UCONN HEALTH

PROJECT SPECIFICATIONS

MUNSON ROAD SWITCHGEAR REPLACEMENT

PROJECT NUMBER 14-601.07

Prepared by:

CELEBRATING 25 years 1991 - 2016
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3190 Whitney Avenue
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For:
Campus Planning, Design and Construction
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MAY 24, 2019

SEC. NO SECTION TITLE

DIVISION 00 - GENERAL CONDITIONS

DIVISION 01 - GENERAL REQUIREMENTS

END OF SECTION

NOTICE AND INSTRUCTIONS TO BIDDERS

ARTICLE 1 GENERAL PROVISIONS

1.0 Contractor Pre-Bid Walk-Throughs

1.0.1 UCONN will provide TWO (2) MANDATORY PRE-BID WALK-THROUGHS at the site as follows:
First Walk-Through will commence with the building occupied and the Switch Gear energized.
Second Walk-Through will commence with the building unoccupied and the electrical service off and the Switch Gear open.

1.1 Contractor's Qualifications

1.1.0 Each Bidder shall submit a completed University of Connecticut Health Center (UCHC) Contractor Qualification Statement demonstrating that it satisfies the UCHC's objective criteria for evaluating qualifications. Additionally, for projects $500,000 and over the Contractor must be Pre-Qualified by the Department of Administrative Services and the UCHC for the work of this project.

1.1.2 Each Bidder shall demonstrate, to the satisfaction of UCHC, that it is able to post surety bonds satisfactory for the project and required by the Contract and that it possesses the financial, managerial and technical ability, and the integrity necessary to faithfully and efficiently perform the work for which it submits a bid, without conflict of interest.

1.1.3 UCHC shall evaluate whether the bidder is qualified based upon the bidder's experience with projects similar to that for which the bid is submitted, the nature of UCHC's experience, if any, with the Bidder on prior or ongoing UCHC projects and upon the above-stated and following objective criteria:

.1 Previous Experience

.1 The Bidder must show or be able to demonstrate to the satisfaction of UCHC that it possesses the ability and capacity to successfully complete the project through the satisfactory past performance of work of a similar nature, size, scope, and comparable dollar value to that of the subject work/projects.

.2 The Bidder shall demonstrate that it has maintained a satisfactory level of performance on such similar work continuously over a 5-year period preceding the date of the Bid. If the Bidder is unable to do so, it must include in the Qualification Statement any and all information demonstrating its ability and capacity to perform the Work.

.3 The Bidder shall be able to furnish references from Owners, Architects, or Engineers indicating that it has completed satisfactorily and in a timely manner work similar to the project being bid. If delays occurred, evidence explaining and exonerating the Bidder shall also be provided.

.4 The Contractor shall be able to demonstrate expertise in the various types of major trades or work required on the work/projects listed by example of successfully completed similar projects.

.5 All Contractors and major subcontractors must possess, at the time the Bid is submitted, a valid license, registration or certification issued by the Department of Consumer Protection in accordance with Connecticut General Statutes Section 20-341(a). If a joint venture, all joint venture partners shall be so licensed, registered or certified.

.6 If a Bidder intends to perform the work of any trade(s) with its own forces, and a license, registration or certification is required by the State of Connecticut in order to perform that work, the Bidder shall hold a valid license or registration to perform work at the time its Bid is submitted. If a joint venture, all joint venture partners shall be so licensed, registered or certified.

.2 Financial Ability/bonding Capacity

.1 The Bidder shall demonstrate that it has sufficient bonding capacity to perform the work in question, is bonded through a surety or sureties possessing a history of responsibility, financial stability and resources satisfactory to UCHC, and is able to post surety bonds which may be required by any contract for which it submits a bid.

.2 The Bidder shall demonstrate, through the materials submitted in its Qualification Statement or as requested, that it possesses sufficient financial resources and stability, and is otherwise financially responsible and able to satisfactorily perform and complete the work for which it submit a bid.

.3 Managerial Ability

.1 The Bidder shall have on its payroll, or must be able to prove that it customarily employs managerial and supervisory personnel of the type qualified to perform the kind of work which may be called for on any project for which it submits a bid.

.2 The Bidder shall demonstrate, through the information submitted in its Qualification Statement or as requested, that it possesses the managerial resources, capability and commitment necessary for and satisfactory to UCHC for the proper performance of the work for which it submits a bid.

.4 Technical Ability

.1 The Bidder or its principals shall own or possess rented or leased equipment of the type customarily required by contractors in the performance of contract work and that such equipment, if needed, is available for the job bid on.

.2 The Bidder or its principals shall have adequate physical facilities in which and from which the Work can be performed.

.3 The Bidder shall demonstrate, through the information submitted in its Qualification Statement or as requested, that it possesses the technical capacity, resources, capability and commitment for the proper performance of the Work for which it submits a bid.

.5 Integrity

.1 The Bidder shall have purchased materials over the past five years from suppliers who customarily sell same in quantity to contractors.

.2 The Bidder shall have a record of harmonious, cooperative, non-adversarial and honest relationships with Owners, including UCHC and the State of Connecticut if the Bidder has performed work on prior UCHC or State projects, as well as, with Architects, Engineers, and Consultants, Subcontractors and Suppliers on prior State projects or other projects.

.3 The Bidder shall demonstrate that it has not been cited for three or more willful or serious violations of any OSHA, or of any standard, order or regulation promulgated pursuant to such act, during the 5-year period preceding this bid, which violations were cited in accordance with the provisions of any State Occupational Safety and Health Act or the Occupational Safety and Health Act of 1970 and which were not abated within the time fixed by the citation; which citations have been set aside following appeal to the appropriate agency or court having jurisdiction.

.4 The Bidder shall not have received one or more criminal convictions related to the injury or death of any employee in the 5-year period preceding this bid.

.5 The Bidder shall not have appeared on any list published by the Connecticut State Labor Commission of persons or firms that have been found in violation of the National Labor Relations Act, 29 U.S.C. 151 et seq., by the National Labor Relations Board and by a final decision rendered by a federal court or that have been found in contempt of court by a final decision of a federal court for failure to correct a violation of said National Labor Relations Act on three or more occasions involving different violations during the five preceding calendar years, if the first day of July following publication of said list has occurred less than three years prior to the Award of any Contract to the Bidder.

.6 The Bidder, or any entity in which the Applicant has an interest, shall not have appeared on any list published by the Connecticut State Labor Commission of persons or firms whom he has found to have disregarded their obligations under Connecticut General Statutes Section 31-53 and 31-76c to employees and subcontractors on public works projects or to have been barred from federal government contracts in accordance with the provisions of the Davis Bacon Act, 40 U.S.C. 276a-2, if said list has been published less than three years prior to the Award of any Contract to the Bidder.

.7 The Bidder or its principals shall not have been convicted of, nor entered any plea of guilty, or nolo contendere, or otherwise have been found civilly liable for any criminal offense or civil action involving embezzlement; forgery; bribery; falsification or destruction of records; receipt of stolen property; collusion, antitrust, conspiracy or other offenses arising out of the submission of bids or proposals on public works project or contracts.

.8 The Bidder shall not be the subject of any order in effect which has been issued by the Commission of Human Rights and Opportunities, pursuant to Connecticut General Statutes 46a-56 or any regulation, prohibiting any contracting agency of the State of Connecticut from entering into contracts with the Bidder. The Bidder shall also not be listed in any current list compiled by the Commission of contractors whom it has found to be in non-compliance with anti-discrimination or contract compliance statutes, nor shall the Bidder be the subject of any unabated or un-expired Notice of Non-Compliance issued by the Commissioner.

.9 The Bidder shall demonstrate, through the information submitted in its Qualification Statement, that, by its past and present actions and conduct, and that of its principals and principal employees, it possesses the integrity necessary for, and satisfactory to UCHC, for the proper performance of the Work for which it submits a bid.

.6 Conflict of Interest

.1 The Bidder shall disclose and identify to UCHC, with its Qualification Statement, any relationships which may constitute a potential conflict of interest with the Office of Facility Contracts & Leases, Facilities Development and Operations, Purchasing Services, or any other UCHC organizations or department; or architect, engineer, consultant, or designer of the proposed project(s) for the purpose of determining whether a conflict of interest exists. All such disclosures require acceptance/approval action on the part of UCHC, which shall determine whether an impermissible conflict exists.

.7 UCHC also reserves the right to find any Bidder to be non-responsible or non-qualified with respect to a specific project, notwithstanding the fact that it may have previously been selected for previous projects for UCHC.

1.2 Schedule

1.2.1 It is important to UCHC, in order to maintain the integrity of its ongoing activities, that its rules and regulations and the requirements of the Contract Documents, regarding noise control, traffic control etc. and other matters which may affect its operations be strictly adhered to, and that its schedule be maintained. Therefore, all Bidders shall familiarize themselves with and comply with the schedule of UCHC, and its regulations regarding noise, traffic, etc. which are available from Facilities Development and Operations. No noise generating work shall be allowed where the noise will impact UCHC functions. Examples of noise generating work include, but are not limited to, sawing, drilling, and hammering/jack hammering. The Contractor shall keep UCHC Representative informed as to the location of its operations to enable necessary precautions or co-ordination to be implemented.

1.3 Non-Discrimination and Affirmative Action Provisions

1.3.1 This Section is inserted in connection with Subsection (a) of Sections 4a-60, and 4a-60a of the General Statutes of Connecticut, as revised.

1.3.2 The Contractor agrees and warrants that in the performance of the Contract such Contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of race, color, religious creed, age, marital status, national origin, ancestry, sex, mental retardation or physical disability including, but not limited to, blindness, unless it is shown by such Contractor that such disability prevents performance of the work involved, in any manner prohibited by the laws of the United States or of the State of Connecticut. The Contractor further agrees to take affirmative action to insure that applicants with job-related qualifications are employed and that employees are treated when employed without regard to their race, color, religious creed, age, marital status, national origin, ancestry, sex, mental retardation, or physical disability, including, but not limited to, blindness, unless it is shown by such Contractor that such disability prevents performance of the work involved.

1.3.3 The Contractor agrees, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, to state that it is an "affirmative action-equal opportunity employer" in accordance with regulations adopted by the Commission on Human Rights and Opportunities.

1.3.4 The Contractor agrees, to provide each labor union or representative of workers with which such Contractor has a collective bargaining agreement or other contract or understanding and each vendor with which such Contractor has a contract or understanding, a notice to be provided by the Commission advising the labor union or workers' representative of the Contractor's commitments under Sections 4a-60 and 4a-60a of the Connecticut General Statutes, and to post copies of the notice in conspicuous places available to employees and applicants for employment.

1.3.5 The Contractor agrees to comply with each provision of Sections 4a-60, 4a-60a, 46a-68e and 46a-68f of the Connecticut General Statutes, and with each regulation or relevant order issued by said Commission pursuant to Sections 46a-56, 46a-68e and 46a-68f of the Connecticut General Statutes.

1.3.6 The Contractor agrees to provide the Commission on Human Rights and Opportunities with such information requested by the Commission, and permit access to pertinent books, records and accounts, concerning the employment practices and procedures of the Contractor as relate to the provision of Sections 4a-60, 4a-60a and 46a-56 of the Connecticut General Statutes. The Contractor further agrees and warrants that he will make good faith efforts to employ minority business enterprises as Subcontractors and suppliers of materials on the project.

1.3.7 The Contractor shall include the provisions of Clauses 1.4.1 through 1.4.6 and 1.4.8, (as provided in Connecticut General Statutes Sections 4a-60(a) and 4a-60a (a)) in every subcontract or purchase order entered in order to fulfill any obligation of a contract with the University and such provisions shall be binding on a Subcontractor, vendor or manufacturer unless exempted by regulations or orders of the Commission.

1.3.8 The Contractor agrees and warrants that in the performance of the Contract such Contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of sexual orientation, in any manner prohibited by the law of the United States or of the State of Connecticut, and that employees are treated when employed without regard to their sexual orientation.

1.4 Union Labor

1.4.1 Attention is called to the fact that there may be construction work now being carried on at the site at which this construction is contemplated being done by UNION LABOR. This fact must be kept in mind by all Bidders submitting proposals for this work.

1.5 Labor Market Area

1.5.1 All Bidders shall have read Sections 31-52 and 31-52a of the Connecticut General Statutes, as amended. These references relate to the preference of State citizens, the preference of residents of the labor market area in which the work under the Contract is to be done and the penalties for violations.

1.5.2 In order to avoid violations by the Contractor and to cooperate with and assist UCHC in the implementation of the statutory mandates, any Contractor awarded a contract with UCHC shall be required to provide UCHC with the following information:

.1 The names and addresses of employees utilized by the Contractor and by its Subcontractors and how long each such employee has resided in Connecticut.

.2 How long each employee has resided in the labor market area, as established by the State Labor Commissioner, in which the work under the Contract is to be done.

.3 Within thirty (30) days after the start of work, the Contractor shall submit a signed statement setting forth the procedures the Contractor and its Subcontractors have taken to assure that they have sought out qualified residents of the labor market area. Also, the statement shall include information as to how many persons were considered for employment and how many were actually hired. Such procedures will include, but not be limited to, obtaining names of available persons from area Employment Security Offices.

.4 In the same manner as Clause 1.5.2.3 above, the statement shall indicate the steps taken to assure that the Contractor and its Subcontractors have sought out qualified residents of the State of Connecticut.

.5 The Contractor shall cooperate with and provide information to UCHC Representative assigned to collect and verify the information required. UCHC may request that all such information be updated during the term of the Contract at reasonable times.

.6 All such information gathered and compiled by UCHC shall be forwarded to the State Labor Commissioner.

1.6 Wage Rates

1.6.1 Each contractor who is awarded a contract on or after October 1, 2002 shall be subject to provisions of the Connecticut General Statutes, Section 31-53 as amended by Public Act 02-69, "An Act Concerning Annual Adjustments to Prevailing Wages".

ARTICLE 2 BIDDERS' REPRESENTATIONS

2.1 The amount of each Bid shall be deemed to include the entire cost and expense of every item of labor and material necessary to complete the work bid upon, as specified, in full detail ready for use. The risk of all such costs and expenses shall be deemed assumed by the successful Bidder. UCHC shall assign a UCHC Representative to work with the successful Contractor as a liaison.

2.2 In performing its obligations under this Contract, the Contractor agrees to comply with all applicable statutes, laws, ordinances, regulations, codes, rules or orders of, or issued by, any governmental body having jurisdiction over the work, location of the work or contract.

ARTICLE 3 BIDDING DOCUMENTS

3.1 Bid Clarifications, Addenda and Interpretations

3.1.1 No interpretations of the meaning of the Drawings, specifications or other Contract Documents will be made orally to any Bidder. Every request for such interpretation must be made in writing to UCHC Office of Facility Contracts & Leases, and to be given consideration shall be received at least ten (10) days prior to the date fixed for the opening of Bids unless directed otherwise.

3.1.2 Any and all such interpretations and any supplemental instructions will be in the form of written addenda which, if issued, will be mailed, emailed and/or faxed to all prospective Bidders (at the respective addresses furnished for such purposes) not later than five (5) days prior to the date fixed for the opening of Bids unless directed otherwise. Failure of any Bidder to receive any such addendum or interpretation shall not release any Bidder from any obligations under his Bid as submitted, provided notice has been sent to the address

furnished by such prospective Bidder for the transmittal of notices, addenda and interpretations. It shall be the Bidder's responsibility to make inquiry as to, and to obtain, the Addenda issued, if any.

3.1.3 The number of days shown in 3.1.1 and 3.1.2 may differ from the actual dates given in an Agenda for a Pre-Bid or Pre-Proposal Conference, if so, the number of days listed are, hereby, superseded by the Agenda dates, unless the Bid or Proposal is extended by Addendum, in which case the number of days will again apply unless stated differently in the Addendum.

3.1.4 Bidders shall promptly notify the UCHC of any ambiguity, inconsistency or error which they may discover upon examination of these Contract Documents.

ARTICLE 4 BIDDING PROCEDURES

4.1 Form of Proposal

4.1.1 Enclosed within this Project Manual is a Bid Form. Bids shall be submitted on a copy of this form. Additional instructions to bidders including information on submission of bids and award and Contract appear on this form. This and all other documents required by these Bid Documents must be returned with your Bid.

4.2 Bids and Rejection of Bids

4.2.1 General Bids shall be for the complete work as specified and shall include the names of any Subcontractors for the classes of work specified in Article 4.1.1 below, and for each other class of work for which UCHC has required a separate section and the dollar amounts of their subcontracts, and the General Contractor shall be selected on the basis of such general Bids. It shall be presumed that the general Bidder intends to perform with its own employees all work in such four classes and such other classes, for which no Subcontractor is named. The general Bidder's qualifications for performing such work shall be subject to review by UCHC pursuant to the Bid and the Contract Documents.

4.2.2 Bids shall be submitted only on the forms furnished for the specific project, which shall include a completed Bid Form containing all information required on the Proposal form, executed with an original signature by a duly authorized officer or representative of the Bidder, and, in the case of a Joint Venture, by duly authorized representatives of each Joint Venturer. In no event will Bids or changes in Bids made by telephone or telefax be considered. Any Bid Form which omits or adds items, alters the form, contains conditional or alternative Bids, will be rejected.

4.2.3 Any Bids received after the scheduled closing time for the receipt of Bids will be returned to the Bidders unopened.

4.2.4 Any Bid may only be withdrawn by letter of request, signed by the depositing Bidder and presented to the Office of Facility Contracts & Leases, prior to the time of opening of any Bid for the project designated or identified project.

4.3 Bid Security

4.3.1 Each Bid must be accompanied by a Bid Bond in the form required by UCHC, having as surety thereto such surety company or companies acceptable to UCHC and as are authorized to do business in this State, for an amount not less than 10 per cent of the Bid, or the Bid may be accompanied by a certified check payable to the order of UCHC. All checks

submitted by unsuccessful Bidders shall be returned to them after the Contract has been awarded. Bid Security is not required for projects under $20,000.00.

4.3.2 Failure of the successful Bidder to file the required Performance and Labor & Material bonds shall be just cause for the amount of the security deposited with the Bid to be forfeited, any part of the whole of which may be used to make up the difference between the Bid of the defaulting Bidder and the Bid of the next lowest responsible qualified Bidder to whom the work is finally awarded. Failure to execute a contract after award as specified and bid shall also result in the forfeiture of such Bid Bonds or Certified Check.

4.4 Subcontractors

4.4.1 The Bidder agrees that each of the Subcontractors listed on the Proposal Form will be used for the work indicated at the amount stated unless a substitution is permitted by UCHC.

4.4.2 Within five days after being notified of the award of a general Contract by UCHC, or, in the case of an approval of a substitute Subcontractor by UCHC, within five days after being notified of such approval, the general Bidder shall present to each listed or substitute Subcontractor:

.1 A subcontract in the form set forth in Section 4b-96 of the Connecticut General Statutes, which form is appended and is located under the subcontractor agreement section of the Invitation to Bid must be executed with all of Bidder's named subcontractors in Bidder's form of proposal.

.2 Notice of the time limit under this section for executing a subcontract: If a listed Subcontractor fails within five days, Saturdays, Sundays and legal holidays excluded, after presentation of a subcontract by the general Bidder selected as a General Contractor, to perform his agreement to execute a subcontract in the form hereinafter set forth with such general Bidder, contingent upon the execution of the general Contract, the General Contractor shall select another Subcontractor, with the approval of UCHC. When seeking approval for a substitute Subcontractor, the general Bidder shall provide UCHC with all documents showing (a) the general Bidder's proper presentation of a subcontract to the listed Subcontractor and, (b) communications to or from such Subcontractor after such presentation. UCHC shall adjust the Contract Price to reflect the difference between the amount of the price of the new Subcontractor and the amount of the price of the listed Subcontractor if the new Subcontractor's price is lower and may adjust such Contract Price if the new Subcontractor's price is higher. The general Bidder shall, with respect to each listed Subcontractor or approved substitute Subcontractor, file with UCHC a copy of each executed subcontract within ten days, Saturdays, Sundays and legal holidays excluded, of presentation of a subcontract to such Subcontractor.

ARTICLE 5 CONSIDERATION OF BIDS

5.1 Every general bid which is conditional or which contains any addition not called for shall be invalid; and UCHC shall reject every such general Bid. UCHC shall be authorized to waive minor irregularities, which it considers in its best interest, provided the reasons for any such waiver are stated in writing by UCHC and made a part of the contract file. No such general Bid shall be rejected because of the failure to submit prices for, or information relating to, any item or items for which no specific space is provided in the general Proposal Form furnished by UCHC, but this sentence shall not be applicable to any failure to furnish prices or information required by Articles 4.2.1 and 4.4.1 above to be furnished in the form provided by UCHC. UCHC also reserves the right to reject any and all bids and again advertise for bids, or to otherwise proceed as permitted under Connecticut General Statutes 10a-109a through 10a-109y.

5.2 General Bids shall be publicly opened and read by UCHC forthwith. UCHC may require in the Proposal Form that the General Contractor agree to perform a stated, minimum percentage of work with his own forces. UCHC may also require the General Contractor to set aside a portion of the contract for Subcontractors who are eligible for set aside contracts. UCHC shall not permit substitution of a Subcontractor for one named in accordance with the provisions of these Instructions or substitution of a Subcontractor for any designated sub trade work bid to be performed by the General Contractor's own forces, except for good cause. The term "good cause" includes but is not limited to a Subcontractor's or, where appropriate, a General Contractor's: (1) Death or physical disability, if the listed Subcontractor is an individual; (2) dissolution, if a corporation or partnership; (3) bankruptcy; (4) inability to furnish any performance and payment bond shown on the Proposal Form; (5) inability to obtain, or loss of, a license necessary for the performance of a particular category of work; (6) failure or inability to comply with a requirement of law applicable to Contractors, Subcontractors, on construction, alteration, or repair projects; (7) failure to perform his agreement to execute a subcontract under Connecticut General Statutes Section 4b-96 and Exhibit U appended hereto.

5.3 Pursuant to Connecticut General Statute § 4b-93, the general bid shall include plans and specifications detailing all labor and materials to be furnished the contract. The specifications shall have a separate section for each of the following classes of work if, in the estimate of UCHC, the class of work will exceed twenty-five thousand dollars: (1) Masonry work; (2) electrical work; (3) mechanical work other than heating, ventilating and air conditioning work; and (4) heating, ventilating and air conditioning work. Such specifications shall also have a separate section for each other class of work for which UCHC deems it necessary or convenient. The Bidder shall provide the names of the subcontractor and price of the subcontract for all classes of work designated on the Bid Form provided with the general Bid. **FAILURE TO CORRECTLY STATE A SUBCONTRACTOR'S PRICE SHALL BE CAUSE FOR REJECTION OF THE GENERAL BIDDER'S BID.**

5.4 Any General Contractor who violates any provision of Connecticut General Statutes Section 4b-95 may be disqualified from bidding on other contracts that are subject to the provisions of Chapter 60 of the General Statutes for a period not to exceed twenty-four months, commencing from the date on which the violation is discovered, for each violation.

5.5 UCHC reserves the right to accept or reject any or all Bids within 90 calendar days of the Bid opening, and the Bidder agrees that it may not modify, withdraw, or cancel its Bid and that its Bid Price will be firm for this 90 day period. This 90 day period may be extended by mutual agreement between UCHC and the Bidder.

5.6 The project will be awarded to the responsible qualified Bidder submitting the lowest Bid in compliance with the Bid requirements and within the budget, subject to the provisions of Connecticut General Statutes 10a-109a through 10a-109y.

5.7 UCHC reserves the right to elect to implement some, all or none of the Alternates and/or Options set forth in the Proposal forms, as may be in the best interest of UCHC. The low Bid shall be determined by taking the Base Price set forth in Proposal form as selected by UCHC, plus the Alternates and/or Options selected by UCHC.

5.8 The Bidder agrees that if selected as General Contractor, he shall, within five days, Saturdays, Sundays and legal holidays excluded, after presentation thereof by UCHC, execute a contract in accordance with the terms of the general Bid.

ARTICLE 6 POST-BID INFORMATION

6.1 Affirmative Action

6.1.1 Pursuant to Connecticut General Statutes Section 46a-68d, if this project is estimated to cost more than $50,000.00 then: In the event that the Bidder's Bid is accepted, after acceptance, but before a contract is awarded, the successful Bidder shall file and have approved by the Commission on Human Rights and Opportunities an Affirmative Action Plan. The Commission may provide for conditional acceptance of an Affirmative Action Plan provided written assurances are given by the Contractor that it will amend its plan to conform to affirmative action requirements. UCHC shall withhold 2% of the total Contract Price per month from any payment made to such Contractor until such time as the Contractor has developed an Affirmative Action Plan, and received the approval of the Commission. Notwithstanding the provisions of Connecticut General Statutes Section 46a-68d, a Contractor subject to the provisions of that Section may file a plan in advance of or at the same time as its Bid.

6.1.2 UCHC shall not enter into a contract with any Bidder or prospective Contractor unless the Bidder or prospective Contractor has satisfactorily complied with the provisions of Sections 4a-60, 32-9e, 46a-56 and 46a-68c to 46a-68f, inclusive of the Connecticut General Statutes, or submits a program for compliance acceptable to the Commission on Human Rights and Opportunities.

6.1.3 The Contractor shall designate an "Equal Opportunity Contract Compliance Officer" for the project. The Contractor designee, in addition to any other duties assigned by the Contractor, shall have the following responsibilities for the implementation of the Contractor Affirmative Action Plan (AAP) that is required for the project pursuant to Connecticut General Statutes Sections 46a-68c and 46a-68d.

.1 Maintain a project EEO file to include all records, correspondence and other documentation related to the project AAP.

.2 Communicate to and inform all project Contractors and Subcontractors, regardless of tier, and labor referral organizations (if applicable) about project equal opportunity and AAP expectations and performance requirements.

.3 Compile all on-site Contractor MONTHLY EMPLOYMENT UTILIZATION REPORTS (form CHRO cc-257) and submit a cumulative report for the project each month to report on contractor compliance to project AAP hiring goals. The cumulative report shall be submitted to the contract awarding agency and to the Commission on Human Rights and Opportunities by the 15th day following the end of each calendar month during the pendency of the on-site construction work of the project.

.4 Attach a copy of your transmittal letter to CHRO as a document to be submitted with your invoice.

.5 Compile and submit a QUARTERLY SMALL CONTRACTOR AND MINORITY BUSINESS ENTERPRISE PAYMENT STATUS REPORT (form CHRO cc-258) to report on the participation of such Contractors identified to participate on the project. The report shall be submitted to the contract awarding agency and to the Commission on Human Rights and Opportunities by the 15th day following the end of each calendar quarter during the pendency of the on-site construction work of the project.

.6 Attach a copy of your transmittal letter to CHRO as a document to be submitted with your invoice.

.7 Participate in project job meetings to inform project Contractors about project equal opportunity and AAP performance.

.8 Coordinate "External Communication" section (employment outreach) of contractor AAP for all employment opportunities resultant during the course of the project from all project Contractors and maintain documentation of all contacts and responses.

ARTICLE 7 PERFORMANCE AND PAYMENT BOND

7.1 Performance Bond

7.1.1 Prior to the award of the Contract, the successful Bidder shall substitute for the Bid Bond or check accompanying his Bid, an executed UCHC Performance Bond, in the amount of 100 per cent of the Contract Price, conditioned upon the faithful performance of the Contract.

7.2 Labor and Material Payment Bond

7.2.1 At this same time, the Bidder shall submit a UCHC Labor and Material Payment Bond in the sum of not less than 100 per cent of the Contract Price, containing the condition that the Contractor will promptly pay for all material furnished and labor, supplied or performed in the prosecution of the work whether or not said material or labor is involved and/or becomes a component part of the structure or structures to be erected. Such additional bond shall be held for the use of each party who, as Subcontractor or otherwise, shall have furnished material or supplies or shall have performed labor in the prosecution of the work as herein provided and who has not been paid therefore. Such additional bond shall provide specifically that any person may bring suit thereon in the name of the person suing, prosecute the same to the final judgment and have execution thereon for such sum or sums as may be justly due. The State shall not be liable to furnish counsel nor for the payment of any costs or expenses of any such suit. This bond is to be furnished pursuant to Section 49-41 of the General Statutes of Connecticut, and claims thereon shall be subject to the provisions of Connecticut General Statutes Section 49-42.

