements.
- I. Section 26 2726 - Wiring Devices

1.03 REFERENCE STANDARDS

- A. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2010.
- B. NECA 130 - Standard for Installing and Maintaining Wiring Devices; 2010.
- C. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable; 2012.
- D. NEMA OS 1 - Sheet-Steel Outlet Boxes, Device Boxes, Covers, and Box Supports; 2013.
- E. NEMA OS 2 - Nonmetallic Outlet Boxes, Device Boxes, Covers and Box Supports; 2013.
- F. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum); 2014.
- G. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- H. UL 50 - Enclosures for Electrical Equipment, Non-Environmental Considerations; Current Edition, Including All Revisions.
- I. UL 50E - Enclosures for Electrical Equipment, Environmental Considerations; Current Edition, Including All Revisions.
- J. UL 508A - Industrial Control Panels; Current Edition, Including All Revisions.
- K. UL 514A - Metallic Outlet Boxes; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate the work with other trades to avoid placement of ductwork, piping, equipment, or other potential obstructions within the dedicated equipment spaces and working clearances for electrical equipment required by NFPA 70.
 - 2. Coordinate arrangement of electrical equipment with the dimensions and clearance requirements of the actual equipment to be installed.
 - 3. Coordinate minimum sizes of boxes with the actual installed arrangement of conductors, clamps, support fittings, and devices, calculated according to NFPA 70.

4. Coordinate minimum sizes of pull boxes with the actual installed arrangement of connected conduits, calculated according to NFPA 70.
5. Coordinate the placement of boxes with millwork, furniture, devices, equipment, etc. installed under other sections or by others.
6. Coordinate the work with other trades to preserve insulation integrity.
7. Coordinate the work with other trades to provide walls suitable for installation of flush-mounted boxes where indicated.
8. Notify Strategic Energy Solutions, Inc. of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

PART 2 PRODUCTS

2.01 BOXES

- A. General Requirements:
 1. Do not use boxes and associated accessories for applications other than as permitted by NFPA 70 and product listing.
 2. Provide all boxes, fittings, supports, and accessories required for a complete raceway system and to accommodate devices and equipment to be installed.
 3. Provide products listed, classified, and labeled as suitable for the purpose intended.
 4. Where box size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.
 5. Provide grounding terminals within boxes where equipment grounding conductors terminate.
- B. Outlet and Device Boxes Up to 100 cubic inches, Including Those Used as Junction and Pull Boxes:
 1. Use sheet-steel boxes for dry locations unless otherwise indicated or required.
 2. Use cast iron boxes or cast aluminum boxes for damp or wet locations unless otherwise indicated or required; furnish with compatible weatherproof gasketed covers.
 3. Use suitable concrete type boxes where flush-mounted in concrete.
 4. Use suitable masonry type boxes where flush-mounted in masonry walls.
 5. Use raised covers suitable for the type of wall construction and device configuration where required.
 6. Use shallow boxes where required by the type of wall construction.
 7. Do not use "through-wall" boxes designed for access from both sides of wall.
 8. Sheet-Steel Boxes: Comply with NEMA OS 1, and list and label as complying with UL 514A.
 9. Cast Metal Boxes: Comply with NEMA FB 1, and list and label as complying with UL 514A; furnish with threaded hubs.
 10. Boxes for Supporting Luminaires and Ceiling Fans: Listed as suitable for the type and weight of load to be supported; furnished with fixture stud to accommodate mounting of luminaire where required.
 11. Boxes for Ganged Devices: Use multigang boxes of single-piece construction. Do not use field-connected gangable boxes unless specifically indicated or permitted.
 12. Wall Plates: Comply with Section 26 2726.
 13. Manufacturers:
 - a. Cooper Crouse-Hinds, a division of Eaton Corporation: www.cooperindustries.com/#sle.
 - b. Hubbell Incorporated; Bell Products: www.hubbell-rtb.com.
 - c. Hubbell Incorporated; RACO Products: www.hubbell-rtb.com.
 - d. Thomas & Betts Corporation: www.tnb.com/#sle.
- C. Cabinets and Enclosures, Including Junction and Pull Boxes Larger Than 100 cubic inches:
 1. Comply with NEMA 250, and list and label as complying with UL 50 and UL 50E, or UL 508A.

2. NEMA 250 Environment Type, Unless Otherwise Indicated:
3. Junction and Pull Boxes Larger Than 100 cubic inches:
 - a. Provide screw-cover or hinged-cover enclosures unless otherwise indicated.
- D. Manufacturers:
 1. The Wiremold Company: www.wiremold.com.
 2. Thomas & Betts Corporation: www.tnb.com.
 3. Hubbell Raco: www.hubbell.com/raco/en.
- E. Minimum size for communications, fire alarm, sound system and security system rough-ins shall be 4" square, 3-1/2" deep unless otherwise noted.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that field measurements are as indicated.
- B. Verify that mounting surfaces are ready to receive boxes.
- C. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Install boxes in accordance with NECA 1 (general workmanship) and, where applicable, NECA 130, including mounting heights specified in those standards where mounting heights are not indicated.
- C. Arrange equipment to provide minimum clearances in accordance with manufacturer's instructions and NFPA 70.
- D. Provide separate boxes for emergency power and normal power systems.
- E. Unless otherwise indicated, provide separate boxes for line voltage and low voltage systems.
- F. Flush-mount boxes in finished areas unless specifically indicated to be surface-mounted.
- G. Unless otherwise indicated, boxes may be surface-mounted where exposed conduits are indicated or permitted.
- H. Box Locations:
 1. Locate boxes to be accessible. Provide access panels in accordance with Division 08 as required where approved by the Architect.
 2. Unless dimensioned, box locations indicated are approximate.
 3. Locate boxes so that wall plates do not span different building finishes.
 4. Locate boxes so that wall plates do not cross masonry joints.
 5. Unless otherwise indicated, where multiple outlet boxes are installed at the same location at different mounting heights, install along a common vertical center line.
 6. Fire Resistance Rated Walls: Install flush-mounted boxes such that the required fire resistance will not be reduced.
 - a. Do not install flush-mounted boxes on opposite sides of walls back-to-back; provide minimum 24 inches separation where wall is constructed with individual noncommunicating stud cavities or protect both boxes with listed putty pads.
 7. Locate junction and pull boxes as indicated, as required to facilitate installation of conductors, and to limit conduit length and/or number of bends between pulling points in accordance with Section 26 0533.13.
- I. Box Supports:
 1. Secure and support boxes in accordance with NFPA 70 and Section 26 0529 using suitable supports and methods approved by the authority having jurisdiction.
 2. Provide independent support from building structure except for cast metal boxes (other than boxes used for fixture support) supported by threaded conduit connections in

- accordance with NFPA 70. Do not provide support from piping, ductwork, or other systems.
3. Installation Above Suspended Ceilings: Do not provide support from ceiling grid or ceiling support system.
- J. Install boxes plumb and level.
- K. Flush-Mounted Boxes:
1. Install boxes in noncombustible materials such as concrete, tile, gypsum, plaster, etc. so that front edge of box or associated raised cover is not set back from finished surface more than 1/4 inch or does not project beyond finished surface.
 2. Install boxes in combustible materials such as wood so that front edge of box or associated raised cover is flush with finished surface.
 3. Repair rough openings around boxes in noncombustible materials such as concrete, tile, gypsum, plaster, etc. so that there are no gaps or open spaces greater than 1/8 inch at the edge of the box.
- L. Install boxes as required to preserve insulation integrity.
- M. Install permanent barrier between ganged wiring devices when voltage between adjacent devices exceeds 300 V.
- N. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Division 07.
- O. Close unused box openings.
- P. Install blank wall plates on junction boxes and on outlet boxes with no devices or equipment installed or designated for future use.
- Q. Provide grounding and bonding in accordance with Section 26 0526.

3.03 PROTECTION

- A. Immediately after installation, protect boxes from entry of moisture and foreign material until ready for installation of conductors.

END OF SECTION

SECTION 26 0533.23
SURFACE RACEWAYS FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Surface raceway systems.

1.02 RELATED REQUIREMENTS

- A. Division 01 - General Requirements: Project administrative and procedural requirements.
- B. Division 02 - Existing Conditions: Demolition, cleaning and disposal requirements, cutting and patching requirements, repairs.
- C. Section 26 0005 - Basic Electrical Requirements.
- D. Section 26 0526 - Grounding and Bonding for Electrical Systems.
- E. Section 26 0529 - Hangers and Supports for Electrical Systems.
- F. Section 26 0533.13 - Conduit for Electrical Systems.
- G. Section 26 0533.16 - Boxes for Electrical Systems.
- H. Section 26 0553 - Identification for Electrical Systems: Identification products and requirements.
- I. Section 26 2726 - Wiring Devices: Receptacles.

1.03 REFERENCE STANDARDS

- A. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2010.
- B. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- C. NEMA PRP 5 - Installation Guidelines for Surface Nonmetallic Raceway; 2015.
- D. UL 5 - Surface Metal Raceways and Fittings; Current Edition, Including All Revisions.
- E. UL 5A - Nonmetallic Surface Raceways and Fittings; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate the placement of raceways with millwork, furniture, equipment, etc. installed under other sections or by others.
 - 2. Coordinate rough-in locations of outlet boxes provided under Section 26 0533.16 and conduit provided under Section 26 0533.13 as required for installation of raceways provided under this section.
 - 3. Verify minimum sizes of raceways with the actual conductors and components to be installed.
 - 4. Notify Strategic Energy Solutions, Inc. of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.
- B. Sequencing:
 - 1. Do not install raceways until final surface finishes and painting are complete.
 - 2. Do not begin installation of conductors and cables until installation of raceways is complete between outlet, junction and splicing points.

1.05 SUBMITTALS

- A. Contractor shall provide submittals for equipment listed herein. Refer to Division 01 for submittal procedures.

1.06 QUALITY ASSURANCE

- A. Conform to requirements of NFPA 70.

PART 2 PRODUCTS

2.01 RACEWAY REQUIREMENTS

- A. Provide all components, fittings, supports, and accessories required for a complete raceway system.
- B. Provide products listed, classified, and labeled as suitable for the purpose intended.
- C. Do not use raceways for applications other than as permitted by NFPA 70 and product listing.

2.02 SURFACE RACEWAY SYSTEMS

- A. Manufacturers:
 - 1. Hubbell Incorporated: www.hubbell.com.
 - 2. MonoSystems, Inc: www.monosystems.com/#sle.
 - 3. Wiremold, a brand of Legrand North America, Inc: www.legrand.us/#sle.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that outlet boxes and conduit terminations are installed in proper locations and are properly sized in accordance with NFPA 70 to accommodate raceways.
- B. Verify that mounting surfaces are ready to receive raceways and that final surface finishes are complete, including painting.
- C. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Perform work in accordance with NECA 1 (general workmanship).
- C. Surface Nonmetallic Raceways: Install in accordance with NEMA PRP 5.
- D. Install raceways plumb and level.
- E. Secure and support raceways in accordance with Section 26 0529 at intervals complying with NFPA 70 and manufacturer's requirements.
- F. Close unused raceway openings.
- G. Provide grounding and bonding in accordance with Section 26 0526.

3.03 FIELD QUALITY CONTROL

- A. Inspect raceways for damage and defects.
- B. Surface Raceway Systems with Integrated Devices: Test each wiring device to verify operation and proper polarity.
- C. Correct wiring deficiencies and replace damaged or defective raceways.

END OF SECTION

SECTION 26 0553
IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Electrical identification requirements.
- B. Identification nameplates and labels.
- C. Wire and cable markers.
- D. Voltage markers.
- E. Warning signs and labels.
- F. Field-painted identification of conduit.

1.02 RELATED REQUIREMENTS

- A. Division 01 - General Requirements: Project administrative and procedural requirements.
- B. Division 09 - Finishes: Interior and Exterior Painting.
- C. Section 26 0005 - Basic Electrical Requirements.
- D. Section 26 0519 - Low-Voltage Electrical Power Conductors and Cables: Color coding for power conductors and cables 600 V and less; vinyl color coding electrical tape.
- E. Section 26 0573 - Power System Studies: Arc flash hazard warning labels.
- F. Section 26 2726 - Wiring Devices: Device and wallplate finished; factory pre-marked wallplates.

1.03 REFERENCE STANDARDS

- A. ANSI Z535.2 - American National Standard for Environmental and Facility Safety Signs; 2011.
- B. ANSI Z535.4 - American National Standard for Product Safety Signs and Labels; 2011.
- C. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- D. UL 969 - Marking and Labeling Systems; Current Edition, Including All Revisions.

1.04 FIELD CONDITIONS

- A. Do not install adhesive products when ambient temperature is lower than recommended by manufacturer.
- B. Conform with ANSI A13.1 and ANSI C2.
- C. Conform with 29 CFR 1910.145.

PART 2 PRODUCTS

2.01 IDENTIFICATION REQUIREMENTS

- A. Identification for Equipment:
 - 1. Use identification nameplate to identify each piece of electrical distribution and control equipment and associated sections, compartments, and components.
 - a. Panelboards:
 - 1) Use typewritten circuit directory to identify load(s) served for panelboards with a door. Identify spares and spaces.
 - 2. Use identification nameplate to identify disconnect location for equipment with remote disconnecting means.
 - 3. Use identification label or identification nameplate on inside of door at each fused switch to identify required NEMA fuse class and size.
- B. Identification for Conductors and Cables:
 - 1. Color Coding for Power Conductors 600 V and Less: Comply with Section 26 0519.

2. Use identification nameplate or identification label to identify color code for ungrounded and grounded power conductors inside door or enclosure at each piece of feeder or branch-circuit distribution equipment when premises has feeders or branch circuits served by more than one nominal voltage system.
- C. Identification for Boxes:
 1. Use voltage markers to identify highest voltage present.
 2. Use voltage markers or color coded boxes to identify systems other than normal power system.
 - a. Color-Coded Boxes: Field-painted in accordance with Division 09 - Finishes.
- D. Identification for Devices:
 1. Wiring Device and Wallplate Finishes: Comply with Section 26 2726.
 2. Use identification label to identify fire alarm system devices.
 - a. For devices concealed above suspended ceilings, provide additional identification on ceiling tile below device location.
 3. Use identification label or engraved wallplate to identify serving branch circuit for all receptacles.
 - a. For receptacles in public areas or in areas as directed by Architect, provide identification on inside surface of wallplate.
- E. Identification for Luminaires:
 1. Use permanent red dot on luminaire frame to identify luminaires connected to emergency power system.

2.02 WIRE AND CABLE MARKERS

- A. Markers for Conductors and Cables: Use wrap-around self-adhesive vinyl cloth, wrap-around self-adhesive vinyl self-laminating, heat-shrink sleeve, plastic sleeve, plastic clip-on, or vinyl split sleeve type markers suitable for the conductor or cable to be identified.
- B. Markers for Conductor and Cable Bundles: Use plastic marker tags secured by nylon cable ties.
- C. Legend: Power source and circuit number or other designation indicated.
- D. Text: Use factory pre-printed or machine-printed text, all capitalized unless otherwise indicated.
- E. Minimum Text Height: 1/8 inch.
- F. Color: Black text on white background unless otherwise indicated.
- G. Description: Vinyl cloth type self-adhesive wire markers.

2.03 VOLTAGE MARKERS

- A. Markers for Boxes and Equipment Enclosures: Use factory pre-printed self-adhesive vinyl or self-adhesive vinyl cloth type markers.
- B. Minimum Size:
 1. Markers for Pull Boxes: 1 1/8 by 4 1/2 inches.
 2. Markers for Junction Boxes: 1/2 by 2 1/4 inches.
- C. Legend:
 1. Markers for Voltage Identification: Highest voltage present.
 2. Markers for System Identification:
- D. Color: Black text on orange background unless otherwise indicated.

2.04 WARNING SIGNS AND LABELS

- A. Comply with ANSI Z535.2 or ANSI Z535.4 as applicable.
- B. Warning Signs:
 1. Materials:
 2. Minimum Size: 7 by 10 inches unless otherwise indicated.

C. Warning Labels:

1. Materials: Use factory pre-printed or machine-printed self-adhesive polyester or self-adhesive vinyl labels; UV, chemical, water, heat, and abrasion resistant; produced using materials recognized to UL 969.
2. Machine-Printed Labels: Use thermal transfer process printing machines and accessories recommended by label manufacturer.
3. Minimum Size: 2 by 4 inches unless otherwise indicated.

PART 3 EXECUTION

3.01 PREPARATION

- A. Clean surfaces to receive adhesive products according to manufacturer's instructions.
- B. Degrease and clean surfaces to receive nameplates and labels.

3.02 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Install identification products to be plainly visible for examination, adjustment, servicing, and maintenance. Unless otherwise indicated, locate products as follows:
 1. Surface-Mounted Equipment: Enclosure front.
 2. Flush-Mounted Equipment: Inside of equipment door.
 3. Free-Standing Equipment: Enclosure front; also enclosure rear for equipment with rear access.
 4. Elevated Equipment: Legible from the floor or working platform.
 5. Interior Components: Legible from the point of access.
 6. Boxes: Outside face of cover.
 7. Conductors and Cables: Legible from the point of access.
 8. Devices: Outside face of cover.
- C. Install identification products centered, level, and parallel with lines of item being identified.
- D. Install self-adhesive labels and markers to achieve maximum adhesion, with no bubbles or wrinkles and edges properly sealed.

END OF SECTION

SECTION 26 0935
DISTRIBUTED DIGITAL LIGHTING CONTROL SYSTEM

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Distributed Digital Lighting Control System
- B. Digital Load Controllers (Room and Fixture Controllers)
- C. Digital Wall or Ceiling Mounted Occupancy Sensor
- D. Digital Wall Switch Occupancy Sensors
- E. Digital Wall Switches

1.02 RELATED REQUIREMENTS

- A. Division 01 - General Requirements: Project administrative and procedural requirements.
- B. Section 26 0005 - Basic Electrical Requirements.
- C. Section 26 0529 - Hangers and Supports for Electrical Systems.
- D. Section 26 0533.13 - Conduit for Electrical Systems.
- E. Section 26 0533.16 - Boxes for Electrical Systems.
- F. Section 26 0553 - Identification for Electrical Systems: Identification products and requirements.
- G. Section 26 0573 - Power System Studies.
- H. Section 26 2726 - Wiring Devices: wall switches and wall dimmers.
- I. Section 26 2813 - Fuses.
- J. Section 26 3323 - Central Battery Equipment and Inverters.
- K. Section 26 5100 - Interior Lighting.
- L. Section 26 5600 - Exterior Lighting.

1.03 REFERENCE STANDARDS

- A. FCC Article 15, Section J, Class A.
- B. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2010.
- C. NEMA WD 7 - Occupancy Motion Sensors Standard; Current Edition.
- D. NETA ATS - Acceptance Testing Specifications for Electrical Power Equipment and Systems; 2013.
- E. NFPA 70 - National Electrical Code; Most recent edition adopted by Authority Having Jurisdiction, including all applicable Amendments and Supplements.
- F. UL 508 - Standard for Industrial Control Equipment; Current Edition, including all Revisions.
- G. UL 916 - Standard for Energy Management Equipment; Current Edition, including all Revisions.
- H. UL 924 - Standard for Emergency Lighting and Power Equipment
- I. UL 2043 - Standard for Fire Test for Heat and Visible Smoke Release for Discrete Products Installed in Air-Handling Spaces.

1.04 DESIGN / PERFORMANCE REQUIREMENTS

- A. Digital lighting control system shall accommodate the square-footage coverage requirements for each area controlled, utilizing room controllers, digital occupancy sensors, switches, daylighting sensors and accessories that suit the required lighting and electrical system parameters.

- B. System shall comply with FCC emission standards specified in part 15, sub-part J for commercial and residential application.

1.05 ADMINISTRATIVE REQUIREMENTS

- A. Contractor shall provide submittals for equipment listed herein. Refer to Division 01 - General Requirements for submittal procedures.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Catalog sheets and specifications.
 - 2. Ratings, configurations, standard wiring diagrams, dimensions, colors, service condition requirements, and installed features.
 - 3. Storage and handling requirements and recommendations.
 - 4. Installation instructions.
- C. Shop Drawings: Wiring diagrams a for the various components of the System specified including:
 - 1. Composite wiring and/or schematic diagram of each control circuit as proposed to be installed.
 - 2. Show location of all devices, including at minimum sensors, load controllers, and switches/dimmers for each area on reflected ceiling plans.
 - 3. Provide room/area details including products and sequence of operation for each room or area. Illustrate typical acceptable room/area connection topologies.
 - 4. Network riser diagram including floor and building level details. Include network cable specification. Illustrate points of connection to integrated systems. Coordinate integration with mechanical and/or other trades.
- D. Manufacturer's Certificates: Certify products meet or exceed specified requirements.
- E. Closeout Submittals:
 - 1. Project Record Documents: Record actual installed locations and settings for lighting control devices.
 - 2. Operation and Maintenance Manual:
 - a. Include approved Shop Drawings and Product Data.
 - b. Include Sequence of Operation, identifying operation for each room or space.
 - c. Include manufacturer's maintenance information.
 - d. Operation and Maintenance Data: Include detailed information on device programming and setup.
 - e. Include startup and test reports.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing of centralized and distributed lighting control systems with a minimum of 10 years documented experience.
- B. Installer Qualifications: Company certified by the manufacturer and specializing in installation of networked lighting control products with minimum three years documented experience.
- C. System Components: Demonstrate that individual components have undergone quality control and testing prior to shipping.

1.07 PRE-INSTALLATION MEETINGS

- A. Convene minimum two weeks prior to commencing Work of this section. Meeting to be attended by Contractor, Architect, system installer, factory authorized manufacturer's representative, and representative of all trades related to the system installation.
- B. Review installation procedures and coordination required with related Work and the following:
 - 1. Confirm the location and mounting of all devices, with special attention to placement of switches, dimmers, and any sensors.
 - 2. Review the specifications for low voltage control wiring and termination.

3. Discuss the functionality and configuration of all products, including sequences of operation, per design requirements.
4. Discuss requirements for integration with other trades
- C. Inspect and make notes of job conditions prior to installation:
 1. Record minutes of the conference and provide copies to all parties present.
 2. Identify all outstanding issues in writing designating the responsible party for follow-up action and the timetable for completion.
 3. Installation shall not begin until all outstanding issues are resolved to the satisfaction of the Architect.

1.08 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.
- B. Do not install equipment until following conditions can be maintained in spaces to receive equipment:
 1. Ambient temperature: 32 to 104 degrees F (0 to 40 degrees C).
 2. Relative humidity: Maximum 90 percent, non-condensing.

1.09 WARRANTY

- A. Manufacturer shall provide a 5 year limited warranty on products within this installation, except where otherwise noted, and consisting of a one for one device replacement.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Acceptable Manufacturers:
 1. Lutron
 2. Wattstopper (Legrand)
 3. Eaton Greengate
 4. nLight (Acuity Brands)
 5. Crestron
 6. Leviton
 7. Osram
 8. Engineer pre-approved equal.

2.02 DISTRIBUTED DIGITAL LIGHTING CONTROL SYSTEM

- A. System General: Provide digital lighting control system complete with all necessary enclosures, wiring, and system components to ensure a complete and properly functioning system as indicated on the Drawings and specified herein. If a conflict is identified, between the Drawing, this specification, contact the Engineer for clarification prior to proceeding.
 1. Space Control Requirements: Provide occupancy/vacancy sensors with Manual- or Partial-ON functionality as indicated in all spaces except toilet rooms, storerooms, library stacks, or other applications where hands-free operation is desirable and Automatic-ON occupancy sensors are more appropriate. Provide Manual-ON occupancy/vacancy sensors for any enclosed office, conference room, meeting room, open plan system and training room. For spaces with multiple occupants, or where line-of-sight may be obscured, provide ceiling- or corner-mounted sensors and Manual-ON switches.
 2. Daylit Areas: Provide daylight-responsive automatic control in all spaces (conditioned or unconditioned) where daylight contribution is available as defined by relevant local building energy code:
 - a. All luminaires within code-defined daylight zones shall be controlled separately from luminaires outside of daylit zones.

- b. Daytime setpoints for total ambient illumination (combined daylight and electric light) levels that initiate dimming shall be programmed in compliance with relevant local building energy codes.
 - c. Multiple-level switched daylight harvesting controls may be utilized for areas marked on drawings.
 - d. Provide smooth and continuous daylight dimming for areas marked on drawings. Daylighting control system may be designed to turn off electric lighting when daylight is at or above required lighting levels, only if system functions to turn lamps back on at dimmed level, rather than turning full-on prior to dimming.
 3. Conference, meeting, training, auditoriums, and multipurpose rooms shall have controls that allow for independent control of each local control zone. Rooms larger than 300 square feet shall instead have at least four preset lighting scenes unless otherwise specified. Occupancy / vacancy sensors shall be provided to turn off all lighting in the space. Spaces with up to four moveable walls shall include controls that can be reconfigured when the room is partitioned.
 - B. Equipment Required: Lighting Control and Automation system as defined under this section covers the following equipment.
 1. Digital Lighting Management (DLM) local network: Free topology, plug-in wiring system for power and data to room devices.
 2. Digital Fixture Controllers: Self-configuring, digitally addressable one relay fixture-integrated controllers for on/off/0-10V dimming control.
 3. Digital Occupancy Sensors: Self-configuring, digitally addressable, calibrated occupancy sensors with LCD display and two-way active infrared (IR) communications.
 4. Digital Switches: Self-configuring, digitally addressable pushbutton on/off, dimming, and scene switches with two-way active infrared (IR) communications.
 5. Digital Daylighting Sensors: Single-zone closed loop, multi-zone open loop and single-zone dual-loop daylighting sensors with two-way active infrared (IR) communications for daylight harvesting using switching, bi-level, tri-level or dimming control.
 - C. Local Network: Digital lighting control local network is a free topology lighting control physical connection and communication protocol designed to control a small area of a building.
 1. Features of the digital lighting control local network include:
 - a. Automatic configuration and binding of occupancy sensors, switches and lighting loads to the most energy-efficient sequence of operation based upon the device attached.
 - b. Simple replacement of any device in the local digital lighting control network with a standard off the shelf unit without requiring significant commissioning, configuration or setup.
 - c. Ability to change the automatic configuration, including binding and load parameters without tools, using only the buttons on the digital devices in the local network.
 - d. Two-way infrared communications for control by handheld remotes, and configuration by a handheld tool including adjusting load parameters, sensor configuration and binding, within a line of sight of up to 30 feet from a sensor, wall switch or IR receiver.
 2. Digital room devices connect to the local network using pre-terminated low voltage cables with RJ-45 connectors, which provide both data and power to room devices. Systems that utilize RJ-45 patch cords but do not provide serial communication data from individual end devices are not acceptable.
 3. If manufacturer's pre-terminated low voltage cables are not used for the installation each cable must be individually tested and observed by authorized service representative following installation.