7.3 General Provisions Regarding Bonds

7.3.1 The aforementioned Performance and Payment bonds shall be provided in the forms required by UCHC, samples of which are appended hereto. If the Contractor is a Joint Venture, all such bonds shall name all joint venturers as principals. The Contractor shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix thereto a certified and current copy of the power of attorney. The above bonds shall be required for projects for which the total estimated cost of labor and materials under the Contract is at least $20,000.00. The above bonds shall be acceptable to UCHC and, as a minimum, issued through a bonding company licensed to transact such business in the State of Connecticut and named on the current list of "Surety Companies Acceptable on Federal Bonds" as published in the "Treasury Department Circular 570."

END OF SECTION

CONTRACTOR QUALIFICATION STATEMENT 1

PROJECT NAME: UCONN Munson Road Switchgear Replacement

PROJECT NUMBER: 14-601.07

PREQUALIFICATION FOR: ❒ GENERAL CONTRACTOR ❒ CONSTRUCTION MANAGER AT RISK
❒ TRADE:_____

General Information ❒ MBE ❒SBE ❒ WBE ❒DBE

Name of Company: _____

Street Address: _____

City/State/Zip: _____

❒ Main Office ❒ Regional Office ❒ Local Office

❒ Corporation ❒ Partnership ❒ Sole Proprietorship ❒ LLC ❒ Joint Venture

Name of President/General Partners/Owner: _____

Parent Company: _____

Year Company Started: _____

State of Incorporation:_____ Date of Incorporation: _____

Other names your Company has operated under: _____

Federal ID Number: _____

List of Corporate Officers, Partners, Proprietors, & Members of your Organization: _____
_____
_____
_____
_____

Contractor's License Number: _____ State:_____ Expiration Date: _____

Contractor's License Number: _____ State:_____ Expiration Date: _____

Contractor's License Number: _____ State:_____ Expiration Date: _____

List any Subsidiaries and Affiliates of your Company: _____
_____

List jurisdictions and/or trade categories in which your Firm is legally qualified to do business. It is mandatory that the firm be legally qualified to do business in the State of Connecticut. If the applicant is a joint venture, all joint venture partners must be qualified to do business in the State of Connecticut. Connecticut General Statutes: 20-341gg; 20-330 et seq.; 33-615. _____
_____

RELEVANT EXPERIENCE

Trade that your Company is requesting to be qualified: _____

List categories of work that your company normally performs with its own forces: _____
_____
_____
_____
_____

Upon request provide the Agency with a list of major projects your organization has completed in the past five years, giving the name of the project, owner, architect, date of completion, and percentage of the cost of the work performed with your own forces.

DAS PREQUALIFICATION

Prequalification by the State of Connecticut, Department of Administrative Services (DAS) is not required however each bidding contractor so qualified shall complete information below.

DAS Prequalification (List all DAS Categories which your firm is currently Pre-Qualified): _____
_____
_____
_____
_____

Provide and attach to this Contractor Qualification Statement the following information;

- √ **Provide a copy of your current DAS Certificate for the Classification required in this specific project.**

CLAIMS & SUITS

Within the past 5 years has your firm or any part of your firm; any owner, or partial owner of your firm; or any other person in any way associated with or employed by your firm ever been barred, suspended,

disqualified or otherwise precluded from bidding or offering a proposal on contracts by any municipality or any agency of the State of Connecticut, other states, or the Federal Government? **YES / NO**

√ **If yes, on a separate page, include an explanation of any previous debarment and copies of any notice of reinstatement.**

State whether within the past 5 years you have been defaulted, terminated, or have had any liquidated damages or other contractual penalties for failures to timely or properly perform a contract assessed against you and indicate the current status of any litigation involving those transactions. **YES / NO**

√ **If yes, on a separate page, include an explanation of any previous default, termination or damage assessment and copies of any notice of reinstatement.**

State whether within the past 5 years you have been declared to be a non-responsible bidder or proposer on any public work project? and identify the project and date of the findings. **YES / NO**

√ **If yes, on a separate page, indentify the project name, the Owner of the project and the date of the findings.**

Please indicate either yes or no to the following questions. You may attach a separate sheet to explain any yes answers. For any yes answer in response to the following questions please identify the offense, along with the location of the court or tribunal administering the matter, and the docket or proceeding number of the matter.

Has your firm or any part of your firm, any owner, or partial owner of your firm, or any person in any way associated with or employed by your firm ever:

Had a conviction or entry of a plea of guilty or nolo contendere for commission of a criminal offense as an incident to obtaining or attempting to obtain a public or private contract or subcontract or in the performance of such contract or subcontract? (Connecticut General Statute31-57c) **YES / NO**

_____

Had a conviction or entry of a plea of guilty or nolo contendere under state or federal law for embezzlement, theft, forgery, bribery, falsification or destruction of records, receiving stolen property, or any other offense indicating a lack of business integrity or business honesty which affects responsibility as a contractor? (Connecticut General Statute31-57c) **YES / NO**

_____

Had a conviction or entry of a plea of guilty or nolo contendere under state or federal antitrust, collusion or conspiracy statutes arising out of the submission of bids or proposals? (Connecticut General Statute31-57c) **YES / NO**

_____

Been cited for noncompliance with contract provisions on a public project, of a character regarded by the awarding authority to be of such gravity as to indicate a lack of responsibility to perform as a state contractor, including deliberate failure, without good cause, to perform in accordance with specifications or time limits provided in a contract? **YES / NO**

_____

Within the previous 5 years compiled a record of failure to perform or of unsatisfactory performance in accordance with the terms of one or more contracts, unless such failure to perform or unsatisfactory performance was caused by acts beyond your control? **YES / NO**

_____

On a public project or contract, been cited for any other cause the awarding authority determined to be so serious or compelling as to affect responsibility as a state contractor, including disqualification by another governmental entity, having caused financial loss to the state or having caused a serious delay or inability of state officials to carry out their duties on a past contract or contracts? **YES / NO**

_____

On a separate sheet of paper, identify all litigation or arbitration proceedings including out of court settlements initiated by or against you within the past five (5) years including all pending cases. List the name of the project, the project location and the court or arbitration number and location. Briefly describe, use a separate sheet if necessary, the circumstances and disposition of each case. Specifically identify and provide details of each instance of claims or legal proceedings by or against a public or private Owner. Please note that generalized responses such as "litigation arising in the ordinary course of doing business" are not acceptable.

_____

On a separate sheet of paper, identify any OSHA citations within the past five (5) years under present business name or any past business name. Have you been cited for three or more willful or serious violations of OSHA, or of any standard, order or regulations promulgated pursuant to such Act which violations were cited in accordance with the provisions of any State Occupational Safety and Health Act or the Occupational Safety and Health Act of 1970 and which were not abated within the time fixed by the citation; and which citation has not been set aside following appeal to the appropriate agency or court having jurisdiction? Additionally list any criminal convictions related to the injury or death of any employee. (Connecticut General Statute 31-57b)

_____

Have you appeared on any list published by the Connecticut State Labor Department of persons or firms that have been found by the National Labor Relations Board and by a final decision rendered by a Federal Court to have been in violation of the National Labor Relations Act, 29USC 151 et. seq. or to have been found in contempt of court by a final decision of a Federal Court for failure to correct a violation of the National Labor Relations Act on three or more occasions involving different violations? (Connecticut General Statute 31-57a) **YES / NO**

√ **If the answer to the preceding question is "yes" state the date of publication of such list by the Connecticut State Labor Department.** _____

On a separate sheet of paper, identify any instances within the previous five years in which you or any entity in which you have an interest, has appeared on a list published by the State of Connecticut Labor Department of persons or firms who the Labor Department has found you to have disregarded or violated your obligations to employees and subcontractors on public works projects under Connecticut General Statutes 31-53 and 31-76c (i.e. payment of prevailing wages and overtime payments) or in which you have been barred from Federal government contracts in accordance with the provisions of the Davis Beacon Act, 40 U.S. C. 276a-2. Describe in detail the circumstances of each violation, including but not limited to, the

date and nature of the violation, the project on which the violation occurred, the source, if known, of any complaint giving rise to any Department of Labor investigation, the results of any such investigation, the penalty imposed or other action taken by the Department of Labor, any remedial action which was taken and any other resolution of any such complaint or violation. (Connecticut General Statute 31-53a)

On a separate sheet of paper, identify any instances in which any complaint has been made to, or any investigation or inquiry has been conducted by, the State of Connecticut Department of Labor regarding any alleged non-compliance by your or by any subcontractors on your previous projects, of any provision of Part III of Chapter 557 (Connecticut General Statutes Sections 31-52 through 31-57e, prevailing wage and other requirements) and Chapter 558 (Connecticut General Statutes Sections 31-58 through 31-761, minimum wage, overtime and other requirements) during the five calendar years immediately preceding this Application. Describe in detail the circumstances of each violation, including but not limited to, the date and nature of the violation, the project on which the violation occurred, the source, if known, of any complaint giving rise to any Department of Labor investigation, the results of any such investigation, the penalty imposed or other action taken by the Department of Labor, any remedial action which was taken and any other resolution of any such complain or violation.

√ If in the event that there were such instances as described in your responses, you are further required to provide with your Application a written statement of the policy and procedures you would implement on this project in an effort to insure that you and your subcontractors would remain in compliance with the statutory requirements for wage rates and payment of wages as noted above. _____

State whether you have ever been cited or penalized by any government agency for failure to comply with any affirmative action, non-discrimination, or other human rights requirements applicable to any work performed by you. If so, provide the date(s), details, disposition and docket number(s) for each such instance.

On a separate sheet of paper, identify any criminal charges, indictments or civil enforcement actions currently pending against you or your principals involving any of the offenses or violations referred to above? If so identify the offense(s), court docket number and status of proceeding(s)._____

Have you ever been found by the Connecticut Department of Public Works, or another State Agency to be in violation of the subcontractor listing requirements or other provisions of Connecticut General Statutes Section 4b-95? **YES / NO**

√ **If yes, on a separate page, indicate the nature, date and circumstances of any such violation.**

Have you ever been cited for or been the subject of a civil or criminal court proceeding alleging that you have violated the provisions of Connecticut General Statutes Sections 31-52 or 31-52a regarding providing preference to Connecticut citizens or residents in the construction of public buildings or works? **YES / NO**

√ If yes, provide details concerning the date, circumstances and disposition of any such citation or court proceeding

MANAGERIAL ABILITY

Upon request provide the Agency with a list of construction experience and present commitments of the key individuals of your organization. Additionally list the personnel, together with their qualifications and resumes, of whom would most likely be assigned to the project team for this project, including but not limited to the Project Executive, Site Manager, Project Manager(s), Safety Engineer/Superintendent, support staff, either located at the University or your home office or both for administrative, accounting, estimating etc. State the specific anticipated involvement of each individual in the project. Such proposed project team shall demonstrate through their resumes, relevant experience in like size projects, duration and scope as the one you are submitting to be prequalified for.

TECHNICAL ABILITY

Every Firm is expected to have in place a QA/QC/CC program and procedures as well as a Health and Safety Plan. Upon request such information shall be provided to the Agency.

QA/QC/CC program and procedures should include, but not be limited to, a description of any and all inspection and testing procedures and activities, the various steps and procedures and methods used in the QA/QC/CC process, the nature and qualifications of the internal team and/or organizations and process are being followed from the planning, through construction, and through any applicable warranty or post construction period, the methods used to report on inspections and observations such as, Quality Control reports, the methods to report to the Owner and to address and correct instances of contract and code non-compliance and construction and/or design defects and deficiencies, and whether your firm's QA/QC/CC program and procedures are in writing.

FINANCIAL

Provide a letter from your Bonding Company or its representative confirming bonding limits.

Name and address of bonding company:_____

_____

What is the most current rating the A.M. Best Company has assigned your bonding company? _____

Total bonding capacity as of the first working day of this month, state in dollars, not as a range:
$_____

Total bonding committed as of the first working day of this month, state in dollars not as a range:
$_____

Maximum bonding permitted by your Bonding Company for a single project for your firm, state in dollars not as a range:
$_____

Provide a listing of your anticipated completion of current bonded work to indicate when additional capacity will be available.

Does your bonding company hold a Certificate of Authority as an acceptable Surety and/or Reinsuring Company acceptable to the US Department of Treasury?

_____yes _____no

If requested the Bidder shall provide a copy of the most recent Audited or Reviewed Financial Statement.

WORKERS COMPENSATION INSURANCE CERTIFICATE

Attach a sample copy of your Connecticut Workers Compensation Insurance Certificate. Also please provide your National Council on Compensation Insurance (NCCI) Experience Modification Sheet and state here your Workers Compensation Experience Modification: _____

If the Contractor's workers compensation experience modification rating is in excess of 1.00, the Contractor shall demonstrate to the satisfaction of the University with their submission, a letter detailing the reasons why your rating is in excess and what managerial commitment your firm is taking to reduce its rating as necessary for and satisfactory to the University for the proper performance of the work for which it intends to bid.

ACKNOWLEDGEMENT

Dated at _____ this _____ day of Two Thousand and _____ (_____)

Name of Company:

_____

Completed by:

_____ (must be an Officer of the Company)

Title:

_____

Signature:

_____

_____being duly sworn deposes and says that the information provided herein is true and sufficiently complete so as to not be misleading.

Subscribed and sworn before me this _____ Day of _____, _____

Notary Public: _____ My commission expires:

_____

CONTRACTOR QUALIFICATION DOCUMENT CHECKLIST

As part of this submission, the Contractor shall include the following information (hard copy documentation):

- ☐ State Department of Administrative Services Certificate of Pre-qualifaction
- ☐ Letter from Bonding Company
- ☐ National Council on Compensation Insurance (NCCI) experience Modification Sheet.
- ☐ Copies of your company's licenses, registrations, and/or certifications from the State of Connecticut.

Upon request, the Contractor shall be prepared to provide any or all of the following information (hard copy documentation) as part of or in addition to this submission:

- ☐ Explanation of any all Claims or Suits, attach all details
- ☐ A list if any citations for alleging that you or your company have violated the provisions of Connecticut General Statues Sections 31-52 or 31-52a.
- ☐ List of construction experience and commitments of key individuals of your organization. Include list of personnel, with their qualifications and resumes. (See Section on Managerial Ability).
- ☐ Company Quality Assurance/Quality Control/Code Compliance Program and Procedures as well as Health and Safety Plan
- ☐ Copy of most recent Audited or Reviewed Financial Statement

END OF SECTION

PROJECT NAME: MUNSON ROAD SWITCHGEAR REPLACEMENT

PROJECT NUMBER: 14-601.07

PROPOSAL OF:

_____

___

BIDDER'S NAME

_____

___

BIDDER'S ADDRESS

DATE:

_____

___

1. In accordance with Connecticut General Statutes Sections 10a-109a through 10a-109y and pursuant to, and in compliance with your Invitation to Bid, the Notice and Instructions to Bidders, the Form of Contract, including the conditions thereto, the form of required bond, I (we) propose to furnish the labor and/or materials installed as required for the project named and numbered on the BID FORM of this proposal to the extent of the Proposal submitted herein, furnishing all necessary equipment, machinery, tools, labor and other means of construction, and all materials specified in the manner and at the time prescribed strictly in accordance with the provisions of the Contract including specifications and/or drawings together with all addenda issued and received prior to the scheduled closing time for the receipt of the bids, and in conformity with requirements of the University of Connecticut and any laws or departmental regulations of the State of Connecticut or of the United States which may affect the same, for and in consideration of the price(s) stated on the said BID FORM, hereof.

2. The Lump Sum Base Bid by me (us) on the BID FORM includes all work indicated on the drawings and/or described in the specifications, except:

   A. Work covered by Alternates as may be listed on the BID FORM.

   B. Contingent work covered by Unit Prices as may be listed on the BID FORM.

   C. Work covered by Options as may be listed on the BID FORM.

3. This proposal is submitted subject to and in compliance with the foregoing and following conditions and/or information.

A. AWARD: All proposals shall be subject to the provisions and requirements of the Bid Documents and for purpose of award, consideration shall be given only to proposals submitted by qualified and responsible bidders.

B. COMMENCEMENT AND COMPLETION OF WORK: Contractor shall commence and complete the work in accordance with the requirements of the Contract Documents.

C. If the Contractor fails to complete the work within the time required by the Contract Documents, the University shall have the right to assess liquidated damages as provided in Paragraph 9.11 of the General Conditions.

D. AVAILABILITY OF FUNDS:

The funding for this project is contingent upon the continued availability of funds. Funds will be released based on project phases.

E. CONTRACTORS INSURANCE REQUIRED:

1. The limits of liability and coverages shall be those set forth in Article 11 of the General Conditions.

F. STATEMENT OF BIDDERS' QUALIFICATIONS AND INTENTION OF OBJECTIVE CRITERIA:

1. Each Project estimated to be $500,000 and greater, Bidders shall be required to complete and submit qualification forms to obtain "Pre-qualified Status" prior to submission of Bids. Contractors not obtaining "Pre-qualified Status" shall not be allowed to submit a Bid on said projects.

2. For Projects estimated to be less than $500,000 the Bidder shall complete and submit with this BID FORM the Contractor's Qualification Statement in support of its Qualifications to perform the Work of this project, and to demonstrate its compliance with the University's Objective Criteria regarding Qualifications.

G. FEDERAL & STATE WAGE DETERMINATIONS AND PRICING CONSIDERATION:

1 Each contractor who is awarded a contract on or after October 1, 2002 shall be subject to provisions of the Connecticut General Statutes, Section 31-53 as amended by Public Act 02-69, "An Act Concerning Annual Adjustments to Prevailing Wages".

2 In determining bid price, consideration should be given to Section 31-53 of the General Statutes of Connecticut as amended by Public Act 02-69, "An Act Concerning Annual Adjustments to Prevailing Wages". Such prevailing

wage adjustment will not be considered a basis for an annual contract adjustment.

3 The State of Connecticut Labor Department Wage Schedule where required, shall be provided with these documents, typically as part of the University of Connecticut Health Center Purchasing Department issued documents, or will be incorporated in the Contract Documents as an Addendum. At the time of bidding, the bidder agrees to accept the current prevailing wage scale, as well as any annual adjustment to the prevailing wage scale, as provided by the Connecticut Department of Labor. Wage Rages will be posted each July 1st on the Department of Labor website: www.ctdol.state.ct.us. Such prevailing wage adjustment will not be considered a basis for an annual contract amendment.

4. I (We), the undersigned, hereby declare that I am (we are) the only person(s) interested in the proposal and that it is without any connection with any other person making any bid for the same work. No person acting for, or employed by, the State of Connecticut is directly interested in this proposal, or in any contract which may be made under it, or in expected profits to arise there from. This proposal is made without directly or indirectly influencing or attempting to influence any other person or corporation to bid or refrain from bidding or to influence the amount of the bid of any other person or corporation. This proposal is made in good faith without collusion or connection with any other person bidding for the same work and this proposal is made with distinct reference and relation to the plans and specifications prepared for this Contract. I (We) further declare that in regard to the conditions affecting the work to be done and the labor and materials needed, this proposal is based solely on my (our) investigation and research and not in reliance upon any representations of any employee, officer or agent of the State.

5. Each class of work set forth in a separate Section of the Specifications and designated as a subtrade in Item 2A of the proposal pages shall be the matter of a subcontract made in accordance with the procedures set forth in the Bid and Contract Documents.

6. The undersigned agrees that, if selected as General Contractor, he shall, within five (5) days, Saturdays, Sundays and legal holidays excluded, after presentation thereof by the University of Connecticut, execute a contract in accordance with the terms of this general bid.

7. The undersigned agrees and warrants that he has made good faith efforts to employ minority business enterprises as subcontractors and suppliers of materials under such contract and shall provide the Commission on Human Rights and Opportunities with such information as is requested by the Commission concerning his employment practices and procedures as they relate to the provisions of the Connecticut General Statutes governing

contract requirements.

8. The undersigned agrees that if notice of acceptance of Bid is delivered to him within 120 calendar days from the date of bid opening, he will promptly execute a contract for the above stated compensation.

BID FORM CONTINUED ON NEXT PAGE

The undersigned proposes to furnish all labor and material required for:

MUNSON ROAD SWITCHGEAR REPLACEMENT
UCONN HEALTH
PROJECT NO – 14-601.07

in accordance with the accompanying Drawings and Specifications prepared by

Silver Petrucelli + Associates

for the Contract Price specified below subject to additions and deductions according to the terms of the Contract Documents dated _____.

A. **ADDENDA:**

This bid includes Addenda numbered: _____ Dated _____

_____ Dated _____

_____ Dated _____

_____ Dated _____

B. **ALLOWANCES: not used**

C. **PROPOSED BASE CONTRACT PRICE:**

_____ **$**_____
Written Figures

D. **SCHEDULE OF ALTERNATES: not used**

E. **SCHEDULE OF UNIT PRICES:**

The cost of material and labor to patch miscellaneous holes in rated partitions. Proposed patch work shall match the existing construction where the hole(s) are located.

Unit Price No. 1:

_____ / SF Masonry

_____ / SF Gypsum

F. ***SCHEDULE OF OPTIONS: not used***

G. **SUBDIVISION OF CONTRACT PRICE:**

The subdivision of the proposed Contract Price is as follows:

ITEM 1A Subcontractors and prices for the following trades must be listed (if such prices exceed $25,000.00). However, the general bidder may list himself together with his price if he customarily performs any of the trades specified. If the general contractor requires a performance and/or labor & material payment bond then the general contractor must indicate below which of the subcontractors are subject to this requirement. The amount (%) shall not exceed the subcontractor's price listed below.

DESCRIPTION	NAME OF SUBCONTACTOR	DOLLAR AMOUNT	LABOR & MATERIAL BOND	PERFORMANCE BOND
MASONRY				
ELECTRICAL				
MECHANICAL WITHOUT HVAC				
HVAC				

The undersigned agrees that each of the subcontractors listed on this BID FORM will be used for the work indicated at the amount stated, unless a substitution is permitted by the University of Connecticut Health Center. Such permission shall only be granted for "good cause" as defined by Connecticut General Statute Section 4B-95(C).

ITEM 1B SCHEDULE OF VALUES:

The undersigned agrees that the Schedule of Values submitted with this Bid is a true representation of the distribution of the costs of this project and **equals the Proposed Base Contract Price shown above**. The Schedule of Values is an integral part of this proposal. Please indicate **N/A** for those divisions of work not applicable.

*Refer to ITEM 1A above for stipulations pertaining to those Divisions of Work requiring listing of subcontractors and pricing.

SCHEDULE OF VALUES

Division 1, General Requirements _____

Division 2, Existing Conditions _____

Division 3, Concrete (Not Used) _____

*Division 4, Masonry (Not Used) _____

Division 5, Metals (Not Used) _____

Division 6, Wood, Plastic & Composites (Not Used)_____

Division 7, Thermal and Moisture Protection (Not Used) _____

Division 8, Openings _____

Division 9, Finishes (Not Used) _____

Division 10, Specialties (Not Used) _____

Division 11, Equipment (Not Used) _____

Division 12, Furnishings (Not Used) _____

Division 13, Special Construction (Not Used) _____

Division 14, Conveying Systems (Not Used) _____

*Division 23, Mechanical, without HVAC _____

*Division 23, Mechanical, HVAC _____

*Division 26, Electrical _____

TOTAL OF PROPOSED BASE CONTRACT PRICE _____

H. **CONTRACTORS CERTIFICATION**

We certify that we are familiar with the contents of the Contract Documents for this project and that we have examined the site and accept the conditions under which the work will be done.

NOTE: All proposals must be signed by a duly authorized representative of the firm. NO FACSIMILE SIGNATURE PERMITTED.

If this proposal is being submitted by a Joint Venture, each Joint Venture shall sign the Proposal, and each Joint Venture agrees to be bound by the terms and conditions thereof.

Signed the _____ day of _____ 20____.

Project Number: _____

(TO BE FILLED IN AND SIGNED BY THE BIDDER)

Firm Name: _____

Street: _____

_____

City/State/Zip Code: _____

Telephone: _____

Fax Number: _____

Duly Authorized Signature:_____

Name / Title _____

(TO BE FILLED IN AND SIGNED BY JOINT VENTURE IF APPLICABLE)

Firm Name: _____

Street: _____

_____

City/State/Zip Code: _____

Telephone: _____

Fax Number: _____

Duly Authorized Signature:_____

Name / Title _____

Duly Authorized Signature:_____

Name / Title _____

END OF SECTION

UNIVERSITY OF CONNECTICUT

PURCHASING DEPARTMENT

STATE OF CONNECTICUT

STANDARD BID BOND

NOW ALL MEN BY THESE PRESENTS,

That we, _____ hereinafter called the principal, of _____, as principal, and _____, hereinafter called the Surety, a corporation organized and existing under the laws of the State of _____, and duly authorized to transact a surety business in the State of Connecticut, as Surety, are held and firmly bound unto the State of Connecticut, as obligee, in the penal sum of ten (10) percent of the amount of the bid set forth in a proposal hereinafter mentioned, _____, in lawful money of the United States of America, for the payment of which sum, well and truly to be made to the Obligee, the Principal and the Surety bind, themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH,

That, whereas the Principal has submitted or is about to submit a proposal the other obligee related to a contract for **Project No. _____.**

NOW, THEREFORE, if the said contract be awarded to the Principal and the Principal shall,

within such time as may be specified, enter in the said contract in writing with the State of Connecticut and give the required bonds, with surety acceptable to the Oligee, or if the Principal shall fail to do so, pay to Obligee the damages which the Obligee may suffer by reason of such failure not exceeding the penal sum of this bond, then this obligation shall be void, otherwise to remain in full force and effect.

SIGNED, SEALED AND DATED this _____ day of _____, 20___

_____	_____	_____	
	_____		
Witness	Surety	Witness	Principal
	_____		
	_____		
	Title		Title

UNIVERSITY OF CONNECTICUT

PERFORMANCE BOND

BOND NO._____

KNOW ALL MEN BY THESE PRESENTS:

That

_____

of _____, (hereinafter called the Principal), as Principal, and _____ a corporation duly established under the laws of the State of _____ and duly authorized to transact business in the State of Connecticut (hereinafter called the Surety(ies)) as Surety(ies), are firmly bound and held unto the UNIVERSITY OF CONNECTICUT, as Obligee, in the sum of _____ DOLLARS ($), for the payment of which we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH THAT:

WHEREAS, the principal has entered into or intends to enter into a written contract (the "contract") with the University of Connecticut for the construction of _____, which contract, together with all plans and specifications now made or which may hereafter be made in extension, modification or alteration thereof, is hereby referred to, incorporated in, and made a part of this bond as though fully set forth herein.

NOW, THEREFORE, if the principal faithfully performs and fulfills all of the undertakings, covenants, terms, conditions, and agreements of the contract during the original term of the contract and any extensions thereof that are granted by the University of Connecticut, with or without notice to the Surety(ies), and during the life of any guaranty required under the contract; and also faithfully performs and fulfills all the undertakings, covenants, terms, conditions and agreements of any and all duty authorized modifications of the contract that hereafter are made, then this obligation shall be void; otherwise it shall remain in full force and effect.

Any alterations which may be made in the terms of the contract, or in the work done or to be done under it, or the giving by the University of Connecticut of any extension of time for the performance of the contract or any other forbearance on the part of either the University of Connecticut or the principal, one to the other, shall not in any way release the principal, and/or the Surety(ies) or either of them, their representatives, heirs, executors, administrators, successors or assigns from liability hereunder, and notice to the surety(ies) of any such alteration, modification, extension or forbearance is hereby specifically and absolutely waived.

Signed, sealed and executed at _____

this _____, day of _____, 20_____.

Signed, sealed and delivered in the presence of:

_____

_____ (L.S.)

Principal

_____
As to Principal

Signed, Sealed and Executed at _____

this _____, day of _____, 20_____.

Signed, sealed and delivered in the presence of:

_____ _____

(L.S.)

_____

_____

As to Surety(ies)

UNIVERSITY OF CONNECTICUT

LABOR & MATERIAL PAYMENT BOND

BOND NO. _____

KNOW ALL MEN BY THESE PRESENTS:

That

_____

_ of, _____, (hereinafter called the Principal) as Principal, and _____ a corporation duly established under the laws of the State of _____ and duly authorized to transact business in the State of Connecticut (hereinafter called the Surety(ies)) as Surety(ies), are firmly bound and held unto the UNIVERSITY OF CONNECTICUT, as Obligee, in the sum of _____ DOLLARS ($), for the payment of the Principal and Surety(ies) binds, itself, its successors and assigns, himself, his heirs, executors, administrators, and assigns, jointly and severally by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH THAT:

WHEREAS, the principal has entered into or intends to enter into a written contract (the "contract") with the University of Connecticut for the construction of

_____

_____, which contract, together with all plans and specifications now made or which may hereafter be made in extension, modification or alteration thereof, is hereby referred to, incorporated in, and made a part of this bond as though fully set forth herein.