2.03 DIGITAL LOAD CONTROLLERS (ROOM AND FIXTURE CONTROLLERS)

- A. Digital Load Controllers: Digital controllers for lighting zones, fixtures and/or plug loads automatically bind room loads to the connected control devices in the space without

commissioning or the use of any tools. Provide controllers to match the room lighting and plug load control requirements. Controllers are simple to install, and do not have dip switches/potentiometers, or require special configuration for standard applications. Control units include the following features

1. Automatic room configuration to the most energy-efficient sequence of operation based upon the devices in the room.
2. Simple replacement using the default automatic configuration capabilities, a room controller may be replaced with an off-the-shelf device.
3. Multiple room controllers connected together in a local network must automatically arbitrate with each other, without requiring any configuration or setup, so that individual load numbers are assigned starting with load 1 to a maximum of 64, assigned based on each controller's device ID's from highest to lowest.
4. Device Status LEDs to indicate:
 - a. Data transmission
 - b. Device has power
 - c. Status for each load
 - d. Configuration status
5. Quick installation features including:
 - a. Standard junction box mounting
 - b. Quick low voltage connections using standard RJ-45 patch cable
6. Based on individual configuration, each load shall be capable of the following behavior on power up following the loss of normal power:
 - a. Turn on to 100 percent
 - b. Turn off
 - c. Turn on to last level
7. Each load be configurable to operate in the following sequences based on occupancy:
 - a. Auto-on/Auto-off (Follow on and off)
 - b. Manual-on/Auto-off (Follow off only)
8. Polarity of each load output shall be reversible, via digital configuration, so that on is off and off is on.
9. BACnet object information shall be available for the following objects:
 - a. Load status
 - b. Schedule state, normal or after-hours
 - c. Demand Response enable and disable
 - d. Room occupancy status
 - e. Total room lighting and plug loads watts
 - f. Electrical current
 - g. Total watts per controller
 - h. Total room watts/sq ft.
 - i. Force on/off all loads
10. UL 2043 plenum rated
11. Manual override and LED indication for each load
12. Zero cross circuitry for each load
13. All digital parameter data programmed into an individual room controller or plug load controller shall be retained in non-volatile FLASH memory within the controller itself. Memory shall have an expected life of no less than 10 years.
14. Dimming Room Controllers shall share the following features:
 - a. Each load shall have an independently configurable preset on level for Normal Hours and After Hours events to allow different dimmed levels to be established at the start of both Normal Hours and After Hours events.
 - b. Fade rates for dimming loads shall be specific to bound switch buttons, and the load shall maintain a default value for any bound buttons that do not specify a unique value.

- c. The following dimming attributes may be changed or selected using a wireless configuration tool:
 - 1) Establish preset level for each load from 0-100 percent
 - 2) Set high and low trim for each load
 - 3) Initiate lamp burn in for each load of either 0, 12 or 100 hours
 - d. Override button for each load provides the following functions:
 - 1) Press and release for on/off control
 - 2) Press and hold for dimming control
 - e. Each dimming output channel shall have an independently configurable minimum and maximum calibration trim level to set the dimming range to match the true dynamic range of the connected ballast or driver. LED level indicators on bound dimming switches shall utilize this new maximum and minimum trim.
 - f. Each dimming output channel shall have an independently configurable minimum and maximum trim level to set the dynamic range of the output within the new 0-100 percent dimming range defined by the minimum and maximum calibration trim.
 - g. Calibration and trim levels must be set per output channel. Devices that set calibration or trim levels per controller (as opposed to per load) are not acceptable.
 - h. All configuration shall be digital. Devices that set calibration or trim levels per output channel via trim pots or dip-switches are not acceptable.
- B. Fixture Controllers shall include
- 1. A form factor and product ratings to allow various OEM fixture manufacturers to mount the device inside the ballast/driver cavity of standard-sized fluorescent or LED general lighting fixtures.
 - 2. One 3A 120/277V rated mechanically held relay.
 - 3. Programmable behavior on power up following the loss of normal power:
 - a. Turn on to 100 percent
 - b. Turn off
 - c. Turn on to last level
 - 4. Requirement for 7 mA of 24VDC operating power from the digital lighting control local network.
 - 5. Fixture Controller does not require a connection to a neutral conductor to operate, and unlike other types of Load Controllers it does not contribute power to the digital lighting control local network to drive accessory devices.
 - 6. Power to drive the fixture controller electronics can come from any room controller
 - 7. 0-10V dimming capability via a single 0-10 volt analog output from the device for control of compatible ballasts and LED drivers. The 0-10 volt output shall automatically open upon loss of power to the Fixture Controller.
 - 8. Connect to a single or dual RJ-45 adaptor with 24 inch leads. Single adaptor mounts in a 1/2 inch KO and dual adaptor in a 2.2 by 1.32 inch rectangular hole for connection to the digital lighting control local network.
 - 9. Adaptor leads are insulated for use in a fixture cavity, and the lead length allows the OEM fixture manufacturer flexibility to position the Fixture Controller and the RJ45 jack in the best locations on each fixture.
 - 10. A complete set of dimming features described above in the paragraph detailing On/Off/Dimming Enhanced Room Controllers.

2.04 DIGITAL WALL OR CEILING MOUNTED OCCUPANCY SENSOR

- A. Digital Occupancy Sensors shall provide graphic LCD display for digital calibration and electronic documentation. Features include the following:
 - 1. Digital calibration and pushbutton configuration for the following variables:
 - a. Sensitivity, 0-100 percent in 10 percent increments
 - b. Time delay, 1-30 minutes in 1 minute increments
 - c. Test mode, Five second time delay

- d. Detection technology, PIR, Ultrasonic or Dual Technology activation and/or re-activation.
- e. Walk-through mode
2. Load parameters including Auto/Manual-ON, blink warning, and daylight enable/disable when photosensors are included in the digital lighting control local network.
3. Programmable control functionality including:
 - a. Each sensor may be programmed to control specific loads within a local network.
 - b. Sensor shall be capable of activating one of 16 user-definable lighting scenes.
 - c. Adjustable retrigger time period for manual-on loads. Load will retrigger (turn on) automatically within a configurable period of time (default 10 seconds) after turning off.
 - d. On dual technology sensors, independently configurable trigger modes are available for both Normal (NH) and After Hours (AH) time periods. The retrigger mode can be programmed to use the following technologies:
 - e. Ultrasonic and Passive Infrared
 - f. Ultrasonic or Passive Infrared
 - g. Ultrasonic only
 - h. Passive Infrared only
 - i. Independently configurable sensitivity settings for passive infrared and ultrasonic technologies (on dual technology sensors) for both Normal (NH) and After Hour (AH) time periods.
4. One or two RJ-45 port(s) for connection to digital lighting control local network.
5. Two-way infrared (IR) transceiver to allow remote programming through handheld commissioning tool and control by remote personal controls.
6. Device Status LEDs, which may be disabled for selected applications, including:
 - a. PIR detection
 - b. Ultrasonic detection
 - c. Configuration mode
 - d. Load binding
7. Assignment of occupancy sensor to a specific load within the room without wiring or special tools.
8. Manual override of controlled loads.
9. All digital parameter data programmed into an individual occupancy sensor shall be retained in non-volatile FLASH memory within the sensor itself. Memory shall have an expected life of no less than 10 years.
- B. BACnet object information shall be available for the following objects:
 1. Detection state
 2. Occupancy sensor time delay
 3. Occupancy sensor sensitivity, PIR and Ultrasonic
- C. Units shall not have any dip switches or potentiometers for field settings
- D. Multiple occupancy sensors may be installed in a room by simply connecting them to the free topology digital lighting control local network. No additional configuration will be required.

2.05 DIGITAL WALL SWITCH OCCUPANCY SENSORS

- A. Digital Occupancy Sensors shall provide scrolling LCD display for digital calibration and electronic documentation. Features include the following:
 1. Digital calibration and pushbutton configuration for the following variables:
 - a. Sensitivity: 0-100 percent in 10 percent increments
 - b. Time delay: 1-30 minutes in 1 minute increments
 - c. Test mode: Five second time delay
 - d. Detection technology: PIR, Dual Technology activation and/or re-activation.
 - e. Walk-through mode

- f. Load parameters including Auto/Manual-ON, blink warning, and daylight enable/disable when photosensors are included in the digital lighting control local network.
2. Programmable control functionality including:
 - a. Each sensor may be programmed to control specific loads within a local network.
 - b. Sensor shall be capable of activating one of 16 user-definable lighting scenes.
 - c. Adjustable retrigger time period for manual-on loads. Load will retrigger (turn on) automatically during the configurable period of time (default 10 seconds) after turning off.
 - d. On dual technology sensors, independently configurable trigger modes are available for both Normal (NH) and After Hours (AH) time periods. The retrigger mode can be programmed to use the following technologies:
 - 1) Ultrasonic and Passive Infrared
 - 2) Ultrasonic or Passive Infrared
 - 3) Ultrasonic only
 - 4) Passive Infrared only
3. Independently configurable sensitivity settings for passive infrared and ultrasonic technologies (on dual technology sensors) for both Normal (NH) and After Hour (AH) time periods.
4. Two RJ-45 ports for connection to digital lighting control local network.
5. Two-way infrared (IR) transceiver to allow remote programming through handheld configuration tool and control by remote personal controls.
6. Device Status LEDs including
 - a. PIR detection
 - b. Ultrasonic detection
 - c. Configuration mode
 - d. Load binding
7. Assignment of any occupancy sensor to a specific load within the room without wiring or special tools.
8. Assignment of local buttons to specific loads within the room without wiring or special tools
9. Manual override of controlled loads
10. All digital parameter data programmed into an individual wall switch sensor shall be retained in non-volatile FLASH memory within the wall switch sensor itself. Memory shall have an expected life of no less than 10 years.
- B. BACnet object information shall be available for the following objects:
 1. Detection state
 2. Occupancy sensor time delay
 3. Occupancy sensor sensitivity, PIR and Ultrasonic
 4. Button state
 5. Switch lock control
 6. Switch lock status
- C. Units shall not have any dip switches or potentiometers for field settings.
- D. Multiple occupancy sensors may be installed in a room by simply connecting them to the free topology digital lighting control local network. No additional configuration will be required.
- E. Two-button wall switch occupancy sensors, when connected to a single relay dimming room or fixture controller, shall operate in the following sequence as a factory default:
 1. Left button
 - a. Press and release - Turn load on
 - b. Press and hold - Raise dimming load
 2. Right button
 - a. Press and release - Turn load off

- b. Press and hold - Lower dimming load
- F. Low voltage momentary pushbuttons shall include the following features:
 - 1. Load/Scene Status LED on each switch button with the following characteristics:
 - a. Bi-level LED
 - b. Dim locator level indicates power to switch
 - c. Bright status level indicates that load or scene is active
 - 2. The following button attributes may be changed or selected using a wireless configuration tool:
 - a. Load and Scene button function may be reconfigured for individual buttons (from Load to Scene, and vice versa).
 - b. Individual button function may be configured to Toggle, On only or Off only.
 - c. Individual scenes may be locked to prevent unauthorized change.
 - d. Fade Up and Fade Down times for individual scenes may be adjusted from 0 seconds to 18 hours.
 - e. Ramp rate may be adjusted for each dimmer switch.
 - f. Switch buttons may be bound to any load on any load controller or relay panel and are not load type dependent; each button may be bound to multiple loads.

2.06 DIGITAL WALL SWITCHES

- A. Low voltage momentary pushbutton switches in 1, 2, 3, 4, 5 and 6 button configuration. Wall switches shall include the following features:
 - 1. Two-way infrared (IR) transceiver for use with personal and configuration remote controls.
 - 2. Removable buttons for field replacement with engraved buttons and/or alternate color buttons. Button replacement may be completed without removing the switch from the wall.
 - 3. Configuration LED on each switch that blinks to indicate data transmission.
 - 4. Load/Scene Status LED on each switch button with the following characteristics:
 - a. Bi-level LED
 - b. Dim locator level indicates power to switch
 - c. Bright status level indicates that load or scene is active
 - d. Dimming switches shall include seven bi-level LEDs to indicate load levels using 14 steps.
 - 5. Programmable control functionality including:
 - a. Button priority may be configured to any BACnet priority level, from 1-16, corresponding to networked operation allowing local actions to utilize life safety priority
 - b. Scene patterns may be saved to any button other than dimming rockers. Once set, buttons may be digitally locked to prevent overwriting of the preset levels.
 - 6. All digital parameter data programmed into an individual wall switch shall be retained in non-volatile FLASH memory within the wall switch itself. Memory shall have an expected life of no less than 10 years.
- B. BACnet object information shall be available for the following objects:
 - 1. Button state
 - 2. Switch lock control
 - 3. Switch lock status
- C. Two RJ-45 ports for connection to digital lighting control local network.
- D. Multiple digital wall switches may be installed in a room by simply connecting them to the free topology digital lighting control local network. No additional configuration shall be required to achieve multi-way switching.
- E. Load and Scene button function may be reconfigured for individual buttons from Load to Scene, and vice versa.
 - 1. Individual button function may be configured to Toggle, On only or Off only.
 - 2. Individual scenes may be locked to prevent unauthorized change.

3. Fade Up and Fade Down times for individual scenes may be adjusted from 0 seconds to 18 hours.
4. Ramp rate may be adjusted for each dimmer switch.
5. Switch buttons may be bound to any load on any load controller or relay panel and are not load type dependent; each button may be bound to multiple loads.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Do not begin installation until measurements have been verified and work areas have been properly prepared.
- B. If preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
- C. Verify that required pre-installation meeting specified in Part 1 of this specification has been completed, recorded meeting minutes have been distributed and all outstanding issues noted have been resolved prior to the start of installation.

3.02 INSTALLATION

- A. Install system in accordance with the approved system shop drawings and manufacturer's instructions.
- B. All wiring associated with the specified controls system shall be installed within conduit or conduits unless otherwise indicated on the Drawings. Refer to 26 0533.13 - Conduit for Electrical Systems for requirements.
- C. Install all room/area devices using manufacturer's factory-tested low voltage cable with pre-terminated RJ-45 connectors.
 1. If pre-terminated cable is not used for room/area wiring, each field-terminated cable shall be tested following installation and testing results submitted to the Manufacturer's Representative for approval prior to proceeding with the Work.
 2. If fixtures have internal digital lighting control Control Modules, ensure that they are also connected with low voltage cable.
 3. Install all room to room network devices using manufacturer-supplied network wire or wireless devices. Network wire substitution is not permitted and may result in loss of product warranty.
 4. Low voltage wiring topology must comply with manufacturer's specifications.
 5. Route network wiring as indicated on the Drawings as closely as possible. Document final wiring location, routing and topology on as built drawings.
- D. All line voltage connections shall be tagged to indicate circuit and switched legs.
- E. Test all devices to ensure proper communication.
- F. Calibrate all sensor time delays and sensitivity to guarantee proper detection of occupants and energy savings. Adjust time delay so that controlled area remains lighted while occupied.
- G. Provide written or computer-generated documentation on the configuration of the system including room by room description including:
 1. Sensor parameters, time delays, sensitivities, and daylighting setpoints.
 2. Sequence of operation, (e.g. manual ON, Auto OFF. etc.)
 3. Load Parameters (e.g. blink warning, etc.)
- H. Post start-up tuning - Adjust sensor time delays and sensitivities to meet the Owner's requirements 30 days from beneficial occupancy. Provide a detailed report to the Architect / Owner of post start-up activity.
- I. Tighten all panel Class I conductors from both circuit breaker and to loads to torque ratings as marked on enclosure UL label.

- J. All Class II cabling shall enter enclosures from within low-voltage wiring areas and shall remain within those areas. No Class I conductors shall enter a low-voltage area.
- K. Run separate neutrals for any phase dimmed branch load circuit. Different types of dimming loads shall have separate neutral.
- L. Verify all non-panel-based lighting loads to be free from short circuits prior to connection to room controllers.
- M. Remote Access for Network Systems: If "REMOTE ACCESS AND ENHANCED WARRANTY FOR NETWORKED SYSTEMS" is specified in Part 1 of this specification, ensure Segment Manager enclosure is installed in a location with good to excellent cellular phone coverage based on building orientation and geographic location, and mount magnetic antenna for the modem. For cases where alternate mounting locations are not available and a stronger cellular signal is needed, the manufacturer shall offer additional antenna options to improve signal quality. Verify final mounting location with Engineer and Owner prior to proceeding with the Work.

3.03 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing. Notify Engineer and Manufacturer in writing a minimum of 3 weeks prior to system start-up and testing.
- B. Tests and Inspections: Manufacturer's service representative shall perform the following inspections and prepare reports.
 - 1. Verify Class I and II wiring connections are terminated properly by validating system performance.
 - 2. Set IP addresses and other network settings of system front end hardware per facilities IT instructions.
 - 3. Verify / complete task programming for all switches, dimmers, time clocks, and sensors.
 - 4. Verify that the control of each space complies with the Sequence of Operation.
 - 5. Correct any system issues and re-test.
- C. Provide a report in table format with drawings, or using a software file that can be opened in the manufacturer's system software including each room or space that has lighting control installed. Indicate the following:
 - 1. Date of test or inspection.
 - 2. Loads per space, or Fixture Address identification.
 - 3. Quantity and Type of each device installed
 - 4. Reports providing each device's settings.

3.04 DEMONSTRATION AND TRAINING

- A. Before Substantial Completion, arrange and provide a one-day Owner instruction period to designated Owner personnel. Set-up, starting of the lighting control system and Owner instruction includes:
 - 1. Confirmation of entire system operation and communication to each device.
 - 2. Confirmation of operation of individual relays, switches, and sensors.
 - 3. Confirmation of system Programming, photocell settings, override settings, etc.
 - 4. Provide training to cover installation, programming, operation, and troubleshooting of the lighting control system.

3.05 PRODUCT SUPPORT AND SERVICE

- A. Factory telephone support shall be available at no cost to the Owner following acceptance. Factory assistance shall consist of assistance in solving application issues pertaining to the control equipment.

END OF SECTION

Kingscott Associates, Inc.
Architects/Engineers
Kalamazoo, Michigan

Ivywood Classical Academy
Choice Schools
Plymouth Twp., Michigan

SECTION 26 2726
WIRING DEVICES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Wall switches.
- B. Receptacles.
- C. Wall plates.

1.02 RELATED REQUIREMENTS

- A. Division 01 - General Requirements: Project administrative and procedural requirements.
- B. Division 02 - Existing Conditions: Demolition, cleaning and disposal requirements, cutting and patching requirements, and repairs.
- C. Section 26 0005 - Basic Electrical Requirements.
- D. Section 26 0519 - Low-Voltage Electrical Power Conductors and Cables: Manufactured wiring systems for use with access floor boxes with compatible pre-wired connectors.
- E. Section 26 0526 - Grounding and Bonding for Electrical Systems.
- F. Section 26 0533.16 - Boxes for Electrical Systems.
- G. Section 26 0553 - Identification for Electrical Systems: Identification products and requirements.
- H. Section 26 0935 - Distributed Digital Lighting Controls: Lighting controls, to match accessory receptacles and wall plates specified in this section.

1.03 REFERENCE STANDARDS

- A. FS W-C-596 - Connector, Electrical, Power, General Specification for; Federal Specification; Revision G, 2001.
- B. FS W-S-896 - Switches, Toggle (Toggle and Lock), Flush-mounted (General Specification); Federal Specification; Revision F, 1999.
- C. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2010.
- D. NECA 130 - Standard for Installing and Maintaining Wiring Devices; 2010.
- E. NEMA WD 1 - General Color Requirements for Wiring Devices; 1999 (R 2010).
- F. NEMA WD 6 - Wiring Devices - Dimensional Specifications; 2012.
- G. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- H. UL 20 - General-Use Snap Switches; Current Edition, Including All Revisions.
- I. UL 498 - Attachment Plugs and Receptacles; Current Edition, Including All Revisions.
- J. UL 514D - Cover Plates for Flush-Mounted Wiring Devices; Current Edition, Including All Revisions.
- K. UL 943 - Ground-Fault Circuit-Interrupters; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate the placement of outlet boxes with millwork, furniture, equipment, etc. installed under other sections or by others.
 - 2. Coordinate wiring device ratings and configurations with the electrical requirements of actual equipment to be installed.
 - 3. Coordinate the placement of outlet boxes for wall switches with actual installed door swings.

4. Coordinate the installation and preparation of uneven surfaces, such as split face block, to provide suitable surface for installation of wiring devices.
5. Notify Strategic Energy Solutions, Inc. of any conflicts or deviations from Contract Documents to obtain direction prior to proceeding with work.

1.05 SUBMITTALS

- A. Contractor shall provide submittals for equipment listed herein. Refer to Division 01 for submittal procedures.

PART 2 PRODUCTS

2.01 WIRING DEVICE APPLICATIONS

- A. Provide wiring devices suitable for intended use and with ratings adequate for load served.
- B. For single receptacles installed on an individual branch circuit, provide receptacle with ampere rating not less than that of the branch circuit.
- C. Provide weather resistant GFCI receptacles with specified weatherproof covers for receptacles installed outdoors, or in damp or wet locations.
- D. Provide tamper resistant receptacles for receptacles in areas listed below.
 1. All 15 and 20-ampere 125 and 250-volt nonlocking type receptacles in the areas listed below shall be listed tamper-resistant receptacles, unless otherwise excluded in NEC.
 - a. Business offices, corridors, waiting rooms and the like in clinics, medical and dental offices and outpatient facilities.
- E. Provide GFCI protection for receptacles installed within 6 feet of sinks.
- F. Provide GFCI protection for receptacles installed in kitchens.
- G. Provide GFCI protection for receptacles serving electric drinking fountains.
 1. Outlet shall be readily accessible.

2.02 WIRING DEVICE FINISHES

- A. Provide wiring device finishes as described below unless otherwise indicated.
- B. Wiring Devices, Unless Otherwise Indicated: White with stainless steel wall plate.

2.03 ALL WIRING DEVICES

- A. Provide products listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.

2.04 WALL SWITCHES

- A. Manufacturers:
 1. Hubbell Incorporated: www.hubbell.com.
 2. Leviton Manufacturing Company, Inc: www.leviton.com/#sle.
 3. Pass & Seymour, a brand of Legrand North America, Inc: www.legrand.us/#sle.
- B. Wall Switches - General Requirements: AC only, quiet operating, general-use snap switches with silver alloy contacts, complying with NEMA WD 1 and NEMA WD 6, and listed as complying with UL 20 and where applicable, FS W-S-896; types as indicated on the drawings.
 1. Wiring Provisions: Terminal screws for side wiring and screw actuated binding clamp for back wiring with separate ground terminal screw.
- C. Wall Switches: Heavy Duty, AC only general-use snap switch, complying with NEMA WD 6 and WD 1.
 1. Body and Handle: White plastic with toggle handle.
 2. Ratings:
 - a. Voltage: 120 - 277 volts, AC.
 - b. Current: 20 amperes.

2.05 RECEPTACLES

- A. Manufacturers:
 - 1. Hubbell Incorporated: www.hubbell.com.
 - 2. Leviton Manufacturing Company, Inc: www.leviton.com/#sle.
 - 3. Lutron Electronics Company, Inc; Designer Style: www.lutron.com.
 - 4. Pass & Seymour, a brand of Legrand North America, Inc: www.legrand.us/#sle.
 - 5. Source Limitations: Where wall controls are furnished as part of lighting control system, provide accessory matching receptacles and wallplates by the same manufacturer in locations indicated.
- B. Receptacles - General Requirements: Self-grounding, complying with NEMA WD 1 and NEMA WD 6, and listed as complying with UL 498, and where applicable, FS W-C-596; types as indicated on the drawings.
 - 1. Wiring Provisions: Terminal screws for side wiring or screw actuated binding clamp for back wiring with separate ground terminal screw.
 - 2. NEMA configurations specified are according to NEMA WD 6.
- C. Convenience Receptacles:
 - 1. Standard Convenience Receptacles: Industrial specification grade, 20A, 125V, NEMA 5-20R; single or duplex as indicated on the drawings.
 - 2. Tamper Resistant Convenience Receptacles: Industrial specification grade, 20A, 125V, NEMA 5-20R, listed and labeled as tamper resistant type; single or duplex as indicated on the drawings.
- D. GFCI Receptacles:
 - 1. GFCI Receptacles - General Requirements: Self-testing, with feed-through protection and light to indicate ground fault tripped condition and loss of protection; listed as complying with UL 943, class A.
 - 2. Standard GFCI Receptacles: Industrial specification grade, duplex, 20A, 125V, NEMA 5-20R.
 - 3. Tamper Resistant GFCI Receptacles: Industrial specification grade, duplex, 20A, 125V, NEMA 5-20R, rectangular decorator style, listed and labeled as tamper resistant type.

2.06 WALL PLATES

- A. Manufacturers:
 - 1. Hubbell Incorporated: www.hubbell-wiring.com/#sle.
 - 2. Leviton Manufacturing Company, Inc: www.leviton.com/#sle.
 - 3. Lutron Electronics Company, Inc: www.lutron.com.
 - 4. Pass & Seymour, a brand of Legrand North America, Inc: www.legrand.us/#sle.
- B. Wall Plates: Comply with UL 514D.
 - 1. Configuration: One piece cover as required for quantity and types of corresponding wiring devices.
 - 2. Screws: Metal with slotted heads finished to match wall plate finish.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that field measurements are as indicated.
- B. Verify that outlet boxes are installed in proper locations and at proper mounting heights and are properly sized to accommodate devices and conductors in accordance with NFPA 70.
- C. Verify that wall openings are neatly cut and will be completely covered by wall plates.
- D. Verify that final surface finishes are complete, including painting.
- E. Verify that branch circuit wiring installation is completed, tested, and ready for connection to wiring devices.

- F. Verify that conditions are satisfactory for installation prior to starting work.

3.02 PREPARATION

- A. Provide extension rings to bring outlet boxes flush with finished surface.
B. Clean dirt, debris, plaster, and other foreign materials from outlet boxes.

3.03 INSTALLATION

- A. Perform work in accordance with NECA 1 (general workmanship) and, where applicable, NECA 130, including mounting heights specified in those standards unless otherwise indicated.
- B. Coordinate locations of outlet boxes provided under Section 26 0533.16 as required for installation of wiring devices provided under this section.
1. Mounting Heights: Unless otherwise indicated, as follows:
 - a. Wall Switches: 48 inches above finished floor.
 - b. Wall Dimmers: 48 inches above finished floor.
 - c. Receptacles: 18 inches above finished floor or 6 inches above counter.
 2. Where multiple receptacles, wall switches, wall dimmers, or low voltage devices are installed at the same location and at the same mounting height, gang devices together under a common wall plate.
 3. Locate wall switches on strike side of door with edge of wall plate 3 inches from edge of door frame. Where locations are indicated otherwise, notify Strategic Energy Solutions, Inc. to obtain direction prior to proceeding with work.
- C. Install wiring devices in accordance with manufacturer's instructions.
- D. Install permanent barrier between ganged wiring devices when voltage between adjacent devices exceeds 300 V.
- E. Where required, connect wiring devices using pigtails not less than 6 inches long. Do not connect more than one conductor to wiring device terminals.
- F. Connect wiring devices by wrapping conductor clockwise 3/4 turn around screw terminal and tightening to proper torque specified by the manufacturer. Where present, do not use push-in pressure terminals that do not rely on screw-actuated binding.
- G. Unless otherwise indicated, connect wiring device grounding terminal to branch circuit equipment grounding conductor and to outlet box with bonding jumper.
- H. Provide GFCI receptacles with integral GFCI protection at each location indicated. Do not use feed-through wiring to protect downstream devices.
- I. Install wiring devices plumb and level with mounting yoke held rigidly in place.
- J. Install wall switches with OFF position down.
- K. Install vertically mounted receptacles with grounding pole on top and horizontally mounted receptacles with grounding pole on left.
- L. Install wall plates to fit completely flush to wall with no gaps and rough opening completely covered without strain on wall plate. Repair or reinstall improperly installed outlet boxes or improperly sized rough openings. Do not use oversized wall plates in lieu of meeting this requirement.
- M. Install blank wall plates on junction boxes and on outlet boxes with no wiring devices installed or designated for future use.
- N. Identify wiring devices in accordance with Section 26 0553.

3.04 FIELD QUALITY CONTROL

- A. Inspect each wiring device for damage and defects.
B. Operate each wall switch and wall dimmer with circuit energized to verify proper operation.
C. Test each receptacle to verify operation and proper polarity.