NOW, THEREFORE, if the principal faithfully makes payment for all materials and labor used or employed in the performance of the contract, as required by the contract documents and the General Statutes of Connecticut, as amended, then this obligation shall be null and void; otherwise it shall remain in full force and effect. This bond is provided pursuant to Sections 49-41 et seq. Of the General Statutes of Connecticut and shall be governed thereby.

Signed, sealed and executed at

_____

this _____, day of _____, 20___.

Signed, sealed and delivered in the presence of:

_____

_____ (L.S.)

Principal

_____

As to Principal

Signed, Sealed and Executed at

_____

this _____, day of _____, 20____.

Signed, sealed and delivered in the presence of:

_____

_____ (L.S.)

_____

_____

As to Surety(ies)

DRAFT

AIA® Document A101™ – 2017

Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum

AGREEMENT made as of the « » day of « » in the year « »
(In words, indicate day, month and year.)

BETWEEN the Owner:
(Name, legal status, address and other information)

« »« »
« »
« »
« »

and the Contractor:
(Name, legal status, address and other information)

« »« »
« »
« »
« »

for the following Project:
(Name, location and detailed description)

« »
« »
« »

The Architect:
(Name, legal status, address and other information)

« »« »
« »
« »
« »

The Owner and Contractor agree as follows.

ADDITIONS AND DELETIONS: The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

The parties should complete A101™–2017, Exhibit A, Insurance and Bonds, contemporaneously with this Agreement. AIA Document A201™–2017, General Conditions of the Contract for Construction, is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

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TABLE OF ARTICLES

ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary, and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement, and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. An enumeration of the Contract Documents, other than a Modification, appears in Article 9.

ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be:
(Check one of the following boxes.)

[« »] The date of this Agreement.

[« »] A date set forth in a notice to proceed issued by the Owner.

[« »] Established as follows:
(Insert a date or a means to determine the date of commencement of the Work.)

« »

If a date of commencement of the Work is not selected, then the date of commencement shall be the date of this Agreement.

§ 3.2 The Contract Time shall be measured from the date of commencement of the Work.

§ 3.3 Substantial Completion

§ 3.3.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Substantial Completion of the entire Work:

(Check one of the following boxes and complete the necessary information.)

[« »] Not later than « » (« ») calendar days from the date of commencement of the Work.

[« »] By the following date: « »

§ 3.3.2 Subject to adjustments of the Contract Time as provided in the Contract Documents, if portions of the Work are to be completed prior to Substantial Completion of the entire Work, the Contractor shall achieve Substantial Completion of such portions by the following dates:

Portion of Work	Substantial Completion Date
« »	

§ 3.3.3 If the Contractor fails to achieve Substantial Completion as provided in this Section 3.3, liquidated damages, if any, shall be assessed as set forth in Section 4.5.

ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be « » ($ « »), subject to additions and deductions as provided in the Contract Documents.

§ 4.2 Alternates

§ 4.2.1 Alternates, if any, included in the Contract Sum:

Item	Price
« »	

§ 4.2.2 Subject to the conditions noted below, the following alternates may be accepted by the Owner following execution of this Agreement. Upon acceptance, the Owner shall issue a Modification to this Agreement.
(Insert below each alternate and the conditions that must be met for the Owner to accept the alternate.)

Item	Price	Conditions for Acceptance
« »		

§ 4.3 Allowances, if any, included in the Contract Sum:
(Identify each allowance.)

Item	Price
« »	

§ 4.4 Unit prices, if any:
(Identify the item and state the unit price and quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price per Unit ($0.00)
« »		

§ 4.5 Liquidated damages, if any:
(Insert terms and conditions for liquidated damages, if any.)

« »

§ 4.6 Other:
(Insert provisions for bonus or other incentives, if any, that might result in a change to the Contract Sum.)

« »

ARTICLE 5 PAYMENTS

§ 5.1 Progress Payments

§ 5.1.1 Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

« »

§ 5.1.3 Provided that an Application for Payment is received by the Architect not later than the « » day of a month, the Owner shall make payment of the amount certified to the Contractor not later than the « » day of the « » month. If an Application for Payment is received by the Architect after the application date fixed above, payment of the amount certified shall be made by the Owner not later than « » (« ») days after the Architect receives the Application for Payment.

(Federal, state or local laws may require payment within a certain period of time.)

§ 5.1.4 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form, and supported by such data to substantiate its accuracy, as the Architect may require. This schedule of values shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5.1.5 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

§ 5.1.6 In accordance with AIA Document A201™–2017, General Conditions of the Contract for Construction, and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

§ 5.1.6.1 The amount of each progress payment shall first include:

.1 That portion of the Contract Sum properly allocable to completed Work;

.2 That portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction, or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing; and

.3 That portion of Construction Change Directives that the Architect determines, in the Architect's professional judgment, to be reasonably justified.

§ 5.1.6.2 The amount of each progress payment shall then be reduced by:

.1 The aggregate of any amounts previously paid by the Owner;

.2 The amount, if any, for Work that remains uncorrected and for which the Architect has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A201–2017;

.3 Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;

.4 For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A201–2017; and

.5 Retainage withheld pursuant to Section 5.1.7.

§ 5.1.7 Retainage

§ 5.1.7.1 For each progress payment made prior to Substantial Completion of the Work, the Owner may withhold the following amount, as retainage, from the payment otherwise due:

(Insert a percentage or amount to be withheld as retainage from each Application for Payment. The amount of retainage may be limited by governing law.)

« »

§ 5.1.7.1.1 The following items are not subject to retainage:
(Insert any items not subject to the withholding of retainage, such as general conditions, insurance, etc.)

« »

§ 5.1.7.2 Reduction or limitation of retainage, if any, shall be as follows:
(If the retainage established in Section 5.1.7.1 is to be modified prior to Substantial Completion of the entire Work, including modifications for Substantial Completion of portions of the Work as provided in Section 3.3.2, insert provisions for such modifications.)

« »

§ 5.1.7.3 Except as set forth in this Section 5.1.7.3, upon Substantial Completion of the Work, the Contractor may submit an Application for Payment that includes the retainage withheld from prior Applications for Payment pursuant to this Section 5.1.7. The Application for Payment submitted at Substantial Completion shall not include retainage as follows:
(Insert any other conditions for release of retainage upon Substantial Completion.)

« »

§ 5.1.8 If final completion of the Work is materially delayed through no fault of the Contractor, the Owner shall pay the Contractor any additional amounts in accordance with Article 9 of AIA Document A201–2017.

§ 5.1.9 Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

§ 5.2 Final Payment

§ 5.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

.1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Article 12 of AIA Document A201–2017, and to satisfy other requirements, if any, which extend beyond final payment; and

.2 a final Certificate for Payment has been issued by the Architect.

§ 5.2.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the Architect's final Certificate for Payment, or as follows:

« »

§ 5.3 Interest

Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.
(Insert rate of interest agreed upon, if any.)

« » % « »

ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 Initial Decision Maker

The Architect will serve as the Initial Decision Maker pursuant to Article 15 of AIA Document A201–2017, unless the parties appoint below another individual, not a party to this Agreement, to serve as the Initial Decision Maker.
(If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the Architect.)

« »
« »
« »

« »

§ 6.2 Binding Dispute Resolution

For any Claim subject to, but not resolved by, mediation pursuant to Article 15 of AIA Document A201–2017, the method of binding dispute resolution shall be as follows:
(Check the appropriate box.)

[« »] Arbitration pursuant to Section 15.4 of AIA Document A201–2017

[« »] Litigation in a court of competent jurisdiction

[« »] Other *(Specify)*

« »

If the Owner and Contractor do not select a method of binding dispute resolution, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.

ARTICLE 7 TERMINATION OR SUSPENSION

§ 7.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201–2017.

§ 7.1.1 If the Contract is terminated for the Owner's convenience in accordance with Article 14 of AIA Document A201–2017, then the Owner shall pay the Contractor a termination fee as follows:
(Insert the amount of, or method for determining, the fee, if any, payable to the Contractor following a termination for the Owner's convenience.)

« »

§ 7.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201–2017.

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201–2017 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 The Owner's representative:
(Name, address, email address, and other information)

« »
« »
« »
« »
« »
« »

§ 8.3 The Contractor's representative:
(Name, address, email address, and other information)

« »
« »
« »
« »
« »
« »

§ 8.4 Neither the Owner's nor the Contractor's representative shall be changed without ten days' prior notice to the other party.

§ 8.5 Insurance and Bonds

§ 8.5.1 The Owner and the Contractor shall purchase and maintain insurance as set forth in AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum, Exhibit A, Insurance and Bonds, and elsewhere in the Contract Documents.

§ 8.5.2 The Contractor shall provide bonds as set forth in AIA Document A101™–2017 Exhibit A, and elsewhere in the Contract Documents.

§ 8.6 Notice in electronic format, pursuant to Article 1 of AIA Document A201–2017, may be given in accordance with AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, if completed, or as otherwise set forth below:
(If other than in accordance with AIA Document E203–2013, insert requirements for delivering notice in electronic format such as name, title, and email address of the recipient and whether and how the system will be required to generate a read receipt for the transmission.)

« »

§ 8.7 Other provisions:

« »

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 This Agreement is comprised of the following documents:

.1 AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor

.2 AIA Document A101™–2017, Exhibit A, Insurance and Bonds

.3 AIA Document A201™–2017, General Conditions of the Contract for Construction

.4 AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, dated as indicated below:
(Insert the date of the E203-2013 incorporated into this Agreement.)

« »

.5 Drawings

Number	Title	Date
« »		

.6 Specifications

Section	Title	Date	Pages
« »			

.7 Addenda, if any:

Number	Date	Pages
« »		

Portions of Addenda relating to bidding or proposal requirements are not part of the Contract Documents unless the bidding or proposal requirements are also enumerated in this Article 9.

.8 Other Exhibits:
(Check all boxes that apply and include appropriate information identifying the exhibit where required.)

[« »] AIA Document E204™–2017, Sustainable Projects Exhibit, dated as indicated below:
(Insert the date of the E204-2017 incorporated into this Agreement.)

« »

[« »] The Sustainability Plan:

Title	Date	Pages
« »		

[« »] Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages
« »			

.9 Other documents, if any, listed below:
(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A201™–2017 provides that the advertisement or invitation to bid, Instructions to Bidders, sample forms, the Contractor's bid or proposal, portions of Addenda relating to bidding or proposal requirements, and other information furnished by the Owner in anticipation of receiving bids or proposals, are not part of the Contract Documents unless enumerated in this Agreement. Any such documents should be listed here only if intended to be part of the Contract Documents.)

« »

This Agreement entered into as of the day and year first written above.

« »	« »
OWNER *(Signature)*	CONTRACTOR *(Signature)*
« »« »	« »« »
(Printed name and title)	*(Printed name and title)*

DRAFT

AIA® Document A201™ – 2017

General Conditions of the Contract for Construction

for the following PROJECT:
(Name and location or address)

« »
« »

THE OWNER:
(Name, legal status and address)

« »« »
« »

THE ARCHITECT:
(Name, legal status and address)

« »« »
« »

TABLE OF ARTICLES

ADDITIONS AND DELETIONS: The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

For guidance in modifying this document to include supplementary conditions, see AIA Document A503™, Guide for Supplementary Conditions.

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(Topics and numbers in bold are Section headings.)

ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions

§ 1.1.1 The Contract Documents

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement, and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding or proposal requirements.

§ 1.1.2 The Contract

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants, or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

§ 1.1.3 The Work

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

§ 1.1.4 The Project

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by Separate Contractors.

§ 1.1.5 The Drawings

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams.

§ 1.1.6 The Specifications

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

§ 1.1.7 Instruments of Service

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.1.8 Initial Decision Maker

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2. The Initial Decision Maker shall not show partiality to the Owner or Contractor and shall not be liable for results of interpretations or decisions rendered in good faith.

§ 1.2 Correlation and Intent of the Contract Documents

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

§ 1.2.1.1 The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, then that provision shall be revised to the extent necessary to make that provision legal and enforceable. In such case the Contract Documents shall be construed, to the fullest extent permitted by law, to give effect to the parties' intentions and purposes in executing the Contract.

§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

§ 1.3 Capitalization

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles, or (3) the titles of other documents published by the American Institute of Architects.

§ 1.4 Interpretation

In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

§ 1.5 Ownership and Use of Drawings, Specifications, and Other Instruments of Service

§ 1.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and retain all common law, statutory, and other reserved rights in their Instruments of Service, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors, and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to any protocols established pursuant to Sections 1.7 and 1.8, solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Instruments of Service on other projects or for additions to the Project outside the scope of the Work without the specific written consent of the Owner, Architect, and the Architect's consultants.

§ 1.6 Notice

§ 1.6.1 Except as otherwise provided in Section 1.6.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by courier, or by electronic transmission if a method for electronic transmission is set forth in the Agreement.

§ 1.6.2 Notice of Claims as provided in Section 15.1.3 shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

§ 1.7 Digital Data Use and Transmission

The parties shall agree upon protocols governing the transmission and use of Instruments of Service or any other information or documentation in digital form. The parties will use AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, to establish the protocols for the development, use, transmission, and exchange of digital data.

§ 1.8 Building Information Models Use and Reliance

Any use of, or reliance on, all or a portion of a building information model without agreement to protocols governing the use of, and reliance on, the information contained in the model and without having those protocols set forth in AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, and the requisite AIA Document

G202™–2013, Project Building Information Modeling Protocol Form, shall be at the using or relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building information model, and each of their agents and employees.

ARTICLE 2 OWNER

§ 2.1 General

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.1.2 The Owner shall furnish to the Contractor, within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of, or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

§ 2.2 Evidence of the Owner's Financial Arrangements

§ 2.2.1 Prior to commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such evidence. If commencement of the Work is delayed under this Section 2.2.1, the Contract Time shall be extended appropriately.

§ 2.2.2 Following commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract only if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due; or (3) a change in the Work materially changes the Contract Sum. If the Owner fails to provide such evidence, as required, within fourteen days of the Contractor's request, the Contractor may immediately stop the Work and, in that event, shall notify the Owner that the Work has stopped. However, if the request is made because a change in the Work materially changes the Contract Sum under (3) above, the Contractor may immediately stop only that portion of the Work affected by the change until reasonable evidence is provided. If the Work is stopped under this Section 2.2.2, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided in the Contract Documents.

§ 2.2.3 After the Owner furnishes evidence of financial arrangements under this Section 2.2, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.4 Where the Owner has designated information furnished under this Section 2.2 as "confidential," the Contractor shall keep the information confidential and shall not disclose it to any other person. However, the Contractor may disclose "confidential" information, after seven (7) days' notice to the Owner, where disclosure is required by law, including a subpoena or other form of compulsory legal process issued by a court or governmental entity, or by court or arbitrator(s) order. The Contractor may also disclose "confidential" information to its employees, consultants, sureties, Subcontractors and their employees, Sub-subcontractors, and others who need to know the content of such information solely and exclusively for the Project and who agree to maintain the confidentiality of such information.

§ 2.3 Information and Services Required of the Owner

§ 2.3.1 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

§ 2.3.2 The Owner shall retain an architect lawfully licensed to practice architecture, or an entity lawfully practicing architecture, in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 2.3.3 If the employment of the Architect terminates, the Owner shall employ a successor to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.

§ 2.3.4 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.3.5 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.3.6 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

§ 2.4 Owner's Right to Stop the Work

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

§ 2.5 Owner's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such default or neglect. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect and the Architect may, pursuant to Section 9.5.1, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect, or failure. If current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

ARTICLE 3 CONTRACTOR

§ 3.1 General

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of its obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

§ 3.2 Review of Contract Documents and Field Conditions by Contractor

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.3.4, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall submit Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner, subject to Section 15.1.7, as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.3 Supervision and Construction Procedures

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be solely responsible for the jobsite safety of such means, methods, techniques, sequences, or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely notice to the Owner and Architect, and shall propose alternative means, methods, techniques, sequences, or procedures. The Architect shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction. Unless the Architect objects to the Contractor's proposed alternative, the Contractor shall perform the Work using its alternative means, methods, techniques, sequences, or procedures.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.4 Labor and Materials

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 3.4.2 Except in the case of minor changes in the Work approved by the Architect in accordance with Section 3.12.8 or ordered by the Architect in accordance with Section 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

§ 3.5 Warranty

§ 3.5.1 The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

§ 3.5.2 All material, equipment, or other special warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 9.8.4.

§ 3.6 Taxes

The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

§ 3.7 Permits, Fees, Notices and Compliance with Laws

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

§ 3.7.3 If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 3.7.4 Concealed or Unknown Conditions

If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend that an equitable adjustment be made in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may submit a Claim as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

§ 3.8 Allowances

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents,

.1 allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;

.2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit, and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and

.3 whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

§ 3.9 Superintendent

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Architect may notify the Contractor, stating whether the Owner or the Architect (1) has reasonable objection to the proposed superintendent or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.10 Contractor's Construction and Submittal Schedules

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall contain detail appropriate for the Project, including (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project.

§ 3.10.2 The Contractor, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, shall submit a submittal schedule for the Architect's approval. The Architect's approval shall not be unreasonably delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, or fails to provide submittals in accordance with the approved submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect.

§ 3.11 Documents and Samples at the Site

The Contractor shall make available, at the Project site, the Contract Documents, including Change Orders, Construction Change Directives, and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and the approved Shop Drawings, Product Data, Samples, and similar required submittals. These shall be in electronic form or paper copy, available to the Architect and Owner, and

delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

§ 3.12 Shop Drawings, Product Data and Samples

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules, and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier, or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

§ 3.12.3 Samples are physical examples that illustrate materials, equipment, or workmanship, and establish standards by which the Work will be judged.

§ 3.12.4 Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. Their purpose is to demonstrate how the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Architect, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of Separate Contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples, or similar submittals, until the respective submittal has been approved by the Architect.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from the requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples, or similar submittals, unless the Contractor has specifically notified the Architect of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals, by the Architect's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples, or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures. The Contractor shall not be required to provide professional services in violation of applicable law.

§ 3.12.10.1 If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall be entitled to rely upon

the adequacy and accuracy of the performance and design criteria provided in the Contract Documents. The Contractor shall cause such services or certifications to be provided by an appropriately licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Shop Drawings, and other submittals related to the Work, designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy and accuracy of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor the performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review and approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

§ 3.12.10.2 If the Contract Documents require the Contractor's design professional to certify that the Work has been performed in accordance with the design criteria, the Contractor shall furnish such certifications to the Architect at the time and in the form specified by the Architect.

§ 3.13 Use of Site

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.14 Cutting and Patching

§ 3.14.1 The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting, or patching shall be restored to the condition existing prior to the cutting, fitting, or patching, unless otherwise required by the Contract Documents.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or Separate Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter construction by the Owner or a Separate Contractor except with written consent of the Owner and of the Separate Contractor. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Owner or a Separate Contractor, its consent to cutting or otherwise altering the Work.

§ 3.15 Cleaning Up

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials from and about the Project.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 Access to Work

The Contractor shall provide the Owner and Architect with access to the Work in preparation and progress wherever located.

§ 3.17 Royalties, Patents and Copyrights

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for defense or loss when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications, or other documents prepared by the Owner or Architect. However, if an infringement of a copyright or patent is discovered by, or made known to, the Contractor, the Contractor shall be responsible for the loss unless the information is promptly furnished to the Architect.

§ 3.18 Indemnification

§ 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation, or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

ARTICLE 4 ARCHITECT

§ 4.1 General

§ 4.1.1 The Architect is the person or entity retained by the Owner pursuant to Section 2.3.2 and identified as such in the Agreement.

§ 4.1.2 Duties, responsibilities, and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner, Contractor, and Architect. Consent shall not be unreasonably withheld.

§ 4.2 Administration of the Contract

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents.

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner (1) known deviations from the Contract Documents, (2) known deviations from the most recent construction schedule submitted by the Contractor, and (3) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of, and will not be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 4.2.4 Communications

The Owner and Contractor shall include the Architect in all communications that relate to or affect the Architect's services or professional responsibilities. The Owner shall promptly notify the Architect of the substance of any direct communications between the Owner and the Contractor otherwise relating to the Project. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and suppliers shall be through the Contractor. Communications by and with Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

§ 4.2.5 Based on the Architect's evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, whether or not the Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data, and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5, and 3.12. The Architect's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may order minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.10 If the Owner and Architect agree, the Architect will provide one or more Project representatives to assist in carrying out the Architect's responsibilities at the site. The Owner shall notify the Contractor of any change in the duties, responsibilities and limitations of authority of the Project representatives.

§ 4.2.11 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.12 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either, and will not be liable for results of interpretations or decisions rendered in good faith.

§ 4.2.13 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

ARTICLE 5 SUBCONTRACTORS

§ 5.1 Definitions

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a Separate Contractor or the subcontractors of a Separate Contractor.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

§ 5.2 Award of Subcontracts and Other Contracts for Portions of the Work

§ 5.2.1 Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the persons or entities proposed for each principal portion of the Work, including those who are to furnish materials or equipment fabricated to a special design. Within 14 days of receipt of the information, the Architect may notify the Contractor whether the Owner or the Architect (1) has reasonable objection to any such proposed person or entity or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person, or entity for one previously selected if the Owner or Architect makes reasonable objection to such substitution.

§ 5.3 Subcontractual Relations

By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work that the Contractor, by these Contract Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies, and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

§ 5.4 Contingent Assignment of Subcontracts

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

.1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor; and

.2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

§ 5.4.3 Upon assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. If the Owner assigns the subcontract to a successor contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 Owner's Right to Perform Construction and to Award Separate Contracts

§ 6.1.1 The term "Separate Contractor(s)" shall mean other contractors retained by the Owner under separate agreements. The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to those of this Contract, including those provisions of the Conditions of the Contract related to insurance and waiver of subrogation.

§ 6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

§ 6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each Separate Contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with any Separate Contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to its construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, Separate Contractors, and the Owner until subsequently revised.

§ 6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces or with Separate Contractors, the Owner or its Separate Contractors shall have the same obligations and rights that the Contractor has under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10, 11, and 12.

§ 6.2 Mutual Responsibility

§ 6.2.1 The Contractor shall afford the Owner and Separate Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a Separate Contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Architect of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor that would render it unsuitable for proper execution and results of the Contractor's Work. Failure of the Contractor to notify the Architect of apparent discrepancies or defects prior to proceeding with the Work shall constitute an acknowledgment that the Owner's or Separate Contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work. The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractor that are not apparent.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a Separate Contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a Separate Contractor's delays, improperly timed activities, damage to the Work or defective construction.

§ 6.2.4 The Contractor shall promptly remedy damage that the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or Separate Contractor as provided in Section 10.2.5.

§ 6.2.5 The Owner and each Separate Contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.3 Owner's Right to Clean Up

If a dispute arises among the Contractor, Separate Contractors, and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Architect will allocate the cost among those responsible.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 General

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor, and Architect. A Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor. An order for a minor change in the Work may be issued by the Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents. The Contractor shall proceed promptly with changes in the Work, unless otherwise provided in the Change Order, Construction Change Directive, or order for a minor change in the Work.

§ 7.2 Change Orders

§ 7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor, and Architect stating their agreement upon all of the following:

.1 The change in the Work;
.2 The amount of the adjustment, if any, in the Contract Sum; and
.3 The extent of the adjustment, if any, in the Contract Time.

§ 7.3 Construction Change Directives

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

.1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
.2 Unit prices stated in the Contract Documents or subsequently agreed upon;
.3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
.4 As provided in Section 7.3.4.

§ 7.3.4 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.4 shall be limited to the following:

.1 Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance, and other employee costs approved by the Architect;

.2 Costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;

.3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;

.4 Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the change; and

.5 Costs of supervision and field office personnel directly attributable to the change.

§ 7.3.5 If the Contractor disagrees with the adjustment in the Contract Time, the Contractor may make a Claim in accordance with applicable provisions of Article 15.

§ 7.3.6 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.7 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 Minor Changes in the Work

The Architect may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Architect's order for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Architect and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor change without prior notice to the Architect that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time.

ARTICLE 8 TIME

§ 8.1 Definitions

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 8.2 Progress and Completion

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, commence the Work prior to the effective date of insurance required to be furnished by the Contractor and Owner.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

§ 8.3 Delays and Extensions of Time

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner or Architect, of an employee of either, or of a Separate Contractor; (2) by changes ordered in the Work; (3) by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with Section 15.1.6.2, or other causes beyond the Contractor's control; (4) by delay authorized by the Owner pending mediation and binding dispute resolution; or (5) by other causes that the Contractor asserts, and the Architect determines, justify delay, then the Contract Time shall be extended for such reasonable time as the Architect may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 Contract Sum

§ 9.1.1 The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.1.2 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed so that application of such unit prices to the actual quantities causes substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 9.2 Schedule of Values

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit a schedule of values to the Architect before the first Application for Payment, allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Architect. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. Any changes to the schedule of values shall be submitted to the Architect and supported by such data to substantiate its accuracy as the Architect may require, and unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment.

§ 9.3 Applications for Payment

§ 9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner or Architect require, such as copies of requisitions, and releases and waivers of liens from Subcontractors and suppliers, and shall reflect retainage if provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage, and transportation to the site, for such materials and equipment stored off the site.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or encumbrances, in favor of the Contractor, Subcontractors, suppliers, or other persons or entities that provided labor, materials, and equipment relating to the Work.

§ 9.4 Certificates for Payment

§ 9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either (1) issue to the Owner a Certificate for Payment in the full amount of the Application for Payment, with a copy to the Contractor; or (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Contractor and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Application for Payment, and notify the Contractor and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data in the Application for Payment, that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is entitled to payment in the amount certified. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion, and to specific qualifications expressed by the Architect. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences, or procedures; (3) reviewed copies of requisitions received from Subcontractors and suppliers and other data requested by the Owner to substantiate the Contractor's right to payment; or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 9.5 Decisions to Withhold Certification

§ 9.5.1 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

.1 defective Work not remedied;

.2 third party claims filed or reasonable evidence indicating probable filing of such claims, unless security acceptable to the Owner is provided by the Contractor;

.3 failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;

.4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;

.5 damage to the Owner or a Separate Contractor;
.6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
.7 repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When either party disputes the Architect's decision regarding a Certificate for Payment under Section 9.5.1, in whole or in part, that party may submit a Claim in accordance with Article 15.

§ 9.5.3 When the reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.4 If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or supplier to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Contractor shall reflect such payment on its next Application for Payment.

§ 9.6 Progress Payments

§ 9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect.

§ 9.6.2 The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors and suppliers to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay, or to see to the payment of money to, a Subcontractor or supplier, except as may otherwise be required by law.

§ 9.6.5 The Contractor's payments to suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors or provided by suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, create any fiduciary liability or tort liability on the part of the Contractor for breach of trust, or entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.6.8 Provided the Owner has fulfilled its payment obligations under the Contract Documents, the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

§ 9.7 Failure of Payment

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents, the amount certified by the Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 Substantial Completion

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate. Upon such acceptance, and consent of surety if any, the Owner shall make payment of retainage applying to the Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 9.9 Partial Occupancy or Use

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor, and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

§ 9.10 Final Completion and Final Payment

§ 9.10.1 Upon receipt of the Contractor's notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection. When the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect, (3) a written statement that the Contractor knows of no reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment, (5) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6) if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases and waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging the lien, claim, security interest, or encumbrance, including all costs and reasonable attorneys' fees.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed, corrected, and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of the surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

.1 liens, Claims, security interests, or encumbrances arising out of the Contract and unsettled;
.2 failure of the Work to comply with the requirements of the Contract Documents;
.3 terms of special warranties required by the Contract Documents; or
.4 audits performed by the Owner, if permitted by the Contract Documents, after final payment.

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor, or a supplier, shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 Safety Precautions and Programs

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract.

§ 10.2 Safety of Persons and Property

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury, or loss to

.1 employees on the Work and other persons who may be affected thereby;

.2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor; and

.3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

§ 10.2.2 The Contractor shall comply with, and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities, bearing on safety of persons or property or their protection from damage, injury, or loss.

§ 10.2.3 The Contractor shall implement, erect, and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards; promulgating safety regulations; and notifying the owners and users of adjacent sites and utilities of the safeguards.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment, or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3. The Contractor may make a Claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 Injury or Damage to Person or Property

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 10.3 Hazardous Materials and Substances

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and notify the Owner and Architect of the condition.

§ 10.3.2 Upon receipt of the Contractor's notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities

proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for hazardous materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for hazardous materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 The Contractor shall reimburse the Owner for the cost and expense the Owner incurs (1) for remediation of hazardous materials or substances the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall reimburse the Contractor for all cost and expense thereby incurred.

§ 10.4 Emergencies

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 Contractor's Insurance and Bonds

§ 11.1.1 The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Contractor shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Owner, Architect, and Architect's consultants shall be named as additional insureds under the Contractor's commercial general liability policy or as otherwise described in the Contract Documents.

§ 11.1.2 The Contractor shall provide surety bonds of the types, for such penal sums, and subject to such terms and conditions as required by the Contract Documents. The Contractor shall purchase and maintain the required bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 11.1.3 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

§ 11.1.4 Notice of Cancellation or Expiration of Contractor's Required Insurance. Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice to the Owner of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the

procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

§ 11.2 Owner's Insurance

§ 11.2.1 The Owner shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Owner shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located.

§ 11.2.2 Failure to Purchase Required Property Insurance. If the Owner fails to purchase and maintain the required property insurance, with all of the coverages and in the amounts described in the Agreement or elsewhere in the Contract Documents, the Owner shall inform the Contractor in writing prior to commencement of the Work. Upon receipt of notice from the Owner, the Contractor may delay commencement of the Work and may obtain insurance that will protect the interests of the Contractor, Subcontractors, and Sub-Subcontractors in the Work. When the failure to provide coverage has been cured or resolved, the Contract Sum and Contract Time shall be equitably adjusted. In the event the Owner fails to procure coverage, the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent the loss to the Owner would have been covered by the insurance to have been procured by the Owner. The cost of the insurance shall be charged to the Owner by a Change Order. If the Owner does not provide written notice, and the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain the required insurance, the Owner shall reimburse the Contractor for all reasonable costs and damages attributable thereto.

§ 11.2.3 Notice of Cancellation or Expiration of Owner's Required Property Insurance. Within three (3) business days of the date the Owner becomes aware of an impending or actual cancellation or expiration of any property insurance required by the Contract Documents, the Owner shall provide notice to the Contractor of such impending or actual cancellation or expiration. Unless the lapse in coverage arises from an act or omission of the Contractor: (1) the Contractor, upon receipt of notice from the Owner, shall have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by either the Owner or the Contractor; (2) the Contract Time and Contract Sum shall be equitably adjusted; and (3) the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent any loss to the Owner would have been covered by the insurance had it not expired or been cancelled. If the Contractor purchases replacement coverage, the cost of the insurance shall be charged to the Owner by an appropriate Change Order. The furnishing of notice by the Owner shall not relieve the Owner of any contractual obligation to provide required insurance.

§ 11.3 Waivers of Subrogation

§ 11.3.1 The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents, and employees, each of the other; (2) the Architect and Architect's consultants; and (3) Separate Contractors, if any, and any of their subcontractors, sub-subcontractors, agents, and employees, for damages caused by fire, or other causes of loss, to the extent those losses are covered by property insurance required by the Agreement or other property insurance applicable to the Project, except such rights as they have to proceeds of such insurance. The Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals and entities identified above from the Architect, Architect's consultants, Separate Contractors, subcontractors, and sub-subcontractors. The policies of insurance purchased and maintained by each person or entity agreeing to waive claims pursuant to this section 11.3.1 shall not prohibit this waiver of subrogation. This waiver of subrogation shall be effective as to a person or entity (1) even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, (2) even though that person or entity did not pay the insurance premium directly or indirectly, or (3) whether or not the person or entity had an insurable interest in the damaged property.

§ 11.3.2 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, to the extent permissible by such policies, the Owner waives all rights in accordance with the terms of Section 11.3.1 for damages caused by fire or other causes of loss covered by this separate property insurance.

§ 11.4 Loss of Use, Business Interruption, and Delay in Completion Insurance

The Owner, at the Owner's option, may purchase and maintain insurance that will protect the Owner against loss of use of the Owner's property, or the inability to conduct normal operations, due to fire or other causes of loss. The Owner waives all rights of action against the Contractor and Architect for loss of use of the Owner's property, due to fire or other hazards however caused.

§11.5 Adjustment and Settlement of Insured Loss

§ 11.5.1 A loss insured under the property insurance required by the Agreement shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.5.2. The Owner shall pay the Architect and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements the Architect and Contractor shall make payments to their consultants and Subcontractors in similar manner.

§ 11.5.2 Prior to settlement of an insured loss, the Owner shall notify the Contractor of the terms of the proposed settlement as well as the proposed allocation of the insurance proceeds. The Contractor shall have 14 days from receipt of notice to object to the proposed settlement or allocation of the proceeds. If the Contractor does not object, the Owner shall settle the loss and the Contractor shall be bound by the settlement and allocation. Upon receipt, the Owner shall deposit the insurance proceeds in a separate account and make the appropriate distributions. Thereafter, if no other agreement is made or the Owner does not terminate the Contract for convenience, the Owner and Contractor shall execute a Change Order for reconstruction of the damaged or destroyed Work in the amount allocated for that purpose. If the Contractor timely objects to either the terms of the proposed settlement or the allocation of the proceeds, the Owner may proceed to settle the insured loss, and any dispute between the Owner and Contractor arising out of the settlement or allocation of the proceeds shall be resolved pursuant to Article 15. Pending resolution of any dispute, the Owner may issue a Construction Change Directive for the reconstruction of the damaged or destroyed Work.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 Uncovering of Work

§ 12.1.1 If a portion of the Work is covered contrary to the Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an equitable adjustment to the Contract Sum and Contract Time as may be appropriate. If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense.

§ 12.2 Correction of Work

§ 12.2.1 Before Substantial Completion

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, discovered before Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

§ 12.2.2 After Substantial Completion

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.5.

§ 12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction of the Owner or Separate Contractors, whether completed or partially completed, caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 Acceptance of Nonconforming Work

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 Governing Law

The Contract shall be governed by the law of the place where the Project is located, excluding that jurisdiction's choice of law rules. If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

§ 13.2 Successors and Assigns

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to covenants, agreements, and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate the assignment.

§ 13.3 Rights and Remedies

§ 13.3.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law.

§ 13.3.2 No action or failure to act by the Owner, Architect, or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed upon in writing.

§ 13.4 Tests and Inspections

§ 13.4.1 Tests, inspections, and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules, and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public

authority, and shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

§ 13.4.2 If the Architect, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.4.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection, or approval, by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.4.3, shall be at the Owner's expense.

§ 13.4.3 If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation for the Architect's services and expenses, shall be at the Contractor's expense.

§ 13.4.4 Required certificates of testing, inspection, or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

§ 13.4.5 If the Architect is to observe tests, inspections, or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.4.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

§ 13.5 Interest

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at the rate the parties agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, for any of the following reasons:

.1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;

.2 An act of government, such as a declaration of national emergency, that requires all Work to be stopped;

.3 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or

.4 The Owner has failed to furnish to the Contractor reasonable evidence as required by Section 2.2.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, repeated suspensions, delays, or interruptions of the entire Work by the Owner as described in Section 14.3, constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, as well as reasonable overhead and profit on Work not executed, and costs incurred by reason of such termination.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, or their agents or employees or any other persons or entities performing portions

of the Work because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.2 Termination by the Owner for Cause

§ 14.2.1 The Owner may terminate the Contract if the Contractor

.1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;

.2 fails to make payment to Subcontractors or suppliers in accordance with the respective agreements between the Contractor and the Subcontractors or suppliers;

.3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or

.4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the reasons described in Section 14.2.1 exist, and upon certification by the Architect that sufficient cause exists to justify such action, the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

.1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;

.2 Accept assignment of subcontracts pursuant to Section 5.4; and

.3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Initial Decision Maker, upon application, and this obligation for payment shall survive termination of the Contract.

§ 14.3 Suspension by the Owner for Convenience

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work, in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay, or interruption under Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent

.1 that performance is, was, or would have been, so suspended, delayed, or interrupted, by another cause for which the Contractor is responsible; or

.2 that an equitable adjustment is made or denied under another provision of the Contract.

§ 14.4 Termination by the Owner for Convenience

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of notice from the Owner of such termination for the Owner's convenience, the Contractor shall

.1 cease operations as directed by the Owner in the notice;

.2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and

.3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work properly executed; costs incurred by reason of the termination, including costs attributable to termination of

Subcontracts; and the termination fee, if any, set forth in the Agreement.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 Claims

§ 15.1.1 Definition

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, a change in the Contract Time, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim. This Section 15.1.1 does not require the Owner to file a Claim in order to impose liquidated damages in accordance with the Contract Documents.

§ 15.1.2 Time Limits on Claims

The Owner and Contractor shall commence all Claims and causes of action against the other and arising out of or related to the Contract, whether in contract, tort, breach of warranty or otherwise, in accordance with the requirements of the binding dispute resolution method selected in the Agreement and within the period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all Claims and causes of action not commenced in accordance with this Section 15.1.2.

§ 15.1.3 Notice of Claims

§ 15.1.3.1 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party under this Section 15.1.3.1 shall be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.3.2 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party. In such event, no decision by the Initial Decision Maker is required.

§ 15.1.4 Continuing Contract Performance

§ 15.1.4.1 Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

§ 15.1.4.2 The Contract Sum and Contract Time shall be adjusted in accordance with the Initial Decision Maker's decision, subject to the right of either party to proceed in accordance with this Article 15. The Architect will issue Certificates for Payment in accordance with the decision of the Initial Decision Maker.

§ 15.1.5 Claims for Additional Cost

If the Contractor wishes to make a Claim for an increase in the Contract Sum, notice as provided in Section 15.1.3 shall be given before proceeding to execute the portion of the Work that is the subject of the Claim. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.6 Claims for Additional Time

§ 15.1.6.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided in Section 15.1.3 shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary.

§ 15.1.6.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated, and had an adverse effect on the scheduled construction.

§ 15.1.7 Waiver of Claims for Consequential Damages

The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

.1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and

.2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit, except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.7 shall be deemed to preclude assessment of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 Initial Decision

§ 15.2.1 Claims, excluding those where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2 or arising under Sections 10.3, 10.4, and 11.5, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim. If an initial decision has not been rendered within 30 days after the Claim has been referred to the Initial Decision Maker, the party asserting the Claim may demand mediation and binding dispute resolution without a decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of the request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished, or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

§ 15.2.6.1 Either party may, within 30 days from the date of receipt of an initial decision, demand in writing that the other party file for mediation. If such a demand is made and the party receiving the demand fails to file for mediation within 30 days after receipt thereof, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 15.3 Mediation

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract, except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.7, shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 15.3.3 Either party may, within 30 days from the date that mediation has been concluded without resolution of the dispute or 60 days after mediation has been demanded without resolution of the dispute, demand in writing that the other party file for binding dispute resolution. If such a demand is made and the party receiving the demand fails to file for binding dispute resolution within 60 days after receipt thereof, then both parties waive their rights to binding dispute resolution proceedings with respect to the initial decision.

§ 15.3.4 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§ 15.4 Arbitration

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. The Arbitration shall be conducted in the place where the Project is located, unless another location is mutually agreed upon. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement, shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

§ 15.4.4 Consolidation or Joinder

§ 15.4.4.1 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 15.4.4.2 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as those of the Owner and Contractor under this Agreement.

AIA® Document G702™ – 1992

Application and Certificate for Payment

TO OWNER:

PROJECT:

APPLICATION NO: 002
PERIOD TO:
CONTRACT FOR: General Construction
CONTRACT DATE:
PROJECT NOS: / /

Distribution to:
OWNER: ☐
ARCHITECT: ☐
CONTRACTOR: ☐
FIELD: ☐
OTHER: ☐

FROM CONTRACTOR:

VIA ARCHITECT:

CONTRACTOR'S APPLICATION FOR PAYMENT

Application is made for payment, as shown below, in connection with the Contract.
Continuation Sheet, AIA Document G703, is attached.

1. ORIGINAL CONTRACT SUM		$0.00
2. NET CHANGE BY CHANGE ORDERS		$0.00
3. CONTRACT SUM TO DATE (Line 1 ± 2)		$0.00
4. TOTAL COMPLETED & STORED TO DATE (Column G on G703)		$0.00
5. RETAINAGE:		
a. 0 % of Completed Work (Column D + E on G703)	$0.00	
b. 0 % of Stored Material (Column F on G703)	$0.00	
Total Retainage (Lines 5a + 5b or Total in Column I of G703)		$0.00
6. TOTAL EARNED LESS RETAINAGE (Line 4 Less Line 5 Total)		$0.00
7. LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6 from prior Certificate)		$0.00
8. CURRENT PAYMENT DUE		$0.00
9. BALANCE TO FINISH, INCLUDING RETAINAGE (Line 3 less Line 6)	$0.00	

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by Owner	$0.00	$0.00
Total approved this Month	$0.00	$0.00
TOTALS	$0.00	$0.00
NET CHANGES by Change Order		$0.00

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown herein is now due.

CONTRACTOR:

By: _____ Date: _____

State of:

County of:

Subscribed and sworn to before me this day of

Notary Public:

My Commission expires:

ARCHITECT'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED $0.00

(Attach explanation if amount certified differs from the amount applied. Initial all figures on this Application and on the Continuation Sheet that are changed to conform with the amount certified.)

ARCHITECT:

By: _____ Date: _____

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

AIA Document G703™ – 1992

Continuation Sheet

AIA Document, G702™–1992, Application and Certification for Payment, or G736™–2009, Project Application and Project Certificate for Payment, Construction Manager as Adviser Edition, containing Contractor's signed certification is attached.
In tabulations below, amounts are in US dollars.
Use Column I on Contracts where variable retainage for line items may apply.

APPLICATION NO: 001
APPLICATION DATE:
PERIOD TO:
ARCHITECT'S PROJECT NO:

A	B	C	D	E	F	G		H	I
			WORK COMPLETED						
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	FROM PREVIOUS APPLICATION (D + E)	THIS PERIOD	MATERIALS PRESENTLY STORED (NOT IN D OR E)	TOTAL COMPLETED AND STORED TO DATE (D + E + F)	% (G ÷C)	BALANCE TO FINISH (C - G)	RETAINAGE (IF VARIABLE RATE)
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
	GRAND TOTAL	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**0.00%**	**$0.00**	**$0.00**

LIST OF CONTRACTORS

UCHC PROJECT NO:

ARCHITECT:

PROJECT TITLE:

GENERAL CONTRACTOR:
(Address)

DATE:

TOTAL CONTRACT AMOUNT: $_____

List all Contractors, Subcontractors and others proposed to be employed on the above Project as required in the General Conditions of the Bid Documents. Complete the form and return to the UCHC Agent prior to the start of the Work. I.D. badges shall be issued based on the information indicated below.

Trade Name	Firm / Contact Person	Address	Phone Fax	Contractors License No.	Fed. Emp. ID# (SS#, if not avail.	CT Tax ID No	Set-aside Contractor SBE/MBE/ NO	Cert. Recieved Yes or No	Contract Amount

(List Continued on next sheet)

LIST OF CONTRACTORS Continued)

Trade Name	Firm / Contact Person	Address	Phone Fax	Contractors License No.	Fed. Emp. ID# (SS#, if not avail.	CT Tax ID No	Set-aside Contractor SBE/MBE/ NO	Cert. Recieved Yes or No	Contract Amount

UCONN HEALTH

BACKGROUND INFORMATION SHEET

PLEASE COMPLETE ALL SECTIONS AND SIGN AT THE BOTTOM

The following information is being solicited for purposes of conducting pre-employment criminal and/or other background checks only and is not used in employment decisions unrelated to the results of the background check.

Name: _____
Last First Middle (spell out)

Social Security Number: _____

Contact Phone: _____ Home Phone: _____

e-mail: _____

Marital Status: ☐ Single ☐ Married ☐ Divorced

Maiden Name: _____ Aliases: _____

_____ Race _____ Eyes _____ Height Physically Disabled:

_____ Sex _____ Hair _____ Weight ☐ Yes ☐ No

Identifying Scars/marks/tattoos (type & location):

_____

Home Address: _____
Number Street City/Town State Zip

Date of Birth: _____
MM/DD/YYYY

Place of Birth: _____
City and State or Country

Citizenship: _____ Visa Status: _____

Drivers License ☐ Yes ☐ No

State: _____ License #: _____

List the states that you have lived in the last 7 years:

_____

Are you related to, or an unmarried partner of, an employee at UConn Health? ☐ **YES** ☐ **NO**

If "YES" list below. Continue on the reverse side if necessary. Per UConn Health Policy #2002-51 a relative is a spouse, father, mother, sister, brother, child, the spouse of a child, or any relative who is domiciled in the employee's household.

Name	Relationship	Department

Have you ever been CONVICTED of an offense against criminal or military law, or are there criminal charges currently pending against you? Exclude minor traffic violations, or any offense settled in juvenile court or under a youth offender law. ☐ **YES** ☐ **NO**

If "YES" list all cases below, providing details as indicated. Continue on the reverse side if necessary. **Special Note:** Under the provisions of (C.G.S. § 46a-80 a person is not disqualified from state employment solely because of a prior conviction of a crime. The state can deny employment if a person is found unsuitable after considering (1) the nature of the crime, (2) information relating to the degree of rehabilitation, and (3) the time elapsed sine the conviction. You are not required to disclose the existence of any arrest, criminal charge or conviction, the records of which have been erased pursuant to Connecticut General Statutes §46b-146, 54-76o, or 54-142a. If your criminal records have been erased pursuant to one of these statutes, you may swear under oath that you have never been arrested. Criminal records that may be erased are records pertaining to a finding of delinquency or that a child was a member of a family with service needs (C.G.S. § 46b-146), an adjudication as a youthful offender (C.G.S. § 54-76o), a criminal charge that has been dismissed or nolled, a criminal charge for which the person has been found not guilty or a conviction for which the person received an absolute pardon (C.G.S. § 54-142a).

Date	Place	Court Location	Offense(s)	Disposition

Have you ever been excluded, disbarred, restricted, disqualified, or sanctioned from any Federal or State programs or government organizations? ☐ **YES** ☐ **NO** If "YES" list all cases below, providing details as indicated. Continue on the reverse side if necessary. For the CMHC program, fingerprints taken by the Department of Correction will be submitted to the Connecticut State Police and the FBI for a criminal history check.

Date	Place	Agency	Funding	Current Status

Have there ever been any actions against your professional license(s)? ☐ **YES** ☐ **NO** ☐ **N/A**

If "YES" list all cases below, providing details as indicated. Continue on the reverse side if necessary.

Date	Place	Agency	Funding	Current Status

Have you brought or will you be bringing (or having transported) to UConn Health ANY chemicals, radioactive materials and/or any biological materials that are viruses (or their genomes), bacteria, fungi, rickettsia, mycroplasma, parasitic organisms biological toxins, or Select Agents? ☐ **YES** ☐ **NO**

If "YES", IMPORTANT NOTE: You must contact Environmental Health & Safety, 860-679-2723 or jacobs@uchc.edu upon arival.

I certify that the information provided by me in the Background Information sheet is COMPLETE and TRUE to the best of my knowledge and is made in good faith. I understand that if I knowingly make any misstatement of facts or fail to provide required information I am subject to disqualification or dismissal and other penalties as they may be prescribed by law, policy, or regulation. This sheet is not complete without a wet signature. Digital signatures are not acceptable.

SIGNATURE: _____ **DATE SIGNED:** _____

OFFICIAL USE ONLY

MUST BE COMPLETED BY HIRING DEPARTMENT

submitted by: ☐ Abromaitis D ☐ Duggal J ☐ Hobson M ☐ Leone M ☐ Logan N ☐ Rucker P ☐ Seklecki D ☐ Smith J ☐ Stockwell L ☐ Other:

return to: ☐ Abromaitis D ☐ Duggal J ☐ Hobson M ☐ Leone M ☐ Logan N ☐ Rucker P ☐ Seklecki D ☐ Smith J ☐ Stockwell L ☐ Other:

area: ☐ CMHC ☐ Clinical Operations ☐ Clinical Faculty ☐ Day Care ☐ Dental Clinics ☐ IT ☐ Non-Clinical ☐ Research

type: ☐ Paid ☐ Volunteer ☐ Grad Assistant ☐ Dental Resident/Non-Surgical ☐ Unpaid ☐ Student ☐ Non-Affiliated Student/Intern ☐ Contractor:

job title:

PUBLIC SAFETY USE ONLY

Result/Date

___ Cleared

___ Rejected - failure to disclose ____/____/____

___ Rejected - criminal history ____/____/____

___ Administrative Review Pending ____/____/____

___ Administrative Review Complete ____/____/____

DRAWING LIST 00-2000-1

Drawing Number	Drawing Name
	COVER SHEET
G1	GENERAL INFORMATION
A1	PARTIAL THIRD FLOOR ARCHITECTURAL PLAN
E-1	SYMBOLS, NOTES, SCHEDULES & DETAILS - ELECTRICAL
E-2	PARTIAL THIRD FLOOR DEMOLITION PLAN - ELECTRICAL
E-3	PARTIAL THIRD FLOOR PLANS – ELECTRICAL
E-4	SITE PLAN – ELECTRICAL
E-5	ONE LINE DIAGRAM - ELECRTRICAL

END OF SECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section summarizes the Work of the Project, including the following:

1. Project Description
2. Time of Completion
3. Work Under Other Contracts
4. Work Day
5. Work Sequence
6. Contractor's Use of Premises
7. Owner Occupancy

1.3 PROJECT DESCRIPTION

A. The Project consists of various Code upgrades and renovations to 16 Munson Road (off-site facility) at the University of Connecticut Health Center. Work is indicated on the Contract Documents prepared by Silver Petrucelli & Associates. The building will be occupied during construction.

B. The following generally describes the proposed scope of work. Refer to the complete set of Drawings and Specifications for more complete information.

1. Replace the existing ATS with a new closed transition switch.
2. Replace all breakers in existing switchboard (Add Alternate).
3. Monitor power onto the LAN.
4. Retrofit existing double doors with new lever style accessible hardware.
5. Remove existing single hollow metal door and frame and infill with stud wall and finishes in kind.
6. Remove portion of existing metal stud/gwb wall and reframe wall for new double hollow metal door and frame. Patch wall with in-kind finishes. Coordinate final door location with electrical requirements and Owner.

1.4 TIME OF COMPLETION

A. **Time of Completion**

Work required by the project shall commence upon receipt of a Notice to Proceed. Substantial Completion as defined in the Contract Documents must be achieved and evidenced within 6 months of the start date.

B. Due to the nature of this institution, it is required that the academic schedule must be maintained. Contractor shall cooperate and coordinate with the University to assure that the academic schedule will be maintained. All work must be strictly coordinated with the University of Connecticut Health Center.

1.5 WORK UNDER OTHER CONTRACTS – N/A

1.6 WORK DAY

A. The normal workday shall be during weekend time periods only, excluding State granted Holidays. Permission must be requested and approved in writing to perform work outside the normal working hours or on a State Holiday. Loss of power during the week will not be permitted. Electrical service may be shutdown no earlier than 6 PM, Fridays and must be re-energized no later than 7 AM, Mondays, as coordinated with the Owner.

B. In addition to reasons determined by the University of Connecticut Health Center, approval of deviations in work hours is dependent upon availability of University of Connecticut Health Center supervisory personnel.

1. No person shall be employed to work or permitted to work more than eight hours in any day or more than forty hours in any week on any work provided for under this Contract. The observance of such limitations of hours of work may be suspended during an emergency, upon approval of the Executive Director of Architectural and Engineering Services.

C. If the Contractor determines that work on this project must be performed during a time other than normal working hours of the University of Connecticut Health Center, costs for any premium time must be included in the Base Bid.

1.7 WORK SEQUENCE

A. On-Site storage of any/all materials must be approved by the University of Connecticut Health Center. A site logistic plan must be prepared and approved by the University of Connecticut Health Center. All storage costs are borne by the Contractor. Any long-term storage locations must be coordinated with the University of Connecticut Health Center.

B. Any exterior building penetrations cannot remain open to the elements overnight. All such openings or penetrations must be fully secured at the end of each work day.

C. When facilities are occupied by staff and the public, all work must be closely coordinated with the University of Connecticut Health Center and may require University of Connecticut Health Center escorts.

1.8 CONTRACTOR USE OF PREMISES

A. General: Limit use of the premises to construction activities in areas indicated; allow for Owner occupancy and use by the public.

1. Confine operations to areas within Contract limits indicated. Portions of the site beyond areas in which construction operations are indicated are not to be disturbed.

2. Keep driveways and entrances serving the premises clear and available to the Owner, Owner's employees and students at all times. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on site.

3. Burial of Waste Materials: Do not dispose of organic and hazardous material on site, either by burial or by burning.

B. Use of the Existing Building: Maintain the existing building in a weather tight condition throughout the construction period. Repair damage caused by construction operations. Take all precautions necessary to protect the building and its occupants during the construction period.

1.9 OWNER OCCUPANCY

A. Full Owner Occupancy: The Owner will occupy the site and existing and adjacent buildings during the entire construction period. Cooperate with the Owner during construction operations to minimize conflicts and facilitate Owner usage, rescheduling the work as required. Perform the Work so as not to interfere with the Owner's operations.

1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and approval of authorities having jurisdiction.
2. Notify Owner not less than 72 hours in advance of activities that will affect Owner's operations.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements for project meetings including but not limited to:

1. Pre-Construction Conference.
2. Pre-Installation Conferences.
3. Coordination Meetings.
4. Progress Meetings.

B. Construction schedules are specified in Section 01300, Submittals.

1.3 PRE-CONSTRUCTION CONFERENCE

A. The successful bidder shall attend a preconstruction conference and organizational meeting at the University of Connecticut Health Center, with the University of Connecticut Health Center Representative prior to any field work to review responsibilities and personnel assignments and to insure that Specifications, drawings and all conditions are understood to properly complete this Contract.

B. The meeting will be scheduled by the University of Connecticut Health Center Representative.

C. Attendees: The Owner, Architect and their consultants, the Contractor and its superintendent, major subcontractors, manufacturers, suppliers and other concerned parties shall each be represented at the conference by persons familiar with and authorized to conclude matters relating to the Work.

D. Agenda: Discuss items of significance that could affect progress including such topics as:

1. Construction schedule.
2. Critical Work sequencing.
3. Labor Market Regulations.
4. Designation of responsible personnel and emergency phone numbers.
5. Procedures for processing field decisions and Change Orders.

6. Procedures for processing Applications for Payment.
7. Distribution of Contract Documents and correspondence.
8. Submittal of Shop Drawings, Product Data and Samples.
9. Preparation of record documents.
10. Use of the premises, including dust and noise control.
11. Parking and parking permits.
12. Office, Work and storage areas.
13. Equipment deliveries and priorities.
14. Safety procedures, including the University of Connecticut Health Center Hazard Communication Program and policies on pest control, asbestos, lead-based paints, lockout/tagout procedures, excavation and trenching, disposal of PCB containing light ballasts, use of solvents, solvent- or epoxy-based paints, confined space entries and use of open flames.
15. First aid.
16. Unacceptable behavior.
17. Security.
18. Construction debris and housekeeping.
19. Working hours.

1.4 PRE-INSTALLATION CONFERENCES

A. Conduct a pre-installation conference at the site before each construction activity that requires coordination with other construction. The Installer and representatives of manufacturers and fabricators involved in or affected by the installation, and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise the Architect and University of Connecticut Health Center Representative of scheduled meeting dates.

1. Review the progress of other construction activities and preparations for the particular activity under consideration at each pre-installation conference, including requirements for:

a. Contract Documents.
b. Options.
c. Related Change Orders.
d. Purchases
e. Deliveries.
f. Shop Drawings, Product Data and quality control Samples.
g. Possible conflicts.
h. Compatibility problems.
i. Time schedules.
j. Weather limitations.
k. Manufacturer's recommendations.
l. Compatibility of materials.

m. Acceptability of substrates.
n. Temporary facilities.
o. Space and access limitations.
p. Governing regulations.
q. Safety.
r. Inspection and testing requirements.
s. Required performance results.
t. Recording requirements.
u. Protection.

2. Record significant discussions and agreements and disagreements of each conference, along with the approved schedule. Distribute the record of the meeting to everyone concerned, promptly, including the Owner and Architect.

3. Do not proceed if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of Work and reconvene the conference at the earliest feasible date.