Kingscott Associates, Inc.
Architects/Engineers
Kalamazoo, Michigan

Ivywood Classical Academy
Choice Schools
Plymouth Twp., Michigan

- D. Test each GFCI receptacle for proper tripping operation according to manufacturer's instructions.
- E. Correct wiring deficiencies and replace damaged or defective wiring devices.

END OF SECTION

SECTION 26 2816.16
ENCLOSED SWITCHES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Enclosed safety switches.

1.02 RELATED REQUIREMENTS

- A. Division 01 - General Requirements: Project administrative and procedural requirements.
- B. Section 26 0005 - Basic Electrical Requirements.
- C. Section 26 0526 - Grounding and Bonding for Electrical Systems.
- D. Section 26 0529 - Hangers and Supports for Electrical Systems.
- E. Section 26 0553 - Identification for Electrical Systems: Identification products and requirements.

1.03 REFERENCE STANDARDS

- A. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2010.
- B. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum); 2014.
- C. NEMA KS 1 - Heavy Duty Enclosed and Dead-Front Switches (600 Volts Maximum); 2013.
- D. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- E. UL 50 - Enclosures for Electrical Equipment, Non-Environmental Considerations; Current Edition, Including All Revisions.
- F. UL 50E - Enclosures for Electrical Equipment, Environmental Considerations; Current Edition, Including All Revisions.
- G. UL 98 - Enclosed and Dead-Front Switches; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate the work with other trades. Avoid placement of ductwork, piping, equipment, or other potential obstructions within the dedicated equipment spaces and within working clearances for electrical equipment required by NFPA 70.
 - 2. Coordinate arrangement of electrical equipment with the dimensions and clearance requirements of the actual equipment to be installed.
 - 3. Verify with manufacturer that conductor terminations are suitable for use with the conductors to be installed.
 - 4. Notify Strategic Energy Solutions, Inc. of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. ABB/GE: www.geindustrial.com/
- B. Eaton Corporation: www.eaton.com.
- C. Schneider Electric; Square D Products: www.schneider-electric.us.
- D. Siemens Industry, Inc: www.usa.siemens.com.

2.02 ENCLOSED SAFETY SWITCHES

- A. Description: Quick-make, quick-break enclosed safety switches listed and labeled as complying with UL 98; heavy duty; ratings, configurations, and features as indicated on the drawings.

- B. Provide products listed, classified, and labeled as suitable for the purpose intended.
- C. Unless otherwise indicated, provide products suitable for continuous operation under the following service conditions:
 - 1. Altitude: Less than 6,600 feet.
 - 2. Ambient Temperature: Between -22 degrees F and 104 degrees F.
- D. Horsepower Rating: Suitable for connected load.
- E. Voltage Rating: Suitable for circuit voltage.
- F. Short Circuit Current Rating:
 - 1. Provide enclosed safety switches, when protected by the fuses or supply side overcurrent protective devices to be installed, with listed short circuit current rating not less than the available fault current at the installed location as indicated on the drawings.
- G. Provide with switch blade contact position that is visible when the cover is open.
- H. Conductor Terminations: Suitable for use with the conductors to be installed.
- I. Provide solidly bonded equipment ground bus in each enclosed safety switch, with a suitable lug for terminating each equipment grounding conductor.
- J. Enclosures: Comply with NEMA 250, and list and label as complying with UL 50 and UL 50E.
 - 1. Environment Type per NEMA 250: Unless otherwise indicated, as specified for the following installation locations:
 - a. Indoor Clean, Dry Locations: Type 1.
 - b. Outdoor Locations: Type 3R.
- K. Provide safety interlock to prevent opening the cover with the switch in the ON position with capability of overriding interlock for testing purposes.
- L. Heavy Duty Switches:
 - 1. Comply with NEMA KS 1.
 - 2. Conductor Terminations:
 - a. Lug Material: Aluminum, suitable for terminating aluminum or copper conductors.
 - 3. Provide externally operable handle with means for locking in the OFF position, capable of accepting three padlocks.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Perform work in accordance with NECA 1 (general workmanship).
- C. Arrange equipment to provide minimum clearances in accordance with manufacturer's instructions and NFPA 70.
- D. Provide required support and attachment in accordance with Section 26 0529.
- E. Install enclosed switches plumb.
- F. Except where indicated to be mounted adjacent to the equipment they supply, mount enclosed switches such that the highest position of the operating handle does not exceed 79 inches above the floor or working platform.
- G. Provide grounding and bonding in accordance with Section 26 0526.

3.02 ADJUSTING

- A. Adjust tightness of mechanical and electrical connections to manufacturer's recommended torque settings.

END OF SECTION

SECTION 26 5100
INTERIOR LIGHTING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Interior luminaires.
- B. Emergency lighting units.
- C. Ballasts and drivers.
- D. LED emergency power supply units.
- E. Luminaire accessories.

1.02 RELATED REQUIREMENTS

- A. Division 01 - General Requirements: Project administrative and procedural requirements.
- B. Division 02 - Existing Conditions: Demolition, cleaning and disposal requirements, cutting and patching requirements, repairs.
- C. Section 26 0005 - Basic Electrical Requirements.
- D. Section 26 0533.16 - Boxes for Electrical Systems.
- E. Section 26 0553 - Identification for Electrical Systems: Identification products and requirements.
- F. Section 26 0935 - Distributed Digital Lighting Control System: Devices for automatic control of lighting, including occupancy sensors, daylighting controls, networked control stations and motion sensors.
- G. Section 26 2726 - Wiring Devices: Manual wall switches and wall dimmers.

1.03 REFERENCE STANDARDS

- A. ANSI C78.379 - Classification of the Beam Patterns of Reflector Lamps; 2006.
- B. IEC 60529 - Degrees of Protection Provided by Enclosures (IP Code); 2013-08, with 2015 Corrigendum.
- C. IES LM-79 - Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products; 2008.
- D. IES LM-80 - Approved Method: Measuring Luminous Flux and Color Maintenance of LED Packages, Arrays, and Modules; Illuminating Engineering Society; 2015.
- E. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2010.
- F. NECA/IESNA 500 - Standard for Installing Indoor Commercial Lighting Systems; 2006.
- G. NECA/IESNA 502 - Standard for Installing Industrial Lighting Systems; 2006.
- H. NEMA 410 - Performance Testing for Lighting Controls and Switching Devices with Electronic Drivers and Discharge Ballasts; 2011.
- I. NEMA LE 4 - Recessed Luminaires, Ceiling Compatibility; 2012.
- J. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- K. NFPA 101 - Life Safety Code; 2015.
- L. UL 924 - Emergency Lighting and Power Equipment; Current Edition, Including All Revisions.
- M. UL 1598 - Luminaires; Current Edition, Including All Revisions.
- N. UL 8750 - Light Emitting Diode (LED) Equipment for Use in Lighting Products; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate the installation of luminaires with mounting surfaces installed under other sections or by others. Coordinate the work with placement of supports, anchors, etc. required for mounting. Coordinate compatibility of luminaires and associated trims with mounting surfaces at installed locations.
 - 2. Coordinate the placement of luminaires with structural members, ductwork, piping, equipment, diffusers, fire suppression system components, and other potential conflicts installed under other sections or by others.
 - 3. Coordinate the placement of exit signs with furniture, equipment, signage or other potential obstructions to visibility installed under other sections or by others.
 - 4. Notify Strategic Energy Solutions, Inc. of any conflicts or deviations from the contract documents to obtain direction prior to proceeding with work.

1.05 SUBMITTALS

- A. Contractor shall provide submittals for equipment listed herein. Refer to Division 01 for submittal procedures.
- B. Product Data: Provide manufacturer's standard catalog pages and data sheets including detailed information on luminaire construction, dimensions, ratings, finishes, mounting requirements, listings, service conditions, photometric performance, installed accessories, and ceiling compatibility; include model number nomenclature clearly marked with all proposed features.
 - 1. LED Luminaires:
 - a. Include estimated useful life, calculated based on IES LM-80 test data.
- C. Manufacturer's Installation Instructions: Indicate application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, and installation of product.
- D. Ballast product specification sheet from manufacturer.

1.06 QUALITY ASSURANCE

- A. Conform to requirements of NFPA 70 and NFPA 101.

1.07 COORDINATION

- A. Coordinate layout and installation of lighting fixtures and suspension system with other construction that penetrates ceilings or is supported by them, including HVAC equipment, fire-suppression system, and partition assemblies.

PART 2 PRODUCTS

2.01 LUMINAIRE TYPES

- A. Furnish products as indicated in luminaire schedule included on the drawings.

2.02 LUMINAIRES

- A. Provide products that comply with requirements of NFPA 70 and NFPA 101.
- B. Provide products that are listed and labeled as complying with UL 1598, where applicable.
- C. Provide products listed, classified, and labeled as suitable for the purpose intended.
- D. Unless otherwise indicated, provide complete luminaires including lamp(s), light engines, drivers and all sockets, ballasts, reflectors, lenses, housings and other components required to position, energize and protect the lamp/light engine and distribute the light.
- E. Unless specifically indicated to be excluded, provide all required conduit, boxes, wiring, connectors, hardware, supports, trims, accessories, etc. as necessary for a complete operating system.

- F. Provide products suitable to withstand normal handling, installation, and service without any damage, distortion, corrosion, fading, discoloring, etc.
- G. Recessed Luminaires:
 - 1. Ceiling Compatibility: Comply with NEMA LE 4.
 - 2. Luminaires Recessed in Insulated Ceilings: Listed and labeled as IC-rated, suitable for direct contact with insulation and combustible materials.
 - 3. Luminaires Recessed in Sloped Ceilings: Provide suitable sloped ceiling adapters.
 - 4. Air-Handling Recessed LED Luminaires: Suitable for air supply/return, heat removal, or combination as indicated.
- H. LED Luminaires:
 - 1. Components: UL 8750 recognized or listed as applicable.
 - 2. Tested in accordance with IES LM-79 and IES LM-80.
 - 3. LED Estimated Useful Life: Minimum of 50,000 hours at 70 percent lumen maintenance, calculated based on IES LM-80 test data.
- I. Luminaires Mounted in Continuous Rows: Provide quantity of units required for length indicated, with all accessories required for joining and aligning.

2.03 EMERGENCY LIGHTING UNITS

- A. Description: Emergency lighting units complying with NFPA 101 and all applicable state and local codes, and listed and labeled as complying with UL 924.
- B. Operation: Upon interruption of normal power source or brownout condition exceeding 20 percent voltage drop from nominal, solid-state control automatically switches connected lamps to integral battery power for minimum of 90 minutes of rated emergency illumination, and automatically recharges battery upon restoration of normal power source.
- C. Battery:
 - 1. Sealed maintenance-free nickel cadmium unless otherwise indicated.
 - 2. Size battery to supply all connected lamps, including emergency remote heads where indicated.
- D. Diagnostics: Provide power status indicator light and accessible integral test switch to manually activate emergency operation.
- E. Provide low-voltage disconnect to prevent battery damage from deep discharge.

2.04 BALLASTS AND DRIVERS

- A. Ballasts/Drivers - General Requirements:
 - 1. Provide ballasts containing no polychlorinated biphenyls (PCBs).
 - 2. Minimum Efficiency/Efficacy: Provide ballasts complying with all current applicable federal and state ballast efficiency/efficacy standards.
 - 3. Electronic Ballasts/Drivers: Inrush currents not exceeding peak currents specified in NEMA 410.
- B. Dimmable LED Drivers:
 - 1. Dimming Range: Continuous dimming from 100 percent to 10 percent relative light output unless dimming capability to lower level is indicated, without flicker.
 - 2. Control Compatibility: Fully compatible with the dimming controls to be installed.
- C. Dimmable LED Drivers: Comply with Section 26 0935 - Distributed Digital Lighting Control System

2.05 LED EMERGENCY POWER SUPPLY UNITS

- A. Manufacturers:
 - 1. Iota Engineering, LLC: www.iotaengineering.com/#sle.
 - 2. Lithonia Lighting: www.lithonia.com/#sle.
 - 3. Philips Emergency Lighting/Bodine: www.bodine.com/#sle.

4. **Manufacturer Limitations:** Where possible, for each type of luminaire provide LED emergency power supply units produced by a single manufacturer.
- B. **Description:** Self-contained LED emergency power supply units suitable for use with indicated luminaires, complying with NFPA 101 and all applicable state and local codes, and listed and labeled as complying with UL 924.
- C. **Operation:** Upon interruption of normal power source, solid-state control automatically switches connected lamp(s) to the emergency power supply for minimum of 90 minutes of rated emergency illumination, and automatically recharges battery upon restoration of normal power source.
- D. **Battery:** Sealed maintenance-free high-temperature nickel cadmium unless otherwise indicated.
- E. **Diagnostics:** Provide accessible and visible multi-chromatic combination test switch/indicator light to display charge, test, and diagnostic status and to manually activate emergency operation.
- F. **Self-Diagnostics:** Provide units that self-monitor functionality and automatically perform testing required by NFPA 101 where indicated; provide indicator light(s) to report test and diagnostic status and field selectable audible alert.

2.06 MICRO AND MINI INVERTERS

- A. **Description:** Emergency lighting units complying with NFPA 101 and all applicable state and local codes, and listed and labeled as complying with UL 924.
- B. **Operation:** Upon interruption of normal power source, solid-state control automatically switches connected lamp(s) to the emergency power supply for minimum of 90 minutes of rated emergency illumination, and automatically recharges battery upon restoration of normal power source.
- C. **Approved manufacturers:**
 1. Philips Emergency Lighting Bodine: www.philips.com/bodine
 2. Iota Engineering: www.iotaengineering.com
 3. Engineer pre-approved equal.
- D. **Battery:**
 1. High temperature rechargeable, replaceable nickel-cadmium.
 2. Battery shall be sized to supply all connected lamps where indicated.
- E. **Diagnostics:** Unit shall include test switch and charge indicator light.
- F. Unit shall be sine wave output capable with dual voltage input and output capabilities.
- G. Provide with low-voltage battery disconnect.
- H. Installation locations shall be coordinated with selected manufacturer's requirements and said manufacturer's distance limitations.

2.07 ACCESSORIES

- A. **Stems for Suspended Luminaires:** Steel tubing, minimum 1/2" size, factory finished to match luminaire or field-painted as directed.
- B. **Threaded Rods for Suspended Luminaires:** Zinc-plated steel, minimum 1/4" size, field-painted as directed.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that outlet boxes are installed in proper locations and at proper mounting heights and are properly sized to accommodate conductors in accordance with NFPA 70.
- B. Verify that suitable support frames are installed where required.

- C. Verify that branch circuit wiring installation is completed, tested, and ready for connection to luminaires.
- D. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

- A. Coordinate locations of outlet boxes provided under Section 26 0533.16 as required for installation of luminaires provided under this section.
- B. All wiring associated with the specified controls system shall be installed within conduit or conduits unless otherwise indicated on the Drawings. Refer to 26 0533.13 - Conduit for Electrical Systems for requirements.
- C. Install products in accordance with manufacturer's instructions.
- D. Install luminaires securely, in a neat and workmanlike manner, as specified in NECA 500 (commercial lighting) and NECA 502 (industrial lighting).
- E. Install luminaires plumb and square and aligned with building lines and with adjacent luminaires.
- F. Suspended Ceiling Mounted Luminaires:
 - 1. Do not use ceiling tiles to bear weight of luminaires.
 - 2. Do not use ceiling support system to bear weight of luminaires unless ceiling support system is certified as suitable to do so.
 - 3. Secure pendant-mounted luminaires to building structure.
 - 4. Secure lay-in luminaires to ceiling support channels using listed safety clips at four corners.
 - 5. See appropriate Division 09 section where suspended grid ceiling is specified for additional requirements.
- G. Recessed Luminaires:
 - 1. Install trims tight to mounting surface with no visible light leakage.
 - 2. Non-IC Rated Luminaires: Maintain required separation from insulation and combustible materials according to listing.
 - 3. Luminaires Recessed in Fire-Rated Ceilings: Install using accessories and firestopping materials to meet regulatory requirements for fire rating.
- H. Suspended Luminaires:
 - 1. Install using the suspension method indicated, with support lengths and accessories as required for specified mounting height.
 - 2. Install canopies tight to mounting surface.
 - 3. Unless otherwise indicated, support pendants from swivel hangers.
- I. Wall-Mounted Luminaires: Unless otherwise indicated, specified mounting heights are to bottom of luminaire.
- J. Emergency Lighting Units:
 - 1. Unless otherwise indicated, connect unit to unswitched power from same circuit feeding normal lighting in same room or area. Bypass local switches, contactors, or other lighting controls.
- K. Exit Signs:
 - 1. Unless otherwise indicated, connect unit to unswitched power from same circuit feeding normal lighting in same room or area. Bypass local switches, contactors, or other lighting controls.
- L. LED Emergency Power Supply Units:
 - 1. For field-installed units, install inside luminaire unless otherwise indicated. Where installation inside luminaire is not possible, install on top of luminaire.
- M. Identify luminaires connected to emergency power system in accordance with Section 26 0553.

3.03 FIELD QUALITY CONTROL

- A. Inspect each product for damage and defects.
- B. Operate each luminaire after installation and connection to verify proper operation.
- C. Test LED emergency power supply units and emergency lighting units to verify proper operation upon loss of normal power supply.

END OF SECTION

SECTION 28 4600
FIRE DETECTION AND ALARM

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Fire alarm system design and installation, including all components, wiring, and conduit.
- B. Circuits from protected premises to supervising station, including conduit.
- C. Replacement and removal of existing fire alarm system components, wiring, and conduit indicated.
- D. Maintenance of fire alarm system under contract for specified warranty period.

1.02 RELATED REQUIREMENTS

- A. Division 01 - General Requirements: Project administrative and procedural requirements.
- B. Division 02 - Existing Conditions: Demolition, cleaning and disposal requirements, cutting and patching requirements, repairs.
- C. Division 07 - Thermal and Moisture Protection: Materials and methods for work to be performed by this installer.
- D. Division 08 - Openings: door hardware, coiling fire doors, and smoke and/or fire curtains to be released by fire alarm system.
- E. Division 14 - Conveying Equipment: Elevator systems monitored and controlled by fire alarm system and Sensors and interlocks by fire alarm system.
- F. Section 21 1300 - Fire Suppression Sprinklers: Supervisory, alarm, and actuating devices installed in sprinkler system.
- G. Section 23 3300 - Air Duct Accessories: Smoke dampers monitored and controlled by fire alarm system.
- H. Section 26 0005 - Basic Electrical Requirements.
- I. Section 26 0505 - Selective Demolition for Electrical.
- J. Section 26 0533.13 - Conduit for Electrical Systems.
- K. Section 26 0533.16 - Boxes for Electrical Systems.
- L. Section 26 0553 - Identification for Electrical Systems.

1.03 REFERENCE STANDARDS

- A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.
- B. IEEE C62.41.2 - Recommended Practice on Characterization of Surges in Low-Voltage (1000 V and less) AC Power Circuits; 2002 (Cor 1, 2012).
- C. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- D. NFPA 72 - National Fire Alarm and Signaling Code; 2016.
- E. NFPA 101 - Life Safety Code; 2015.
- F. UL 268 - Standard for Smoke Detectors for Fire Alarm Systems; Current Edition, Including All Revisions.

1.04 SUBMITTALS

- A. Contractor shall provide submittals for equipment listed herein. Refer to Division 01 for submittal procedures.
- B. Evidence of designer qualifications.

- C. Design Documents: Submit all information required for plan review and permitting by authorities having jurisdiction, including but not limited to floor plans, riser diagrams, and description of operation:
 - 1. Copy (if any) of list of data required by authority having jurisdiction.
 - 2. NFPA 72 "Record of Completion", filled out to the extent known at the time.
 - 3. Clear and concise description of operation, with input/output matrix similar to that shown in NFPA 72 Appendix A-7-5-2.2(9), and complete listing of software required.
 - 4. System zone boundaries and interfaces to fire safety systems.
 - 5. Location of all components, circuits, and raceways; mark components with identifiers used in control unit programming.
 - 6. Circuit layouts; number, size, and type of raceways and conductors; conduit fill calculations; spare capacity calculations; notification appliance circuit voltage drop calculations.
 - 7. List of all devices on each signaling line circuit, with spare capacity indicated.
 - 8. Manufacturer's detailed data sheet for each component, including wiring diagrams, installation instructions, and circuit length limitations.
 - 9. Description of power supplies; if secondary power is by battery include calculations demonstrating adequate battery power.
 - 10. Certification by either the manufacturer of the control unit or by the manufacturer of each other component that the components are compatible with the control unit.
 - 11. Certification by the manufacturer of the control unit that the system design complies with the contract documents.
 - 12. Certification by Contractor that the system design complies with the contract documents.
 - 13. Do not show existing components to be removed.
- D. Evidence of installer qualifications.
- E. Evidence of instructor qualifications; training lesson plan outline.
- F. Evidence of maintenance contractor qualifications, if different from installer.
- G. Inspection and Test Reports:
 - 1. Submit inspection and test plan prior to closeout demonstration.
 - 2. Submit documentation of satisfactory inspections and tests.
 - 3. Submit NFPA 72 "Inspection and Test Form," filled out.
- H. Operating and Maintenance Data: Revise and resubmit until acceptable; have one set available during closeout demonstration:
 - 1. Complete set of specified design documents, as approved by authority having jurisdiction.
 - 2. Additional printed set of project record documents and closeout documents, bound or filed in same manuals.
 - 3. Contact information for firm that will be providing contract maintenance and trouble call-back service.
 - 4. List of recommended spare parts, tools, and instruments for testing.
 - 5. Replacement parts list with current prices, and source of supply.
 - 6. Detailed troubleshooting guide and large scale input/output matrix.
 - 7. Preventive maintenance, inspection, and testing schedule complying with NFPA 72; provide printed copy and computer format acceptable to Owner.
 - 8. Detailed but easy to read explanation of procedures to be taken by non-technical administrative personnel in the event of system trouble, when routine testing is being conducted, for fire drills, and when entering into contracts for remodeling.
- I. Project Record Documents: Have one set available during closeout demonstration:
 - 1. Complete set of floor plans showing actual installed locations of components, conduit, and zones.
 - 2. "As installed" wiring and schematic diagrams, with final terminal identifications.

3. "As programmed" operating sequences, including control events by device, updated input/output chart, and voice messages by event.

J. Closeout Documents:

1. Certification by manufacturer that the system has been installed in compliance with manufacturer's installation requirements, is complete, and is in satisfactory operating condition.
2. NFPA 72 "Record of Completion", filled out completely and signed by installer and authorized representative of authority having jurisdiction.
3. Maintenance contract.

1.05 QUALITY ASSURANCE

- A. Designer Qualifications: NICET Level III or IV (3 or 4) certified fire alarm technician or registered fire protection engineer, employed by fire alarm control panel manufacturer, Contractor, or installer, with experience designing fire alarm systems in the jurisdictional area of the authorities having jurisdiction.
- B. Installer Qualifications: Firm with minimum 3 years documented experience installing fire alarm systems of the specified type and providing contract maintenance service as a regular part of their business.
 1. Authorized representative of control unit manufacturer; submit manufacturer's certification that installer is authorized; include name and title of manufacturer's representative making certification.
 2. Installer Personnel: At least 2 years of experience installing fire alarm systems.
 3. Supervisor: NICET level III or IV (3 or 4) certified fire alarm technician; furnish name and address.
- C. Maintenance Contractor Qualifications: Same entity as installer or different entity with specified qualifications.
- D. Instructor Qualifications: Experienced in technical instruction, understanding fire alarm theory, and able to provide the required training; trained by fire alarm control unit manufacturer.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Fire Alarm Control Units and Accessories:
 1. Honeywell Security & Fire Solutions/Gamewell-FCI: www.gamewell-fci.com.
 2. Honeywell Security & Fire Solutions/Notifier: www.notifier.com.
 3. National Time & Signal: www.natsco.net.
 4. Siemens Building Technologies, Inc: www.usa.siemens.com.
 5. Simplex, a Tyco Business: www.simplex-fire.com.
 6. Provide control units made by the same manufacturer.
- B. Initiating Devices and Notification Appliances:
 1. Same manufacturer as control units.
 2. Provide initiating devices and notification appliances made by the same manufacturer, where possible.

2.02 FIRE ALARM SYSTEM

- A. Fire Alarm System: Provide a new automatic fire detection and alarm system:
 1. Provide all components necessary, regardless of whether shown in the contract documents or not.
 2. Protected Premises: Entire building shown on drawings.
 3. Comply with the following; where requirements conflict, order of precedence of requirements is as listed:
 - a. ADA Standards.
 - b. The requirements of the local authority having jurisdiction .

- c. Applicable local codes.
 - d. The contract documents (drawings and specifications).
 - e. NFPA 72; where the word "should" is used consider that provision mandatory; where conflicts between requirements require deviation from NFPA 72, identify deviations clearly on design documents.
4. Evacuation Alarm: Multiple smoke zones; allow for evacuation notification of any individual zone or combination of zones, in addition to general evacuation of entire premises.
 5. Voice Notification: Provide emergency voice/alarm communications with multichannel capability; digital.
 6. General Evacuation Zones: Each smoke zone is considered a general evacuation zone unless otherwise indicated, with alarm notification in all zones on the same floor, on the floor above, and the floor below.
 7. Program notification zones and voice messages as directed by Owner.
 8. Fire Alarm Control Unit: New, located at supervising station.
- B. Supervising Stations and Fire Department Connections:
1. Public Fire Department Notification: By on-premises supervising station.
- C. Circuits:
1. Initiating Device Circuits (IDC): Class B, Style A.
 2. Signaling Line Circuits (SLC) Within Single Building: Class B, Style 0.5.
 3. Notification Appliance Circuits (NAC): Class B, Style W.
- D. Spare Capacity:
1. Fire Alarm Control Units: Capable of handling all circuits utilized to capacity without requiring additional components other than plug-in control modules.
- E. Power Sources:
1. Primary: Dedicated branch circuits of the facility power distribution system.
 2. Secondary: Storage batteries.
 3. Capacity: Sufficient to operate entire system for period specified by NFPA 72.
 4. Each Computer System: Provide uninterruptible power supply (UPS).

2.03 EXISTING COMPONENTS

- A. Existing Fire Alarm System: Remove existing system completely after new system is fully operational and tested.
- B. Clearly label components that are "Not In Service."
- C. Remove unused existing components and materials from site and dispose of properly.

2.04 FIRE SAFETY SYSTEMS INTERFACES

- A. Supervision: Provide supervisory signals in accordance with NFPA 72 for the following:
 1. Sprinkler water control valves.
 2. Elevator shut-down control circuits.
- B. Alarm: Provide alarm initiation in accordance with NFPA 72 for the following:
 1. Sprinkler water flow.
 2. Elevator lobby, elevator hoistway, and elevator machine room smoke detectors.
 3. Duct smoke detectors.
- C. Elevators:
 1. Elevator lobby, hoistway, and machine room smoke detectors: Elevator recall for fire fighters' service.
 2. Elevator Machine Room Heat Detector: Shut down elevator power prior to hoistway sprinkler activation.
 3. Sprinkler pressure or waterflow: Shut down elevator power prior to hoistway sprinkler activation.
- D. HVAC:

1. Duct Smoke Detectors: Close dampers indicated; shut down air handlers indicated.
 2. Mechanical air-handling units: Provide fire alarm interface module and program to shut down upon activation of fire alarm system.
- E. Doors:
1. Smoke Barrier Door Magnetic Holders: Release upon activation of smoke detectors in smoke zone on either side of door, upon alarm from manual pull station on same floor, and upon sprinkler activation on same floor. Refer to Division 08 - Openings for information.
 2. Electromagnetic Door Locks on Egress Doors: Unlock upon activation of any alarm initiating device or suppression system in smoke zone that doors serve as egress from. Refer to Division 08 - Openings for information.
 3. Overhead Coiling Fire Doors: Release upon activation of smoke detectors in smoke zone on either side of door, upon alarm from manual pull station on same floor, and upon sprinkler activation on same floor. Refer to Division 08 - Openings for information.

2.05 COMPONENTS

- A. General:
1. Provide flush mounted units where installed in finish areas; in unfinished areas, surface mounted unit are acceptable.
 2. Provide legible, permanent labels for each control device, using identification used in operation and maintenance data.
- B. Fire Alarm Control Units: Analog, addressable type; listed, classified, and labeled as suitable for the purpose intended.
- C. Master Control Unit: As specified for Basis of Design above, or equivalent.
- D. Remote Annunciators: locate per plans.
- E. Initiating Devices:
1. Addressable Systems:
 - a. Addressable Devices: Individually identifiable by addressable fire alarm control unit.
 - b. Provide suitable addressable interface modules as indicated or as required for connection to conventional (non-addressable) devices and other components that provide a dry closure output.
 2. Manual Pull Stations: _____.
 3. Smoke Detectors: _____.
 4. Duct Smoke Detectors: _____.
 5. Heat Detectors: _____.
 6. Addressable Interface Devices: _____.
- F. Notification Appliances:
1. Speakers: _____.
 2. Strobes: _____.
- G. Circuit Conductors: Copper or optical fiber; provide 200 feet extra; color code and label.
- H. Surge Protection: In accordance with IEEE C62.41.2 category B combination waveform and NFPA 70; except for optical fiber conductors.
- I. Locks and Keys: Deliver keys to Owner.
- J. Instruction Charts: Printed instruction chart for operators, showing steps to be taken when a signal is received (normal, alarm, supervisory, and trouble); easily readable from normal operator's station.

1. Frame: Stainless steel or aluminum with polycarbonate or glass cover.
2. Provide one for each control unit where operations are to be performed.
3. Obtain approval of Owner prior to mounting; mount in location acceptable to Owner.
4. Provide extra copy with operation and maintenance data submittal.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install in accordance with applicable codes, NFPA 72, NFPA 70, and the contract documents.
- B. Conceal all wiring, conduit, boxes, and supports where installed in finished areas.
- C. Obtain Owner's approval of locations of devices, before installation.
- D. Install instruction cards and labels.

3.02 INSPECTION AND TESTING FOR COMPLETION

- A. Notify Owner 7 days prior to beginning completion inspections and tests.
- B. Notify authorities having jurisdiction and comply with their requirements for scheduling inspections and tests and for observation by their personnel.
- C. Provide the services of the installer's supervisor or person with equivalent qualifications to supervise inspection and testing, correction, and adjustments.
- D. Prepare for testing by ensuring that all work is complete and correct; perform preliminary tests as required.
- E. Provide all tools, software, and supplies required to accomplish inspection and testing.
- F. Perform inspection and testing in accordance with NFPA 72 and requirements of local authorities; document each inspection and test.
- G. Correct defective work, adjust for proper operation, and retest until entire system complies with contract documents.
- H. Diagnostic Period: After successful completion of inspections and tests, Operate system in normal mode for at least 14 days without any system or equipment malfunctions.
 1. Record all system operations and malfunctions.
 2. If a malfunction occurs, start diagnostic period over after correction of malfunction.
 3. Owner will provide attendant operator personnel during diagnostic period; schedule training to allow Owner personnel to perform normal duties.
 4. At end of successful diagnostic period, fill out and submit NFPA 72 "Inspection and Testing Form."

3.03 OWNER PERSONNEL INSTRUCTION

- A. Provide the following instruction to designated Owner personnel:
 1. Hands-On Instruction: On-site, using operational system.
 2. Classroom Instruction: Owner furnished classroom, on-site or at other local facility.
- B. Administrative: One-hour session(s) covering issues necessary for non-technical administrative staff; classroom:
 1. Initial Training: 1 session pre-closeout.
- C. Basic Operation: One-hour sessions for attendant personnel, security officers, and engineering staff; combination of classroom and hands-on:
 1. Initial Training: 1 session pre-closeout.
- D. Furnish the services of instructors and teaching aids; have copies of operation and maintenance data available during instruction.

3.04 CLOSEOUT

- A. Closeout Demonstration: Demonstrate proper operation of all functions to Owner.
 1. Be prepared to conduct any of the required tests.

2. Have at least one copy of operation and maintenance data, preliminary copy of project record drawings, input/output matrix, and operator instruction chart(s) available during demonstration.
3. Have authorized technical representative of control unit manufacturer present during demonstration.
4. Demonstration may be combined with inspection and testing required by authority having jurisdiction; notify authority having jurisdiction in time to schedule demonstration.
5. Repeat demonstration until successful.

3.05 MAINTENANCE

- A. Provide to Owner, at no extra cost, a written maintenance contract for entire manufacturer's warranty period, to include the work described below.
- B. Perform routine inspection, testing, and preventive maintenance required by NFPA 72, including:
 1. Maintenance of fire safety interface and supervisory devices connected to fire alarm system.
 2. Repairs required, unless due to improper use, accidents, or negligence beyond the control of the maintenance contractor.
 3. Record keeping required by NFPA 72 and authorities having jurisdiction.
- C. Provide trouble call-back service upon notification by Owner:
 1. Provide on-site response within 2 hours of notification.
 2. Include allowance for call-back service during normal working hours at no extra cost to Owner.
 3. Owner will pay for call-back service outside of normal working hours on an hourly basis, based on actual time spent at site and not including travel time; include hourly rate and definition of normal working hours in maintenance contract.
- D. Provide a complete description of preventive maintenance, systematic examination, adjustment, cleaning, inspection, and testing, with a detailed schedule.
- E. Maintain a log at each fire alarm control unit, listing the date and time of each inspection and call-back visit, the condition of the system, nature of the trouble, correction performed, and parts replaced. Submit duplicate of each log entry to Owner's representative upon completion of site visit.
- F. Comply with Owner's requirements for access to facility and security.

END OF SECTION

EXHIBIT B

Building Improvement

Landlord agrees to renovate the building to meet Tenant's architectural specifications.

Landlord shall be responsible for the following capital improvements:

Roof top unit replacement	Allowance - \$225,000
Roof replacement	Allowance - \$200,000
Parking lot replacement (asphalt)	Allowance - \$200,000
Landscape renovation (North side)	Allowance - \$ 50,000

Landlord agrees to contribute up to \$100,000 for capital improvement overruns in excess of the above allowances. If there are additional capital improvement overruns thereafter, Landlord shall first apply any unspent portion of the Tenant Improvement allowance.

Landlord shall grant Tenant the following allowances for interior renovations:

First floor renovation	Tenant Improvement allowance - \$610,000
Second floor renovation	Renovation to occur in the 2 nd year or thereafter Tenant Improvement allowance - \$610,000

To the extent that Tenant does not use the full first year Tenant Improvement allowance and the excess is not necessary for capital improvement overruns, the balance shall rollover to the Second floor renovation Tenant Improvement allowance. Please see Section 2(b) for relevant payment terms.

EXHIBIT "C"
BUILDING RULES

1. Any sidewalks, lobbies, passages, elevators and stairways shall not be obstructed or used by Tenant for any purpose other than ingress and egress from and to the Demised Premises. Landlord shall in all cases retain the right to control or prevent access by all persons whose presence, in the judgment of Landlord, shall be prejudicial to the safety, peace or character of the Building.

2. **Smoking is prohibited within the building. Smoking is not permitted anywhere on this property.**

3. The toilet rooms, toilets, urinals, sinks, faucets, plumbing or other service apparatus of any kind shall not be used for any purposes other than those for which they were installed, and no sweepings, rubbish, rags, ashes, chemicals or other refuse or injurious substances shall be placed therein or used in connection therewith or left in any lobbies, passages, elevators or stairways.

4. Tenant shall not impair in any way the fire safety system and shall comply with all security, safety, fire protection and evacuation procedures and regulations established by Landlord or any governmental agency. No person shall go on the roof without Landlord's prior written permission.

5. Skylights, windows, doors and transoms shall not be covered or obstructed by Tenant, and Tenant shall not install any window covering which would affect the exterior appearance of the Building, except as approved in writing by Landlord. Tenant shall not remove, without Landlord's prior written consent, any shades, blinds or curtains in the Demised Premises.

6. Without Landlord's prior written consent, Tenant shall not hang, install, mount, suspend or attach anything from or to any sprinkler, plumbing, utility or other lines. If Tenant hangs, installs, mounts, suspends or attaches anything from or to any doors, windows, walls, floors, or ceilings, Tenant shall speckle any and all holes and repair any damage caused thereby or by the removal thereof at or prior to the expiration or termination of the Lease.

7. Tenant shall not change any locks or place additional locks upon any doors without Landlord's prior written approval.

8. Tenant shall not use nor keep in the Building any matter having an offensive odor, nor explosive or highly flammable material, nor shall any animals other than handicap assistance dogs in the company of their masters be brought into or kept in or about the Property.

9. If Tenant desires to introduce electrical, signaling, telegraphic, telephonic, protective alarm or other wires, apparatus or devices, Landlord shall direct where and how the same are to be placed, and except as so directed, no installation boring or cutting shall be permitted. Landlord shall have the right to prevent and to cut off the transmission of excessive or dangerous current of electricity or annoyances into or through the Building or the Demised Premises and to require the changing of wiring connections or layout at Tenant's expense, to the extent that Landlord may deem necessary, and further to require compliance with such reasonable rules as Landlord may establish relating thereto, and in the event of non-compliance with the requirements or rules, Landlord shall have the right immediately to cut wiring or to do what it considers necessary to remove the danger, annoyance or electrical interference with apparatus in any part of the Building. All wires installed by Tenant must be clearly tagged at the distributing boards and junction boxes and elsewhere where required by Landlord, with the number of the office to which said wires lead, and the purpose for which the wires respectively are used, together with the name of the concern, if any, operating same. No machinery of any kind other than customary small business machines shall be allowed in the Demised Premises. Tenant shall not use any method of heating, air conditioning or air cooling other than that provided by Landlord.

a.) Any air condensing system servicing a server/computer room of the Demised Premises shall be an air-cooled system. Upon notice from Landlord, Tenant shall be responsible for replacing the existing water-cooled system with a air-cooled system. Tenant shall obtain Landlord's prior written consent before installing any air-cooled system. Any power source used for such system shall be separately metered and paid for by Tenant.

10. Tenant shall not place weights anywhere beyond the safe carrying capacity of the Building which is designed to normal office building standards for floor loading capacity. Landlord

shall have the right to exclude from the Building heavy furniture, safes and other articles which may be hazardous or to require them to be located at designated places in the Demised Premises.

11. The use of rooms as sleeping quarters is strictly prohibited at all times.

12. Tenant shall comply with all parking regulations promulgated by Landlord from time to time for the orderly use of the vehicle parking areas, including without limitation the following: Parking shall be limited to automobiles, passenger or equivalent vans, motorcycles, light four wheel pickup trucks and (in designated areas) bicycles. No vehicles shall be left in the parking lot overnight without Landlord's prior written approval. Parked vehicles shall not be used for vending or any other business or other activity while parked in the parking areas. Vehicles shall be parked only in striped parking spaces, except for loading and unloading, which shall occur solely in zones marked for such purpose, and be so conducted as to not unreasonably interfere with traffic flow within the Property or with loading and unloading areas of other tenants. **Employee and tenant vehicles shall not be parked in spaces marked for visitor parking or other specific use.** All vehicles entering or parking in the parking areas shall do so at owner's sole risk and Landlord assumes no responsibility for any damage, destruction, vandalism or theft. Bicycles are not permitted in the Building.

13. Tenant shall provide Landlord with a written identification of any vendors engaged by Tenant to perform services for Tenant at the Demised Premises (examples: security guards/monitors, telecommunications installers/maintenance), and all vendors shall be subject to Landlord's reasonable approval. No mechanics shall be allowed to work on the Building or Building Systems other than those engaged by Landlord. Tenant shall permit Landlord's employees and contractors and no one else to clean the Demised Premises unless Landlord consents in writing. Tenant assumes all responsibility for protecting its Demised Premises from theft and vandalism and Tenant shall see each day before leaving the Demised Premises that all lights are turned out and that the windows and the doors are closed and securely locked.

14. Tenant shall comply with any move-in/move-out rules provided by Landlord, including but not limited to those rules that are referenced in subparagraph 14(a) herein below, and with any rules provided by Landlord governing access to the Building outside of Normal Business Hours.

a.) Landlord shall have the right to regulate the dates and times for tenant to move into and out of the Building. Tenant shall obtain Landlord's prior approval of a date and time for its move in or out of the Demised Premises. Tenant shall pay, upon receipt of invoice(s), amounts invoiced by Landlord for the cost of repairs and/or replacements for damage to the Demised Premises, Building or common areas that upon inspection Landlord in its sole discretion determines was caused by Tenant or its agents. To the extent permitted by law, tenant agrees to indemnify, defend and hold Landlord harmless against any liability for injuries (or death) to persons or damage to property arising out of said moving activities.

15. Tenant shall not place oversized cartons, crates or boxes in any area for trash pickup without Landlord's prior approval. Landlord shall be responsible for trash pickup of normal office refuse placed in ordinary office trash receptacles only. Excessive amounts of trash or other out-of-the-ordinary refuse loads will be removed by Landlord upon request at Tenant's expense.

16. Tenant shall cause all of Tenant's Agents and Employees to comply with these Building Rules.

17. Landlord reserves the right to rescind, suspend or modify any rules or regulations and to make such other rules and regulations as, in Landlord's reasonable judgment may from time to time be needed for the safety, care, maintenance, operation and cleanliness of the Property. Landlord shall provide Tenant Board of Directors thirty (7) days' prior written notice of any intent to change or add to these rules. Notice of any action by Landlord referred to in this section, given to Tenant, shall have the same force and effect as if originally made a part of the foregoing Lease. New rules or regulations will not, however, be unreasonable or inconsistent with the proper and rightful enjoyment of the Demised Premises by Tenant under the Lease.

EXHIBIT "D"
JANITORIAL SPECIFICATIONS

The Building is to be cleaned in accordance with the below stated specifications. These specifications represent the minimum acceptable standard to the Landlord and are subject to change as conditions require. If conditions require a change in this Exhibit, Landlord will provide Tenant thirty (30) days' written notice prior to implementation:

COMMON AREAS (Building Entries, Lobbies, Stairwells, Elevators, & Corridors)

Daily

1. Empty all waste containers and reline as needed and dispose of in designated area.
2. Clean and disinfect all drinking fountains.
3. Thoroughly dust all furniture and horizontal surfaces.
4. Spot clean fingerprints, smudges, etc. from door glass and door push plates.
5. Sweep and wet mop all resilient floors (tile, marble, wood, etc.) with a neutral cleaning solution.
6. Vacuum any carpeted areas or runners thoroughly.

OFFICE AND CONFERENCE ROOM AREAS

Daily

1. Empty all waste containers and reline as needed and dispose of in designated area.
2. Take all cardboard boxes marked "Trash" to dumpster.
3. Dust all open horizontal surfaces completely (Surfaces that are covered with paper, charts, personal items, etc. will not be dusted unless removed by owner).
4. Spot clean spills, smudges, coffee rings, etc., from furniture.
5. Spot clean entrance and partition glass as necessary.
6. Wipe all door kick plates.
7. Sweep and wet mop all resilient floors (tile, marble, wood, etc.) with a neutral cleaning solution.
8. Vacuum all carpeted areas or runners thoroughly and reposition furniture.
9. Turn off all lights and secure door.

RESTROOMS

Daily

1. Empty all waste containers and dispose of in designated area.
2. Clean and polish all wall and cabinet mirrors.
3. Clean and sanitize toilet bowl, urinals, and sinks.
4. Clean and polish all chrome and stainless steel.
5. Spot clean all partitions.
6. Replenish towels, toilet tissue, hand soap, and sanitary napkin dispensers.
7. Pour disinfect water solution into restroom floor drains.
8. Sweep and mop with disinfectant all resilient floors (tile, marble, wood, etc.) with a germicidal solution.
9. Vacuum any carpeted areas or runners thoroughly.

CAFETERIA AND/OR COFFEE STATIONS

Daily

1. Empty all waste containers and dispose of in designated area.
2. Wipe down all tabletops, counter tops and surrounding horizontal surfaces.
3. Clean inside and outside of microwave(s) of reasonable spillage and debris.
4. Wash and disinfect sinks.
5. Replenish all paper dispensers.
6. Sweep and wet mop resilient floors (tile, marble, wood, etc.) with a germicidal solution.
7. Vacuum all carpeted areas or runners thoroughly.

Monthly (All Areas)

1. Clean and sterilize telephones.
2. Wash and remove all fingerprints, smudges, etc., around light switches, doorjamb, door push plates, etc.
3. Brush clean all lavatory partitions.
4. Wipe vertical surfaces completely.
5. High dust cobwebs from ceiling areas, window areas, corner areas, high & low shelves, etc., up to 84 inches

Quarterly (All Areas)

1. Dust heat ducts and ceiling vents as needed
2. Vacuum all carpeted edges.
3. Vacuum fabric-type furniture.

CERTIFICATE OF USE AND OCCUPANCY
PERMANENT

Michigan Department of Licensing and Regulatory Affairs

Bureau of Construction Codes/Building Division

P.O. Box 30254

Lansing, MI 48909

Authority: 1972 PA 230

(517) 241-9317

Building Permit No: BLDG19-00812

14356 GENOA CT
PLYMOUTH, MI 48170
COUNTY: WAYNE

The above named building of Use Group E, Education and Construction Type 2B is approved for use and occupancy.

THIS APPROVAL IS GRANTED UNDER THE AUTHORITY OF SECTIONS 13 OF ACT 230 OF THE PUBLIC ACTS OF 1972, AS AMENDED, BEING §125.1513 OF THE MICHIGAN COMPILED LAWS, AND, IN ACCORDANCE WITH SECTION 111.0 OF THE STATE BUILDING CODE. THIS SHALL SUPERSEDE AND VOID ANY PREVIOUS APPROVAL OF USE AND OCCUPANCY.

Print Date: 10/11/2019

CERTIFICATE OF USE AND OCCUPANCY
PERMANENT

Michigan Department of Licensing and Regulatory Affairs

Bureau of Construction Codes/Building Division

P.O. Box 30254

Lansing, MI 48909

Authority: 1972 PA 230

(517) 241-9317

Building Permit No: BLDG21-00935

14356 GENOA CT

PLYMOUTH, MI 48170

COUNTY: WAYNE

The above named building of Use Group E, Education and Construction Type 2B is approved for use and occupancy.

THIS APPROVAL IS GRANTED UNDER THE AUTHORITY OF SECTIONS 13 OF ACT 230 OF THE PUBLIC ACTS OF 1972, AS AMENDED, BEING §125.1513 OF THE MICHIGAN COMPILED LAWS, AND, IN ACCORDANCE WITH SECTION 111.0 OF THE STATE BUILDING CODE. THIS SHALL SUPERSEDE AND VOID ANY PREVIOUS APPROVAL OF USE AND OCCUPANCY.

Print Date: 08/27/2021

CERTIFICATE OF USE AND OCCUPANCY
PERMANENT

Michigan Department of Licensing and Regulatory Affairs

Bureau of Construction Codes/Building Division

P.O. Box 30254

Lansing, MI 48909

Authority: 1972 PA 230

(517) 241-9317

Building Permit No: BLDG22-01131

14356 GENOA CT

PLYMOUTH, MI 48170

COUNTY: WAYNE

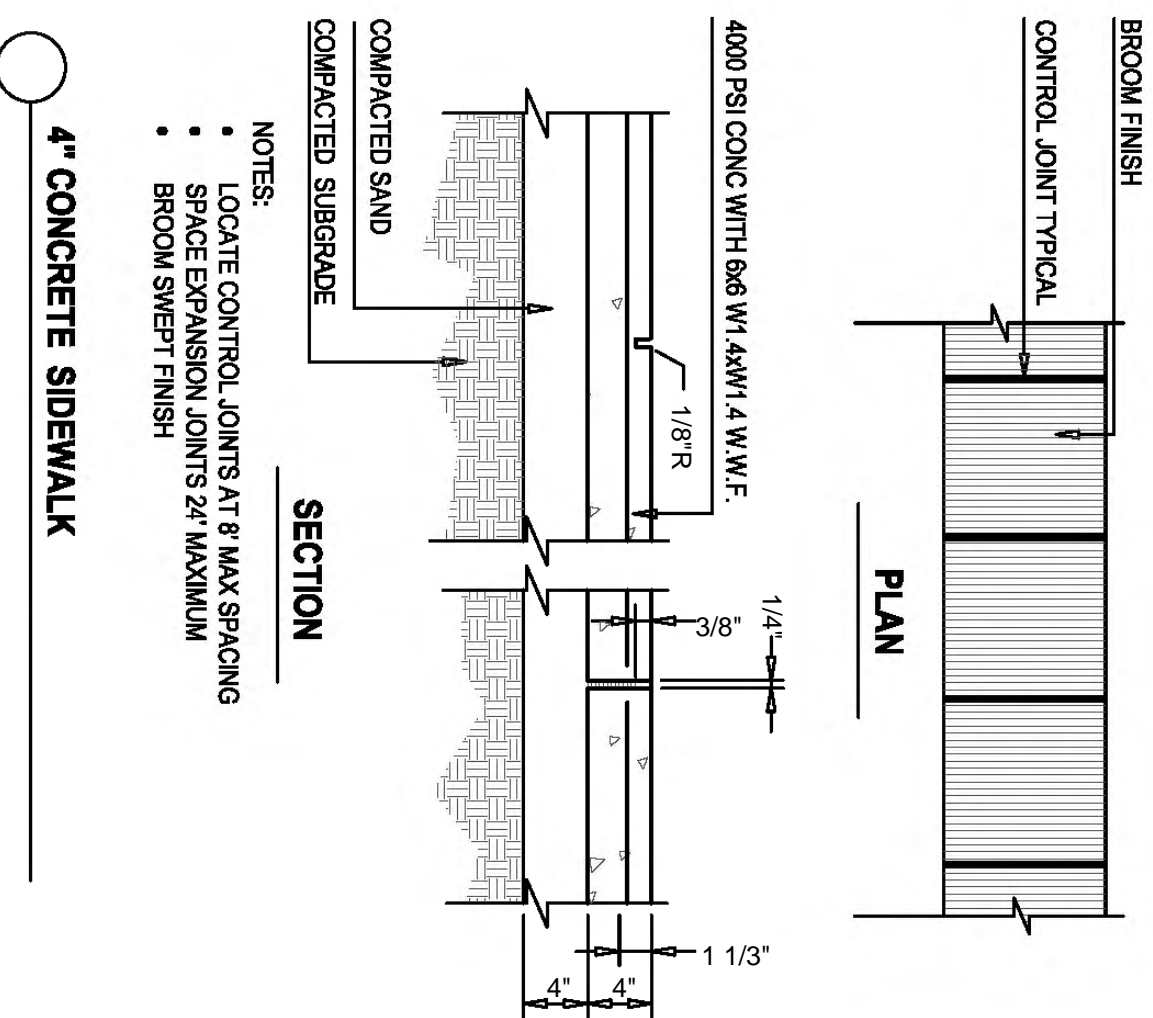
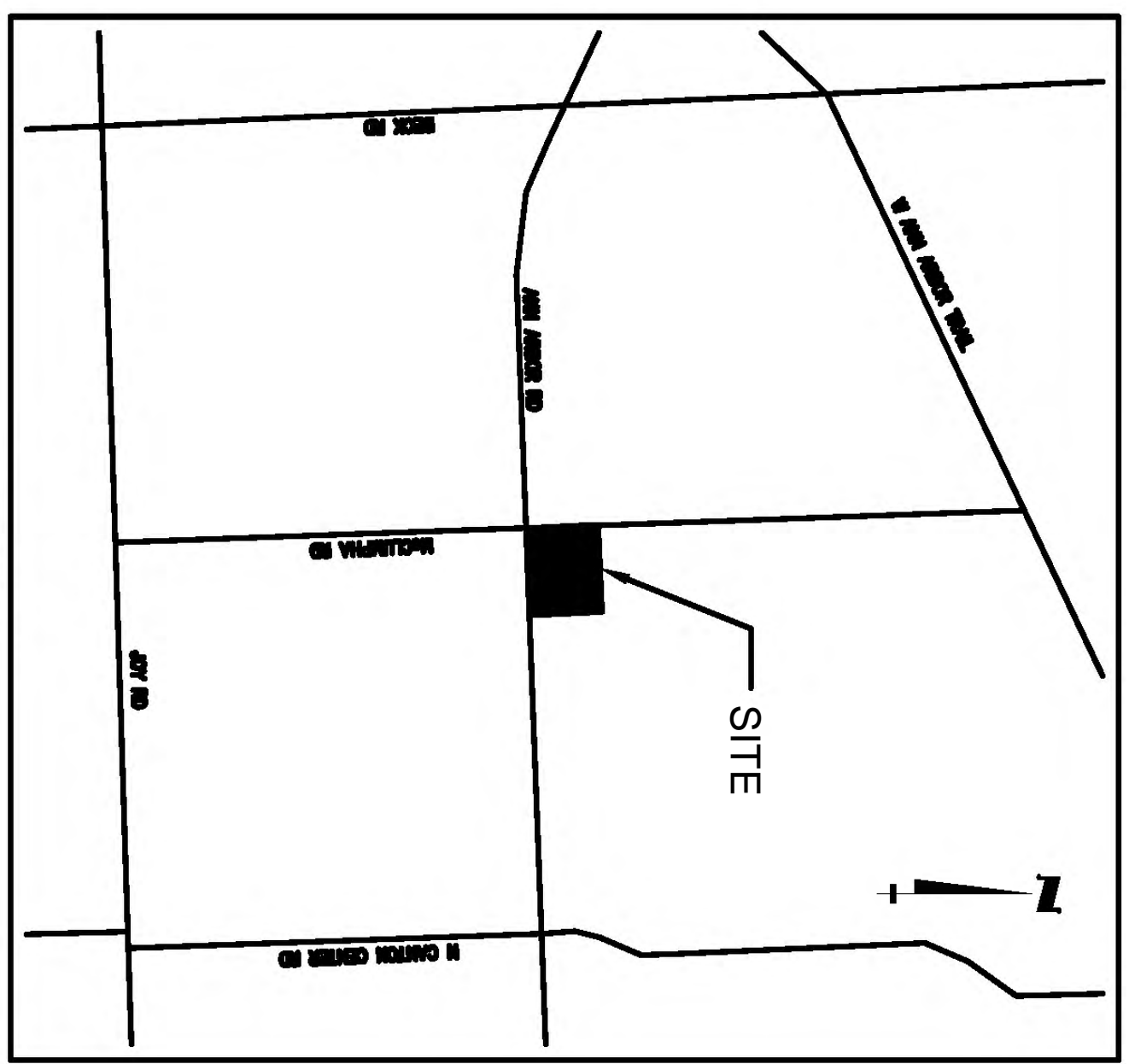
The above named building of Use Group E, Education and Construction Type 2B is approved for use and occupancy.

THIS APPROVAL IS GRANTED UNDER THE AUTHORITY OF SECTIONS 13 OF ACT 230 OF THE PUBLIC ACTS OF 1972, AS AMENDED, BEING §125.1513 OF THE MICHIGAN COMPILED LAWS, AND, IN ACCORDANCE WITH SECTION 111.0 OF THE STATE BUILDING CODE. THIS SHALL SUPERSEDE AND VOID ANY PREVIOUS APPROVAL OF USE AND OCCUPANCY.