1.5 COORDINATION MEETINGS

A. Conduct Project coordination meetings at regularly scheduled times convenient for all parties involved. Project coordination meetings are in addition to specific meetings held for other purposes, such as regular progress meetings and special pre-installation meetings.

B. Request representation at each meeting by every party currently involved in coordination or planning for the construction activities involved.

C. Record meeting results and distributes copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

1.6 PROGRESS MEETINGS

A. Conduct progress meetings at the Project site at regularly scheduled intervals. Notify the Owner and Architect of scheduled meeting dates. Coordinate dates of meetings with preparation of the payment request.

B. Attendees: In addition to representatives of the Owner and Architect, each subcontractor, supplier or other entity concerned with current progress or involved in planning, coordination or performance of future activities shall be represented at these meetings by persons familiar with the Project and authorized to conclude matters relating to progress.

C. Agenda: Review and correct or approve minutes of the previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to the current status of the Project.

1. Contractor's Construction Schedule: Review progress since the last meeting. Determine where each activity is in relation to the Contractor's Construction Schedule, whether on time or ahead or behind schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

2. Review the present and future needs of each entity present, including such items as:

    a. Interface requirements.
    b. Time.
    c. Sequences.
    d. Deliveries.
    e. Off-site fabrication problems.
    f. Access.
    g. Site utilization.
    h. Temporary facilities and services.
    i. Hours of Work.
    j. Hazards and risks.
    k. Housekeeping.
    l. Quality and Work standards.
    m. Change Orders.
    n. Documentation of information for payment requests.

D. Reporting: No later than 3 days after each progress meeting date, Contractor shall distribute copies of minutes of the meeting to each party present and to other parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.

1. Schedule Updating: Revise the construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue the revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for substitutions.

B. Related Sections:
1. Section 016000 "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.
2. Divisions 02 through 49 Sections for specific requirements and limitations for substitutions.

1.3 DEFINITIONS

A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

1.4 SUBMITTALS

A. Substitution Requests: Submit three (3) copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Substitution Request Form: Use **CSI Form 13.1A**.
2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by

Owner and separate contractors, that will be necessary to accommodate proposed substitution.

c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable specification section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
e. Samples, where applicable or requested.
f. Certificates and qualification data, where applicable or requested.
g. List of similar installations for completed projects with project names and addresses and names and addresses of Architects and Owners.
h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
i. Research reports evidencing compliance with building code in effect for Project, from ICC-ES.
j. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
k. Cost information, including a proposal of change, if any, in the Contract Sum.
l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven (7) days of receipt of a request for substitution. Architect will notify Contractor, through Construction Manager of acceptance or rejection of proposed substitution within fifteen (15) days of receipt of request, or seven (7) days of receipt of additional information or documentation, whichever is later.

   a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.

b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.5 QUALITY ASSURANCE

A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage qualified testing agency to perform compatibility tests recommended by manufacturers.

1.6 PROCEDURES

A. Coordination: Modify or adjust affected work as necessary to integrate work of the approved substitutions.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

A. Substitutions for Cause: Submit requests for substitution immediately upon discovery of need for change, but not later than fifteen (15) days prior to time required for preparation and review of related submittals.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
b. Substitution request is fully documented and properly submitted.
c. Requested substitution will not adversely affect Contractor's construction schedule.
d. Requested substitution has received necessary approvals of authorities having jurisdiction.
e. Requested substitution is compatible with other portions of the Work.
f. Requested substitution has been coordinated with other portions of the Work.
g. Requested substitution provides specified warranty.
h. If requested substitution involves more than one (1) contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions for Convenience: Architect will consider requests for substitution if received within sixty (60) days after the Notice to Proceed. Requests received after that time may be considered or rejected at discretion of Architect.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
b. Requested substitution does not require extensive revisions to the Contract Documents.
c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
d. Substitution request is fully documented and properly submitted.
e. Requested substitution will not adversely affect Contractor's construction schedule.
f. Requested substitution has received necessary approvals of authorities having jurisdiction.
g. Requested substitution is compatible with other portions of the Work.
h. Requested substitution has been coordinated with other portions of the Work.
i. Requested substitution provides specified warranty.
j. If requested substitution involves more than one (1) contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 3 - EXECUTION (Not Used)

END OF SECTION 012500

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements for submittals required for performance of the Work, including;

1. Contractor's construction schedule.
2. Submittal schedule.
3. Shop Drawings.
4. Coordination Drawings and layouts.
5. Daily Construction Reports.
6. Product Data.
7. Samples.
8. Site Mobilization Plan
9. Safety Plan.
10. Construction Photographs.

B. Administrative Submittals: Refer to other Division-1 Sections and other Contract Documents for requirements for administrative submittals, including, but not limited to:

1. General and Supplementary
   General Conditions for:

   a. Permits.
   b. Applications for payment.
   c. Performance and payment bonds.
   d. Insurance certificates.
   e. List of Subcontractors.
   f. Schedule of Values.

2. 01 6000 - Materials and Equipment for:

   a. Product Schedule.

3. 01 7000 - Project Closeout for:

   a. Operations manuals.

4. 01 7400 - Warranties and Bonds for:

a. Guarantees/warranties.

1.3 SUBMITTAL PROCEDURES

A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Transmit **7 copies** of each submittal sufficiently in advance of performance of related construction activities to avoid delay.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals and related activities that require sequential activity.

2. Coordinate transmittal of different types of submittals for related elements of the Work so processing will not be delayed by the need to review submittals concurrently for coordination.

   a. The Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

3. Processing: Allow sufficient review time so that installation will not be delayed as a result of the time required to process submittals, including time for resubmittals.

   a. Allow two weeks for initial review. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. The Architect will promptly advise the Contractor when a submittal being processed must be delayed for coordination.

   b. If an intermediate submittal is necessary, process the same as the initial submittal.

   c. Allow two weeks for reprocessing each submittal.

   d. No extension of Contract Time will be authorized because of failure to transmit submittals to the Architect sufficiently in advance of the Work to permit processing.

B. Submittal Preparation: Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.

1. Provide a space approximately 4" x 5" on the label or beside the title block on Shop Drawings to record the Contractor's review and approval markings and the action taken.

2. Include the following information on the label for processing and recording action taken:

    a. Project name.
    b. Date.
    c. Name and address of Contractor.
    d. Name of manufacturer.
    e. Number and title of appropriate Specification Section.

C. Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal from Contractor to University Representative using a transmittal form.

1.4 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Bar-Chart Schedule: Prepare a fully developed, horizontal bar-cart type Contractor's construction schedule. The schedule shall be a Critical Path Method (CPM) prepared with "Primavera Project Planner (P3)" software, utilizing the precedence diagram method. Submit one copy on computer disks and two printed hard copies before the Contract Award.

1. The schedule shall be of sufficient detail to indicate all significant construction activities. The level of detail should be such that no activity should exceed 20 working days. Where similar activities continue beyond the 20-day limit, these activities should be broken into subgroups, specific areas, or phases so that the 20 day maximum duration is maintained.

2. The Detailed Construction Schedule (DCS) shall be a cost and resource loaded schedule with each activity being assigned both a job hour value and a cost. Each activity in the DCS shall include:

    a. A description that clearly identifies the activity and the location of the work.

    b. The duration expressed in full workdays, not to exceed 20 working days. (Except in the case of non-construction activities such as procurement, fabrication, and delivery of equipment.

    c. An activity code, which shall identify the various work areas, as well as the CSI/Specification division work.

    d. A responsible code, which shall individually and singularly denote the Contractor or subcontractor responsible for the work. No activity shall have more than one responsible entity.

    e. The number of job hours required to perform work. The number of job hours shall be shown as a resource.

f. The approved lump sum line item amount for the work, in hundreds of dollars, complete in place, and for the specified material as approved by the Owner. The total of all line item values shall equal the Contract amount.

g. The quantity of units to be installed. The quantity of units shall be shown as a resource.

h. The ability to show the percent complete, using integers, to represent the installed progress as of the status date.

I. The actual start and finish dates.

3. The DCS shall show a clear and definable critical path for the work as a whole as well as each of the definable work areas. All imposed or constrained dates shall be clearly identified. The Contractor shall submit an updated DCS on the fifth of each month reflecting the progress through the last day of the preceding month. The printed updates shall show progress bars for each activity as well as be printed on sheets of sufficient width to show the data for entire construction period. Each monthly update should include the submission of two hard copies as well as the updated computer disks.

4. Once reviewed, found to be reasonable and approved, the DCS and its lump sum values for each work activity shall become the "Schedule of Values" to be utilized for progress payments and progress reporting. Should any activity's value significantly differ from normal industry values for such work, the Owner will defer approval of that item pending submission of further documentation to support the abnormal value and pay for work installed based on the values the current Means Estimating Manual gives for such work in this area.

5. Coordinate the DCS with the submittal schedule, regulatory agency permits/approvals, as well as the requirements for Owner supplied materials/approvals. The DCS should indicate need dates for such Owner provided materials/approvals and provide a separate monthly report updating these need dates.

6. Provide completion dates for each area of work that sufficiently allows time for area commissioning, Architect's review and certification of Substantial Completion, as well as punch list and close-out requirements.

B. Phasing: Provide notations on the schedule to show how the sequence of the Work is affected by requirements for phased completion to permit Work by separate Contractors and partial occupancy by the Owner prior to Substantial Completion.

C. Work Stages: Indicate important stages of construction for each major portion of the Work, including testing and installation.

D. Distribution: Following response to the initial submittal, print and distribute copies to the Architect, Owner, subcontractors, and other parties required to comply with scheduled dates. Post copies in the Project meeting room and temporary field office.

1. When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in construction activities.

E. Schedule Updating: Revise the schedule after each meeting or activity, where revisions have been recognized or made. Issue the updated schedule concurrently with report of each meeting.

1.5 SUBMITTAL SCHEDULE

A. After development and acceptance of the Contractor's construction schedule, prepare a complete schedule of submittals. Submit the schedule within 10 days of the date required for establishment of the Contractor's construction schedule.

1. Coordinate submittal schedule with the list of subcontracts, Schedule of Values and the list of products as well as the Contractor's construction schedule.

2. Provide the following information:

a. Scheduled date for the first submittal.
b. Related Section number.
c. Submittal category item title.
d. Name of subcontractor.

1.6 SHOP DRAWINGS

A. Submit newly prepared information, drawn to accurate scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not considered Shop Drawings.

B. Shop Drawings include fabrication and installation drawings, setting diagrams, schedules patterns, templates and similar drawings. Include the following information:

1. Dimensions.
2. Identification of products and materials included.
3. Compliance with specified standards.
4. Notation of coordination requirements.
5. Notation of dimensions established by field measurement.
6. Sheet Size: Except for templates, patterns and similar full- size Drawings, submit Shop Drawings on sheets at least 8-1/2" x 11" but no larger than 24" x 36".
7. Do not use Shop Drawings without an appropriate final stamp indicating action taken in connection with construction.

C. Coordination drawings are a special type of Shop Drawing that show the relationship and integration of different construction elements that require careful coordination during fabrication or installation to fit in the space provided or function as intended.

1. Preparation of coordination Drawings is specified in Section 01040, Project Coordination, and may include components previously shown in detail on Shop Drawings or Product Data.

2. Submit coordination Drawings for integration of different construction elements. Show sequences and relationships of separate components to avoid conflicts in use of space.

1.7 COORDINATION DRAWINGS AND LAYOUTS

A. General

1. Coordination drawings are not shop drawings and shall not be submitted to Architect for approval.

2. Coordination drawings show the relationship and integration of different construction elements that require careful coordination during fabrication or installation to fit in the space provided and to function as intended.

3. Prepare composite coordination drawings to scale of 3/8" = 1'-0" or larger, detailing major elements, components, and systems of architectural, structural, mechanical, and electrical equipment and materials in relationship with each other, and with building components. Include dimensions.

4. Indicate locations where space is limited for installation and access and where sequencing and coordination of installations are of importance to efficient flow of Work affecting one or more trades.

5. Indicate scheduling, sequencing, movement, and positioning of large equipment into building during construction.

6. Prepare floor plans, elevations, and details to indicate penetrations in floors, walls, and ceilings and their relationship to other penetrations and installation.

7. Prepare reflected ceiling plans to coordinate and integrate installations, air outlets and inlets, light fixtures, communications systems components, sprinklers, and other ceiling-mounted devices.

8. Show interrelationship of components to be shown on separated Shop Drawings.

9. Indicate required installation sequences.

B. Structural Systems - include the following:

1. Structural frame showing interface with exterior cladding.

2. Location of openings in relation to structure.

3. Attachments to decking, structural elements, and other systems.

C. Mechanical Systems - include the following:

1. Proposed locations of piping, ductwork, equipment, and materials.

2. Proposed locations for access panels and doors.

3. Clearances for installing and maintaining insulation.

4. Clearances for servicing and maintaining equipment, including tube removal, filter removal, and space for equipment disassembly required for periodic maintenance. Shop access locations.

5. Equipment connections and support details.

6. Exterior wall and foundation penetrations.

7. Fire-rated wall and floor penetrations.

8. Sizes and location of required concrete pads and bases.

9. Valve stem movement.

D. Electrical Systems - include the following:

1. Proposed locations of major raceway systems, equipment, and materials.

clearances for servicing equipment, including space for equipment disassembly required for periodic maintenance. Show access locations.

2. Equipment connections and support details.

3. Exterior wall and foundation penetrations.

4. Fire-rated wall and floor penetrations.

5. Sizes and location of required concrete pads and bases.

1.8 DAILY CONSTRUCTION REPORTS

A. Prepare a daily construction report recording the following information concerning events at the site, and submit duplicate copies to the Architect at weekly intervals:

1. List of subcontractors at the site.
2. Approximate count of personnel at the site.
3. High and low temperatures, general weather conditions.
4. Accidents and unusual events.
5. Meetings and significant decisions.
6. Stoppages, delays, shortages, and losses.
7. Meter readings and similar recordings.
8. Emergency procedures.
9. Orders and requests of governing authorities.
10. Change Orders received, implemented.
11. Services connected, disconnected.
12. Equipment or system tests and startups.
13. Partial Completions, occupancies.
14. Substantial Completions authorized.

1.9 PRODUCT DATA

A. Collect Product Data into a single submittal for each element of construction or system. Product Data includes printed information such as manufacturer's installation instructions, catalog cuts, standard color charts, roughing-in diagrams and templates, standard wiring diagrams and performance curves. Where Product Data must be specially prepared because standard printed data is not suitable for use, submit as "Shop Drawings."

1. Mark each copy to show applicable choices and options. Where printed Product Data includes information on several products, some of which are not required, mark copies to indicate the applicable information. Include the following information:

a. Related Specification section number.
b. Project name.

c. Project number.
d. Manufacturer's printed recommendations.
e. Compliance with recognized trade association standards.
f. Compliance with recognized testing agency standards.
g. Application of testing agency labels and seals.
h. Notation of dimensions verified by field measurement.
i. Notation of coordination requirements.

2. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.

1.10 SAMPLES

A. Submit full-size, fully fabricated Samples cured and finished as specified and physically identical with the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture and pattern.

1. Mount, display, or package Samples in the manner specified to facilitate review of qualities indicated. Include the following:

a. Generic description of the Sample.
b. Product name or name of manufacturer.

2. Submit Samples for review of kind, color, pattern, and texture, for a final check of these characteristics with other elements, and for a comparison of these characteristics between the final submittal and the actual component as delivered and installed.

a. Where variation in color, pattern, texture or other characteristics are inherent in the material or product represented, submit multiple units (not less than 3), that show approximate limits of the variations.

b. Selection of painting colors shall be made by the Architect, who will be responsible for obtaining approval of the using agency. After receipt of this approval, this selection will be given to the University Representative for return to the Contractor.

3. Preliminary submittals: Where Samples are for selection of color, pattern, texture or similar characteristics from a range of standard choices, submit a full set of choices for the material or product.

a. Preliminary submittals will be reviewed and returned with the Architect's mark indicating selection and other action.

4. Maintain sets of Samples, as returned, at the Project site, for quality comparisons throughout the course of construction.

1.11 SITE MOBILIZATION PLAN

A. Prior to the start of operations on the site, the Contractor shall submit to the University Representative, a Site Mobilization Plan which shall indicate pertinent dates and times, logistics, traffic flow and compliance with the General Requirements to a level of detail commensurate with the complexity of the construction and the sensitivity of the Owner's ongoing activities on site.

1.12 SAFETY PLAN

A. Prior to, and as a condition of mobilization on site, the Contractor shall submit a Safety Plan consisting of no less than the following information:

1. Material Safety Data Sheets for all potentially harmful substances.

2. A list of Contractor, Subcontractor, and University personnel to be notified in the event of an emergency.

3. A list of Contractor's personnel to be notified by the University of Connecticut Health Center in the event of an emergency during "off" hours.

4. Evacuation plans.

5. Emergency medical procedures.

6. Locations of emergency medical equipment.

1.13 CONSTRUCTION PHOTOGRAPHS

A. On the date the work is begun and on or about the first day of each month thereafter (until the work is at least 95 percent complete), the Contractor shall have photographs of the construction taken by a professional photographer.

B. Take twenty-four (24) digital pictures each time. Note the date the picture was taken, the Project number, identification of the view, and the vantage point. Deliver pictures to the University Representative on a CD.

C. As photographs are a record of the work progress, they shall be taken each month, whether or not they show work done during the preceding month. Deliver slides within 10 days of their being taken.

1.14 ARCHITECT'S ACTION

A. Except for submittals for record, information or similar purposes, where action and return is required or requested, the Architect will review each submittal, mark to indicate action taken, and return promptly.

1. Compliance with specified characteristics is the Contractor's responsibility.

B. Action Stamp: The Architect will stamp each submittal with a uniform, self-explanatory action stamp. The stamp will be appropriately marked, to indicate the action taken.

PART 2 - PRODUCTS (Not Applicable).

PART 3 - EXECUTION (Not Applicable).

END OF SECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements for quality control and quality control services.

B. Quality control services include inspections and tests and related actions including reports, performed by independent agencies, governing authorities, and the Contractor.

C. Inspection and testing services are required to verify compliance with requirements specified or indicated. These services do not relieve the Contractor of responsibility for compliance with Contract Document requirements.

D. Requirements of this Section relate to customized fabrication and installation procedures, not production of standard products.

1. Specific quality control requirements for individual construction activities are specified in the Sections that specify those activities. Those requirements, including inspections and tests, cover production of standard products as well as customized fabrication and installation procedures.

2. Inspections, test and related actions specified are not intended to limit the Contractor's quality control procedures that facilitate compliance with Contract Document requirements.

3. Requirements for the Contractor to provide quality control services required by the Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.

1.3 RESPONSIBILITIES

A. Owner Responsibilities: The Owner will provide inspections, tests and similar quality control services specified to be performed by independent agencies and not by the Contractor, except where they are specifically indicated as the Contractor's responsibility or are provided by another identified entity. Costs for these services are not included in the Contract Sum.

1. The Owner will employ and pay for the services of an independent agency, testing laboratory or other qualified firm to perform services which are the Owner's responsibility.

B. Contractor Responsibilities: The Contractor shall notify the University of Connecticut Health Center Representative and testing laboratory 24 hours before the expected time of testing.

1. Retesting: The Contractor is responsible for retesting where results of required inspections, tests or similar services prove unsatisfactory and do not indicate compliance with Contract Document requirements, regardless of whether the original test was the Contractor's responsibility.

a. Cost of retesting construction revised or replaced by the Contractor is the Contractor's responsibility, where required tests were performed on original construction.

2. Additional Tests: The Contractor is responsible for employing and paying for additional tests if for the Contractor's convenience.

3. Associated Services: The Contractor shall cooperate with agencies performing required inspections, tests and similar services and provide reasonable auxiliary services as requested. Notify the agency sufficiently in advance of operations to permit assignment of personnel. Auxiliary services required include but are not limited to:

a. Providing access to the Work and furnishing incidental labor and facilities necessary to facilitate inspections and tests.

b. Taking adequate quantities of representative samples of materials that require testing or assisting the agency in taking samples.

c. Providing facilities for storage and curing of test samples, and delivery of samples to testing laboratories.

d. Providing the agency with a preliminary design mix proposed for use for materials mixes that require control by the testing agency.

e. Security and protection of samples and test equipment at the Project site.

C. Duties of the Testing Agency: The independent testing agency engaged to perform inspections, sampling and testing of materials and construction specified in individual Specification Sections shall cooperate with the Architect and Contractor in performance of its duties, and shall provide qualified personnel to perform required inspections and tests.

1. The agency shall notify the University of Connecticut Health Center Representative promptly of irregularities or deficiencies observed in the Work during performance of its services.

2. The agency is not authorized to release, revoke, alter or enlarge requirements of the Contract Documents, or approve or accept any portion of the Work.

3. The agency shall not perform any duties of the Contractor.

D. Coordination: The Contractor and each agency engaged to perform inspections, tests and similar services shall coordinate the sequence of activities to accommodate required services with a minimum of delay. In addition the Contractor and each agency shall coordinate activities to avoid the necessity of removing and replacing construction to accommodate inspections and tests.

1. The Contractor is responsible for scheduling times for inspections, tests, taking samples and similar activities.

E. Contractor is responsible for scheduling/coordinating all University of Connecticut Health Center and Connecticut Department of Public Safety Building Official Inspections.

1.4 SUBMITTALS

A. The independent testing agency shall submit a certified written report of each inspection, test or similar service, to the University of Connecticut Health Center Representative, in duplicate.

1. Report Data: Written reports of each inspection, test or similar service shall include, but not be limited to:

a. Date of issue.
b. Project title and number.
c. Name, address and telephone number of testing agency.
d. Dates and locations of samples and tests or inspections.
e. Names of individuals making the inspection or test.
f. Designation of the Work and test method.
g. Identification of product and Specification Section.
h. Complete inspection or test data.
i. Test results and an interpretations of test results.
j. Ambient conditions at the time of sample-taking and testing.
k. Comments or professional opinion as to whether inspected or tested Work complies with Contract Document requirements.
l. Name and signature of laboratory inspector.
m. Recommendations on retesting.

1.5 QUALITY ASSURANCE

A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.

B. Comply fully with manufacturers' instructions, including each step in sequence.

C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.

D. Qualification for Service Agencies: Engage inspection and testing service agencies, including independent testing laboratories, which are prequalified as complying with "Recommended Requirements for Independent Laboratory Qualification" by the American Council of Independent Laboratories, and which specialize in the types of inspections and tests to be performed.

1. Each independent inspection and testing agency engaged on the Project shall be authorized by authorities having jurisdiction to operate in the State in which the Project is located.

1.6 REFERENCES

A. Conform to reference standard by date of issue current on date of Contract Documents where no date is specified with standard.

B. Should specified reference standards conflict with Contract Documents, request clarification from Architect before proceeding.

1.7 MOCK-UPS

A. Tests will be performed under provisions identified in the respective product specification sections.

B. Assemble and erect specified items with specified attachments an anchorage devices, flashings, seals, and finishes.

C. Accepted mock-up shall be a comparison standard for the remaining work.

D. Where mock-up has been accepted by Architect/Engineer, remove mock-up and clear area when directed to do so.

E. Provide mock-ups as specified within other specification sections.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION

1. General: Upon completion of inspection, testing, sample-taking and similar services, repair damaged construction and restore substrates and finishes to eliminate deficiencies, including deficiencies in visual qualities of exposed finishes. Comply with Contract Document requirements for "Cutting and Patching."

2. Protect construction exposed by or for quality control service activities, and protect repaired construction.

3. Repair and protection is the Contractor's responsibility, regardless of the assignment of responsibility for inspection, testing or similar services.

End of Section

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section specifies administrative and supervisory requirements necessary for Project coordination including, but not necessarily limited to:

1. Coordination and Coordination Drawings.
2. Administrative and supervisory personnel.
3. General installation provisions.
4. Cleaning and protection.

B. Progress meetings, coordination meetings and pre-installation conferences are included in Section 012000, Project Meetings.

C. Requirements for the Contractor's Construction Schedule are included in Section 013000, Submittals.

1.3 COORDINATION

A. Coordination: Coordinate construction activities included under various Sections of these Specifications to assure efficient and orderly installation of each part of the Work. Coordinate construction operations included under different Sections of the Specifications that are dependent upon each other for proper installation, connection, and operation.

1. Where installation of one part of the Work is dependent on installation of other components, either before or after its own installation, schedule construction activities in the sequence required to obtain the best results.

2. Where availability of space is limited, coordinate installation of different components to assure maximum accessibility for required maintenance, service and repair.

3. Make adequate provisions to accommodate items scheduled for later installation.

B. Where necessary, prepare memoranda for distribution to each party involved outlining special procedures required for coordination. Include such items as required notices, reports, and attendance at meetings.

1. Prepare similar memoranda for the Owner and separate Contractors where coordination of their Work is required.

C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of schedules.
2. Installation and removal of temporary facilities.
3. Delivery and processing of submittals.
4. Progress meetings.
5. Project Close-out activities.

D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.

1. Salvage materials and equipment involved in performance of, but not actually incorporated in, the Work. Refer to other sections for disposition of salvaged materials that are designated as Owner's property.

EFFICIENCY: Shall have a minimum or higher efficiency to comply with CL & P, EPA's Energy Star, D.O.E. and CNG requirements for HVAC, lighting/controls; building envelope and appliances.

PART 2 – KEY PERSONNEL

1. The University requires as a minimum, the following Key Personnel be assigned to this project. Each position shall be a full-time, non-working, individual dedicated to the position listed.

    a. Project Manager
    b. Project Superintendent

2. Each individual listed above shall have not less than 5 years experience performing work of a similar nature to this project and in a comparable position to the position assigned on this project. Resumes will be required on all key personnel prior to acceptance. Removal of any personnel denoted as Key Personnel from the project will require Owner's prior approval.

2.1 SUBMITTALS

A. Coordination Drawings: Prepare and submit coordination Drawings where close and careful coordination is required for installation of products and materials fabricated off-site by separate entities, and where limited space availability necessitates maximum utilization of space for efficient installation of different components.

1. Show the interrelationship of components shown on separate Shop Drawings.

2. Indicate required installation sequences.

3. Comply with requirements contained in Section 013000, Submittals.

B. Staff Names: Provide 3 days after Notice to Proceed, submit a list of the Contractor's principal staff assignments, including the Superintendent and other personnel in attendance at the site; identify individuals, their duties and responsibilities; list their addresses, telephone numbers and include a copy of their resumes.

1. Comply with requirements contained in Section 013000, Submittals.

2. Post copies of the list in the Project meeting room, the temporary field office, and each temporary telephone.

PART 3 - PRODUCTS (Not Applicable).

PART 4 - EXECUTION

PART 5 - GENERAL COORDINATION

A. Coordinate in field with affected trades for proper relationship to Work based on Project conditions.

B. Notify Architect of conflicts and other coordination issues requiring resolutions prior to commencing construction in each affected area.

C. Submit Contractor's certification to Architect that Coordination Drawings have been completed and coordination issues have been identified and resolved prior to commencing construction in each affected area.

D. Make Coordination Drawings available in field office for review by Architect and Owner during entire period on construction.

5.1 GENERAL INSTALLATION PROVISIONS

A. Inspection of Conditions: Require the Installer of each major component to inspect both the substrate and conditions under which Work is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.

B. Manufacturer's Instructions: Comply with manufacturer's installation instructions and recommendations, to the extent that those instructions and recommendations are more explicit or stringent than requirements contained in Contract Documents.

C. Inspect materials or equipment immediately upon delivery and again prior to installation. Reject damaged and defective items.

D. Provide attachment and connection devices and methods necessary for securing Work. Secure Work true to line and level. Allow for expansion and building movement.

E. Visual Effects: Provide uniform joint widths in exposed Work. Arrange joints in exposed Work to obtain the best visual effect. Refer questionable choices to the Architect for final decision.

F. Recheck measurements and dimensions, before starting each installation.

G. Install each component to ensure the best possible results. Isolate each part of the completed construction from incompatible material as necessary to prevent deterioration.

H. Coordinate temporary enclosures with required inspections and tests, to minimize the necessity of uncovering completed construction for that purpose.

I. Mounting Heights: Where mounting heights are not indicated, install individual components at standard mounting heights recognized within the industry for the particular application indicated. Refer questionable mounting height decisions to the Architect for final decision.