Print Date: 09/06/2022

Ivywood Classical Academy

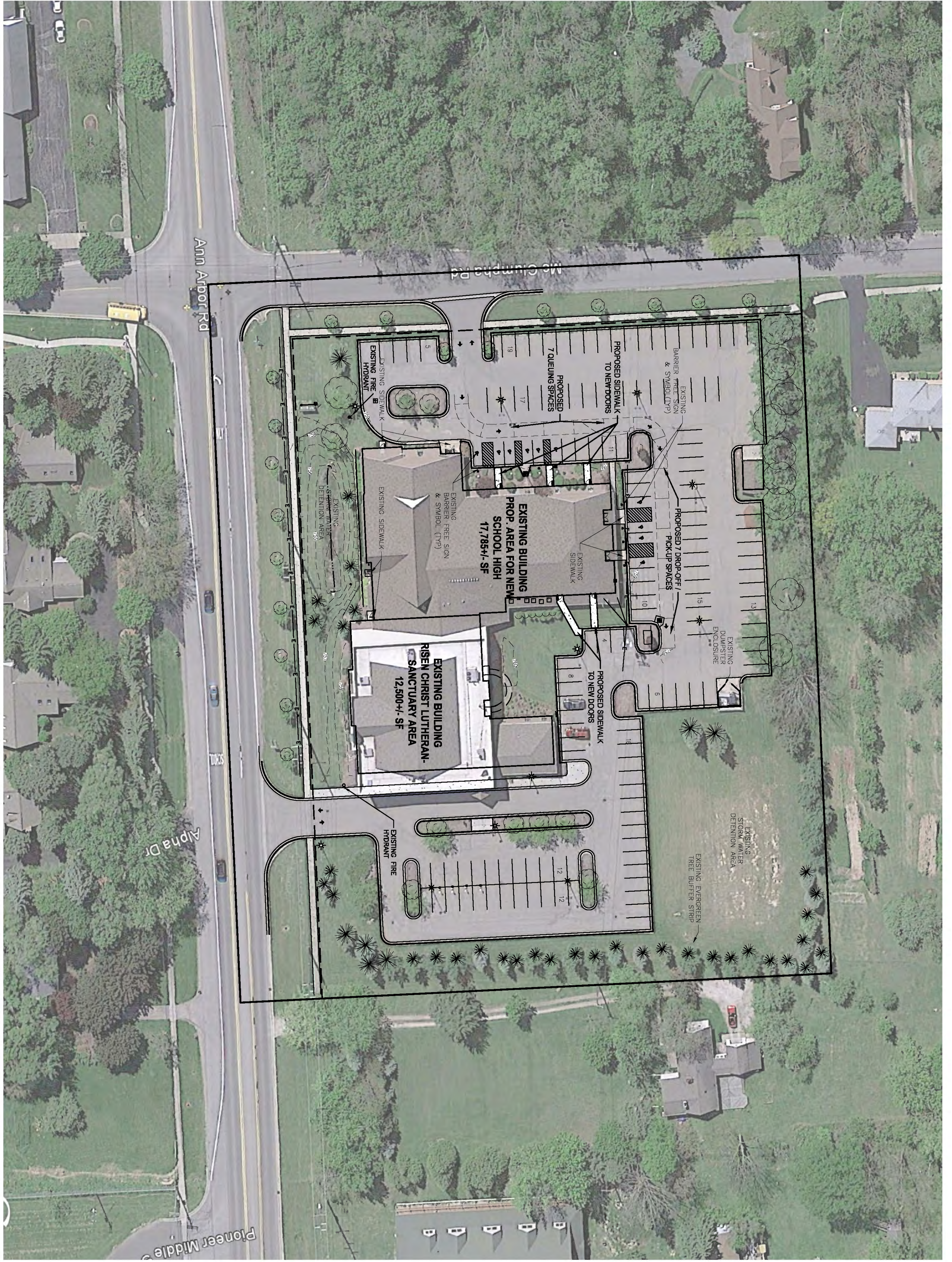
Ann Arbor Rd. Site



- NOTES:
- LOCATE CONTROL JOINTS AT 8' MAX SPACING
 - SPACE EXPANSION JOINTS 24' MAXIMUM
 - BROOM SWEEP FINISH

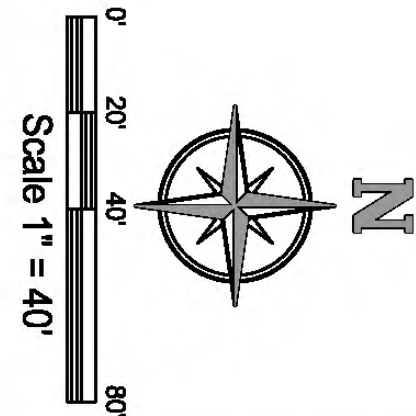
4" CONCRETE SIDEWALK

- PLYMOUTH TOWNSHIP REQUIREMENTS:
1. PARCEL # 1605399017101
 2. ZONING DISTRICT: R-1 RESIDENTIAL
 - MIN. LOT AREA = 12,000 SF
 - MIN. LOT WIDTH = 90'
 - MAX. BUILDING HT = 35' 2.5 STORES
 - BUILDING SETBACKS:
 - FRONT = 30'
 - REAR = 50'
 - SIDE = 10'/20' TOTAL OF TWO
 3. PARKING: 9' X 20' SPACE
 - MANEUVERING LANE: 20' WIDE
 - BARRIER FREE PARKING: 8' X 20' WITH 8' VAN ACCESSIBLE SPACE OR 5' STANDARD LOADING ZONE
 - PARKING REQUIRED = 1.5 SPACES PER TEACHER, EMPLOYEE & ADMINISTRATOR + 1 PER 10 STUDENTS + REQUIREMENTS FOR ASSEMBLY HALL/STADIUM
- STATE OF MICHIGAN REQUIREMENTS:
1. SETBACKS: SEE MICHIGAN BUILDING CODE TABLE 602
 2. SIGNS: ZS
 3. PARKING: 9' X 20' SPACES
 4. PARKING REQUIRED: 1.5 SPACES PER EMPLOYEE + 1 SPACE PER 10 STUDENTS OR BARRIER FREE PARKING: 8' X 20' WITH 8' VAN ACCESSIBLE SPACE OR 5' STANDARD LOADING ZONE
 5. PARKING: 9' X 20' SPACES
 6. PARKING REQUIRED: 1.5 SPACES PER TEACHER, EMPLOYEE & ADMINISTRATOR + 1 PER 10 STUDENTS + REQUIREMENTS FOR ASSEMBLY HALL/STADIUM
 7. DROP-OFF/PICK-UP AREAS: 1 VEHICLE QUEUING SPACE PER 50 STUDENTS (NO BUSES)

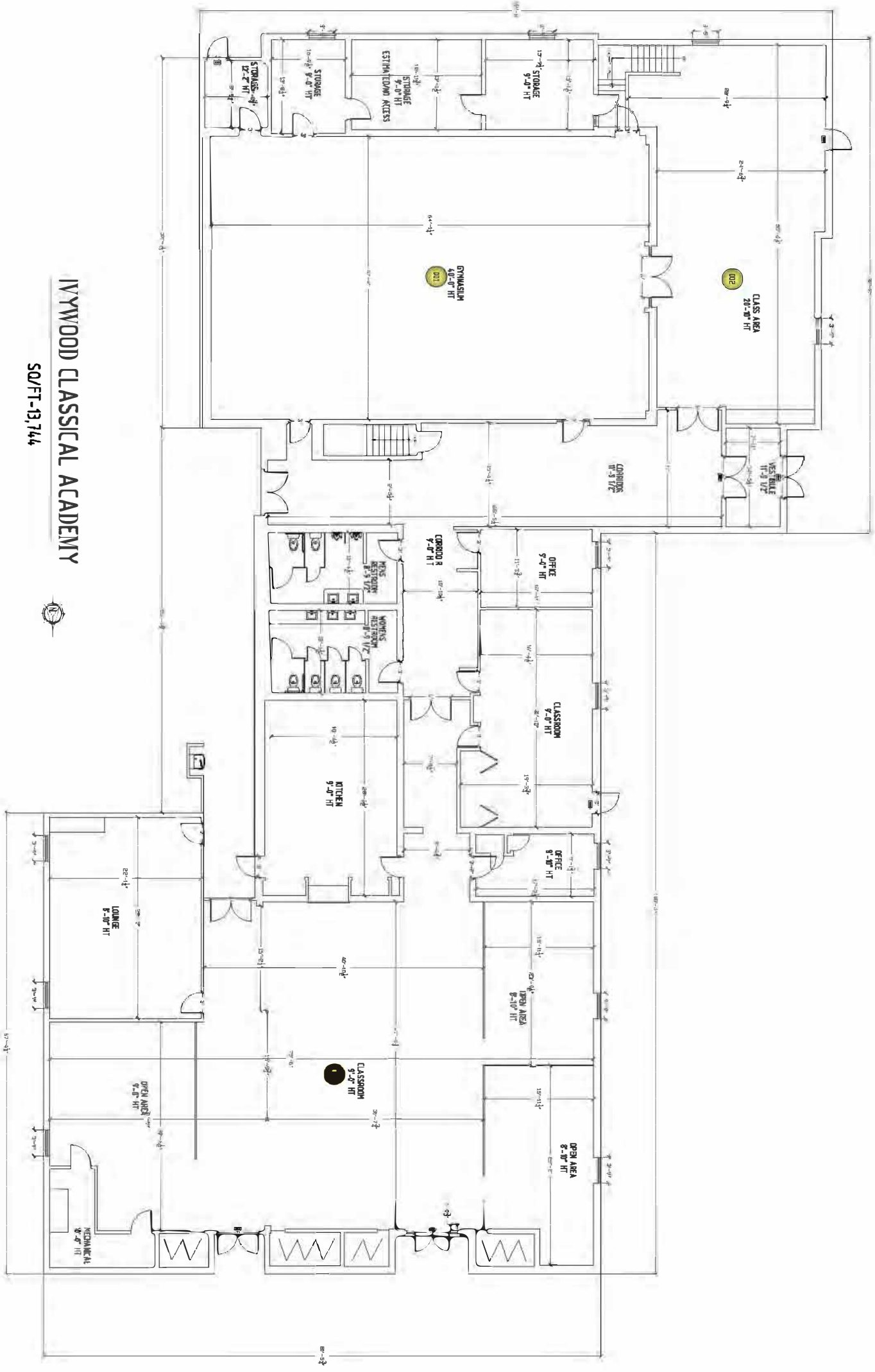


- GENERAL NOTES:
1. EXISTING CONDITIONS:
 - A. TOTAL ACREAGE: 5.25+/- ACRES (INCL. ROW)
 - B. THE SITE IS CURRENTLY AND WILL CONTINUE TO BE USED BY RISEN CHRIST LUTHERAN CHURCH.
 - C. PROPOSED USE: NEW SCHOOL, HIGH- GRADES 9-11, 200 STUDENTS & 20 EMPLOYEES (MAX), FOR 2 YEARS
 - D. SCHOOL HOURS OF OPERATIONS ARE: MON-FRI 7AM-4:30PM
 - E. ZONING OF SURROUNDING PARCELS:
 - WEST 1/4 SEC 33 AND 34 R-1-S
 - WEST 1/4 SEC 35 AND 36 R-1-S
 2. PARKING FOR SCHOOL: 200 STUDENTS / 10 + 20 STAFF = 40 SPACES REQUIRED.
 3. DROP-OFF/PICK-UP: 148 EXISTING PARKING SPACES INCLUDING 10 BARRIER FREE
 4. PROVIDED: 5 QUEUING SPACES
 5. NO SITE IMPROVEMENTS ARE PROPOSED EXCEPT FOR THE ADDITION OF SIDEWALKS FROM PROPOSED DOORS ADDED TO EXISTING BUILDING.
 6. STORMWATER MANAGEMENT: NO ADDITIONAL STORAGE IS PROPOSED SINCE THE INCREASE IN IMPERVIOUS SURFACE IS ONLY 523 SF.
 7. SOIL EROSION & SEDIMENTATION CONTROL: BEST MANAGEMENT PRACTICES WILL BE USED ON THIS SITE DURING AND AFTER CONSTRUCTION TO AVOID ANY EROSION OR SEDIMENTATION PROBLEMS IN ADJACENT AREAS AND PARKING. THE OWNER SHALL BE RESPONSIBLE TO AVOID ANY EROSION OR SEDIMENTATION PROBLEMS IN ADJACENT AREAS AND PARKING.
 8. OWNER/CONTRACTOR IS RESPONSIBLE FOR ALL PERMITS. CSEP PERMIT MAY BE REQUIRED- CONTRACTOR TO MARK-UP SITE PLAN WITH REQUIRED CSEP MEASURES AND SUBMIT FOR PERMIT, IF REQUIRED.

LEGAL DESCRIPTION:
That part of the Northwest 1/4 of Section 33, Town 1 South, Range 8 East, Plymouth Township, Wayne County, Michigan, Described as beginning at the Center Quarter Corner of Section 33, proceeding thence North along the North and South Quarter Line of Said Section, 434.00 feet; thence South 89.45 East 526.90 feet; thence South 434 feet to the East and West Quarter Line of Section 33; thence North 89.45 feet along said line 526.90 feet to the Point of Beginning.



<p>Issued for:</p> <p>IVYWOOD CLASSICAL ACADEMY</p> <p>46250 Ann Arbor Rd Plymouth, MI 48170</p> <p>Pt. of the NE 1/4 Sec. 33 T1S, R8E Plymouth Twp, Wayne County, Michigan</p>		<p>Ivywood Classical Academy</p>	<p>The Surveyor's / Engineer's liability for any and all claims, including but not limited to those arising out of the Surveyor's / Engineer's professional services, negligence, gross misconduct, warranties or misrepresentations shall be deemed limited to an amount no greater than the service fee.</p>	<p>HOLLAND ENGINEERING</p> <p>220 Hoover Boulevard, Suite 2 Holland, Michigan 49423-3766 www.hollandengineering.com T 616-392-5938 F 616-392-2116</p>
<p>Project No:</p> <p>15-03-015</p>	<p>Sheet Title:</p> <p>SITE LAYOUT PLAN</p>	<p>Scale:</p> <p>1" = 40'</p>	<p>Drawn by:</p> <p>BRUCE ZEINSTRAL, L.L.A.</p>	<p>Checked by:</p> <p>DATE</p>
<p>Project Name:</p> <p>C-101</p>	<p>Project Location:</p> <p>46250 Ann Arbor Rd, Plymouth, MI 48170</p>	<p>Project Description:</p> <p>WAYNE COUNTY - IMPACT STUDY</p>	<p>Project Status:</p> <p>ISSUED FOR CONSTRUCTION</p>	<p>Project Date:</p> <p>10/08/2015</p>



IVYWOOD CLASSICAL ACADEMY
 50/FT-13, 744



SCALE
 1/8"=1'

MLA ARCHITECTS
 1144 Herne Estates Dr
 Dallas, TX 75235
 49435



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ISSUE DATE: 11.2011
 PROJECT NUMBER: 02
 DRAWN BY: TSVBR

SHEET NO:
 MAIN FLOOR

Lease

This Lease ("Lease") is made between Risen Christ Lutheran Church ("Lessor" or "Church"), a Michigan nonprofit corporation whose principal address is 46250 West Ann Arbor Road, Plymouth MI 48170 and Ivywood Classical Academy, a Michigan public school academy ("Lessee"), whose principal address is at 14356 Genoa Ct, Plymouth MI 48170.

Lessor, in consideration of the rents to be paid and the covenants and agreements to be performed by Lessee, hereby leases to Lessee the premises situated at 46250 West Ann Arbor Road in the Township of Plymouth, County of Wayne, State of Michigan (the "Leased Premises"), upon which one building is situated, consisting of a single story church, upon the following terms and conditions:

1. **Term and Rent.** Lessee demises the Leased Premises for a term of eleven (11) months commencing August 1, 2024 and terminating June 30, 2025, or sooner as provided herein, at the monthly rental of \$12,000 for the use of the Designated Space, Office Space and Gym, and Storage, as described in section 2 herein, on the west wing of the Leased Premises for school use. Lessee will have full access to the space as of August 1, 2024, and may begin moving furniture and necessary equipment into the space after July 20, 2024 in preparation of the commencement of the Lease with prior consent from the Church. The Rent is payable in advance on the first (1st) day of each month for that month's rental during the term of this Lease. Rent shall be made to Lessor at the address specified above or at such other address as Lessor shall inform Lessee in writing from time to time. If payment of all or part of any sum payable under this lease is not made within ten (10) days of the date when due, Lessee shall pay Lessor a late fee equal to Five (5%) Percent of the amount due. Lessee, upon payment of Rent and other charges due under this Lease and performing all covenants, commitments and obligations contained herein, shall have quiet enjoyment of the Leased Premises for the term stated. Lessee to pay for any renovations necessary to obtain a certificate of occupancy from the State of Michigan Department of Licensing and Regulatory Affairs (LARA) if necessary.
2. **Use.** Ivywood Classical Academy shall use and occupy the Leased Premises for school related activities during normal Monday through Friday hours of operation, 7:00 am to 6:00 pm ("Hours of Operation") and shall use the Leased Premises for no purpose other than school related activities. Ivywood Classical Academy shall have exclusive use and occupancy of Leased Premises during Hours of Operation in the following areas as noted below and outlined in Appendix A:
 - a. **Designated Space.** Sole and exclusive use of classrooms and offices shown in Appendix A (the "Designated Space"), during normal Monday thru Friday hours of operation, 7:00 am to 6:00 pm ("Hours of Operation"). Church acknowledges that for security reasons associated with the care of children, the Designated Space as defined herein should not be accessed by anyone other than school staff and students during the Hours of Operation unless escorted by a school staff member.

- b. **Office Space and Lounge.** Ivywood Classical Academy will have sole and exclusive use of the offices as designated in Appendix A (the “Office Space”), at all times for the duration of the Lease.
- c. **Storage.** Ivywood Classical Academy will be permitted to use storage space for purposes of storing school equipment and supplies (the “Storage”). Such Storage space shall be designated by the Church for Ivywood Classical Academy. In certain areas, the church and school may find it necessary to share storage space.
- d. **Gym.** Sole and exclusive use of gymnasium shown in Appendix A (the “Gym”), during Hours of Operation. The use of the gym is subject to exceptions during four election cycles. The Lessor agrees to provide Lessee with advance notice of any unavailability as soon as the exact dates and times are confirmed by local election officials.

Ivywood Classical Academy shall not use any machinery or equipment on or at the Leased Premises whose demands would exceed the capacity of the electrical or other systems or utilities servicing the Leased Premises. Ivywood Classical Academy shall not place machinery, equipment or other personal property upon the Leased Premises or any structure thereon that exceed the safe maximum load for such structures.

- 3. **Parking.** The Church will provide its Parking Lot, for the school’s use during the Hours of Operation for parking at no additional rental cost. The church understands and accepts that parents may, at times, occupy parking spaces during the Hours of Operation for short periods. Ivywood Classical Academy understands that certain Church events, such as funerals, may arise from time to time whereby school staff may need to make alternate arrangements for parking, and the Church agrees to provide reasonable notice of these events, when possible.
- 4. **Weekend Use of Classrooms.** Church may use the Designated Space on the weekends, including all classroom equipment. The Church will be expected to return classrooms to the Ivywood Classical Academy in their original state as when the Church initiated its weekend use (i.e. classroom materials and furniture in their original school location as left on Friday afternoon by Ivywood Classical Academy staff). Additionally, the Church will sanitize all surfaces in the classrooms used and any and all materials used by the Church in the classrooms on the weekends using an appropriate cleaning solution required by LARA. The Church will take reasonable care in the use of Ivywood Classical Academy’s classroom equipment and supplies on the weekends. Church will leave shared bathrooms in designated areas in reasonably clean condition for school use during Hours of Operation. Ivywood Classical Academy employees may enter the space on the off hours (based upon availability).
- 5. **Building Entry and Access; Car Line.** Ivywood Classical Academy will be permitted to use the Church entrance on the west side of the Leased Premises as its main entry to the building for staff, students, and their families, as designated in Exhibit A to the Lease. Church to provide Ivywood Classical Academy with any necessary access for all

applicable staff, as determined by Ivywood Classical Academy. Ivywood Classical Academy will be responsible for the expense of replacing or delivering keys to its staff.

- a. **Alarm System.** The building has an active fire alarm in place.
 - b. **Car Line.** Ivywood Classical Academy will be permitted to use vehicle entry and vehicle exits on McClumpha Road for the purposes of establishing a drop off/pick up car line (the "Car Line"), at reasonable times of the day during Hours of Operation.
6. **Wi-Fi Internet Access.** Ivywood Classical Academy will obtain its own internet access using a commercial internet provider. Church agrees to provide access to any utility areas or systems that may be reasonably needed to accomplish internet access for Ivywood Classical Academy
 7. **Utilities.** The Church shall at its sole expense, pay all utilities expenses in full including gas, water, and electric. Ivywood Classical Academy shall cooperate with the Church in taking other reasonable steps to manage utilities expenses.
 8. **Telephone Access and Service.** Ivywood Classical Academy shall provide for installation and maintenance of a telephone line as is necessary under state licensing requirements. Ivywood Classical Academy shall not use the Church's telephone lines except in emergency circumstances.
 9. **Care and Maintenance of Premises.** Ivywood Classical Academy shall, at its own expense, and at all times, maintain the Leased Premises in good and safe condition, including but not limited to all electrical wiring, plumbing and heating installations and any other system or equipment upon the Leased Premises. Ivywood Classical Academy is responsible for routine maintenance and minor repairs of a non-capital or structural nature within the Leased Premises. Ivywood Classical Academy shall not commit waste or perform any acts or carry on any practices that may injure the buildings situated on the Leased Premises or be a nuisance or menace. Ivywood Classical Academy shall not keep or have on the Leased Premises any article or thing of a dangerous, flammable or explosive character that might unreasonably increase the danger of fire on the Leased Premises or that might be considered hazardous or extra hazardous by any responsible insurance company. Upon termination of this Lease, Ivywood Classical Academy shall surrender the Designated Space in a condition as received, normal wear and tear excepted. Except as otherwise provided in this Lease, Church shall, at its expense, make all other repairs and replacements to the Leased Premises, including those of a structural or capital nature. Landlord shall be obligated to make repairs only after Ivywood Classical Academy has given Church written notice of the need for the repair, and only if the repair was not caused by the negligence or willful act of Ivywood Classical Academy, its agents, employees, invitees, or licensees. In the event that any repairs are necessitated by the act, omission or negligence of the Ivywood Classical Academy, Ivywood Classical Academy shall pay to Church upon demand the reasonable costs of such repair, failing which, Church shall have all remedies provided under Section 21 below for non-payment of rent.

- a. **Lawn Maintenance and Snow Removal.** The Church will, at its sole expense, be responsible for regular maintenance of lawn and other natural elements on the Leased Premises. Church shall be responsible for snow removal from its parking lot and associated areas. Ivywood Classical Academy understands that Church contracts with a third-party snow removal company for removal of snow from its parking lot and other areas.
10. **Cleanliness and Janitorial Services:** Ivywood Classical Academy will arrange janitorial services for the Designated Space at its expense. In particular, the Ivywood Classical Academy, will clean the restrooms within the Designated Space on a daily basis and will take necessary steps to maintain cleanliness in the remainder of the Designated Space pursuant to state licensing standards. It is expected that Ivywood Classical Academy teachers will clean daily, and an outside janitorial service may be retained by the Ivywood Classical Academy, in its discretion, for weekly cleaning; however, the exact arrangements will be in the Ivywood Classical Academy's discretion and may be changed from time to time. Church will be responsible for janitorial services in Shared Spaces, with exceptions of bathrooms in Designated Space during the Hours of Operation. Church agrees to leave said bathrooms in reasonably clean conditions following weekend use, as noted in paragraph 5. Trash and garbage accumulating in the ordinary course of daily activities may be placed in the Church's dumpsters. Larger or unusual disposal items (such as bulky items including furniture) and disposal of items not picked up by the Township of Plymouth will be handled by the Ivywood Classical Academy as it deems appropriate and at its own expense. Recyclable materials accumulating in the ordinary course of daily activities may be placed in the Church's recyclable materials cart.
11. **Signage.** The Church will permit Ivywood Classical Academy to install signage on the building near the designated entrance as detailed in section 5, and as reasonably necessary on other parts of the building, with Church's permission. Signage subject to Township ordinances. The location, design, size and aesthetics of all signs shall be approved by the Church, which approval shall not be unreasonably withheld. Directional and way-finding signage for operation of the Ivywood Classical Academy shall be permitted as may be agreed by both Ivywood Classical Academy and Church, including necessary directional or way-finding signage that identifies the appropriate building entrance for ingress to the Ivywood Classical Academy area and Car Line. Any other signage needed for state licensing will be subject to the prior written approval of the Church, whose approval shall not be unreasonably withheld.
12. **Fire Extinguishers, Fire Alarm and Suppression Systems.** Church will routinely inspect fire extinguishers, fire alarm systems, and fire suppression systems as required by law. Inspection of the fire extinguishers will be performed regularly followed promptly by any necessary corrective steps.
13. **Condition of Leased Premises.** Lessee acknowledges that it has examined the Leased Premises prior to executing this Lease, that it knows the condition thereof, and that no

representations or warranties as to the condition or state of repairs thereof have been made by the Lessor or any of its employees or agents that are not expressed in this Lease. Lessee hereby accepts the Leased Premises "as-is" in their present condition at the date of the execution of this Lease, without any representations or warranties whatsoever as to its condition. Lessee can coordinate with the Lessor prior to the commencement of the Lease to renovate the space to accommodate a school operation.

14. **Alterations.** Ivywood Classical Academy shall not, without first obtaining the written consent of the Church, make any alterations, additions or improvements in, to or about the Leased Premises, structural or otherwise, including but not limited to the major mechanical systems (such as plumbing, heating or electrical) on the Leased Premises. Ivywood Classical Academy may make minor repairs in and or around the Designated Space. All additions or improvements made by the Church or the Ivywood Classical Academy to the Leased Premises during the term of the Lease, except movable office furniture and equipment and trade fixtures installed at the expense of the Ivywood Classical Academy, shall be the property of the Church and shall remain upon and be surrendered with the Leased Premises at the termination of the Lease. The Ivywood Classical Academy is responsible for completing all governmental inspections and repairs necessary for the Lessee to open and operate a school. Church will cooperate with Ivywood Classical Academy to provide access to the building for the required inspections. Ivywood Classical Academy is responsible for paying for the renovations necessary to meet all the governmental requirements for school use of the Leased Premises.
15. **Ordinances and Statutes.** Lessee shall not use the Leased Premises for any purpose in violation of any, and shall comply with, all applicable laws, ordinances and/or regulations that are now or hereafter be in force. Lessee shall obtain and at all times maintain all necessary or required licenses for Lessee's use and operation of the Leased Premises. Upon any breach of this covenant, Lessor may, at its option, immediately terminate this Lease and shall have all remedies available under the laws of the State of Michigan, including but not limited to the right to take possession of the above-mentioned property and dispose of it by sale in a commercially reasonable manner. .
16. **Assignment and Subletting.** Lessee shall not assign this Lease or sublet any portion of the Leased Premises without prior written consent of the Lessor, without which any purported assignment or subletting shall be void *ab initio* and at its option, Lessor may immediately terminate this Lease. Upon any attempted or permissible assignment or subletting of the Leased Premises, Lessee shall remain liable for all of the terms and conditions of this Lease and all covenants and obligations of the "Lessee" hereunder.
17. **Entry and Inspection.** Lessee shall permit Lessor or Lessor's agents to enter upon the Leased Premises at reasonable times and upon reasonable notice, for the purpose of inspecting the same.
18. **Eminent Domain.** If the Leased Premises or any part thereof or any estate therein materially affecting Lessee's use of the Leased Premises, shall be taken by eminent

domain, this Lease shall terminate on the date when title vests pursuant to such taking. The rent shall be apportioned as of the termination date, and any rent paid for any period beyond that date shall be repaid to Lessee. Lessee shall not be entitled to any part of the award for such taking or any payment in lieu thereof.

19. **Destruction of Premises.** In the event of a partial destruction of the Leased Premises during the term hereof, from any cause, Lessor shall forthwith repair the same, provided that such repairs can be made within sixty (60) days under existing governmental laws and regulations, but such partial destruction shall not terminate this Lease, except that Lessee shall be entitled to a proportionate reduction of rent while such repairs are being made, based upon the extent to which the making of such repairs are being made, based upon the extent to which the making of such repairs shall interfere with the business of Lessee on the Leased Premises. If such repairs cannot be made within said sixty (60) days, this Lease may be terminated at the option of either party. In the event that the buildings situated on the Leased Premises are destroyed to an extent of not less than one-third of the replacement costs thereof, Lessor may elect to terminate this Lease. A total destruction of the buildings situated on the Leased Premises shall terminate this lease. Notwithstanding the foregoing, Lessor shall not be obligated to make any such repairs or restoration if insurance proceeds for such purpose are not available or are insufficient to complete such repairs or restorations, in which case Lessor may terminate this Lease.
20. **Abandonment.** If at any time during the term of this Lease, Ivywood Classical Academy abandons the Leased Premises, Lessor, without becoming liable to Lessee for damages of any kind whatsoever, may, at its discretion, re-enter and repossess the Leased Premises and relet it, or any part thereof, for the whole or any part of the then unexpired term, and may receive and collect all rent payable by virtue of such reletting, and, at Lessor's option, hold Lessee liable for any difference between the rent that would have been payable under this Lease during the balance of the unexpired term, if this Lease had continued in force, and the net rent for such period realized by Lessor by means of such reletting. If Lessor's right of reentry is exercised following abandonment of the Leased Premises by Lessee, then Lessor may consider any personal property belonging to Lessee and left on the Leased Premises to also have been abandoned, in which case Lessor may dispose of all such personal property in any manner Lessor shall deem proper and is hereby relieved of all liability for doing so.
21. **Lessor's Remedies on Default.** If Lessee defaults in the payment of rent, or any other sum due under this Lease, or defaults in the performance of any of the other covenant or conditions hereof, Lessor may give Lessee notice of such default, and if Lessee does not cure any such default within seven (7) days of the giving of such notice (in the case of non-payment of rent or other charges, and thirty (30) days in all other cases), then Lessor may terminate this Lease and re enter and repossesses the Leased Premises as provided and permitted by law. On the date specified in such notice the term of this Lease shall terminate, and Lessee shall then quit and surrender the Leased Premises to Lessor, but Lessee shall remain liable for all obligations under this Lease, including but not

limited to the payment of rent for the unexpired term of this Lease. If this Lease shall have been so terminated by Lessor, Lessor may at any time thereafter resume possession of the Leased Premises by any lawful means and remove Lessee or other occupants and their effects. No failure to enforce any term shall be deemed a waiver. If Lessor shall obtain possession of the Leased Premises by re-entry, summary proceedings or otherwise, Lessee shall pay Lessor all expenses incurred in obtaining possession of the Leased Premises and also all expenses and commissions that may be paid in and about the letting of the same, and all other damages, including reasonable attorney fees incurred with any of the foregoing. Lessor's rights under this section shall be in addition to, and not exclusive of, any other right or remedy that Lessor may have at law, in equity or under this Lease.

22. **Option to renew.** Ivywood Classical Academy shall have an option to renew this Lease on the expiration of the initial term of the Lease for one additional term of five (5) months, July 2025 through November 2025, by giving written notice of renewal to Lessor 30 days before this Lease expires. The renewal shall be on the same terms and conditions as stated in this Lease.
23. **Option to terminate.** Ivywood Classical Academy shall have the option to terminate this Lease prior to its expiration by giving written notice of termination to Lessor 90 days before the effective date of the early termination. The lease may not be terminated prior to January 31, 2025.
24. **Holding Over.** If Lessee shall hold over after the termination or expiration of the term of this Lease, thereafter such tenancy shall be from month-to month in the absence of a written agreement to the contrary, subject to and governed by all other applicable terms and conditions of this Lease, except that monthly rent shall be increased to 1½ (one and one-half) times the monthly rent payable at the termination or expiration of the Lease term.
25. **Bankruptcy and Insolvency.** If the estate created by this Lease (or any part thereof) shall be taken in execution or by other process of law, or if any receiver shall be appointed for the business or property of Lessor, or if any assignment shall be made of Lessee's property for the benefit of creditors, then, in any such event, this Lease may be immediately terminated at the option of Lessor and Lessor may re-enter and repossess the Leased Premises. Any bankruptcy, insolvency assignment for the benefit of creditors by this Lease shall also constitute an event of default under this Lease entitling Lessor to immediately terminate this Lease.
26. **Security Deposit.** Ivywood Classical Academy, shall deposit fifteen Thousand (\$15,000) Dollars (the "Security Deposit") with Lessor as security of the performance of Lessee's covenants, undertakings and obligations under this Lease. The security deposit shall be submitted to the Lessor within 10 business days of execution of the lease by both parties. In no event shall Lessor be obligated to apply the Security Deposit to rent or any other charges in arrears or against damages arising out of Lessee's failure to perform any

covenants, conditions or agreements contained in this Lease. Lessor may apply the Security Deposit to any such obligation at its option. Landlord's right to the possession of the Leased Premises for non-payment of rent shall not be affected by reason of the fact that Lessor holds the Security Deposit. In no event shall the Security Deposit be returned to the Lessee until after it has vacated the Leased Premises and delivered possession to Lessor. If Lessor repossesses the Leased Premises because of Lessee's default in payment of rent or other charges or because of Lessor's failure to carry out the covenants, conditions and agreements of this Lease, Lessor may retain the Security Deposit to apply upon such damages as may be suffered or shall accrue thereafter by reason of Lessee's default or breach. Lessor shall not be obligated to keep the Security Deposit in a separate fund. The Security Deposit shall not accrue interest.

27. **No Recording.** Lessor shall not record this Lease or any memorandum of this lease against the title to the Leased Premises or elsewhere.
28. **Waiver.** No failure of Lessor to enforce any term hereof shall be deemed to be a waiver thereof, or a waiver of any other term or condition of this Lease.
29. **Notice.** Any notice which either party may or is required to give shall be given by mailing the same, hand delivery to same, postage prepaid, or nationally recognized overnight carrier, to the addresses above given or, in the case of the Lessee, to the Leased Premises.
30. **Rights and Remedies Cumulative.** All rights and remedies, either under this Lease or by law or otherwise afforded to any party, shall be cumulative and not alternative.
31. **Governing Law.** The laws of the State of Michigan and the federal law of the United States of America shall govern the validity and enforceability of this Agreement, the construction of its terms, and the interpretation of the parties' rights and duties under this Agreement without regard to conflict of law principles.
32. **Successors and Assigns.** This Lease is binding upon and inures the benefit of their successors in interest and assigns of the parties.
33. **Severability.** If any term or other provision of this Lease is invalid, illegal or incapable of being enforced by virtue of any law or public policy, all other terms and provisions of this Lease shall nevertheless remain in full force and effect so long as the economic or legal substance of the transactions contemplated hereby is not affected in any manner materially adverse to any party. Upon such determination that any term or other provision is invalid, illegal or incapable of being enforced, the parties shall negotiate in good faith to modify this Lease so as to affect the original intent of the parties as closely as possible in an acceptable manner in order that the transactions contemplated by this Lease are consummated as originally intended to the greatest extent possible.
34. **Insurance.** Ivywood Classical Academy shall maintain public liability, property damage and renter's insurance, including bodily injury and property damage, insuring Lessee and Lessor with minimum coverage as follows: Liability, molestation, personal injury,

counseling and workers compensation (policy minimums of One Million (\$1,000,000) Dollars per occurrence). Upon the commencement of the Lease term, Lessee shall provide Lessor with a fully paid Certificate of Insurance from an insurance carrier or carriers acceptable to Lessor showing Lessor as additional insured or co insured, and first loss payee. Such Certificate of Insurance shall contain a provision for a Thirty (30) day written notice to Lessor in the event of cancellation, termination or material change of coverage. If Lessee shall fail or refuse to obtain and maintain such insurance coverage, Lessor may, but shall not be obligated to, obtain such insurance and Lessee shall pay the cost thereof on demand to Lessor with interest at the rate of Seven (7%) Percent per annum. If Ivywood Classical Academy shall fail to make such payment when due, Lessor shall have all remedies provided under Section 21 for non-payment of rent. by Lessor To the maximum extent permitted by insurance policies, which may be owned by Lessor or Lessee, Lessee and Lessor, for benefit of each other, waive any and all rights of subrogation which might otherwise exist.

35. **Authority.** Each party represents and warrants to the other party that it has full power and authority to enter into, execute and deliver this Lease and to perform all of its covenants, undertakings and obligations hereunder. Each party has taken all appropriate action required under its by-laws and constitution and has obtained all necessary approvals and consents. The persons executing this Lease for each party have been fully authorized to do so.
36. **Headings.** The headings of paragraphs and sections in this Lease are provided for convenience only and shall not limit, enlarge, modify, explain or define the text of any section nor affect the construction or interpretation of any provision of this Lease.
37. **Entire Agreement.** This Lease constitutes the entire agreement between the parties and may be modified only by a writing signed by both parties.
38. **Revocation or Termination of Contract.** If the Lessee's Charter Contract issued by the Central Michigan University Board of Trustees is revoked, terminated or a new charter contract is not issued to the Lessee after expiration of the Lessee's Contract, this Lease Agreement shall automatically terminate on the same day as the Lessee's Contract is revoked, terminated, or expires without further action of the parties and without penalty for early termination.
39. **Amendment Caused By Academy Site Closure or Reconstitution.** In the event that the Lessee is required (i) to close an Academy site pursuant to a notice issued by the Michigan Department of Education under Section 507 of the Code, MCL 380.507; or (ii) to undergo a reconstitution pursuant to Section 507 of the Code, MCL 380.507, and the Charter Contract, and such closure of an Academy site or reconstitution causes an amendment to or termination of this Lease Agreement, the parties agree that this Lease Agreement shall be amended or terminated to implement the Academy site closure or reconstitution, with no cost or penalty to the Lessee, and the Lessor shall have no

recourse against the Lessee or the University Board for implementing such site closure or reconstitution.

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IN WITNESS WHEREOF, the parties have caused this Lease to be executed as of the day and date set forth above.

Ivywood Classical Academy, **“Lessee”**

By: _____

Printed Name: _____

Title: _____

Date: _____

Risen Christ Lutheran Church **“Lessor”**

By: _____

Printed Name: _____

Title: _____

Date: _____

IN WITNESS WHEREOF, the parties have caused this Lease to be executed as of the day and date set forth above.

Ivywood Classical Academy, "Lessee"

By: 

Printed Name: TYLER HORNING

Title: PRESIDENT

Date: _____

Risen Christ Lutheran Church "Lessor"

By: 

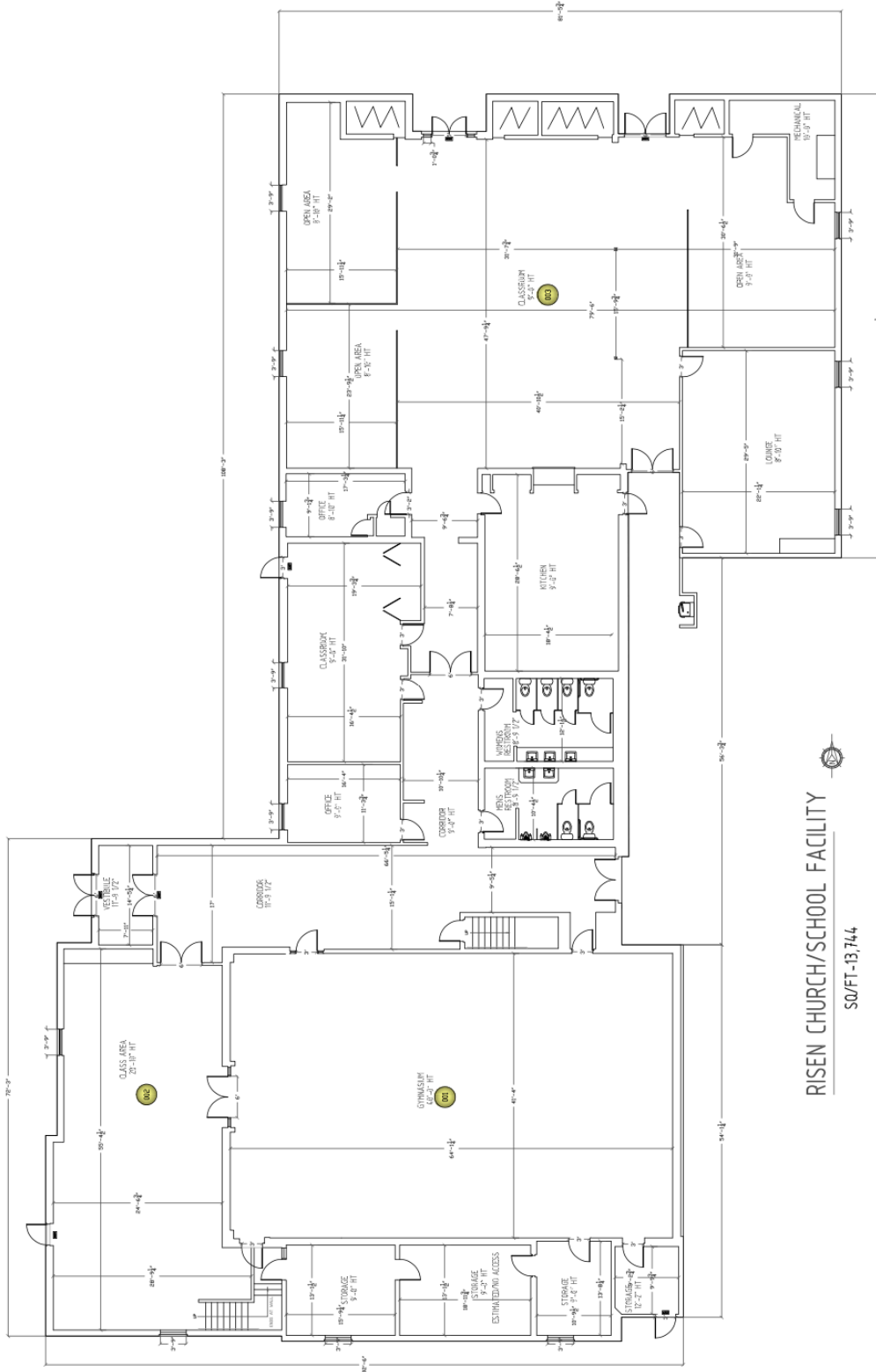
Printed Name: Donna S. Pfister

Title: Treasurer

Date: 11 January 2024



Appendix A - Leased Space



RISEN CHURCH/SCHOOL FACILITY
50/FT-13,744

North ↑

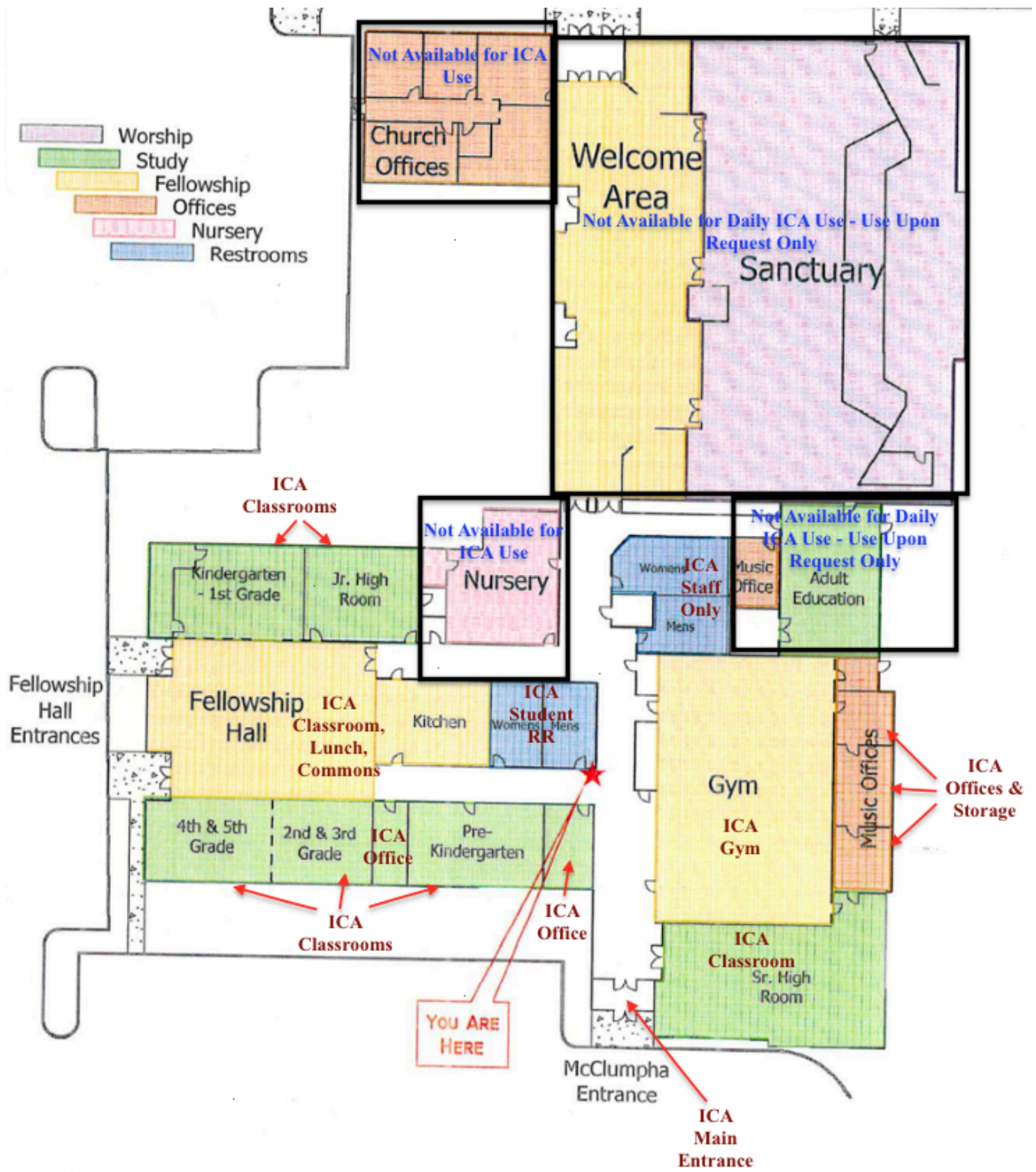
Appendix A (continued) - Leased Space



North ↑

Appendix A (continued) - Leased Space

(certain storage spaces may be shared between the church and school)



← North

**CORRECTED COPY
CERTIFICATE OF USE AND OCCUPANCY**

PERMANENT

**Michigan Department of Licensing and Regulatory Affairs
Bureau of Construction Codes/Building Division
P. O. Box 30254
Lansing, MI 48909
(517) 241-9317**

**Building Permit No. B043347
Risen Christ Lutheran Church
46250 Ann Arbor Road
Plymouth, Michigan
Wayne County**

The above named building of Use Group E and Construction Type 5B is approved for use and occupancy.

THIS APPROVAL IS GRANTED UNDER THE AUTHORITY OF SECTIONS 13 OF ACT 230 OF THE PUBLIC ACTS OF 1972, AS AMENDED, BEING §125.1513 OF THE MICHIGAN COMPILED LAWS, AND, IN ACCORDANCE WITH SECTION 111.0 OF THE STATE BUILDING CODE. THIS SHALL SUPERSEDE AND VOID ANY PREVIOUS APPROVAL OF USE AND OCCUPANCY.

Charles E. Curtis

**Charles E. Curtis, Assistant Chief
Building Division**

December 1, 2015

CONTRACT SCHEDULE 7

**REQUIRED INFORMATION FOR
A PUBLIC SCHOOL ACADEMY**

SCHEDULE 7

REQUIRED INFORMATION FOR A PUBLIC SCHOOL ACADEMY

Required Information for a Public School Academy. This Schedule contains information required by the Code and the Contract. The required information for the Academy is contained in this Schedule 7.

- Section a. Governance Structure. The governance structure of the Academy is set forth in Section a of this Schedule.
- Section b. Educational Goal and Related Measures. The educational goal and related measures of the Academy are set forth in Section b of this Schedule.
- Section c. Educational Programs. The educational programs of the Academy are set forth in Section c of this Schedule.
- Section d. Curriculum. The curriculum of the Academy is set forth in Section d of this Schedule.
- Section e. Methods of Pupil Assessment. The methods of pupil assessment of the Academy are set forth in Section e of this Schedule.
- Section f. Application and Enrollment of Students. The Academy's criteria for the application and enrollment of students is set forth in Section f of this Schedule.
- Section g. School Calendar and School Day Schedule. The school calendar and school day schedule procedures are set forth in Section g of this Schedule.
- Section h. Age or Grade Range of Pupils. The age or grade range of pupils to be enrolled by the Academy is set forth in Section h of this Schedule.

SECTION A

GOVERNANCE STRUCTURE

GOVERNANCE STRUCTURE

The People of Michigan through their Constitution have provided that schools and the means of education shall forever be encouraged and have authorized the Legislature to maintain and support a system of free public elementary and secondary schools. All public schools are subject to the leadership and general supervision of the State Board of Education and the Legislature has authorized an alternative form of public school designated a "public school academy" to be created to serve the educational needs of pupils and has provided that pupils attending these schools shall be eligible for support from the State School Aid Fund. The Legislature has delegated to the governing boards of state public universities, community college boards, intermediate school district boards and local school district boards, the responsibility for authorizing the establishment of public school academies. The University Board has approved the issuance of a contract conferring certain rights, franchises, privileges, and obligations of a public school academy to the Academy Board.

The Academy is incorporated as a Michigan nonprofit corporation, organized on a non-stock, directorship basis for the purpose of operating as a Michigan public school academy. The Academy shall conduct its affairs as a governmental entity exempt from federal income taxes under Section 115 of the United States Internal Revenue Code or any successor law. The Academy is a body corporate and is not a division or part of Central Michigan University. The relationship between the Academy and the University Board is based solely on the applicable provisions of the Code and the terms of this Contract.

The Academy Board shall have at least five (5), but no more than nine (9) members, as determined by the University Board. Academy Board members shall be appointed according to the terms of the Method of Selection, Appointment and Removal Resolution adopted by the University Board. The Academy Board has all the powers and duties permitted by law to manage the business, property and affairs of the Academy and for adopting policies by which the Academy shall be governed. The Academy Board is responsible for assuring that the Academy operates according to the Terms and Conditions of this Contract and Applicable Law. Contract Schedule 2: Amended Bylaws, set forth a further description of the Academy Board's governance structure.

Academy Board members shall serve in their individual capacity, and not as a representative or designee of any other person or entity. The Academy Board shall ensure compliance with Applicable Law relating to conflicts of interest and prohibited familial relationships, including Article IV, Sections 4.4 and 4.5 of the Terms and Conditions of this Contract.

Pursuant to applicable law and the Terms and Conditions of this Contract, including Article III, Section 3.6, the Academy Board may employ or contract for personnel according to the position information outlined in Schedule 5. Before entering into an agreement with an Educational Service Provider or an employee leasing company to provide services or to provide personnel to perform services or work at the Academy, the Academy Board must first comply with the Educational Service Provider Policies issued by the Center.

SECTION B

EDUCATIONAL GOAL AND RELATED MEASURES

EDUCATIONAL GOAL AND RELATED MEASURES

Pursuant to Applicable Law and the Terms and Conditions of this Contract, including Article VI, Section 6.2, the Academy shall achieve or demonstrate measurable progress for all groups of pupils toward the achievement of the educational goal identified in this schedule. Although an increase in academic achievement for all groups of pupils as measured by assessments and other objective criteria is the most important factor in determining the Academy’s progress toward the achievement of the educational goal, the Center also considers other factors. Upon request, the Academy shall provide the Center with a written report, along with supporting data, assessing the Academy’s progress toward achieving this goal. In addition, the University expects the Academy will meet the State of Michigan’s accreditation standards pursuant to state and federal law.

Educational Goal to be Achieved

Prepare students academically for success in college, work and life.

Measures to Assist In Determining Measurable Progress Toward Goal Achievement

To assist in determining whether the Academy is achieving measurable progress toward the achievement of this goal, the Center will annually assess the Academy’s performance using the following measures.

Measure 1: Student Achievement

The academic achievement of **all students who have been at the academy for one or more years¹** in grades 3-8 will be assessed using the following measures and targets:

Sub Indicator	Measure	Metric	Target
Against a Standard:	The percentage of students meeting or surpassing the current, spring, grade-level national norms ² on the NWEA Growth reading and math tests administered in the spring.	Distribution (which will be in the form of percentages): Exceeds $\geq 70.0\%$ Meets $\geq 50.0\%$ Approaching $\geq 30.0\%$ Does not meet $< 30.0\%$	50%
In the event that performance against the standard falls below these required expectations, “measurable progress towards the achievement of this goal” will be defined using the following measures and targets:			
Over Time:	The percentage of students meeting or surpassing spring grade-level national norms over time (CY-AVG(PY1+PY2+PY3)).	Trend score (which will be in the form of $-x$ to $+x$): Exceeds $\geq 6.0\%$ Meets $\geq 3.0\%$ Approaching $\geq 1.0\%$ Does not meet $< 1.0\%$	3.0%
Comparison Measure:	The percentage of students categorized as proficient or advanced on the most recent state assessment will surpass the school’s Composite Resident District (CRD) percentage.	Portfolio Distribution (which will be in the form of $-x$ to $+x$): Exceeds $\geq 10.0\%$ Meets $\geq 5.0\%$ Approaching $\geq 0.0\%$ Does not meet $< 0.0\%$	5.0%

¹ One or more years students (also called 1+ students) are students who are enrolled in the academy on or before count day and are still enrolled at the end of a given academic year.

² Grade level national norms are updated periodically by NWEA following comprehensive norming studies. The Center will use the most updated national norms published by NWEA and will inform the Academy when the norms are updated and how the updated norms may impact analysis and performance reporting.

Measure 2: Student Growth

The academic growth of all students in grades 3-8 at the Academy will be assessed using the following measures and targets:

Sub Indicator	Measure	Metric	Target
Against a Standard:	The median of student growth percentiles (MGP) reflecting fall-to-spring scaled score growth on the reading and math NWEA Growth tests.	MGP: Exceeds \geq 65th Meets \geq 50th Approaching \geq 45th Does not meet $<$ 45th	Reading: 50 Math: 50
In the event that performance against the standard falls below these required expectations, “measurable progress towards the achievement of this goal” will be defined using the following measures and targets:			
Over Time:	The percentage of students making at least one year’s growth over time (CY-AVG(PY1+PY2+PY3)).	Trend score (which will be in the form of $-x$ to $+x$): Exceeds \geq 6.0% Meets \geq 3.0% Approaching \geq 1.0% Does not meet $<$ 1.0%	3.0%
Comparison Measure:	The mean student growth percentile reflecting growth on the two most recent state assessments will surpass the school’s Composite Resident District.	Portfolio Distribution (which will be in the form of $-x$ to $+x$): Exceeds \geq 10.0% Meets \geq 5.0% Approaching \geq 0.0% Does not meet $<$ 0.0%	5.0%

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Measure 3: Post-Secondary Readiness: Grades 9-11

The ‘on-track’ towards college readiness rates of all students in grades 9-11 will be assessed using the following measures and targets.