5.2 CLEANING AND PROTECTION

A. During handling and installation, clean and protect construction in progress and adjoining materials in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

B. Clean and maintain completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

C. Limiting Exposures: Supervise construction activities to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period. Where applicable, such exposures include, but are not limited to, the following:

1. Excessive static or dynamic loading.
2. Excessive internal or external pressures.
3. Excessively high or low temperatures.
4. Thermal shock.
5. Excessively high or low humidity.
6. Air contamination or pollution.
7. Water or ice.
8. Solvents.
9. Chemicals.
10. Light.
11. Radiation.
12. Puncture.
13. Abrasion.
14. Heavy traffic.
15. Soiling, staining and corrosion.
16. Bacteria.
17. Rodent and insect infestation.
18. Combustion.
19. Electrical current.
20. High speed operation,
21. Improper lubrication,
22. Unusual wear or other misuse.
23. Contact between incompatible materials.
24. Destructive testing.
25. Misalignment.
26. Excessive weathering.
27. Unprotected storage.
28. Improper shipping or handling.
29. Theft.
30. Vandalism.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section specifies requirements for temporary services and facilities, including:

1. Utilities
2. Temporary construction
3. Construction aids
4. Barriers and enclosures
5. Security
6. Access roads and parking
7. Temporary controls
8. Traffic regulation
9. Project identification and signs
10. Field offices and sheds

B. Temporary utilities required include but are not limited to:

1. Temporary electric power and light.
2. Temporary fire protection.

C. Temporary construction required includes but is not limited to:

1. Temporary stairs.

D. Construction aids required include but are not limited to:

1. Temporary lifts and hoists.
2. Temporary elevator use.

E. Barriers and enclosures required include but are not limited to:

1. Temporary enclosures.
2. Barricades, warning signs and light.
3. Enclosure fence for the site.

F. Security required includes but is not limited to:

1. Permanent fire protection.
2. Covered walkways.
3. Security enclosures and lockups.

G. Access roads and parking required include but are not limited to:

1. Temporary roads and paving.
2. Contractors' parking.

H. Temporary controls required include but are not limited to:

1. Dewatering facilities and drains.
2. Waste disposal.
3. Rodent and pest control.
4. Environmental protection.
5. Nuisance dust control.
6. Noise control.

I. Project identification and sign include but are not limited to:

1. Temporary Project identification signs and bulletin boards.

1.3 SUBMITTALS

A. Temporary Utilities: Submit reports of tests, inspections, meter readings and similar procedures performed on temporary utilities.

B. Implementation and Termination Schedule: Submit a schedule indicating implementation and termination of each temporary utility within 15 days of the date established for commencement of the Work.

1.4 QUALITY ASSURANCE

A. Regulations: Comply with industry standards and applicable laws and regulations if authorities having jurisdiction, including but not limited to:

1. Building Code requirements.
2. Health and safety regulations.
3. Utility company regulations.
4. Police, Fire Department and Rescue Squad rules.
5. Environmental protection regulations.

B. Standards: Comply with NFPA Code 241, "Building Construction and Demolition Operations", ANSI-A10 Series standards for "Safety Requirements for Construction and Demolition", and NECA Electrical Design Library "Temporary Electrical Facilities."

1. Refer to "Guidelines for Bid Conditions for Temporary Job Utilities and Services", prepared jointly by AGC and ASC, for industry recommendations.
2. Electrical Service: Comply with NEMA, NECA and UL standards and regulations for temporary electric service. Install service in compliance with National Electric Code (NFPA 70).

C. Inspections: Arrange for authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certifications and permits.

1.5 PROJECT CONDITIONS

A. Temporary Utilities: Prepare a schedule indicating dates for implementation and termination of each temporary utility. At the earliest feasible time, when acceptable to the Owner, change over from use of temporary service to use of the permanent service.

B. Conditions of Use: Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Take necessary fire prevention measures. Do not overload facilities, or permit them to interfere with progress. Do not allow hazardous dangerous or unsanitary conditions, or public nuisances to develop or persist on the site.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Provide new materials; if acceptable to the Architect, undamaged previously used materials in serviceable condition may be used. Provide materials suitable for the use intended.

B. Lumber and Plywood: Comply with requirements in Division-6 Section "Rough Carpentry."

1. For job-built temporary offices, shops and sheds within the construction area, provide UL labeled, fire treated lumber and plywood for framing, sheathing and siding.

2. For signs and directory boards, provide exterior type, Grade B-B High Density Concrete Form Overlay Plywood conforming to PS-1, of sizes and thickness indicated.

3. For fences and vision barriers, provide exterior type, minimum 3/8" thick plywood.

4. For safety barriers, sidewalk bridges and similar uses, provide minimum 5/8" thick exterior plywood.

C. Gypsum Wallboard: Provide gypsum wallboard complying with requirements of ASTM C 36 on interior walls of temporary offices.

D. Roofing Materials: Provide UL Class "A" standard weight asphalt shingles complying with ASTM D 3018, or UL Class "C" mineral surfaced roll roofing complying with ASTM D 249 on roofs of job- built temporary offices, shops and sheds.

E. Paint:

1. For job-built temporary offices, shops, sheds, fences and other exposed lumber and plywood, provide exterior grade acrylic-latex emulsion over exterior primer.
2. For sign panels and applying graphics, provide exterior grade alkyd gloss enamel over exterior primer.
3. For interior walls of temporary offices, provide two coats interior latex flat wall paint.

F. Tarpaulins: Provide waterproof, fire-resistant, UL labeled tarpaulins with flame-spread rating of 15 or less. For temporary enclosures provide translucent nylon reinforced laminated polyethylene or polyvinyl chloride fire retardant tarpaulins.

G. Water: Provide potable water approved by local health authorities.

H. Open-Mesh Metal Fencing: Provide 11-gage, galvanized 2-inch, chain link fabric fencing 8-feet high and galvanized steel pipe posts, 1-1/2" I.D. for line posts and 2-1/2" I.D. for corner posts.

2.2 EQUIPMENT

A. General: Provide new equipment; if acceptable to the Architect, undamaged previously used equipment in serviceable condition may be used. Provide equipment suitable for use intended.

1. The Contractor will not be allowed to use any of the Owners's shop facilities, equipment, tools or materials unless specifically mentioned in the specifications.

B. Water Hoses: Provide 3/4" heavy-duty, abrasion-resistant, flexible rubber hoses 100 ft. long, with pressure rating greater than the maximum pressure of the water distribution system; provide adjustable shut-off nozzles at hose discharge.

C. Electrical Outlets: Provide properly configured NEMA polarized outlets to prevent insertion of 110-120 volt plugs into higher voltage outlets. Provide receptacle outlets equipped with ground-fault circuit interrupters, reset button and pilot light, for connection of power tools and equipment.

D. Electrical Power Cords: Provide grounded extension cords; use "hard-service" cords where exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths of electric cords, if single lengths will not reach areas where construction activities are in progress.

E. Lamps and Light Fixtures: Provide general service incandescent lamps of wattage required for adequate illumination. Provide guard cages or tempered glass enclosures, where exposed to breakage. Provide exterior fixtures where exposed to moisture.

F. Heating Units: Provide temporary heating units that have been tested and labeled by UL, FM or another recognized trade association related to the type of fuel being consumed.

G. First Aid Supplies: Comply with governing regulations.

H. Fire Extinguishers: Provide hand-carried, portable, UL-rated, class "ABC" dry chemical extinguishers, or a combination of extinguishers of NFPA recommended classes for the exposures.

1. Comply with NFPA 10 and 241 for classification, extinguishing agent and size required by location and class of fire exposure.

PART 3 - EXECUTION

3.1 GENERAL

A. Use qualified personnel for installation of temporary facilities. Locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.

B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed, or are replaced by authorized use of completed permanent facilities.

C. Temporary buildings (e.g., storage sheds, shops, offices) and utilities may be erected by the Contractor only with the approval of the University Representative and shall be built with labor and materials furnished by the Contractor without expense to the University of Connecticut Health Center. The temporary buildings and utilities shall remain the property of the Contractor at its expense upon completion of the work. With the written consent of the University of Connecticut Health Center Representative, the buildings and utilities may be abandoned and need not be removed.

3.2 TEMPORARY UTILITIES

A. General: Electricity and water are available in moderate quantities, when on or adjacent to the premises, for the use of the Contractor without cost. The University reserves the right to require the Contractor to install meters and, if obvious and excessive use is observed, to pay for these utilities.

1. Contractor shall furnish and install all necessary temporary switches, wiring, fixtures, bulbs, piping, valves and other devices as may be required to connect to existing water and electrical systems.

1. Arrange with the company and existing users for a time when service can be interrupted, where necessary, to make connections for temporary services.

a. The University must be notified at least 72 hours in advance of any proposed shutdown to perform Work which requires any type of service interruption in order that all affected departments may be advised and have time to adjust their schedules accordingly.

b. Any service (steam, water, electricity, etc.) shutdown which will interrupt the continuity of an experiment or be detrimental to a research project or which, in the opinion of the University of Connecticut Health Center, is required for other valid reasons, shall be maintained by safe and adequate temporary means and such temporary piping, wiring and associated devices shall be removed when no longer required.

c. The University of Connecticut Health Center reserves the right to limit the down time to a specified number of net hours and to set the date for each occasion of complete shutdown.

2. Provide adequate capacity at each stage of construction. Prior to temporary utility availability, provide trucked-in services.

3. Obtain easements to bring temporary utilities to the site, where the Owner's easements cannot be used for that purpose.

B. Temporary Fire Protection: Until fire protection needs are supplied by permanent facilities, install and maintain temporary fire protection facilities of the types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 10 "Standard for Portable Fire Extinguishers," and NFPA 241 "Standard for Safeguarding Construction, Alterations and Demolition Operations."

1. Locate fire extinguishers where convenient and effective for their intended purpose, but not less than one extinguisher on each floor at or near each usable stairwell.
2. Store combustible materials in containers in fire-safe locations.
3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire protection facilities, stairways and other access routes for fighting fires. prohibit smoking in hazardous fire exposure areas.
4. Provide supervision of welding operations, combustion type temporary heating units, and similar sources of fire ignition.
5. No gasoline shall be stored in or close to any building at any time.

3.3 TEMPORARY CONSTRUCTION

A. Stairs: Until permanent stairs are available, provide temporary stairs where ladders are not adequate. Cover finished permanent stairs with a protective covering of plywood or similar material so finishes will be undamaged at the time of acceptance.

3.4 CONSTRUCTION AIDS

A. Temporary Lifts and Hoists: Provide facilities for hoisting materials and employees. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

B. Temporary Elevator Use: The Contractor will be permitted to use the freight elevator for freight service and transportation of construction personnel during the construction period. This elevator must also be available to the Owner at all times; coordinate usage with the University of Connecticut Health Center Representative. Provide protective pads for the cab and other appropriate protective measures for the car and entrance doors and frames. At the end of construction, restore the elevator to its original condition, replace worn cables, guide shoes and similar items of limited life. Use of other elevators by the Contractor will not be permitted.

3.5 BARRIERS AND ENCLOSURES

A. Provide earthen embankments and similar barriers in and around excavations and subgrade construction, sufficient to prevent flooding by runoff of storm water from heavy rains.

B. Temporary Enclosures: Provide temporary enclosure for protection of construction in progress and completed, from exposure, foul weather, other construction operations and similar activities.

1. Where heat is needed and the permanent building enclosure is not complete, provide temporary enclosures where there is no other provision for containment of heat. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.
2. Install tarpaulins securely, with incombustible wood framing and other materials. Close openings of 25 square feet or less with plywood or similar materials.
3. Close openings through floor or roof decks and horizontal surfaces with load-bearing wood-framed construction.
4. Where temporary wood or plywood enclosure exceeds 100 square feet in area, use UL-labeled fire-retardant treated material for framing and main sheathing.

C. Barricades, Warning Signs and Lights: Comply with standards and code requirements for erection of structurally adequate barricades. Paint with appropriate colors, graphics and warning signs to inform personnel and the public of the hazard being protected against. Where appropriate and needed provide lighting, including flashing red or amber lights.

D. Enclosure Fence: When excavation begins, install an enclosure fence with lockable entrance gates. Locate where indicated, or enclose the entire site or the portion determined sufficient to accommodate construction operations. Install in a manner that will prevent people, dogs and other animals from easily entering the site, except by the entrance gates.

1. Provide open-mesh, chain-link fencing with posts set in a compacted mixture of gravel and earth.
2. Provide plywood fence, 8-feet high, framed with four 2" x 4" rails, and preservative treated wood posts spaced not more than 8-feet apart.

E. Contractor's Parking Enclosure: Provide open-mesh plastic safety fencing to delineate the Contractor’s Parking Area at the project site. Location to be determined by the University of Connecticut Health Center.

3.6 SECURITY AND PROTECTION

A. Except for use of permanent fire protection as soon as available, do not change over from use of temporary security and protection facilities to permanent facilities until Substantial Completion, or longer as requested by the Architect.

B. Permanent Fire Protection: At the earliest feasible date in each area of the Project, complete installation of the permanent fire protection facility, including connected services, and place into operation and use. Instruct key personnel on use of facilities.

C. Covered Walkway: Erect a structurally adequate protective covered walkway for passage of persons along the adjacent public street. Coordinate with entrance gates, other facilities and obstructions. Comply with regulations of authorities having jurisdiction.

1. Construct using scaffold or shoring framing, waterproofed wood plank overhead decking, protective plywood enclosure walls, handrails, barricades, warning signs, lights, safe and well- drained walkways and similar provisions for protection and safe passage. Extend the back wall beyond the structure to complete the enclosure fence. Paint and maintain in a manner acceptable to the Owner and Architect.

D. Security Enclosure and Lockup: Install substantial temporary enclosure of partially completed areas of construction. Provide locking entrances to prevent unauthorized entrance, vandalism, theft and similar violations of security.

1 Storage: Where materials and equipment must be stored, and are of value or attractive for theft, provide a secure lockup. Enforce discipline in connection with the installation and release of material to minimize the opportunity for theft and vandalism.

3.7 ACCESS ROADS AND PARKING

A. The Contractor shall, under regulations prescribed by the University of Connecticut Health Center Representative, use only established roadways, or use temporary roadways constructed by the Contractor when and as authorized by the University of Connecticut Health Center Representative. When materials are transported in prosecuting the work, vehicles shall not be loaded beyond the loading capacity recommended by the manufacturer of the vehicle or prescribed by any Federal, State, or local law or regulation. When it is necessary to cross curbs or sidewalks, the Contractor shall protect them from damage. The Contractor shall repair or pay for the repair of any damaged curbs, sidewalks, or roads.

B. Contractor's Parking: Contractors working for the University of Connecticut Health Center are required to obtain a parking permit through the Parking Services

Office. A two hundred dollar ($200.00) annual fee will be charged per vehicle. Contractor is responsible for payment of all fees for parking permits. Parking fees may be prorated monthly.

1. The University of Connecticut Health Center will provide a maximum of (3) contractor parking places in the vicinity of the work. Additional parking required by the Contractor will be designated at a location specified by the Owner's Representative.

2. Construction vehicles are exempt from this requirement.

3.8 TEMPORARY CONTROLS

A. Collection and Disposal of Waste: Collect waste from construction areas and elsewhere daily. Comply with requirements of NFPA 241 for removal of combustible waste material and debris. Enforce requirements strictly. Do not hold materials more than 7 days during normal weather or 3 days when the temperature is expected to rise above 80 deg F (27 deg C). Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose of material in a lawful manner.

1. All removed materials that are salvageable are the property of the Contractor unless otherwise noted in the specifications.

2. All debris resulting from the performance of this contract will be the property of the Contractor and will be completely removed from the campus and disposed of in a legal manner.

3. Chutes and dumpster type containers designed to keep dust and spillage to a minimum will be used by the Contractor. Dumpsters will be completely covered with a waterproof covering at all times when not in use.

B. Environmental Protection: Provide protection, operate temporary facilities and conduct construction in ways and by methods that comply with environmental regulations, and minimize the possibility that air, waterways and subsoil might be contaminated or polluted, or that other undesirable effects might result.

C. Nuisance Dust Control: The following provisions shall apply during demolition or construction phases of work:

1. It is the intent of this specification to insure that nuisance dusts resulting from demolition or construction activities do not impact occupied areas of the building. The Contractor shall take all measures necessary to accomplish this goal. These measures will include as minimum polyethylene sheeting or wet methods of fugitive dust control.

2. The Contractor shall submit a plan prior to commencement of work that will detail all methods of dust control. This plan shall be approved by the University Representative prior to commencement of work. Upon approval, this plan shall be distributed to the University of Connecticut Health Center Representative and the building representative on the Safety Committee.

3. Failure to comply shall result in immediate stoppage of work until effective dust control measures are employed.

D. Noise Control: The Contractor shall make every effort to minimize noise disruption to **occupants of buildings and adjacent buildings**. Restrict use of noise making tools and equipment to hours that will minimize complaints from persons or firms near the site. No noise generating work that interferes with classroom operation shall be tolerated. No noise generating work shall be allowed during exam periods where the noise will impact classroom functions. Examples of noise generating work include, but are not limited to sawing, drilling and hammering and/or jackhammering.

1. Avoid use of tools and equipment, which produce harmful noise. No gasoline-powered equipment shall be used during times that the buildings are occupied. No gasoline-powered equipment may be used in the interior of buildings at any time.

3.9 TRAFFIC CONTROL

A. Due to the large volume of pedestrian and vehicular traffic within the campus, it shall be the responsibility of the Contractor to provide continuous traffic accessibility to all areas of the campus.

B. The Contractor shall comply with Connecticut Regulation13b-17-28, Safety to Traffic, which requires that "When portions of the traveled way are made dangerous for the movement of vehicles or pedestrians, a sufficient number of uniformed police officers, flagmen, or traffic men, shall be employed by the permittee to direct traffic safely through the area."

C. The requirement to maintain pedestrian and vehicular traffic is further defined in the Connecticut Department of Transportation Specifications Section 9.71, Form 814, which requirements are incorporated herein by reference.

D. The Contractor may contact the University of Connecticut Health Center, Town of Farmington Police Department, or other private sources to obtain the necessary manpower to comply with these regulations. The University of Connecticut Health Center Representative assigned to the given construction project shall be

informed by the General Contractor of his traffic control procedures prior to the commencement of construction.

3.10 PROJECT IDENTIFICATION AND SIGNS

A. Project Identification Signs: Provided and installed by the University.

B. Temporary Signs: Prepare signs to provide directional information to construction personnel and visitors. Install signs where indicated to inform the public and persons seeking entrance to the Project. Support on posts or framing of preservative treated wood or steel. Do not permit installation of unauthorized signs.

C. Other Signs: Any other signage shall be submitted to the University of Connecticut Health Center Representative for approval.

3.11 FIELD OFFICES AND SHEDS

A. A field office will not be required for this project.

3.12 OPERATION, TERMINATION AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. Limit availability of temporary facilities to essential and intended uses to minimize waste and abuse.

B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage by freezing temperatures and similar elements.

1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation and similar facilities on a 24-hour day basis where required to achieve indicated results and to avoid possibility of damage.
2. Protection: Prevent water filled piping from freezing. Maintain markers for underground lines. Protect from damage during excavation operations.

C. Termination and Removal: Unless the University of Connecticut Health Center Representative requests that it be maintained longer, remove each temporary facility when the need has ended, or when replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with the temporary facility. Repair damaged Work, clean exposed surfaces and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are property of the Contractor. The Owner reserves the right to take possession of Project identification signs.
2. Remove temporary paving that is not intended for or acceptable for integration into permanent paving. Where the area is intended for landscape development, remove soil and aggregate fill that does not comply with requirements for fill or subsoil in the area. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances, which might impair growth of plant materials or lawns. Repair or replace street paving, curbs and sidewalks at the temporary entrances, as required by the governing authority.
3. At Substantial Completion, clean and renovate permanent facilities that have been used during the construction period, including but not limited to:

    a. Replace air filters and clean inside of ductwork and housings.
    b. Replace significantly worn parts and parts that have been subject to unusual operating conditions.
    c. Replace lamps that are burned out or noticeably dimmed by substantial hours of use.
    d. Restore all existing facilities and grounds used during construction to specified or to original condition.

End of Section

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements governing the Contractor's selection of products for use in the Project, including:

1. Product list schedules.
2. Product selection.
3. Product delivery, storage and handling.

B. The Contractor's Construction Schedule and the Schedule of Submittals are included under Section "Submittals."

1.3 DEFINITIONS

A. Definitions used in this Article are not intended to change the meaning of other terms used in the Contract Documents, such as "specialties," "systems," "structure," "finishes," "accessories," and similar terms. Such terms are self-explanatory and have well recognized meanings in the construction industry.

B. Products: Items purchased for incorporation in the Work, whether purchased for the Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

1. "Named Products" are items identified by manufacturer's product name, including make or model designation, indicated in the manufacturer's published product literature, that is current as of the date of the Contract Documents.

2. "Foreign Products", as distinguished from "domestic products," are items substantially manufactured (50 percent or more of value) outside of the United States and its possessions; or produced or supplied by entities substantially owned (more than 50 percent) by persons who are not citizens of nor living within the United States and its possessions.

C. Materials: Products that are substantially shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form a part of the Work.

D. Equipment: A product with operational parts, whether motorized or manually operated, that requires service connections such as wiring or piping.

1.4 SUBMITTALS

A. Product List Schedule: Prepare a schedule showing products specified in a tabular form acceptable to the Architect and University of Connecticut Health Center Representative. Include generic names of products required. Include the manufacturer's name and proprietary product names for each item listed.

1. Coordinate the product list schedule with the Contractor's Construction Schedule and the Schedule of Submittals.

2. Form: Prepare the product-listing schedule with information on each item tabulated under the following column headings:

a. Related Specification Section number.
b. Generic name used in Contract Documents.
c. Proprietary name, model number and similar designations.
d. Manufacturer's name.
e. Installer's name and address.
f. Identification of product as one of the following:

1) Product as specified
2) Proposed Substitution
3) Proposed Equal

3. Submit completed schedule within 30 days after Contract award or at the Preconstruction Meeting, whichever occurs first. Provide a written explanation for omissions of data, and for known variations from Contract requirements.

1.5 QUALITY ASSURANCE

A. Source Limitations: Provide products of the same kind, from a single source.

1. When specified products are available only from sources that do not or cannot produce a quantity adequate to complete project requirements in a timely manner, consult with the Architect for a determination of the most important product qualities before proceeding. Qualities may include attributes relating to visual appearance, strength, durability, or compatibility. When a determination has been made, select products from sources that produce products that possess these qualities, to the fullest extent possible.

B. Compatibility of Options: When the Contractor is given the option of selecting between two or more products for use on the Project, the product selected shall be compatible with products previously selected, even if previously selected products were also options.

C. Foreign Product Limitations: Except under one or more of the following conditions, provide domestic products, not foreign products, for inclusion in the Work:

1. No available domestic product complies with the Contract Documents.
2. Domestic products that comply with Contract Document are only available at prices or terms that are substantially higher than foreign products that also comply with the Contract Documents.

D. Nameplates: Except for required labels and operating data, do not attach or imprint manufacturer's or producer's nameplates or trademarks on exposed surfaces of products which will be exposed to view in occupied spaces or on the exterior.

1. Labels: Locate required product labels and stamps on a concealed surface or, where required for observation after installation, on an accessible surface that is not conspicuous.

2. Equipment Nameplates: Provide a permanent nameplate on each item of service-connected or power-operated equipment. Locate on an easily accessible surface, which is inconspicuous in occupied spaces. The nameplate shall contain the following information and other essential operating data:

a. Name of product and manufacturer.
b. Model and serial number.
c. Capacity.
d. Speed.
e. Ratings.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store and handle products in accordance with the manufacturer's recommendations, using means and methods that will prevent damage, deterioration and loss, including theft.

1. Schedule delivery to minimize long-term storage at the site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft and other losses.
3. Deliver products to the site in the manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting and installing.
4. Inspect products upon delivery to ensure compliance with the Contract Documents, and to ensure that products are undamaged and properly protected.

5. Store products at the site in a manner that will facilitate inspection and measurement of quantity or counting of units.
6. Store heavy materials away from the Project structure in a manner that will not endanger the supporting construction.
7. Store products subject to damage by the elements above ground, under cover in a weathertight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions.

B. All deliveries of material, equipment, etc., shall be made to the Contractor and accepted only by him and only during working hours. University personnel will not receive or accept any material or equipment, etc., at any time.

C. Contractor shall restrict use of delivery and other construction related trucks on local roads.

PART 2 – PRODUCTS

2.1 PRODUCT SELECTION

A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, unused at the time of installation.

1. Provide products complete with all accessories, trim, and finish, safety guards and other devices and details needed for a complete installation and for the intended use and effect.

B. Product Selection Procedures: Product selection is governed by the Contract Documents and governing regulations, not by previous Project experience. Procedures governing product selection include the following:

1. Proprietary Specification Requirements: Where only a single product or manufacturer is named, provide the product indicated. No substitutions will be permitted.

2. Semiproprietary Specification Requirements: Where three or more products or manufacturers are named, provide one of the products indicated. No substitutions will be permitted.

a. Where products or manufacturers are specified by name, accompanied by the term "or equal," or "or approved equal" comply with the provisions concerning "substitutions" to obtain approval for use of an unnamed product.

3. Non-Proprietary Specifications: When the Specifications list products or manufacturers that are available and may be incorporated in the Work, but do not restrict the Contractor to use of these products only, the Contractor

may propose any available product that complies with Contract requirements. Comply with provisions concerning "substitutions" to obtain approval for use of an unnamed product.

4. Descriptive Specification Requirements: Where Specifications describe a product or assembly, listing exact characteristics required, with or without use of a brand or trade name, provide a product or assembly that provides the characteristics and otherwise complies with Contract requirements.
5. Performance Specification Requirements: Where Specifications require compliance with performance requirements, provide products that comply with these requirements, and are recommended by the manufacturer for the application indicated. General overall performance of a product is implied where the product is specified for a specific application.

    a. Manufacturer's recommendations may be contained in published product literature, or by the manufacturer's certification of performance.

6. Compliance with Standards, Codes and Regulations: Where the Specifications only require compliance with an imposed code, standard or regulation, select a product that complies with the standards, codes or regulations specified.
7. Visual Matching: Where Specifications require matching an established Sample, the Architect's decision will be final on whether a proposed product matches satisfactorily.

    a. Where no product available within the specified category matches satisfactorily and also complies with other specified requirements, comply with provisions concerning "substitutions" for selection of a matching product in another product category, or for noncompliance with specified requirements.

8. Visual Selection: Where specified product requirements include the phrase "...as selected from manufacturer's standard colors, patterns, textures..." or a similar phrase, select a product and manufacturer that complies with other specified requirements. The Architect will select the color, pattern and texture from the product line selected.

PART 3 - EXECUTION

3.1 INSTALLATION OF PRODUCTS:

A. Comply with manufacturer's instructions and recommendations for installation of products in the applications indicated. Anchor each product securely in place, accurately located and aligned with other Work.

    1. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements for project closeout, including but not limited to:

1. Inspection procedures.
2. Project record document submittal.
3. Operating and maintenance manual submittal.
4. Submittal of warranties.

B. Closeout procedures

1. Final cleaning.

C. Additional closeout requirements for specific construction activities are included in the appropriate Sections in Divisions 02 through 45.

1.3 SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Before requesting inspection for certification of Substantial Completion, complete the following. List exceptions in the request.

1. In the Application for Payment that coincides with, or first follows, the date Substantial Completion is claimed, show 100 percent completion for the portion of the Work claimed as substantially complete. Include supporting documentation for completion as indicated in these Contract Documents and a statement showing an accounting of changes to the Contract Sum.

    a. If 100 percent completion cannot be shown, include a list of incomplete items, the value of incomplete construction, and reasons the Work is not complete.

2. Advise Owner of pending insurance change-over requirements.
3. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications and similar documents.
4. Obtain and submit releases enabling the Owner unrestricted use of the Work and access to services and utilities; include occupancy permits, operating certificates and similar releases.

5. Submit record drawings, maintenance manuals, final project photographs, damage or settlement survey, property survey, and similar final record information.
6. Deliver tools, spare parts, extra stock, and similar items.
7. Make final change-over of permanent locks and transmit keys to the Owner. Advise the Owner's personnel of change-over in security provisions.
8. Complete start-up testing of systems, and instruction of the Owner's operating and maintenance personnel. Discontinue or change over and remove temporary facilities from the site, along with construction tools, mock-ups, and similar elements.
9. Complete final clean up requirements, including touch-up painting. Touch-up and otherwise repair and restore marred exposed finishes.

B. Inspection Procedures: On receipt of a request for inspection, the Architect will either proceed with inspection or advise the Contractor of unfilled requirements. The Architect will prepare the Certificate of Substantial Completion following inspection, or advise the Contractor of construction that must be completed or corrected before the certificate will be issued.

1. The Architect will repeat inspection when requested and assured that the Work has been substantially completed.
2. Results of the completed inspection will form the basis of requirements for final acceptance.

1.4 REVENUE SERVICES REQUIREMENTS

A. Upon receipt of the Certificate of Substantial Completion, the Contractor shall submit the following information required by the Connecticut Department of Revenue Services.

1. The identify and addresses of all subcontractors performing work on the project.

2. The Connecticut tax registration numbers of the General Contractor and all subcontractors.

3. The Federal Social Security account numbers, or Federal Employer Identification numbers, or both, if applicable, for the General Contractor and all subcontractors.

1.5 FINAL ACCEPTANCE

A. Preliminary Procedures: Before requesting final inspection for certification of final acceptance and final payment, complete the following. List exceptions in the request.

1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.
2. Submit an updated final statement, accounting for final additional changes to the Contract Sum.
3. Submit a certified copy of the Architect's final inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, and the list has been endorsed and dated by the Architect.
4. Submit final meter readings for utilities, a measured record of stored fuel, and similar data as of the date of Substantial Completion, or when the Owner took possession of and responsibility for corresponding elements of the Work.
5. Submit consent of surety to final payment.
6. Submit a final liquidated damages settlement statement.
7. Submit evidence of final, continuing insurance coverage complying with insurance requirements.

B. Reinspection Procedure: The Architect will reinspect the Work upon receipt of notice that the Work, including inspection list items from earlier inspections, has been completed, except items whose completion has been delayed because of circumstances acceptable to the Architect.

1. Upon completion of reinspection, the University of Connecticut Health Center Representative with advise of the Architect will prepare a certificate of final acceptance, or advise the Contractor of Work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance.
2. If necessary, reinspection will be repeated.

C. Certifications: The Contractor at completion of construction shall provide to the University a “Certificate of Substantial Compliance with the State Building & Fire Safety Codes”, bearing original signatures of an officer of the company stating: “This is to CERTIFY that in my professional opinion the complete structure/renovations described above is in substantial compliance with the approved construction documents on file with the University of Connecticut. Minor deviations and special stipulations are noted below (if any)”.

1.6 RECORD DOCUMENT SUBMITTALS

A. General: Do not use record documents for construction purposes; protect from deterioration and loss in a secure, fire-resistive location; provide access to record documents for the Architect's reference during normal working hours.

B. Record Drawings: Maintain a clean, undamaged set of blue or black line white-prints of Contract Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies substantially from the Work as

originally shown. Mark whichever drawing is most capable of showing conditions fully and accurately; where Shop Drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date.

1. Mark record sets with red erasable pencil; use other colors to distinguish between variations in separate categories of the Work.
2. Mark new information that is important to the Owner, but was not shown on Contract Drawings or Shop Drawings.
3. Note related Change Order numbers where applicable.
4. Organize record drawing sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates and other identification on the cover of each set.
5. Upon completion of the Work, submit **TWO** record sets to the University of Connecticut Health Center Representative for transfer of data to the original tracings.

C. Record Specifications: Maintain one complete copy of the Project Manual, including addenda, and one copy of other written construction documents such as Change Orders and modifications issued in printed form during construction. Mark these documents to show substantial variations in actual Work performed in comparison with the text of the Specifications and modifications. Give particular attention to substitutions, selection of options and similar information on elements that are concealed or cannot otherwise be readily discerned later by direct observation. Note related record drawing information and Product Data.

1. Upon completion of the Work, submit one record Specifications to the University of Connecticut Health Center Representative for the Owner's records.

D. Record Product Data: Maintain one copy of each Product Data submittal. Mark these documents to show significant variations in actual Work performed in comparison with information submitted. Include variations in products delivered to the site, and from the manufacturer's installation instructions and recommendations. Give particular attention to concealed products and portions of the Work which cannot otherwise be readily discerned later by direct observation. Note related Change Orders and mark-up of record drawings and Specifications.

1. Upon completion of mark-up, submit complete set of record Product Data to the University of Connecticut Health Center Representative for the Owner's records.

E. Record Sample Submitted: Immediately prior to the date or dates of Substantial Completion, the Contractor will meet at the site with the Architect and the Owner's personnel to determine which of the submitted Samples that have been

maintained during progress of the Work are to be transmitted to the Owner for record purposes. Comply with delivery to the Owner's Sample storage area.

F. Miscellaneous Record Submittals: Refer to other Specification Sections for requirements of miscellaneous record-keeping and submittals in connection with actual performance of the Work. Immediately prior to the date or dates of Substantial Completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for continued use and reference. Submit to the Architect for the Owner's records.

1.7 OPERATION AND MAINTENANCE MANUALS

A. Submit three separately bound sets of manuals to the Architect/Engineer for approval prior to acceptance by the University of Connecticut Health Center. Organize operating and maintenance data for all major mechanical and electric equipment into suitable sets of manageable size. These shall be typewritten or photocopied, 8-1/2" x 11" sheets describing the equipment and detailing the operation, including function of individual parts and proper sequencing. Manufacturers' bulletins or catalogues will be acceptable but shall be amplified as required to provide full instruction. Manufacturers' specific operating and servicing manuals are acceptable, provided they fully cover the requirements and any additional data is appended. Bind properly indexed data in individual heavy-duty 2-inch, 3-ring vinyl-covered binders, with pocket folders for folded sheet information. Mark appropriate identification on front and spine of each binder. Include the following types of information:

1. Installed model, size, rating, operation and other applicable information shall be clearly identified.
2. Location of equipment in the building.
3. Emergency instructions.
4. Repair and spare parts list.
5. Copies of warranties.
6. Complete wiring and control diagrams.
7. Valve identification, including assigned tag numbers in the valve directory.
8. Recommended "turn around" cycles.
9. Inspection procedures.
10. Service and repair schedules.
11. Shop Drawings and Product Data.
12. Fixture lamping schedule.

B. In addition, the Contractor shall furnish and install enclosed in clear plastic with eyelet for fastening, two sets of operating instruction, with necessary diagrams which shall be hung adjacent to each item of equipment or at the operating station to which the instructions apply.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 CLOSEOUT PROCEDURES

A. Operating and Maintenance Instructions: Arrange for each installer of equipment that requires regular maintenance to meet with the Owner's personnel to provide instruction in proper operation and maintenance. Provide experienced personnel for as long a period as necessary as determined by the Owner. If installers are not experienced in procedures, provide instruction by manufacturer's representatives. Include a detailed review of the following items:

1. Operation and Maintenance manuals.
2. Record documents.
3. Spare parts and materials.
4. Tools.
5. Lubricants.
6. Fuels.
7. Identification systems.
8. Control sequences.
9. Hazards.
10. Cleaning.
11. Warranties and bonds.
12. Maintenance agreements and similar continuing commitments.

B. As part of instruction for operating equipment, demonstrate the following procedures:

1. Start-up.
2. Shutdown.
3. Emergency operations.
4. Noise and vibration adjustments.
5. Safety procedures.
6. Economy and efficiency adjustments.
7. Effective energy utilization.

C. Gas Pipe Testing and Purging Procedures

1. Pressure Testing: The customer piping shall be pressure tested in accordance with the National Fuel Gas Code (NFPA-54), current edition. The test medium shall be nitrogen (N2), carbon dioxide (Co2) or air. The test pressure and duration shall conform to NFPA-54 Section 4.1.4 and must be approved by the local authority having jurisdiction and the Local gas Distribution Company (LDC).

2. Purging and Placing Gas Piping into Operation: Upon notification and meter being turned on by Local distribution Gas company, the houseline can be

placed in operation. All purging shall be done in accordance with NFPA-54 Section 4.3.2.

a. The air can be safety displaced with natural gas provided that a moderately rapid and continuous flow of gas is introduced at the meter and air is vented to the outside of the building by means of connecting a rigid pipe or a semi-rigid metallic tubing with appropriate fittings.

b. The purge piping must be located outside of the building at a safe distance away from fresh air intakes and away from any sources of ignition. The end of the purge riser must be equipped with a flash back arrester. The purge riser must be manned all times. A fire extinguisher must be placed nearby while purging is in operation. a combustible gas indicator (CGI) can be used to assure the house line is purged properly to 100% gas.

c. In the event of multi-floor house lines, the longest house line (furthest from the meter) must be purged first, followed by the next longest, until all sections of house lines have been purged to 100% gas.

3. Odorant Level: All house lines must be continuously purged until such a time that the odorant level is sufficiently detectable by smell and confirmed with an odorant level instrument such as a Bacharach Model 5110-200, or equivalent. The instrument shall have a range of 0 to 1.2% gas in air. The line must be purged until a readily detectable odorant reading of 0.25% or less gas in air is maintained.

a. As soon as the acceptable odorant level reading is maintained at all purging locations, turn off the ends of house lines, disconnect the purging tubing, permanently plug all ends and leak test all plugs. Gas utilization equipment can now be purged and placed into operation.

b. Odorant level readings shall be re-taken periodically to ensure proper level of odorant is maintained. Odorant level may decay especially in low flow house lines. If this occurs, purging procedures must be repeated as needed.

3.2 FINAL CLEANING

A. General: General cleaning during construction is required by the General Conditions and included in Section 01500, Construction Facilities and Temporary Controls.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to the condition expected in a normal, commercial building cleaning and maintenance program. Comply with manufacturer's instructions.

1. Complete the following cleaning operations before requesting inspection for Certification of Substantial Completion.

    a. Remove labels that are not permanent labels.
    b. Clean transparent materials, including mirrors and glass in doors and windows, including interior and exterior surfaces of new and existing units. Remove glazing compound and other substances that are noticeable vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials.
    c. Clean exposed exterior and interior hard-surfaced finishes to a dust-free condition, free of stains, films, fingerprints and similar foreign substances. Restore reflective surfaces to their original reflective condition. Leave concrete floors broom clean. Vacuum carpeted surfaces. Wax and buff resilient tile. Clean vinyl or rubber base.
    d. Clean and polish tile and other glazed surfaces.
    e. Clean and polish finish hardware.
    f. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication and other substances. Clean plumbing fixtures to a sanitary condition. Clean light fixtures and lamps.
    g. Clean roofs, gutters and downspouts.
    h. Clean the site, including landscape development areas, of rubbish, litter and other foreign substances. Sweep paved areas broom clean; remove stains, spills and other foreign deposits. Rake grounds that are neither paved nor planted, to a smooth even-textured surface.

C. Pest Control: Engage an experienced exterminator to make a final inspection, and rid the Project of rodents, insects and other pests.

D. Removal of Protection: Remove temporary protection and facilities installed for protection of the Work during construction.

E. Compliance: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the Owner's property. Do not discharge volatile, harmful or dangerous materials into drainage systems. Remove waste materials from the site and dispose of in a lawful manner.

    1. Where extra materials of value remaining after completion of associated Work have become the Owner's property, arrange for disposition of these materials as directed.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section specifies general administrative and procedural requirements for warranties and bonds required by the Contract Documents, including manufacturers standard warranties on products and special warranties.

1. Refer to the General Conditions for terms of the Contractor's special warranty of workmanship and materials.

2. General closeout requirements are included in Section 017000, Project Closeout.

3. Specific requirements for warranties for the Work and products and installations that are specified to be warranted, are included in the individual Sections of Divisions 02 through 45.

4. Certifications and other commitments and agreements for continuing services to Owner are specified elsewhere in the Contract Documents.

B. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the Work that incorporates the products, nor does it relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Contractor.

1.3 DEFINITIONS

A. Standard Product Warranties: Preprinted written warranties published by individual manufacturers for particular products specifically endorsed by the manufacturer to the Owner.

B. Special Warranties: Written warranties required by or incorporated in the Contract Documents, either to extend time limits provided by standard warranties or to provide greater rights for the Owner.

1.4 WARRANTY REQUIREMENTS

A. Related Damages and Losses: When correcting warranted Work that has failed, remove and replace other Work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted Work.

B. Reinstatement of Warranty: When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.

C. Replacement Cost: Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether the Owner has benefited from use of the Work through a portion of its anticipated useful service life.

D. Owner's Recourse: Written warranties made to the Owner are in addition to implied warranties, and shall not limit the duties, obligations, rights and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which the Owner can enforce such other duties, obligations, rights, or remedies.

1. Rejection of Warranties: The Owner reserves the right to reject warranties and to limit selections to products with warranties not in conflict with requirements of the Contract Documents.

E. The Owner reserves the right to refuse to accept Work for the Project where a special warranty, certification, or similar commitment is required on such Work or part of the Work, until evidence is presented that entities required to countersign such commitments are willing to do so.

1.5 SUBMITTALS

A. Submit written warranties to the Architect prior to the date certified for Substantial Completion. If the Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion for the Work, or a designated portion of the Work, submit written warranties upon request of the Architect.

1. When a designated portion of the Work is completed and occupied or used by the Owner, by separate agreement with the Contractor during the construction period, submit properly executed warranties to the Architect within fifteen days of completion of that designated portion of the Work.

B. When a special warranty is required to be executed by the Contractor, or the Contractor and a subcontractor, supplier or manufacturer, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the Owner through the Architect for approval prior to final execution.

1. Refer to individual Sections of Divisions 02 through 45 for specific content requirements, and particular requirements for submittal of special warranties.

C. Bind warranties and bonds in heavy-duty, commercial quality, durable 3-ring vinyl covered loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2" by 11" paper.

1. Provide heavy paper dividers with celluloid covered tabs for each separate warranty. Mark the tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product, and the name, address and telephone number of the installer.

2. Identify each binder on the front and the spine with the typed or printed title "WARRANTIES AND BONDS, the Project title or name, and the name of the Contractor.

3. When operating and maintenance manuals are required for warranted construction, provide additional copies of each required warranty, as necessary, for inclusion in each required manual.

1.6 FORM OF GUARANTEE/WARRANTIES

A. The General Contractor will furnish to the Office of Architectural and Engineering Services the foregoing documents in the following manner:

1. Address to: Executive Director of Architectural and Engineering Services, Office of Architectural and Engineering Services, University of Connecticut Health Center.

2. All guarantees/warranties shall reference the project name and number as indicated in the Contract Documents.

3. All required guarantees/warranties will be by the respective company made out to the University of Connecticut Health Center.

4. All guarantees/warranties supplied by subcontractors or manufacturers shall be countersigned by the General Contractor.

B. All work shall be covered by the standard one (1) year guarantee as set forth in the General Conditions. The Contractor shall visit the project site at 11 months into the guarantee period to determine the scope of any required guarantee work. The Contractor shall contact the University of Connecticut Health Center Representative prior to this visit so that the University of Connecticut Health Center Representative may attend.

PART 2 - PRODUCTS (Not Applicable).

PART 3 - EXECUTION (Not Applicable).

PART 4 - SCHEDULES

4.1 SCHEDULE OF WARRANTIES

A. Schedule: Provide warranties and bonds on products and installations as specified in the following Sections:

Section 07 8413 – Penetration Firestopping
Section 07 8443 – Joint Firestopping
Section 08 1113 – Hollow Metal Doors and Frames
Section 08 7100 – Door Hardware
Section 26 3600 – Automatic Closed transition Transfer Switch

End of Section

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Demolition and removal of selected portions of building or structure.
2. Salvage of existing items to be reused or recycled.

B. Related Requirements:

1. Section 010100 "Summary of Work" for restrictions on the use of the premises, Owner-occupancy requirements, and phasing requirements.

1.3 DEFINITIONS

A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or removed and reinstalled.

B. Remove and Salvage: Carefully detach from existing construction, in a manner to prevent damage, and deliver to Owner ready for reuse.

C. Remove and Reinstall: Detach items from existing construction, prepare for reuse, and reinstall where indicated.

D. Existing to Remain: Existing items of construction that are not to be permanently removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.4 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition waste becomes property of Contractor.

B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.

1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.5 PREINSTALLATION MEETINGS

A. Predemolition Conference: Conduct conference at Project site.

1. Inspect and discuss condition of construction to be selectively demolished.
2. Review structural load limitations of existing structure.
3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
5. Review areas where existing construction is to remain and requires protection.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For refrigerant recovery technician.

B. Proposed Protection Measures: Submit report, including drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, for dust control and for noise control. Indicate proposed locations and construction of barriers.

C. Schedule of Selective Demolition Activities: Indicate the following:

1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted.
2. Interruption of utility services. Indicate how long utility services will be interrupted.
3. Coordination for shutoff, capping, and continuation of utility services.
4. Use of elevator and stairs.
5. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.

D. Inventory: Submit a list of items to be removed and salvaged and deliver to Owner prior to start of demolition.

E. Predemolition Photographs or Video: Submit before Work begins.

F. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

G. Warranties: Documentation indicated that existing warranties are still in effect after completion of selective demolition.

1.7 CLOSEOUT SUBMITTALS

A. Inventory: Submit a list of items that have been removed and salvaged.

B. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

1.8 QUALITY ASSURANCE

A. Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.

1.9 FIELD CONDITIONS

A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.

B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

D. Hazardous Materials: Hazardous materials are not present in buildings and structures to be selectively demolished.

E. Storage or sale of removed items or materials on-site is not permitted.

F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

1. Maintain fire-protection facilities in service during selective demolition operations.

PART 2 - PRODUCTS

2.1 PEFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ANSI/ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting selective demolition operations.

B. Review record documents of existing construction provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in record documents.

C. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.

D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.

E. Perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective building demolition operations.

1. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

F. Survey of Existing Conditions: Record existing conditions by use of measured drawings and preconstruction photographs.
1. Inventory and record the condition of items to be removed and salvaged. Provide photographs of conditions that might be misconstrued as damage caused by salvage operations.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.

1. Comply with requirements for existing services/systems interruptions specified in Section 011000 "Summary of Work."

B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.

1. Owner will arrange to shut off indicated services/systems when requested by Contractor.

2. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
3. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated to be removed.

    a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
    b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material.
    c. Equipment to Be Removed: Disconnect and cap services and remove equipment.
    d. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
    e. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.
    f. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
    g. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material.

C. Refrigerant: Remove refrigerant from mechanical equipment to be selectively demolished according to 40 CFR 82 and regulations of authorities having jurisdiction.

3.3 PREPARATION

A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Comply with requirements for access and protection specified in Section 015000 "Construction Facilities and Temporary Controls."

B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.

3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
4. Cover and protect furniture, furnishings, and equipment that have not been removed.
5. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Section 015000 "Construction Facilities and Temporary Controls."

C. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

1. Strengthen or add new supports when required during progress of selective demolition.

3.4 SELECTIVE DEMOLITION, GENERAL

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.
5. Maintain adequate ventilation when using cutting torches.
6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
7. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
9. Dispose of demolished items and materials promptly. Reuse of Building Elements: Project has been designed to result in end-of-Project rates for

reuse of building elements as follows. Do not demolish building elements beyond what is indicated on Drawings without Architect's approval.

10. Building Structure and Shell: Seventy-five percent (75%).

B. Removed and Salvaged Items:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until delivery to Owner.
4. Transport items to Owner's storage area off-site designated by Owner.
5. Protect items from damage during transport and storage.

C. Removed and Reinstalled Items:

1. Clean and repair items to functional condition adequate for intended reuse.
2. Pack or crate items after cleaning and repairing. Identify contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

A. Concrete: Demolish in small sections. Using power-driven saw, cut concrete to a depth of at least ¾ inch at junctures with construction to remain. Dislodge concrete from reinforcement at perimeter of areas being demolished, cut reinforcement, and then remove remainder of concrete. Neatly trim openings to dimensions indicated.

B. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain, using power-driven saw, then remove masonry between saw cuts.

C. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, then break up and remove.

D. Resilient Floor Coverings: Remove floor coverings and adhesive according to recommendations in RFCI's "Recommended Work Practices for the Removal of Resilient Floor Coverings." Do not use methods requiring solvent-based adhesive strippers.

3.6 DISPOSAL OF DEMOLISHED MATERIALS

A. General: Except for items or materials indicated to be recycled, reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.

1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

B. Burning: Do not burn demolished materials.

C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

3.7 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 024119

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Steel framing and supports for masonry openings.

B. Products furnished, but not installed, under this Section include the following:
   1. Anchor bolts, steel pipe sleeves, slotted-channel inserts, and wedge-type inserts indicated to be cast into concrete or built into unit masonry.
   2. Steel tubes and angles for applications where they are not specified in other Sections.

1.3 COORDINATION

A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written recommendations to ensure that shop primers and topcoats are compatible with one another.

B. Coordinate installation of metal fabrications that are anchored to or that receive other work. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

1.4 ACTION SUBMITTALS

A. Product Data: For the following:

   1. Nonslip aggregates and nonslip-aggregate surface finishes.
   2. Paint products.
   3. Grout.

B. Shop Drawings: Show fabrication and installation details. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items. Provide Shop Drawings for the following:
   1. Steel framing and supports for mechanical and electrical equipment.
   2. Loose steel lintels.

C. Samples: For each type and finish of extruded nosing.

D. Delegated-Design Submittal: For ladders, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For professional engineer.

B. Welding certificates.

C. Research/Evaluation Reports: For post-installed anchors, from ICC-ES.

1.6 QUALITY ASSURANCE

A. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1, "Structural Welding Code - Steel."

1.7 FIELD CONDITIONS

A. Field Measurements: Verify actual locations of walls and other construction contiguous with metal fabrications by field measurements before fabrication.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes acting on exterior metal fabrications by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects.

1. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

2.2 METALS

A. Metal Surfaces, General: Provide materials with smooth, flat surfaces unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.

B. Recycled Content of Steel Products: Postconsumer recycled content plus one-half of preconsumer recycled content not less than twenty percent (20%).

C. Steel Plates, Shapes, and Bars: ASTM A 36.

D. Steel Tubing: ASTM A 500, cold-formed steel tubing.

E. Steel Pipe: ASTM A 53, Standard Weight (Schedule 40) unless otherwise indicated.

F. Cast Iron: Either gray iron, ASTM A 48, or malleable iron, ASTM A 47, unless otherwise indicated.

G. Aluminum Castings: ASTM B 26, Alloy 443.0-F.

2.3 FASTENERS

A. General: Unless otherwise indicated, provide Type 304 stainless-steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B 633 or ASTM F 1941, Class Fe/Zn 5, at exterior walls. Select fasteners for type, grade, and class required.

1. Provide stainless-steel fasteners for fastening stainless steel.

B. Steel Bolts and Nuts: Regular hexagon-head bolts, ASTM A 307, Grade A with hex nuts, ASTM A 563; and, where indicated, flat washers.

C. Stainless-Steel Bolts and Nuts: Regular hexagon-head annealed stainless-steel bolts, ASTM F 593; with hex nuts, ASTM F 594; and, where indicated, flat washers; Alloy Group 1.

D. Anchor Bolts: ASTM F 1554, Grade 36, of dimensions indicated; with nuts, ASTM A 563; and, where indicated, flat washers.

1. Hot-dip galvanize or provide mechanically deposited, zinc coating where item being fastened is indicated to be galvanized.

E. Anchors, General: Anchors capable of sustaining, without failure, a load equal to six (6) times the load imposed when installed in unit masonry and four (4) times the load imposed when installed in concrete, as determined by testing according to ASTM E 488, conducted by a qualified independent testing agency.

F. Cast-in-Place Anchors in Concrete: Either threaded type or wedge type unless otherwise indicated; galvanized ferrous castings, either ASTM A 47 malleable iron or ASTM A 27 cast steel. Provide bolts, washers, and shims as needed, all hot-dip galvanized per ASTM F 2329.

G. Post-Installed Anchors: Torque-controlled expansion anchors.

1. Material for Interior Locations: Carbon-steel components zinc plated to comply with ASTM B 633 or ASTM F 1941, Class Fe/Zn 5, unless otherwise indicated.
2. Material for Exterior Locations: Alloy Group 1 stainless-steel bolts, ASTM F 593, and nuts, ASTM F 594.

2.4 MISCELLANEOUS MATERIALS

A. Shop Primers: Provide primers that comply with Sections 099123 “Interior Painting".

B. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.

C. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.

D. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer for interior and exterior applications.

2.5 FABRICATION, GENERAL

A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.

B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.

C. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.

D. Form exposed work with accurate angles and surfaces and straight edges.

E. Weld corners and seams continuously to comply with the following:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
2. Obtain fusion without undercut or overlap.
3. Remove welding flux immediately.
4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing.

F. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners or welds where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) fasteners unless otherwise indicated. Locate joints where least conspicuous.

G. Fabricate seams and other connections that are exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.

H. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.

I. Provide for anchorage of type indicated; coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.

J. Where units are indicated to be cast into concrete or built into masonry, equip with integrally welded steel strap anchors, 1/8 by 1½ inches, with a minimum 6-inch embedment and 2-inch hook, not less than 8 inches from ends and corners of units and 24 inches o.c., unless otherwise indicated.

2.6 MISCELLANEOUS FRAMING AND SUPPORTS

A. General: Provide steel framing and supports not specified in other Sections as needed to complete the Work.

B. Fabricate units from steel shapes, plates, and bars of welded construction unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction.

1. Furnish inserts for units installed after concrete is placed.

C. Galvanize miscellaneous framing and supports where indicated.

2.7 MISCELLANEOUS STEEL TRIM

A. Unless otherwise indicated, fabricate units from steel shapes, plates, and bars of profiles shown with continuously welded joints and smooth exposed edges. Miter corners and use concealed field splices where possible.

B. Provide cutouts, fittings, and anchorages as needed to coordinate assembly and installation with other work.

1. Provide with integrally welded steel strap anchors for embedding in concrete or masonry construction.

C. Galvanize and prime exterior miscellaneous steel trim.

2.8 LOOSE BEARING AND LEVELING PLATES

A. Provide loose bearing and leveling plates for steel items bearing on masonry or concrete construction. Drill plates to receive anchor bolts and for grouting.

B. Galvanize and prime plates for exterior use.

2.9 STEEL WELD PLATES AND ANGLES

A. Provide steel weld plates and angles not specified in other Sections, for items supported from concrete construction as needed to complete the Work. Provide each unit with no fewer than two (2) integrally welded steel strap anchors for embedding in concrete.

2.10 FINISHES, GENERAL

A. Finish metal fabrications after assembly.

B. Finish exposed surfaces to remove tool and die marks and stretch lines, and to blend into surrounding surface.

2.11 STEEL AND IRON FINISHES

A. Galvanizing: Hot-dip galvanize items as indicated to comply with ASTM A 153 for steel and iron hardware and with ASTM A 123 for other steel and iron products.

1. Do not quench or apply post galvanizing treatments that might interfere with paint adhesion.

B. Preparation for Shop Priming Galvanized Items: After galvanizing, thoroughly clean railings of grease, dirt, oil, flux, and other foreign matter, and treat with metallic phosphate process.

C. Shop prime iron and steel items unless they are to be embedded in concrete, sprayed-on fireproofing, or masonry, or unless otherwise indicated.

D. Preparation for Shop Priming: Prepare surfaces to comply with SSPC-SP 3, "Power Tool Cleaning."

E. Shop Priming: Apply shop primer to comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting.

1. Stripe paint corners, crevices, bolts, welds, and sharp edges.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.

B. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.

C. Field Welding: Comply with the following requirements:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
2. Obtain fusion without undercut or overlap.
3. Remove welding flux immediately.
4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.

D. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction. Provide threaded fasteners for use with concrete and masonry inserts, toggle bolts, through bolts, lag screws, wood screws, and other connectors.

E. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.

F. Corrosion Protection: Coat concealed surfaces of aluminum that come into contact with grout, concrete, masonry, wood, or dissimilar metals with the following:

1. Cast Aluminum: Heavy coat of bituminous paint.

3.2 INSTALLING STEEL FRAMING AND SUPPORTS FOR MASONRY OPENINGS

A. General: Install framing and supports to comply with requirements of items being supported, including manufacturers' written instructions and requirements indicated on Shop Drawings.

3.3 INSTALLING BEARING AND LEVELING PLATES

A. Clean concrete and masonry bearing surfaces of bond-reducing materials, and roughen to improve bond to surfaces. Clean bottom surface of plates.

B. Set bearing and leveling plates on wedges, shims, or leveling nuts. After bearing members have been positioned and plumbed, tighten anchor bolts. Do not remove wedges or shims but, if protruding, cut off flush with edge of bearing plate before packing with nonshrink grout. Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.

3.4 ADJUSTING AND CLEANING

A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint uncoated and abraded areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.