Indicator	Measure	Metric	Target
Career and College Readiness (CCR) Standard:	The percentage of full academic year students meeting or surpassing the current career and college readiness benchmarks on the SAT (grade 11) in Evidence-Based Reading and Writing (EBRW) and Math.	For Math & EBRW, distribution (which will be in the form of percentages): Exceeds: % CCR > state average by 20% or more Meets: School % CCR – State Average $\geq 0\% \leq 20\%$ Approaching: School % CCR – State Average $< 0\% \geq -20\%$ Does Not Meet: School % CCR – State Average $< -20\%$	EBRW: Current State Average Math: Current State Average
In the event that performance against the standard falls below these required expectations, “measurable progress towards the achievement of this goal” will be defined using the following measures and targets:			
Trend Over-Time:	The percentage of full academic year students meeting or surpassing the current career and college readiness benchmarks on the SAT (grade 11) in EBRW and Math over time (CY-AVG(PY1+PY2+PY3)) .	Trend score (which will be in the form of -x to +x): Exceeds $\geq 6.0\%$ Meets $\geq 3.0\%$ Approaching $\geq 1.0\%$ Does not meet $< 1.0\%$	3.0%
High School Growth:	The percentage of students meeting or surpassing the expected growth between College Board (PSAT/SAT) assessments from spring to spring.	For Math & EBRW, distribution (which will be in the form of percentages): Exceeds $\geq 70.0\%$ Meets $\geq 50.0\%$ Approaching $\geq 30.0\%$ Does not meet $< 30.0\%$	50%
Comparative Career & College Readiness:	The percentage of students meeting or surpassing the current career & college readiness benchmarks on the SAT (grade 11) will surpass the school’s Composite Resident District percentage.	Portfolio Distribution (which will be in the form of -x to +x): Exceeds $\geq 10.0\%$ Meets $\geq 5.0\%$ Approaching $\geq 0.0\%$ Does not meet $< 0.0\%$	+5%
Comparative Graduation Rate:	The 4-year graduation rate for students at the academy will meet or surpass the school’s Composite Resident District’s 4-year graduation rate.	Portfolio Distribution (which will be in the form of -x to +x): Exceeds $\geq 10.0\%$ Meets $\geq 0.0\%$ Does not meet $< 0.0\%$	0%

SECTION C

EDUCATIONAL PROGRAMS

EDUCATIONAL PROGRAMS

Pursuant to Applicable Law and the Terms and Conditions of this Contract, including Article VI, Section 6.3, the Academy shall implement, deliver, and support the educational programs identified in this schedule.

Mission

Ivywood Classical Academy (“Academy”) teaches and equips scholars to become moral and intellectual leaders in a self-governing society. We inspire wonder.

Vision

Our scholars desire the truth, do the good, and love the beautiful.

Virtues

COURAGE—I take action even when I am scared.

RESPECT—I see the inherent value in others.

EXCELLENCE—I deliver my personal best.

INTEGRITY—I do the right thing even when no one is watching.

HUMILITY—I serve others before serving myself.

SELF GOVERNMENT—I use self-control in my actions.

WONDER—I have a thirst for knowledge. I am amazed by and open to all that life has to offer.

The mission statement of Ivywood Classical Academy is to teach and equip scholars to become moral and intellectual leaders in a self-governing society. We inspire wonder. The goal is to develop within its students the intellectual and personal habits, virtues and skills upon which responsible, independent and flourishing lives are built, in the firm belief that such lives are the basis of a free and just society. The Academy prepares students to be leaders in their homes and communities, entrepreneurs in business, and statesmen in government. Through content-rich curriculum with a strong emphasis in civics, the Academy provides a traditional education with a constant view towards developing exceptional American citizens.

Program Delivery

The Academy provides a full and complete education that challenges students to excel both in learning and in character development. Classical education upholds a standard of excellence and has proven itself over the course of time. This classical educational program will succeed through the Academy’s high standards and curriculum, supported by a well-regulated campus. The Academy consistently reinforces high academic achievement, personal discipline, ethics and responsibility through the study of subjects in the classical tradition. Academy students are highly literate and ethical citizens, are prepared to continue academic achievement and ready to become responsible members of the community. Academy students are well-prepared to advance into any

life endeavor and to inspire others. The curriculum has been carefully selected to facilitate those goals.

The Academy collaborates with the Barney Charter School Initiative (“BCSI”) in design and execution of the educational program. BCSI has collaborated with nearly two dozen other classical schools and has developed a curriculum that has shown success across a wide variety of student backgrounds. The curriculum is characterized by a strong emphasis on language, content-richness in all subjects, a strong core curriculum and a focus upon the historical, literary and scientific traditions of the United States and of Western civilization at large.

Several unique innovations characterize the Academy:

1. All students in grades three, four, and five are introduced to Latin roots which have been demonstrated to improve reading comprehension and vocabulary and bolster performance in all subjects. Students in grades six through ten study Latin daily.
2. Upper level students study history mainly through primary source documents to foster analytical skills and essential insight into culture and heritage.
3. All students are trained in study skills such as time management, organization and note taking that are essential for building stamina for further academic pursuits.
4. The program introduces and seeks to instill virtues of character in the lower grades through these pillars of character education: responsibility, respect, courage, courtesy, honesty and citizenship. Instruction in the classical virtues (prudence, justice, temperance and fortitude) are introduced in the upper grades as a continuance of the elementary character program and a necessary support of the classical curriculum.

To achieve the mission, the Academy emphasizes an education in the humanities, sciences and arts in several current and research-based curricula/programs, which include:

- The Core Knowledge[®] Sequence: a specific, grade-by-grade core curriculum of common learning;
- Access Literacy: a systematic synthetic phonics program borrowing from the Orton Gillingham research that teaches the 71 letter-sound combinations of the English language;
- Singapore Math[®]: a conceptual approach to mathematical skill building and problem Solving.

Core Knowledge, Access Literacy and Singapore Math are designed to build foundations of knowledge in the elementary years. Because children learn by building on what they already know, this curriculum benefits students with varying learning abilities. Emphasizing foundational skills and rich content, teachers can effectively bring students with academic problems up to grade level as well as strengthen the knowledge base and challenge the academic potential of every student at or above grade level. The Academy’s curriculum has proven to be successful for all students, including special needs students and English Language Learners (“ELL”).

Students presenting academic difficulty need programs that address remediation directly and target specific deficiencies. The time-tested, multi-sensory, brain-based approach that addresses multiple student learning styles is the Access Literacy method, The Writing & Spelling Road to Reading & Thinking. Access Literacy is appropriate for teaching all students the explicit phonics, reading and language arts that must be learned to succeed. Access Literacy provides a strong foundation for

students who exhibit academic progress, and is an effective remedial program for students with academic challenges. ELL students also benefit because Access Literacy provides limited concepts at a given time and is practiced until students achieve mastery. The Academy believes one of the best forms of remediation is through a solid phonics program.

Low performing students are identified through the use of assessment and diagnostic tools. Students who score below grade level are given extra support to reach grade level within the classroom, such as small group setting and differentiated instruction, as well as pull out instruction.

Homework and classwork help are offered during specific study hall hours throughout the week to assist students in need of extra practice. Teachers are available during a time outside of the instructional block. This additional contact with students can help provide structured practice and further feedback. When learning gains are not progressing at an appropriate rate, the Academy provides for tutoring. These sessions are programmed within the operating budget and are applied to those students requiring extra intervention to reach grade level expectations.

A 2007 longitudinal study led by Dr. Greg Duncan of Northwestern University concluded that early literacy and math skill acquisition is the greatest predictor of later learning. (Source: Duncan, G.J., et. al., "School Readiness and Later Achievement" *Developmental Psychology*, Vol. 43, No. 6: 2007.) By choosing sound research-based programs like Access Literacy and Singapore math, coupled with a classical curriculum that, by definition, is a literacy-focused curriculum, the Academy provides students with these skills early on to ensure a successful academic future.

The Academy seeks to provide a content-rich curriculum using time-tested instructional approaches with proven track records of success. The term "innovative learning methods" refers to new ideas and new manners of delivering instruction to students. While schools should always have the worthy goal of improving student learning outcomes and concrete methods of self-evaluation, the Academy believes the greater goal is to produce students who communicate effectively, are virtuous, possess cultural literacy, and are active and productive members of American society. To accomplish this valuable goal, the Academy uses time-honored instructional methods that may not fit the standard definition of "innovative", but whose results speak volumes. These methods are the cornerstone of classical education and support mastery of the Michigan Academic Standards ("MAS"):

- *Explicit and Systematic Phonics Instruction* - Through the direct teaching of letter-sound relationships through a specified sequence, the foundation for literacy is established and provides students the ability to decode the printed word. Scientific research supports this method.
- *Explicit English Grammar Instruction* - Using tools such as diagramming and the study of root words, students are equipped to speak and write with a high degree of communicative competence. As students learn to identify parts of speech and seek to develop syntax, the students are able to communicate more clearly on all levels. The more students learn about the English language and its structure, the ability to easily and fluently express more complex thoughts becomes evident.
- *Ability Groupings* - Instructional supports and strategies are most effective through the use of flexible Ability Groupings in the core subjects of reading, writing and math. To best

differentiate instruction, providing individualized supports for all learners while maintaining the same expectations of outcome, ability groupings will allow the Academy to tailor instructional techniques and class time to meet the needs of all students. Students are placed into Ability Groupings upon admission using initial assessments that indicate strengths and weaknesses. Students are moved across groupings as additional assessments suggest. Students are responsible for mastery of the same skills and concepts and are required to take the same assessments regardless of grouping. Using differentiated instructional strategies enables teachers to optimize the learning of all students.

- *Utilization of Primary Source Documents*- Primary sources are materials that were created by those who participated in or witnessed the events of the past and can include letters, reports, photographs, drawings, sound recordings, motion pictures, and artifacts as well as books. Although sometimes life lessons (e.g., motives, ethics, and “cause and effect”) are not necessarily obvious or easy to define, primary sources can bring them to life by reflecting events and experiences that actually occurred and introduce students to the individuals who lived them.
- *Teaching of Study Skills* - Time management, organizing, memory techniques, note taking, and outlining are emphasized and integrated throughout the curriculum to equip students for higher learning. Developing stamina for challenging and complex work is imperative for the promotion of a strong work ethic.
- *The Socratic Method* - The use of direct, intentional questions to guide students’ understanding of problems and their solutions is a fundamental part of instruction, particularly in literature and history courses.

Instructional Design

The primary instructional strategies employed at the Academy are the lecture and the Socratic method/discussion. The Socratic discussion is the ideal mode of classical instruction, but the Academy founders understand that young and inexperienced students require guidance to partake in or profit from such a discussion; therefore, the guiding principle for most instruction is that instruction be “teacher directed.” Most of the time teacher-directed instruction takes the form of a lecture, story, read-aloud or teacher-led discussion. Teacher-led discussion helps to model inquiry and analysis for students as a way of preparing them to engage in more open Socratic discussion in high school.

Projects, student-led discussion, student-led inquiry, and other popular modes of instruction have a limited place at the Academy, and only within the broader context of the mission, curriculum and school culture. Teachers receive training and feedback about when best to employ these and other methods, with an emphasis placed on teacher-led, content-rich instruction in all subjects. This emphasis is consistent with the tradition of classical education and with the content-rich curriculum the Academy employs.

One instructional strategy that is more peculiar to the classical school is the use of primary sources for teaching history. Especially in the upper grades, history instruction depends upon primary source documents—artifacts, documents, recordings, or other sources of information created at the time under study.

Curriculum

The Academy curriculum has a core focus on science, math, English language arts and history. Second to the four core subjects, though integral to the curriculum, are the subjects of art, music and foreign language. The basis of the Academy curriculum is a collaboration between the school and BCSI. BCSI works as a curricular advisor, and has a complete set of curricular and resource recommendations from kindergarten through twelfth grade.

The basis of that curriculum in kindergarten through tenth grades is the Core Knowledge Sequence, prepared by the Core Knowledge Foundation. Following BCSI recommendations, the Academy supplements the Core Knowledge Sequence with the literacy program developed by Access Literacy. The Academy supplements the Core Knowledge Sequence in mathematics by using the Singapore Math curriculum. The Academy also includes the teaching of Latin and Greek roots in grades three, four, and five. Grades six through ten study Latin daily, with the addition of Spanish for tenth grade, if applicable.

In the earliest grades, the curriculum focuses primarily on language, with the bulk of the school day given to teaching literacy and numeracy. Both subjects are foundational to a student's education, so the resources and methods deployed in each case must be consistent and excellent. The Academy uses the Access Literacy program to teach literacy and related skills, and the Singapore Math Program to teach numeracy.

Access Literacy is a multi-sensory, brain-based approach for teaching phonics, spelling, reading, handwriting and grammar. The Access Literacy program teaches the 71 letter-sound (phonogram) combinations used in the English language, beginning with the easiest sight-to-sound correspondences, and working towards those that are most complex. Syllabication is critical to a proper understanding of letter-sound relationships, so the Access Literacy program teaches syllabication from the beginning of kindergarten. Alongside learning phonograms and implementing these into a potent spelling and vocabulary regimen, students using the Access Literacy program learn handwriting, including cursive handwriting. As students grasp the basics of English literacy, the program lays a foundation in basic grammar and composition.

Teaching students to read is the primary focus of early elementary education at the Academy. Once students have transitioned from "learning to read" to "reading to learn," the focus of the Academy curriculum appropriately shifts. From mid-elementary forward, the curriculum places a strong emphasis on reading, and especially upon reading works of great literature.

Once students learn how to read, reading comprehension exercises are slowly replaced with literature. From third grade forward, literature becomes a primary component of the curriculum, one of the four curricular cores. Literature in the younger grades (especially in grades 3-9) exposes students to a certain level of cultural literacy and understanding, thereby allowing students to understand the literary traditions inherited from characters like Robin Hood and writers like Robert Louis Stevenson.

The central position of language in the curriculum continues throughout the grades. In third, fourth, and fifth students learn Latin and Greek roots of English words. Latin is introduced and taught alongside English so that students learn the structural underpinnings of their own language, expand

their vocabulary, and improve their reading comprehension. Students in grades six through ten study Latin daily.

As students mature in their facility with language, the curriculum directs time and intellectual energy into more content-based (as opposed to skill-based) aspects of the curriculum. The basis of these subjects is the Core Knowledge Sequence, made available through the Core Knowledge Foundation. This sequence was developed to provide comprehensive order to K-10 education, with the intention of training students in the art, literature, science, history, math and language that form their cultural and intellectual inheritance.

The Singapore Math Program provides students with a strong conceptual foundation in basic mathematics. From the earliest grades, this program emphasizes concepts, mental math and number sense while employing physical and graphical illustrations of underlying mathematical rules and phenomena. The program presents mathematical skill building and problem solving such that students have a better understanding of not only when to use a particular equation, but why. Moving students on to higher levels of skills before students are ready is not an option, so the program is employed at each student's ability level. Ability-level groups are determined at the beginning of each school year, and adjustments are made on an as-needed basis in order to best equip each student with the language of numeracy.

The Core Knowledge Sequence is based upon E.D. Hirsch's idea of cultural literacy, which makes it the ideal curriculum for a classical school. The Core Knowledge Sequence provides a grade-by-grade sequence of specific topics to be taught in grades kindergarten through ten, and is the basic curricular framework for history, geography, literature, visual arts, music and science at the Academy. With cultural literacy as the guiding principle, the Core Knowledge sequence leads students through a comprehensive and grade-appropriate view of science, literature, art, music and history. Topics which are especially important for cultural literacy are repeated in a spiraling fashion—so that younger students build a firm but broad foundation in these topics while older students are able to achieve depth. The sequence provides a necessary order across grades and between schools and families, such that teachers can base lessons upon what students have learned and will learn, and parents can anticipate what students will learn in each grade.

The Core Knowledge Foundation provides resources to support some, but not the entirety, of the sequence, so teachers are supported but encouraged to reach beyond the immediate resources and take ownership of their lessons. The BCSI has found this arrangement valuable in striking a balance between teacher support and teacher freedom. Although the rhetoric surrounding a classical school often emphasizes the humanities, the sciences are no less important than the humanistic disciplines and do not play a secondary role at the Academy. The Core Knowledge science program focuses on thematically linked science topics and biographies of great scientists. The order of the Core Knowledge program allows for regular repetition of the most important topics, such that students become well-versed in the fundamentals.

Learning Environment

The learning environment is primarily classroom-based, with a focus on direct-instruction from teachers and the use of the Socratic Method to engage students in thinking and discussion. Homework is used to support in-class work. Daily homework constitutes the majority of

independent study for the students. Class sizes are kept reasonably small to ensure the teacher-to-student ratio is most effective. Teachers are observed and coached to ensure all students are involved and engaged.

The Academy has at least a 90-minute morning period in kindergarten through seventh grades focusing on the various aspects of English language study: phonics, reading, vocabulary, study of Latin roots, spelling, grammar, handwriting and composition, with differentiated instruction for specific student learning needs, timely and specific feedback, and high student engagement to ensure the greatest impact. This morning period is supplemented with brief periods of punctuated practice throughout the day.

Academy students learn language and literature, history, geography, government, math, the sciences, music and the visual arts in a coherent and orderly program that runs from the rudiments of basic literacy and math skills to higher orders of thought and expression. Students are taught an organized sequence of skills and core knowledge through sound, time-proven methods. Students read classic works of literature, study the fine arts and learn first-hand accounts of history through the study of primary source documents, including the Declaration of Independence and the Constitution. Students also receive rigorous training in the fundamentals and theories of math and science, including the scientific method, and benefit from Socratic instructional techniques and training in study skills that further foster learning and character development. Through the Socratic Method, students learn to ask important questions, setting students on the path to understanding themselves and the world, and encouraging the students to act ethically and responsibly.

The Academy's robust academic program and training in the virtues is supported by a well-regulated campus that fosters positive relationships between students, parents and teachers. Teachers and volunteers receive training before implementing curriculum or assisting in the classroom. Teaching methods may be modified and differentiated to meet student needs. The success of every student depends upon his or her consistent effort and perseverance. Each student receives the support of every staff member whose focus is academic achievement and a commitment to educational excellence.

Curriculum Modification

The Academy automatically provides differentiated instruction in two main areas, with differentiated instruction in other areas provided on a case-by-case basis. In math, the first of these areas, students are grouped by ability; this requires a common math period for all students. Students are assessed after several weeks of math instruction, and this assessment provides teachers with both a baseline of student learning and a significant metric for placing students into ability groups. Ability grouping is a significant complement to the Singapore Math program, and helps to ensure that students receive the foundation in math that is necessary for understanding upper-level math. The Academy also provides some differentiated instruction in the literacy and reading curriculum. By using the Access Literacy program with all students, the expectation is to meet many student literacy problems before the problems develop. Students who are reading and writing at a slower pace than their grade cohort are automatically trained in the language of instruction used in reading remediation—and receive remediation as problems are identified. The Academy provides struggling students with additional literacy instruction, through flexible scheduling blocks or classroom pull-outs, as necessary. Additionally, students receive

differentiated instruction in the course of reading practice, wherein students are grouped by ability and/or led through a reading practice regimen designed to meet each student at his or her ability level. Students who are behind their grade cohort may receive adapted reading assignments (or shorter adapted works of literature), audiobooks, read-alouds of the original, or other help as identified by the teacher and administrator.

Outside of mathematics and literacy, the Academy uses differentiated instruction on a case-by-case basis. The Core Knowledge Sequence allows for a significant amount of latitude with regard to particular topics and works of literature. Students who are capable of work above their grade level may be given the option to read additional works of literature, read adapted works in an original or longer form, or study history and science content in a more comprehensive form (e.g. by reading upper-level texts or receiving instruction from upper-level teachers).

Students who are behind their grade cohort receive whatever instructional aids are called for by an Individualized Educational Program (“IEP”). Students with or without an IEP may also receive various instructional helps identified by the teacher or administrator, and student services such as adapted reading assignments, additional tutoring, oral exams, etc. In all cases where differentiated instruction is offered to students performing below grade level, the intent of the differentiated instruction is to bring student performance up to grade level standards. Highly effective teachers intentionally use all these strategies to engage students, including those performing below grade level, in maximizing the benefit from the curriculum.

For each student who does not meet state performance levels in reading, writing, mathematics and/or science, the Academy, in consultation with the student’s parent, will develop and implement progress monitoring to assist the student in meeting expectations for proficiency. Strategies may include, but are not limited to, summer school, parent tutorial programs, modified curriculum, reading instruction, after school instruction and other extended day services including tutoring, mentoring and intensive skills development programs

The Academy intends to use progress monitoring unless the student has a disability and receives services on an IEP that more appropriately can address the identified deficiencies. The Academy may request that low performing students attend remediation programs held before or after regular school hours or during summer.

If upon subsequent evaluation the documented deficiency has not been remediated, the student may be retained. Each student who does not meet minimum performance expectations for the statewide assessment tests in reading, writing, science and mathematics will continue remedial instruction or supplemental instruction until expectations are met. Progress monitoring remains active until a student has made sufficient learning gains to illustrate proficiency.

The framework used to identify student learning deficiencies, develop hypotheses, formulate a plan, monitor progress and analyze results follows the Multi-Tiered Systems of Support (“MTSS”) model. The Academy set up systems and methodologies to address student needs that include data-based goals, reflection and review of instruction and methodology, differentiation of the instruction and other targeted interventions, as well as formative and summative assessments. MTSS seeks to prevent academic failure through early intervention, frequent progress

measurement, and increasingly intensive research-based instructional interventions for children who continue to have difficulty. The MTSS Model is as follows:

- Tier 1 (core instruction and universal supports available to all students): Tier 1 consists of the general academic and behavioral instruction and support that is designed and differentiated for all students in all settings. School wide progress monitoring and screenings are used to ensure that core instruction is effective and to identify students who may need additional support in order to be successful.
- Tier 2 (supplemental instruction or intervention provided to targeted groups of students): Tier 2 consists of more focused, targeted instruction or intervention and supplemental supports in addition to and aligned with the core instruction provided through Tier 1. For instance, an additional 30 minutes per day may be devoted to reading in a small group (3-6 students), with a focus on building accurate and automatic recognition of words in text. Adjustments can be made within Tier 2 to increase time on task or decrease student/teacher ratio.
- Tier 3 (intensive individualized intervention and supports provided to individual students): Tier 3 consists of the most intense (increased time, narrowed focus, very small group or individual) instruction and intervention based upon individual student need. Tier 3 supports are provided in addition to and aligned with the core (Tier 1) and supplemental (Tier 2) academic and behavioral instruction, interventions, and supports.

The tiers are not a “set” series of interventions or activities that all students move through. Rather, the tiers are fluid and flexible; students may move from a lower to a higher tier and back again, based on documented need. A student may be successful with Tier 1 supports for behavior and mathematics, require supplemental Tier 2 instruction for reading, and need intensive Tier 3 interventions for writing. As the student progresses and the performance gap with grade level and classroom peers closes, the student may no longer need anything beyond Tier 1. The MTSS framework is designed for all students, including general education students and exceptional student education (“ESE”) students with IEPs or Educational Plans (“EP”). “All students” includes those who struggle, those who excel and demonstrate needs beyond the core curriculum, and ELL students. If the Academy’s MTSS implementation team determines that a student is not making adequate progress after the provision of effective Tier 1, Tier 2, and Tier 3 intervention and supports for an appropriate amount of time, or that the services are effective but may require substantial and sustained effort that may include special education and related services in order to maintain progress, the team will refer the student for evaluation for ESE.

When making educational placement decisions for students with disabilities, the Academy will ensure that parents are contributing members of the IEP team, and together the team will make decisions that are subject to requirements regarding provision of the least-restrictive environment. When determining how services will be delivered to students with disabilities, the Academy will follow all Special Education Rules as issued by the Michigan Department of Education. If a child with a current IEP enrolls in the Academy, the Academy will implement the existing IEP to the extent possible or will provide an interim IEP agreed upon by parents until a new IEP can be developed. IEPs will be developed, revised and implemented in accordance with the Individuals with Disabilities Education Improvement Act (“IDEIA”) and state law and regulations.

The Academy will fully comply with federal laws and regulations governing children with disabilities as follows:

1. The Academy is responsible for providing a free, appropriate public education to children with disabilities enrolled in the Academy that have been determined through an IEP to require Special Education programs and services.
2. The Academy will ensure that children who are suspected of having disabilities are properly evaluated by a multidisciplinary team, as defined in the Michigan Special Education Rules, and that children who have already been identified are re-evaluated by the multidisciplinary team at least every three years.
3. When a multidisciplinary team determines that a special education student requires Special Education programs and services, the Academy will ensure that the IEP is fully implemented in accordance with IDEA and reviewed on an annual basis or more frequently as determined by the IEP team.

Assessment

The Academy fully participates in all aspects of state testing and other assessments as required by state statute. The Academy also conducts its own data analysis of student learning by any other proven assessment tools deemed necessary and appropriate, including, but not limited to, Access Literacy and Singapore math student inventories, DIBELS®, NWEA® MAP® Growth™, and Developmental Reading Assessment® (“DRA”) as diagnostic reading assessments in tiered interventions, teacher-created assessments, portfolios and observation. This data is used to identify students not making adequate progress toward the state standards to implement an individualized program to improve measurable learning outcomes. The Academy seeks to analyze reports from different perspectives to maximize the usefulness of information gained from the accountability process. Such analysis may include viewing student-learning results by age groups, grade levels, previous academic experiences, gender, attendance and any other aspects of the student population that enhances the Academy’s knowledge about student learning needs.

A key goal of the Academy’s learning measurement process is to provide results of findings and outcomes by way of communication and feedback to students and overall stakeholders. Students, parents, staff and board members will receive published reports of student achievement on an individual and collective basis with the intention of encouraging community ownership of learning outcomes and increased accountability for the teaching and learning practices the school espouses. These practices are re-evaluated on an annual basis to allow for adjustment of techniques, strategies and other relevant programs with the intention of more significantly affecting learning outcomes.

Student assessment and performance data is regularly assessed by teachers and administration to guarantee that all students are receiving the support and instruction necessary. The Academy relies heavily upon the experienced and well-trained teachers to be constantly aware of individual needs within the classrooms. Teachers and administrators apply the data gathered to drive the intervention strategies and progress monitoring methods, making sure that each is an efficient use of time and resources. Teachers and administration hold team meetings to discuss the growth and

progress of individual students. The curriculum allows for ease in differentiation, so teachers are able to readily accelerate or reinforce a student's learning.

Preparing for Transition

The BCSI for middle school and high school education is designed to provide students with a classical liberal arts education that emphasizes academic rigor, character development, and a strong foundation in core knowledge. The initiative aims to prepare students academically for a successful transition to higher education and beyond.

The BCSI addresses the skills necessary for this transition through:

Classical Curriculum

- BCSI schools adopt a classical curriculum that includes the study of classic literature, history, philosophy, mathematics, and science. This broad and deep exposure to foundational subjects ensures that students have a well-rounded education, fostering critical thinking and analytical skills that are valuable in any academic setting.

Rigorous Academic Standards

- BCSI upholds high academic standards, challenging students to excel in their studies. The curriculum is designed to be academically rigorous, preparing students for the challenges of higher education by instilling a strong work ethic and a commitment to intellectual excellence.

Critical Thinking and Analytical Skills

- The classical education model emphasizes critical thinking and analytical skills by encouraging students to engage with challenging texts, historical documents, and complex concepts. This prepares them to think independently, analyze information critically, and make informed decisions.

Cultural Literacy and Historical Understanding

- BCSI places a significant emphasis on cultural literacy, ensuring that students are familiar with important historical events, cultural references, and foundational knowledge. This historical understanding provides context for contemporary issues and enhances students' ability to engage with a wide range of academic subjects.

Character Development

- The BCSI focuses on character development by promoting virtues such as responsibility, integrity, and perseverance. These character traits not only contribute to a positive school culture but also prepare students with the ethical foundation necessary for success in their academic pursuits and future careers.

Language and Communication Skills

- The classical curriculum includes a strong emphasis on language arts, helping students develop effective written and oral communication skills. This is crucial for success in higher education, where the ability to articulate ideas clearly and persuasively is often essential.

Preparation for Advanced Studies

- BCSI aims to prepare students for advanced studies in college by providing a strong foundation in subjects like mathematics and science. The curriculum includes advanced coursework and encourages students to pursue intellectual challenges that will serve them well in higher education.

College and Career Counseling

- BCSI schools often provide college and career counseling services to guide students through the transition from high school to higher education or the workforce. This support includes assistance with college applications, standardized testing, and exploration of various career paths.

Small Class Sizes and Personalized Attention

- Many BCSI schools strive to maintain smaller class sizes, allowing for more personalized attention. This individualized approach enables teachers to identify and address the specific academic needs of each student, ensuring a more tailored preparation for higher education.

In summary, the BCSI for middle school and high school education addresses the skills necessary for a successful academic transition by combining a classical curriculum with high academic standards, character development, and personalized attention. This comprehensive approach aims to equip students with the intellectual, ethical, and practical skills needed for success in higher education and beyond.

Educational Development Plan (“EDP”)

The implementation of Xello in middle schools facilitates the creation of robust and personalized education development plans for students. Xello, an innovative career exploration and planning platform, empowers middle school students to explore their interests, strengths, and potential career paths. With Xello, the process of crafting education development plans becomes a dynamic and interactive experience, fostering a deeper understanding of academic and career goals.

Middle school is a pivotal time for students to begin contemplating their future educational and career trajectories. Xello supports this exploration by:

- *Interest and Skill Assessment:* Offering comprehensive tools for self-discovery, Xello helps students identify their interests, strengths, and areas for growth. This initial self-assessment lays the foundation for informed decision-making in their education development plans.
- *Career Exploration:* Providing an extensive database of careers and industries, Xello enables middle school students to explore various professions. Through engaging multimedia content, students gain insights into different career paths, helping them align their academic choices with their aspirations.
- *Academic Goal Setting:* Assisting students in setting academic goals, Xello encourages them to consider their career interests when planning their educational path. This integration of career aspirations into academic goal-setting enhances the relevance and motivation for academic achievement.
- *Course Planning and Exploration:* Offering a user-friendly interface, Xello facilitates the creation of education development plans by allowing students to explore and select courses that align with their interests and future career goals. This hands-on approach encourages students to take ownership of their academic journey.

- *Building a Four-Year Plan:* Guiding students in developing a four-year plan, Xello assists in mapping out their academic trajectory throughout middle and high school. This comprehensive plan considers prerequisite courses and extracurricular activities essential for achieving their long-term educational and career objectives.
- *Incorporating Extracurricular Activities:* Recognizing the importance of extracurricular involvement, Xello encourages students to explore and incorporate relevant activities that complement their academic and career goals. This holistic approach enhances the development of well-rounded individuals.
- *College and Career Readiness Resources:* Equipping students with resources on college and career readiness, Xello provides information on college options, scholarship opportunities, and the skills required for future success. This prepares students with valuable insights for making informed decisions about their educational journey beyond middle school.
- *Parental and Educator Involvement:* Facilitating collaboration between students, parents, and educators, Xello ensures that education development plans are informed by multiple perspectives. This inclusive approach strengthens the support system for students as they navigate their academic and career pathways.

Program Evaluation

The Educational Program is formally evaluated on an annual basis. Effective teaching is essential to the implementation of the Academy’s Educational Program. Academy leadership evaluates effective instruction by performing informal and formal teacher observations. The observations provide a platform for quality dialogue for constructive feedback serving to improve instructional practices. Academy staff also meet with leadership to review school performance. Data is collected and analyzed to determine and monitor school improvement goals. Leadership and staff routinely monitor assessment data (e.g., NWEA, state assessment) to implement needed changes, to ensure adequate growth in all classrooms and to make necessary adjustments to improve the delivery of the Educational Program. In addition to observations and the examination of data, professional development opportunities and professional learning communities (“PLC”) are provided to staff members. Training opportunities and a professional community of learners enhance instructional practices and provide opportunities of collaboration and cooperation with other teachers.

SECTION D
CURRICULUM

CURRICULUM

Pursuant to Applicable Law and the Terms and Conditions of this Contract, including Article VI, Section 6.4, the Academy shall implement, deliver, and support the curriculum identified in this schedule.

The Academy has adopted Academy written curriculum based on the Core Knowledge[®] Sequence, Access Literacy, Singapore Math[®], and the Michigan Model for Health[™]. The curriculum for all core subjects has been received, reviewed and approved by the Center.

Elementary

The following subjects/courses are offered at the Academy.

Course	K	1	2	3	4	5	6	7	8
English Language Arts	X	X	X	X	X	X	X	X	X
Mathematics	X	X	X	X	X	X	X	X	X
Science	X	X	X	X	X	X	X	X	X
Social Studies	X	X	X	X	X	X	X	X	X
Physical Education	X	X	X	X	X	X	X	X	X
Health						X	X	X	X

Secondary

The following subjects/courses are offered at the Academy*.

Course Name	Grade**	Course Name	Grade* *
English (<i>minimum 4</i>)		World Language (<i>minimum 2</i>)	
Ancient Literature	9	Latin	9-10
Medieval & British Literature	10	Spanish	9-10
Mathematics (<i>minimum 4</i>)		Visual, Performing & Applied Arts	
Algebra I	8-9	Band	9-10
Geometry	9-10	Choir	9-10
Algebra II	10	Studio Art	9-10
		Theater & Drama	10
Science (<i>minimum 3</i>)		Other	
Biology	9	Composition	9
Chemistry	10	Rhetoric	9
Physics	10	Intro to Moral Philosophy (.5)	10

Course Name	Grade**
Social Studies (<i>minimum 3</i>)	
Western Civilization I (Ancient World 500 A.D.)	9
Western Civilization II (History of Europe 500-1815)	10
Economics (.5)	10

Course Name	Grade*
Physical Education & Health	
Physical Education	9-10
Health	9

* The Academy updates course offerings each school year based on the needs and interests of students as well as teacher certification. As a result, some courses are rotated and are not offered each year. All core subjects are taught every year and high school students are required to meet the requirements of the Michigan Merit Curriculum.

**If students are not required to take a course at a specific grade level, “any” is used for the grade indication.

SECTION E

METHODS OF PUPIL ASSESSMENT

METHODS OF PUPIL ASSESSMENT

Pursuant to Applicable Law and the Terms and Conditions of this Contract, including Article VI, Section 6.5, the Academy shall properly administer all state-mandated academic assessments identified in the Code, as applicable, and all academic assessments identified in the Public School Academy Chartering Policies adopted by the University Board, as applicable, in accordance with the requirements detailed in the Master Calendar annually issued by the Center.

The Academy shall authorize the Center to have access to the Academy's Student/School Data Applications through the Center for Educational Performance and Information and to the electronic reporting system administered by the Michigan Department of Education to access the Academy's state assessment results, as applicable. The Academy shall ensure that those involved with the administration of these assessments are properly trained and adhere to the ethical standards and testing procedures associated with these assessments.

Academic Assessments to Be Administered:

Assessments as identified in Schedule 7b of this Contract and all state-mandated assessments.

SECTION F

APPLICATION AND ENROLLMENT OF STUDENTS

APPLICATION AND ENROLLMENT OF STUDENTS

Pursuant to Applicable Law and the Terms and Conditions of this Contract, including Article VI, Sections 6.6 and 6.16, the Academy shall comply with the application and enrollment requirements identified in this Schedule.

Enrollment Limits

The Academy will offer kindergarten through tenth grade. The maximum enrollment shall be 750 students across the two sites identified in Schedule 6 of the Contract. Enrollment will be distributed over the sites as follows:

Genoa Ct. Site: No more than 650 students may be served at this Site.
Ann Arbor Rd. Site: No more than 100 students may be served at this Site.

At no time may the combined enrollment of the two sites exceed 750 students.

The Academy Board will annually adopt maximum enrollment figures prior to its application and enrollment period.

Requirements

Section 504 of the Code provides that public school academies shall not charge tuition and shall not discriminate in its pupil admissions policies or practices on the basis of intellectual or athletic ability, measures of achievement or aptitude, status as a student with a disability, or any other basis that would be illegal if used by a Michigan school district. However, a public school academy may limit admission to pupils who are within a particular range of age or grade level or on any other basis that would be legal if used by a Michigan school district and may give enrollment priority as provided below.

- Academy enrollment shall be open to all individuals who reside in Michigan. Except for a foreign exchange student who is not a United States citizen, a public school academy shall not enroll a pupil who is not a Michigan resident.
- Academy admissions may be limited to pupils within a particular age range/grade level or on any other basis that would be legal if used by a Michigan school district.
- The Academy shall allow any pupil who was enrolled in the Academy in the immediately preceding school year to enroll in the Academy unless the appropriate grade is not offered.
- No student may be denied participation in the application process due to lack of student records.
- If the Academy receives more applications for enrollment than there are spaces available, pupils shall be selected for enrollment through a random selection drawing.

The Academy may give enrollment priority to one (1) or more of the following:

- A sibling of a pupil enrolled in the Academy.
- A pupil who transfers to the Academy from another public school pursuant to a matriculation agreement between the Academy and other public school that provides for this enrollment priority, if all of the following requirements are met:
 1. Each public school that enters into the matriculation agreement remains a separate and independent public school.
 2. The Academy shall select at least 5% of its pupils for enrollment using a random selection process.

3. The matriculation agreement allows any pupil who was enrolled at any time during elementary school in a public school that is party to the matriculation agreement and who was not expelled from the public school to enroll in the public school academy giving enrollment priority under the matriculation agreement.
- A child, including an adopted child or legal ward, of a person who is employed by or at the Academy or who is on the Academy Board.

Matriculation Agreement

- The Academy Board may enter into a matriculation agreement with another public school pursuant to section 504(4) of the Code.
- However, before the Academy Board approves a matriculation agreement, the Academy shall provide a draft copy of the agreement to the Center for review.
- Any matriculation agreement entered into by the Academy shall be added to this Schedule 7f through a contract amendment approved in accordance with Article IX in the Terms and Conditions of this Contract.

Application Process

- The Academy shall make reasonable effort to advertise its enrollment openings.
- The Academy's open enrollment period shall be a minimum of two weeks (14 calendar days) in duration and shall include evening and weekend times.
- The Academy shall accept applications all year. If openings occur during the academic year, students shall be enrolled. If openings do not exist, applicants shall be placed on the official waiting list. The waiting list shall cease to exist at the beginning of the Academy's next open enrollment period.
- In the event there are openings in the class for which students have applied, students shall be admitted according to the official waiting list. The position on the waiting list shall be determined by the random selection drawing. If there is no waiting list, students shall be admitted on a first-come, first-served basis.
- The Academy may neither close the application period nor hold a random selection drawing for unauthorized grades prior to receipt of written approval from the Center.

Legal Notice or Advertisement

- The Academy shall provide legal notice or advertisement of the application and enrollment process in a local newspaper of general circulation. A copy of the legal notice or advertisement shall be forwarded to the Center.
- At a minimum, the legal notice or advertisement must include:
 1. The process and/or location(s) for requesting and submitting applications.
 2. The beginning date and the ending date of the application period.
 3. The date, time, and place the random selection drawing(s) will be held, if needed.
- The legal notice or advertisement of the application period shall be designed to inform individuals that are most likely to be interested in attending the Academy.

- The Academy, being an equal opportunity educational institution, shall be committed to good-faith affirmative action efforts to seek out, create and serve a diverse student body.

Re-enrolling Students

- The Academy shall notify parents or guardians of all enrolled students of the deadline for notifying the Academy that they wish to re-enroll their child.
- If the Academy Board has a sibling preference policy, the re-enrollment notice must also request that the parent or guardian indicate whether a sibling(s) seeks to enroll for the upcoming academic year.
- An enrolled student who does not re-enroll by the specified date can only apply to the Academy during the application period for new students.
- An applicant on the waiting list at the time a new application period begins must reapply as a new student.
- After collecting the parent or guardian responses, the Academy must determine the following:
 1. The number of students who have re-enrolled per grade or grouping level.
 2. The number of siblings seeking admission for the upcoming academic year per grade.
 3. If space is unavailable, the Academy must develop a waiting list for siblings of re-enrolled students.
 4. The number of spaces remaining, per grade, after enrollment of current students and siblings.

Random Selection Drawing

A random selection drawing is required if the number of applications exceeds the number of available spaces. Prior to the application period, the Academy shall:

- Establish written procedures for conducting a random selection drawing.
- Establish the maximum number of spaces available per grade or age grouping level.
- Establish the date, time, place and person to conduct the random selection drawing.
- Notify the Center of both the application period and the date of the random selection drawing, if needed. The Center may have a representative on-site to monitor the random selection drawing process.

The Academy shall use a credible, impartial individual who is not employed by, under contract with, a member of the Board of, or otherwise affiliated with the Academy to conduct the random selection drawing. Further, the Academy shall:

- Conduct the random selection drawing in a manner that is open to parents, community members and members of the public who want to observe the process.
- Use numbers, letters, or another system that guarantees fairness and does not give an advantage to any applicant.

The Academy shall notify applicants not chosen in the random selection drawing that they were not selected and that their name has been placed on the Academy's official waiting list for openings that may occur during the academic year. Students shall appear on the official waiting list in the order they were selected in the random selection drawing.

SECTION G

SCHOOL CALENDAR AND SCHOOL DAY SCHEDULE

SCHOOL CALENDAR AND SCHOOL DAY SCHEDULE

Pursuant to Applicable Law and the Terms and Conditions of this Contract, including Article VI, Section 6.7, the Academy shall comply with the school calendar and school day schedule requirements identified in this Schedule.

School Calendar

The Academy's school calendar shall comply with Sections 1175, 1284, and, if applicable, 1284a and 1284b, of the Code. The Academy's school calendar shall also comply with the minimum requirements set forth in Section 101 of the School Aid Act of 1979 (MCL 388.1701). The Academy Board must submit a copy of the Academy's school calendar to the Center in accordance with the Master Calendar.

School Day Schedule

The Academy Board must structure the Academy's school day schedule to meet the required number of instructional days and hours. The Academy Board must submit the school day schedule to the Center prior to the commencement of each academic year.

SECTION H

AGE OR GRADE RANGE OF PUPILS

AGE OR GRADE RANGE FOR PUPILS TO BE ENROLLED

Pursuant to Applicable Law and the Terms and Conditions of this Contract, including Article VI, Section 6.8, the Academy shall comply with the age or grade ranges as stated in this Schedule.

The Academy will enroll students in kindergarten through tenth grade. The Academy may add grades with the prior written approval of the authorizing body.

Students of the Academy will be children who have reached the age of 5 by the dates outlined in the Code.

CONTRACT SCHEDULE 8

**INFORMATION AVAILABLE TO
THE PUBLIC AND THE CENTER**

INFORMATION AVAILABLE TO THE PUBLIC AND THE CENTER

Pursuant to Applicable Law and the Terms and Conditions of this Contract, including Article XI, Section 11.9, the Academy shall comply with this Schedule.

Information Available to the Public and the Center

The Code provides that the board of directors of a public school academy shall make information concerning its operation and management available to the public and to the Center in the same manner as is required by state law for school districts.

The Code provides that the board of directors of a public school academy shall collect, maintain, and make available to the public and the Center, in accordance with Applicable Law and the Contract, at least all of the following information concerning the operation and management of the Academy:

1. A copy of the Academy's Charter Contract.
2. A list of currently serving members of the Academy Board, including name, address, and term of office.
3. Copies of policies approved by the Academy Board.
4. The Academy Board meeting agendas and minutes.
5. The budget approved by the Academy Board and of any amendments to the budget.
6. Copies of bills paid for amounts of \$10,000.00 or more, as submitted to the Academy Board.
7. Quarterly financial reports submitted to the Center.
8. A current list of teachers and administrators working at the Academy that includes individual salaries as submitted to the Registry of Educational Personnel.
9. Copies of the teaching or administrator's certificates or permits of current teaching and administrative staff.
10. Evidence of compliance with the criminal background and records checks and unprofessional conduct check required under sections 1230, 1230a, and 1230b of the Code for all teachers and administrators working at the Academy.
11. Curriculum documents and materials given to the Center.
12. Proof of insurance as required by the Contract.
13. Copies of facility leases or deeds, or both.
14. Copies of any equipment leases.
15. Copies of any management contracts or services contracts approved by the Academy Board.
16. All health and safety reports and certificates, including those relating to fire safety, environmental matters, asbestos inspection, boiler inspection, and food service.
17. Annual financial audits and any management letters issued as part of the Academy's annual financial audit, required under Article VI, Section 6.11 of the Terms and Conditions of this Contract.
18. Any other information specifically required under the Code.

Information to be Provided by the Academy's Educational Service Provider (if any)

Pursuant to the Terms and Conditions of this Contract, including Article III, Section 3.6, the University Board authorizes the Academy Board to employ or contract for personnel according to the position information outlined in Schedule 5. Any Educational Service Provider Management Agreement entered into by the Academy must contain a provision requiring the Educational Service Provider to provide to the Academy Board information concerning the operation and management of the Academy (including without limitation, but not limited to, the items identified above and annually the information that a school district is required to disclose under Section 18(2) of the State School Aid Act of 1979, MCL 388.1618) available to the Academy Board in order to enable the Academy to fully satisfy its obligations under Section 11.9(a) of the Terms and Conditions of Contract.

AMENDMENT NO. 1

to the
July 1, 2024 Contract to Charter
A Public School Academy and Related Documents

Issued To

IVYWOOD CLASSICAL ACADEMY
(A PUBLIC SCHOOL ACADEMY)

By

THE CENTRAL MICHIGAN UNIVERSITY
BOARD OF TRUSTEES
(AUTHORIZING BODY)

CONTRACT AMENDMENT NO. 1

IVYWOOD CLASSICAL ACADEMY

In accordance with Article IX of the Terms and Conditions of the Contract (the “Contract”), dated July 1, 2024, issued by the CENTRAL MICHIGAN UNIVERSITY BOARD OF TRUSTEES (the “University Board”) to IVYWOOD CLASSICAL ACADEMY (the “Academy”), the parties agree to amend the Contract as follows:

- 1.) Amend the Terms and Conditions of Contract by replacing the language contained within Article IV, Section 4.5. Prohibition of Identified Family Relationships, subsection (b), with the language attached as Tab 1.
- 2.) Further amend the Terms and Conditions of Contract by inserting at the end of Article XII: General Terms, the language attached as Tab 2.
- 3.) Amend Schedule 2: Amended Bylaws, by replacing the language contained within Article XIII, Section 6. Contracts Between Corporation and Related Persons and Article IX: Indemnification, with the corresponding language attached as Tab 3.
- 4.) Amend Schedule 4: Oversight, Compliance and Reporting Agreement, by inserting at the end of Article II, Section 2.2. Compliance and Reporting Duties, the language attached as Tab 4.

This entire amendment is hereby approved by the University Board and the Academy Board through their authorized designees, and shall become effective upon execution by the Designee of the University Board.



Dated: 04/21/2025

By: Corey R. Northrop, Executive Director
The Governor John Engler Center for Charter Schools
Designee of the University Board


Tyler Horning (Apr 16, 2025 12:23 EDT)

Dated: 04/16/2025

By: Tyler Horning President
Ivywood Classical Academy
Designee of the Academy Board

Ivywood Classical Academy
Contract Amendment No. 1

Tab 1

Terms and Conditions: Article IV, Section 4.5(b)

- (b) The Academy Board shall require each individual who works at the Academy to annually disclose any familial relationship with any other individual who works at, or provides services to, the Academy. If an Academy Board member discloses any prohibited familial relationships in the annual disclosure, or if the University finds that an Academy Board member has failed to disclose a prohibited familial relationship, that Academy Board member shall be removed from office, in accordance with the removal provisions found in the Resolution or Schedule 2: Amended Bylaws. For purposes of this subsection, familial relationship means a person's mother, mother-in-law, father, father-in-law, son, son-in-law, daughter, daughter-in-law, sister, sister-in-law, brother, brother-in-law, spouse or domestic partner.

Ivywood Classical Academy
Contract Amendment No. 1

Tab 2

Terms and Conditions: Article XII, Section 12.24

Section 12.24. Required Statutory Disclosures. The Academy shall ensure that the names of Central Michigan University Board of Trustees and the primary educational management organization, if applicable, must appear and be verbally provided, as applicable, on all of the following:

- (a) Unless prohibited by a local ordinance or local zoning authority, signage that is on the Academy's property and is erected, repaired, or installed on or after April 2, 2025;
- (b) Promotional material that is created, modified, or distributed on or after April 2, 2025;
- (c) The footer of the Academy's website pages; and
- (d) The student application that is required to be enrolled in the Academy.

For purposes of this section, "primary educational management organization" shall have the same meaning as defined in MCL 380.503.

Ivywood Classical Academy
Contract Amendment No. 1

Tab 3

Amended Bylaws: Article VIII, Section 6

Section 6. Contracts Between Corporation and Related Persons. As required by Applicable Law, any Director, officer or employee of the Academy, who enters into a contract with the Academy, that meets the definition of contract under the statute on Contracts of Public Servants with Public Entities, Act No. 317 of the Public Acts of 1968, being sections 15.321 to 15.330 of the Michigan Compiled Laws, shall comply with the public disclosure requirements set forth in Section 3 of the statute.

The University Board authorizes the Academy Board to employ or contract for personnel according to the position information outlined in Schedule 5. However, the Academy Board shall prohibit any individual from being employed by the Academy, an Educational Service Provider or an employee leasing company involved in the operation of the Academy, in more than one (1) full-time position and simultaneously being compensated at a full-time rate for each of these positions. An employee hired by the Academy Board shall be an employee of the Academy for all purposes and not an employee of the University for any purpose. With respect to Academy Board employees, the Academy shall have the power and responsibility to (i) select and engage employees; (ii) pay their wages, benefits, and applicable taxes; (iii) dismiss employees; and (iv) control the employees' conduct, including the method by which the employee carries out his or her work. The Academy Board shall be responsible for carrying workers' compensation insurance and unemployment insurance for its employees. The Academy Board may contract with an Educational Service Provider or an employee leasing company to provide services or to provide personnel to perform services or work at the Academy. Before entering into an agreement with an Educational Service Provider or an employee leasing company to perform services or to provide personnel to perform services or work at the Academy, the Academy Board must first comply with the Educational Service Provider Policies issued by the Center. A copy of the agreement between the Academy Board and the Educational Service Provider or employee leasing company shall be included as part of Schedule 5.

The Academy shall comply with the Incompatible Public Offices statute, Act No. 566 of the Public Acts of 1978, of the Michigan Compiled Laws, and the Contracts of Public Servants With Public Entities statute, Act No. 371 of the Public Acts of 1968, of the Michigan Compiled Laws. The Academy Board shall ensure compliance with Applicable Law relating to conflicts of interest. Language in this Section controls over section 1203 of the Code. The following shall be deemed prohibited conflicts of interest:

- (a) An individual simultaneously serving as an Academy Board member and an owner, officer, director, employee or consultant of an Educational Service Provider or an employee leasing company, or a subcontractor to an Educational Service Provider or an employee leasing company that has an ESP Agreement with the Academy;
- (b) An individual simultaneously serving as an Academy Board member and an Academy Board employee;
- (c) An individual simultaneously serving as an Academy Board member and an independent contractor to the Academy;
- (d) An individual simultaneously serving as an Academy Board member and a member of the governing board of another public school;
- (e) An individual simultaneously serving as an Academy Board member and a University official, employee, or paid consultant, as a representative of the University; and

- (f) An individual simultaneously serving as an Academy Board member and having an ownership or financial interest in any real or personal property leased or subleased to the Academy.

No person shall be appointed or reappointed to serve as an Academy Board member if the person's mother, mother-in-law, father, father-in-law, son, son-in-law, daughter, daughter-in-law, sister, sister-in-law, brother, brother-in-law, spouse or domestic partner:

- (a) Is employed by the Academy Board;
- (b) Works at or is assigned to work at the Academy;
- (c) Has an ownership, officer, policymaking, managerial, administrative non-clerical or other significant role with the Academy's Educational Service Provider or employee leasing company; and
- (d) Has an ownership or financial interest in any school building lease or sublease agreement with the Academy.
- (e) Is a current Academy Board member.

The Academy Board shall require each individual who works at the Academy to annually disclose any familial relationship with any other individual who works at, or provides services to, the Academy. If an Academy Board member discloses any prohibited familial relationships in the annual disclosure, or if the University finds that an Academy Board member has failed to disclose a prohibited familial relationship, that Academy Board member shall be removed from office, in accordance with the removal provisions found in the Resolution or these Amended Bylaws. For purposes of this sub-section, familial relationship means a person's mother, mother-in-law, father, father-in-law, son, son-in-law, daughter, daughter-in-law, sister, sister-in-law, brother, brother-in-law, spouse or domestic partner.

Amended Bylaws: Article IX

ARTICLE IX INDEMNIFICATION

To the extent permitted by Applicable Law, each person who is or was a Director, officer or member of a committee of the Academy and each person who serves or has served at the request of the Academy as a trustee, director, officer, partner, employee or agent of any other corporation, partnership, joint venture, trust or other enterprise, may be indemnified by the Academy. The corporation may purchase and maintain insurance on behalf of any such person against any liability asserted against and incurred by such person in any such capacity or arising out of his status as such, whether or not the corporation would have power to indemnify such person against such liability under the preceding sentence. The corporation may, to the extent authorized from time to time by the Academy Board, grant rights to indemnification to any employee or agent of the corporation. The indemnification shall not include any circumstances in which a person who is or was a director, officer or member of a committee of the Academy and each person who serves or has served at the request of the Academy as a trustee, director, officer, partner, employee or agent of any other corporation, partnership, joint venture, trust or other enterprise is grossly negligent or criminally liable for the indemnified act.

Ivywood Classical Academy
Contract Amendment No. 1

Tab 4

Oversight, Compliance and Reporting Agreement: Section 2.2(m)

- m. The Academy shall ensure that the names of Central Michigan University Board of Trustees and the primary educational management organization, if applicable, must appear and be verbally provided, as applicable, on all of the following:
- i. Unless prohibited by a local ordinance or local zoning authority, signage that is on the Academy's property and is erected, repaired, or installed on or after April 2, 2025;
 - ii. Promotional material that is created, modified, or distributed on or after April 2, 2025;
 - iii. The footer of the Academy's website pages; and
 - iv. The school application that a student must submit to enroll in the Academy.

For purposes of this section, "primary educational management organization" shall have the same meaning as defined in MCL 380.503.