1. Apply by brush or spray to provide a minimum 2.0-mil dry film thickness.

B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

END OF SECTION 055000

SECTION 061000 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Wood blocking and nailers.
   2. Plywood backing panels.

1.3 DEFINITIONS

A. Dimension Lumber: Lumber of 2 inches nominal or greater but less than 5 inches nominal in least dimension.

B. Lumber grading agencies, and the abbreviations used to reference them, include the following:

   1. NeLMA: Northeastern Lumber Manufacturers' Association.
   2. NLGA: National Lumber Grades Authority.
   3. WCLIB: West Coast Lumber Inspection Bureau.
   4. WWPA: Western Wood Products Association.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

   1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
   2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include physical properties of treated materials based on testing by a qualified independent testing agency.
   3. For fire-retardant treatments, include physical properties of treated lumber both before and after exposure to elevated temperatures, based on testing by a qualified independent testing agency according to ASTM D 5664.

4. Include copies of warranties from chemical treatment manufacturers for each type of treatment.

1.5 INFORMATIONAL SUBMITTALS

A. Evaluation Reports: For the following, from ICC-ES:

1. Wood-preservative-treated wood.
2. Fire-retardant-treated wood.
3. Power-driven fasteners.
4. Powder-actuated fasteners.
5. Expansion anchors.
6. Metal framing anchors.

1.6 QUALITY ASSURANCE

A. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Stack lumber flat with spacers beneath and between each bundle to provide air circulation. Protect lumber from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

1. Factory mark each piece of lumber with grade stamp of grading agency.
2. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.

B. Maximum Moisture Content of Lumber: Fifteen percent (15%) unless otherwise indicated.

2.2 WOOD-PRESERVATIVE-TREATED LUMBER

A. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC2 for interior construction not in contact with the ground, Use Category UC3b for exterior construction not in contact with the ground, and Use Category UC4a for items in contact with the ground.

1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.

B. Kiln-dry lumber after treatment to a maximum moisture content of fifteen percent (15%). Do MISCELLANEOUS LUMBER

C. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:

1. Blocking.
2. Nailers.
3. Rooftop equipment bases and support curbs.
4. Grounds.

D. Provide Standard, Stud, or No. 3 grade lumber and any of the following species:

1. Hem-fir (north); NLGA.
2. Hem-fir; WCLIB or WWPA.
3. Spruce-pine-fir (south); NeLMA, WCLIB, or WWPA.

2.3 PLYWOOD BACKING PANELS

A. Equipment Backing Panels: DOC PS 1, Exposure 1, C-D Plugged, fire-retardant treated, in thickness indicated or, if not indicated, not less than ¾-inch nominal thickness.

2.4 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.

1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners of Type 304 stainless steel.

B. Nails, Brads, and Staples: ASTM F 1667.

C. Power-Driven Fasteners: NES NER-272.

D. Wood Screws: ASME B18.6.1.

E. Lag Bolts: ASME B18.2.1.

F. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers.

G. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to six (6) times the load imposed when installed in unit masonry assemblies and equal to four (4) times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.

1. Material: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.
2. Material: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2.

2.5 MISCELLANEOUS MATERIALS

A. Sill-Sealer Gaskets: Closed-cell neoprene foam, ¼ inch thick, selected from manufacturer's standard widths to suit width of sill members indicated.

B. Flexible Flashing: Composite, self-adhesive, flashing product consisting of a pliable, rubberized-asphalt compound, bonded to a high-density polyethylene film, aluminum foil, or spunbonded polyolefin to produce an overall thickness of not less than 0.025 inch.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.

B. Install plywood backing panels by fastening to studs; coordinate locations with utilities requiring backing panels. Install fire-retardant treated plywood backing panels with classification marking of testing agency exposed to view.

C. Install sill sealer gasket to form continuous seal between sill plates and foundation walls.

D. Do not splice structural members between supports unless otherwise indicated.

E. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.

F. Provide fire blocking in stud spaces and other concealed cavities as indicated and as follows:

1. Fire block concealed spaces of framed walls and partitions at each floor level, at ceiling line of top story, and at not more than 96 inches o.c. Where fire blocking is not inherent in framing system used, provide closely fitted solid wood blocks of same width as framing members and 2-inch nominal-thickness.
2. Fire block concealed spaces between floor sleepers with same material as sleepers to limit concealed spaces to not more than 100 sq. ft. and to solidly fill space below partitions.

G. Sort and select lumber so that natural characteristics will not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.

H. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.

1. Use copper naphthenate for items not continuously protected from liquid water.

I. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

1. NES NER-272 for power-driven fasteners.
2. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.

J. Use steel common nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood. Drive nails snug but do not countersink nail heads unless otherwise indicated.

3.2 WOOD BLOCKING AND NAILER INSTALLATION

A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.

B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.

C. Where wood-preservative-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.

END OF SECTION 061000

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Firestopping materials and accessories.

1.3 PERFORMANCE REQUIREMENTS

A. Provide and install complete penetration firestopping systems that have been tested and approved by nationally accepted testing agencies per ASTM E 814, UL 1479 or ASTM E 119 fire tests in a configuration that is representative of field conditions.

B. Surface Burning: ASTM E 84 with a flame spread/fuel contributed/smoke developed rating of 5/0/0.

1.4 SUBMITTALS

A. Product Data: For each type of product indicated provide characteristics, performance and limitation criteria.

B. Manufacturer's Installation Instructions: Indicate preparation and installation instructions.

C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

1.5 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing the products specified in this Section with minimum three (3) years documented experience.

B. Applicator: Company specializing in performing the work of this Section with minimum five (5) years documented experience.

1.6 REGULATORY REQUIREMENTS

A. Conform to applicable State Building code for fire resistance ratings and surface burning characteristics.

B. UL Classifications for these systems shall be (all two (2) hours or more), or as indicated on Drawings, whichever is more restrictive:

1. Duct Penetrations: C-AJ-7027
2. Pipe Penetrations: C-AJ-1079
3. Cable Penetrations: C-AJ-1079
4. Conduit Penetrations: C-AJ-1079

1.7 MOCK-UP

A. Provide mock-up of applied firestopping material.

B. Apply 1 linear foot to a representative substrate surface.

C. If accepted, mock-up will demonstrate minimum standard for the Work.

1.8 ENVIRONMENTAL REQUIREMENTS

A. Do not apply materials when temperature of substrate material and ambient air is below 60 degrees F.

B. Maintain this minimum temperature before, during and for three (3) days after installation of materials.

C. Provide ventilation in areas to receive solvent cured materials.

1.9 SEQUENCING

A. Sequence Work to permit firestopping materials to be installed after adjacent and surrounding work is complete.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Thermal Ceramics; **Firemaster Putty, Bulk and Blankets**

B. Tremco Incorporated; **Fyre-shield and Cerablanket FS Hilti, Inc.**

C. United States Gypsum; **Thermafiber Safing Insulation and FIRECODE compound**

D. Substitutions: Under provisions of Section 012500 “Substitution Procedures”.

2.2 MATERIALS

A. Firestopping Material: Single component silicone elastomeric compounds; conforming to the following:

1. Elongation & Shrinkage: Five percent (5%).
2. Tensile Strength: 300 psi.
3. Density: 8 lb/cu ft.
4. Surface Durability: 35 (Shore Hardness).
5. Durability and Longevity: Permanent.
6. Side Effects during Installation: Non-toxic.
7. Long Term Side Effects: None.

B. Primer: Type recommended by firestopping manufacturer for specific substrate surfaces.

C. Firesafing Blankets: ASTM C 665; 4 psf nominal density firesafing insulation.

D. Putty Pads: UL CLIV; acoustic, intumescent pad; 3.2mm thickness.

2.3 ACCESSORIES

A. Dam Material: Mineral fiber matting, permanent.

B. Retainers: Stainless clips to support mineral fiber matting

2.4 FINISHES

A. Color: Dark gray or manufacturer’s standard color.

PART 3 - EXECUTION

3.1 COMISSIONING OF COMPONENTS AND SYSTEMS

A. Engage a manufacturer authorized representative who is familiar with this project to participate and assist, if necessary, in the functional performance testing of the components and systems included in this Division with the Commissioning Agent.

3.2 EXAMINATION

A. Examine substrates and conditions, with Installer present, for compliance with requirements for opening configurations, penetrating items, substrates, and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 PREPARATION

A. Surface Cleaning: Clean out openings immediately before installing penetration firestopping to comply with manufacturer's written instructions and with the following requirements:

1. Remove from surfaces of opening substrates and from penetrating items foreign materials that could interfere with adhesion of penetration firestopping.
2. Clean opening substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with penetration firestopping. Remove loose particles remaining from cleaning operation.
3. Remove laitance and form-release agents from concrete.

B. Install backing materials to arrest liquid material leakage.

3.4 INSTALLATION

A. General: Install penetration firestopping to comply with manufacturer's written installation instructions and published drawings for products and applications indicated.

B. Apply firestopping material to all wall and floor penetrations through rated assemblies. These penetrations include electrical conduit and raceways, plumbing and heating system penetrations, ducts and other system chases.

C. Apply primer and materials in accordance with manufacturer's instructions.

D. Apply firestopping material in sufficient thickness to achieve rating to a density of fifty percent (50%) to uniform density and texture.

E. Install material at walls or partition openings which contain penetrating sleeves, piping, ductwork, conduit and other items requiring firestopping.

F. Remove dam material after firestopping material has cured.

3.5 CLEANING AND PROTECTION

A. Clean off excess materials adjacent to openings as the Work progresses by methods and with cleaning materials that are approved in writing by penetration firestopping manufacturers and that do not damage materials in which openings occur.

B. Provide final protection and maintain conditions during and after installation that ensure that penetration firestopping is without damage or deterioration at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, immediately cut out and remove damaged or deteriorated penetration firestopping and install new materials to produce systems complying with specified requirements.

3.6 SCHEDULE

A. See Construction Documents for rating information and construction details and conditions.

B. Firesafe all penetrations through new and existing masonry and gypsum board construction in the project work areas, equal to the one (1) or two (2) hour rating of the appropriate spaces.

END OF SECTION 078413

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Joints in or between fire-resistance-rated constructions.
2. Joints in smoke barriers.

B. Related Requirements:

1. Section 078413 "Penetration Firestopping" for penetrations in fire-resistance-rated walls, horizontal assemblies, and smoke barriers and for wall identification.
2. Section 092216 "Non-Structural Metal Framing" for firestop tracks for metal-framed partition heads.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Product Schedule: For each joint firestopping system. Include location, illustration of firestopping system, and design designation of qualified testing agency.

1. Engineering Judgments: Where Project conditions require modification to a qualified testing agency's illustration for a particular joint firestopping system condition, submit illustration, with modifications marked, approved by joint firestopping system manufacturer's fire-protection engineer as an engineering judgment or equivalent fire-resistance-rated assembly.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Product Test Reports: For each joint firestopping system, for tests performed by a qualified testing agency.

1.6 CLOSEOUT SUBMITTALS

A. Installer Certificates: From Installer indicating that joint firestopping systems have been installed in compliance with requirements and manufacturer's written instructions.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: A firm that has been approved by FM Global according to FM Global 4991, "Approval of Firestop Contractors," or been evaluated by UL and found to comply with UL's "Qualified Firestop Contractor Program Requirements."

1.8 PROJECT CONDITIONS

A. Environmental Limitations: Do not install joint firestopping systems when ambient or substrate temperatures are outside limits permitted by joint firestopping system manufacturers or when substrates are wet due to rain, frost, condensation, or other causes.

B. Install and cure joint firestopping systems per manufacturer's written instructions using natural means of ventilation or, where this is inadequate, forced-air circulation.

1.9 COORDINATION

A. Coordinate construction of joints to ensure that joint firestopping systems can be installed according to specified firestopping system design.

B. Coordinate sizing of joints to accommodate joint firestopping systems.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Test-Response Characteristics:

1. Perform joint firestopping system tests by a qualified testing agency acceptable to authorities having jurisdiction.
2. Test per testing standards referenced in "Joint Firestopping Systems" Article. Provide rated systems complying with the following requirements:

    a. Joint firestopping systems shall bear classification marking of a qualified testing agency.

        1) UL in its "Fire Resistance Directory."
        2) Intertek Group in its "Directory of Listed Building Products."

2.2 JOINT FIRESTOPPING SYSTEMS

A. Joint Firestopping Systems: Systems that resist spread of fire, passage of smoke and other gases, and maintain original fire-resistance rating of assemblies in or between which joint firestopping systems are installed. Joint firestopping systems shall accommodate building movements without impairing their ability to resist the passage of fire and hot gases.

B. Joints in or between Fire-Resistance-Rated Construction: Provide joint firestopping systems with ratings determined per ASTM E 1966 or UL 2079.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. 3M Fire Protection Products.
    b. Hilti, Inc.
    c. Thermafiber, Inc.; an Owens Corning company.

2. Fire-Resistance Rating: Equal to or exceeding the fire-resistance rating of the wall, floor, or roof in or between which it is installed.

C. Joints in Smoke Barriers: Provide fire-resistive joint systems with ratings determined per UL 2079 based on testing at a positive pressure differential of 0.30-inch wg (74.7 Pa).

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. 3M Fire Protection Products.
    b. Hilti, Inc.
    c. Thermafiber, Inc.; an Owens Corning company.

2. L-Rating: Not exceeding 5.0 cfm/ft. (0.00775 cu. m/s x m) of joint at both ambient and elevated temperatures.

D. Exposed Joint Firestopping Systems: Flame-spread and smoke-developed indexes of less than 25 and 450, respectively, as determined per ASTM E 84.

E. Accessories: Provide components of fire-resistive joint systems, including primers and forming materials, that are needed to install elastomeric fill materials and to maintain ratings required. Use only components specified by joint firestopping system manufacturer and approved by the qualified testing agency for conditions indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Installer present, for compliance with requirements for joint configurations, substrates, and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning: Before installing fire-resistive joint systems, clean joints immediately to comply with fire-resistive joint system manufacturer's written instructions and the following requirements:

1. Remove from surfaces of joint substrates foreign materials that could interfere with adhesion of elastomeric fill materials or compromise fire-resistive rating.
2. Clean joint substrates to produce clean, sound surfaces capable of developing optimum bond with elastomeric fill materials. Remove loose particles remaining from cleaning operation.
3. Remove laitance and form-release agents from concrete.

B. Prime substrates where recommended in writing by joint firestopping system manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.

3.3 INSTALLATION

A. General: Install fire-resistive joint systems to comply with manufacturer's written installation instructions and published drawings for products and applications indicated.

B. Install forming materials and other accessories of types required to support elastomeric fill materials during their application and in position needed to produce cross-sectional shapes and depths required to achieve fire ratings indicated.

1. After installing elastomeric fill materials and allowing them to fully cure, remove combustible forming materials and other accessories not indicated as permanent components of fire-resistive joint system.

C. Install elastomeric fill materials for fire-resistive joint systems by proven techniques to produce the following results:

1. Elastomeric fill voids and cavities formed by joints and forming materials as required to achieve fire-resistance ratings indicated.
2. Apply elastomeric fill materials so they contact and adhere to substrates formed by joints.
3. For elastomeric fill materials that will remain exposed after completing the Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

3.4 IDENTIFICATION

A. Joint Identification: Identify joint firestopping systems with legible metal or plastic labels. Attach labels permanently to surfaces adjacent to and within 6 inches (150 mm) of joint edge so labels are visible to anyone seeking to remove or joint firestopping system. Use mechanical fasteners or self-adhering-type labels with adhesives capable of permanently bonding labels to surfaces on which labels are placed. Include the following information on labels:

1. The words "Warning - Joint Firestopping - Do Not Disturb. Notify Building Management of Any Damage."
2. Contractor's name, address, and phone number.
3. Designation of applicable testing agency.
4. Date of installation.
5. Manufacturer's name.
6. Installer's name.

3.5 FIELD QUALITY CONTROL

A. Inspecting Agency: Owner will engage a qualified testing agency to perform tests and inspections according to ASTM E 2393.

B. Where deficiencies are found or joint firestopping systems are damaged or removed due to testing, repair or replace joint firestopping systems so they comply with requirements.

C. Proceed with enclosing joint firestopping systems with other construction only after inspection reports are issued and installations comply with requirements.

3.6 CLEANING AND PROTECTION

A. Clean off excess elastomeric fill materials adjacent to joints as the Work progresses by methods and with cleaning materials that are approved in writing by joint firestopping system manufacturers and that do not damage materials in which joints occur.

B. Provide final protection and maintain conditions during and after installation that ensure joint firestopping systems are without damage or deterioration at time of Substantial Completion. If damage or deterioration occurs despite such protection, cut out and remove damaged or deteriorated fire-resistive joint systems immediately and install new materials to produce fire-resistive joint systems complying with specified requirements.

END OF SECTION 078443

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Silicone joint sealants.
2. Urethane joint sealants.
3. Polysulfide joint sealants.
4. Latex joint sealants.
5. Solvent-release-curing joint sealants.
6. Preformed joint sealants.
7. Acoustical joint sealants.

B. Related Sections:
1. Section 092900 "Gypsum Board" for sealing joints in gypsum board assemblies.

C. Product Data: For each joint-sealant product indicated.

D. Samples: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.

E. Joint-Sealant Schedule: Include the following information:

1. Joint-sealant application, joint location, and designation.
2. Joint-sealant manufacturer and product name.
3. Joint-sealant formulation.
4. Joint-sealant color.

1.3 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified Installer.

B. Product Certificates: For each kind of joint sealant and accessory, from manufacturer.

C. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, indicating that sealants comply with requirements.

D. Warranties: Sample of special warranties.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.

B. Source Limitations: Obtain each kind of joint sealant from single source from single manufacturer.

C. Product Testing: Test joint sealants using a qualified testing agency.

1. Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 to conduct the testing indicated.

1.5 PROJECT CONDITIONS

A. Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F (5 deg C).
2. When joint substrates are wet.
3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.6 WARRANTY

A. Special Installer's Warranty: Manufacturer's standard form in which Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Two (2) years from date of Substantial Completion.

B. Special warranties specified in this article exclude deterioration or failure of joint sealants from the following:

1. Movement of the structure caused by structural settlement or errors attributable to design or construction resulting in stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression.
2. Disintegration of joint substrates from natural causes exceeding design specifications.
3. Mechanical damage caused by individuals, tools, or other outside agents.
4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.

B. VOC Content of Interior Sealants: Sealants and sealant primers used inside the weatherproofing system shall comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):

1. Architectural Sealants: 250 g/L.
2. Sealant Primers for Nonporous Substrates: 250 g/L.
3. Sealant Primers for Porous Substrates: 775 g/L.

C. Liquid-Applied Joint Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied joint sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.

D. Stain-Test-Response Characteristics: Where sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.

E. Suitability for Contact with Food: Where sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.2600.

F. Colors of Exposed Joint Sealants: As selected by Architect and Owner from manufacturer's full range.

2.2 SILICONE JOINT SEALANTS

A. Mildew-Resistant, Single-Component, Nonsag, Neutral-Curing Silicone Joint Sealant: ASTM C 920, Type S, Grade NS, Class 25, for Use NT.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

a. Pecora Corporation; 898.
b. Substitutions: Under provisions of Section 012500 “Substitution Procedures”.

2.3 POLYSULFIDE JOINT SEALANTS

A. Multicomponent, Nonsag, Polysulfide Joint Sealant: ASTM C 920, Type M, Grade NS, Class 25, for Use NT.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

a. BASF Building Systems; **Sonolastic Polysulfide Sealant**
b. Pecora Corporation; **Synthacalk GC-2+**
c. W. R. Meadows, Inc.; **Deck-O-Seal Gun Grade**
d. Substitutions: Under provisions of Section 012500 “Substitution Procedures”.

2.4 LATEX JOINT SEALANTS

A. Latex Joint Sealant: Acrylic latex or siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

a. BASF Building Systems; **Sonolac**
b. Bostik, Inc.; **Chem-Calk 600**
c. Pecora Corporation; **AC-20+**
d. Tremco Incorporated; **Tremflex 834**
e. Substitutions: Under provisions of Section 012500 “Substitution Procedures”.

2.5 ACOUSTICAL JOINT SEALANTS

A. Acoustical Joint Sealant: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834. Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

a. Pecora Corporation; **AC-20 FTR**
b. USG Corporation; **SHEETROCK Acoustical Sealant**
c. Substitutions: Under provisions of Section 012500 “Substitution Procedures”.

2.6 JOINT SEALANT BACKING

A. General: Provide sealant backings of material that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Cylindrical Sealant Backings: ASTM C 1330, Type B (bicellular material with a surface skin), and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint. Provide self-adhesive tape where applicable.

2.7 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.

C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 COMISSIONING OF COMPONENTS AND SYSTEMS

A. Engage a manufacturer authorized representative who is familiar with this project to participate and assist, if necessary, in the functional performance testing of the components and systems included in this Division with the Commissioning Agent.

3.2 EXAMINATION

A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:

    a. Concrete.

3. Remove laitance and form-release agents from concrete.
4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:

    a. Metal.
    b. Glass.
    c. Porcelain enamel.
    d. Glazed surfaces of ceramic tile.

B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.4 INSTALLATION OF JOINT SEALANTS

A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

C. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of sealant backings.
2. Do not stretch, twist, puncture, or tear sealant backings.
3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

1. Remove excess sealant from surfaces adjacent to joints.
2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
3. Provide concave joint profile per Figure 8A in ASTM C 1193, unless otherwise indicated.
4. Provide flush joint profile where indicated per Figure 8B in ASTM C 1193.
5. Provide recessed joint configuration of recess depth and at locations indicated per Figure 8C in ASTM C 1193.

    a. Use masking tape to protect surfaces adjacent to recessed tooled joints.

G. Acoustical Sealant Installation: At sound-rated assemblies and elsewhere as indicated, seal construction at perimeters, behind control joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C 919 and with manufacturer's written recommendations.

3.5 CLEANING

A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.6 PROTECTION

A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

3.7 JOINT-SEALANT SCHEDULE

A. Joint-Sealant Application: Exterior joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Locations:

    a. Construction joints in cast-in-place concrete.
    b. Control and expansion joints in unit masonry.
    c. Joints between metal panels.
    d. Joints between different materials listed above.
    e. Perimeter joints between materials listed above and frames of doors, windows and louvers.
    f. Control and expansion joints in ceilings and other overhead surfaces.
    g. Other joints as indicated.

2. Polysulfide Joint Sealant: Multicomponent, nonsag.

B. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Locations:

    a. Control and expansion joints on exposed interior surfaces of exterior walls.
    b. Perimeter joints of exterior openings where indicated.
    c. Tile control and expansion joints.
    d. Vertical joints on exposed surfaces of interior unit masonry and concrete walls and partitions.
    e. Perimeter joints between interior wall surfaces and frames of interior doors, windows and elevator entrances.
    f. Other joints as indicated.

2. Joint Sealant: Latex.

C. Joint-Sealant Application: Mildew-resistant interior joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Sealant Location:

a. Joints between plumbing fixtures and adjoining walls, floors, and counters.
b. Tile control and expansion joints where indicated.
c. Other joints as indicated.

2. Joint Sealant: Mildew resistant, single component, nonsag, neutral curing, silicone.

D. Joint-Sealant Application: Interior acoustical joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Location:

a. Acoustical joints where indicated.
b. Other joints as indicated.

2. Joint Sealant: Acoustical.

END OF SECTION 079200

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes hollow-metal work.

B. Related Requirements:

1. Section 087100 “Door Hardware" for door hardware for hollow-metal doors and frames.

1.3 DEFINITIONS

A. Minimum Thickness: Minimum thickness of base metal without coatings according to NAAMM-HMMA 803 or SDI A250.8.

1.4 COORDINATION

A. Coordinate anchorage installation for hollow-metal frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, core descriptions, fire-resistance ratings, and finishes.

B. Shop Drawings: Include the following:

1. Elevations of each door type.
2. Details of doors, including vertical- and horizontal-edge details and metal thicknesses.
3. Frame details for each frame type, including dimensioned profiles and metal thicknesses.
4. Locations of reinforcement and preparations for hardware.
5. Details of each different wall opening condition.
6. Details of anchorages, joints, field splices, and connections.

7. Details of accessories.
8. Details of moldings, removable stops, and glazing.

C. Samples for Initial Selection: For units with factory-applied color finishes.

D. Schedule: Provide a schedule of hollow-metal work prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings. Coordinate with final Door Hardware Schedule.

1.6 INFORMATIONAL SUBMITTALS

A. Product Test Reports: For each type of hollow-metal frame assembly, for tests performed by a qualified testing agency.

B. Oversize Construction Certification: For assemblies required to be fire rated and exceeding limitations of labeled assemblies.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver hollow-metal work palletized, packaged, or crated to provide protection during transit and Project-site storage. Do not use nonvented plastic.

B. Deliver welded frames with two (2) removable spreader bars across bottom of frames, tack welded to jambs and mullions.

C. Store hollow-metal work vertically under cover at Project site with head up. Place on minimum 4-inch-high wood blocking. Provide minimum ¼-inch space between each stacked door to permit air circulation.

1.8 WARRANTY

A. Warranty: One (1) year, materials and workmanship.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis of Design:

1. Steelcraft; an Ingersoll-Rand company.

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Ceco Door Products; an Assa Abloy Group company.
2. Curries Company; an Assa Abloy Group company.
3. Substitutions: Under provisions of Section 012500 “Substitution Procedures”.

C. Source Limitations: Obtain hollow-metal work from single source from single manufacturer.

2.2 REGULATORY REQUIREMENTS

A. Fire-Rated Assemblies: Complying with NFPA 80 and listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C.

1. Smoke- and Draft-Control Assemblies: Provide an assembly with gaskets listed and labeled for smoke and draft control by a qualified testing agency acceptable to authorities having jurisdiction, based on testing according to UL 1784 and installed in compliance with NFPA 105.

B. Fire-Rated, Borrowed-Light Assemblies: Complying with NFPA 80 and listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction for fire-protection ratings indicated, based on testing according to NFPA 257 or UL 9.

2.3 INTERIOR DOORS AND FRAMES

A. Construct interior doors and frames to comply with the standards indicated for materials, fabrication, hardware locations, hardware reinforcement, tolerances, and clearances, and as specified.

B. Extra-Heavy-Duty Doors and Frames: SDI A250.8, Level 3.

1. Physical Performance: Level A according to SDI A250.4.
2. Doors:

a. Type: As indicated on Drawings in Door and Frame Schedule.
b. Thickness: 1¾ inches.
c. Face: Uncoated, cold-rolled steel sheet, minimum thickness of 0.053 inch.
d. Edge Construction: Model 2, Seamless.
e. Core: Steel stiffened.

3. Frames:

a. Materials: Uncoated, steel sheet, minimum thickness of 0.053 inch.
b. Sidelite and Transom Frames: Fabricated from same thickness material as adjacent door frame.
c. Construction: Face welded.

4. Exposed Finish: Prime.

2.4 BORROWED LITES

A. Hollow-metal frames of uncoated steel sheet, minimum thickness of 0.053 inch.

B. Construction: Face welded.

2.5 FRAME ANCHORS

A. Jamb Anchors:

1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, not less than 0.042 inch thick, with corrugated or perforated straps not less than 2 inches wide by 10 inches long; or wire anchors not less than 0.177 inch thick.
2. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042 inch thick.
3. Compression Type for Drywall Slip-on Frames: Adjustable compression anchors.
4. Postinstalled Expansion Type for In-Place Concrete or Masonry: Minimum 3/8-inch-diameter bolts with expansion shields or inserts. Provide pipe spacer from frame to wall, with throat reinforcement plate, welded to frame at each anchor location.

B. Floor Anchors: Formed from same material as frames, minimum thickness of 0.042 inch, and as follows:

1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.

2.6 MATERIALS

A. Recycled Content of Steel Products: Postconsumer recycled content plus one-half of preconsumer recycled content not less than twenty-five percent (25%).

B. Cold-Rolled Steel Sheet: ASTM A 1008, Commercial Steel (CS), Type B; suitable for exposed applications.

C. Metallic-Coated Steel Sheet: ASTM A 653, Commercial Steel (CS), Type B.

D. Frame Anchors: ASTM A 879, Commercial Steel (CS), 04Z coating designation; mill phosphatized.

1. For anchors built into exterior walls, steel sheet complying with ASTM A 1008 or ASTM A 1011, hot-dip galvanized according to ASTM A 153, Class B.

E. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153.

F. Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hollow-metal frames of type indicated.

G. Grout: ASTM C 476, except with a maximum slump of 4 inches, as measured according to ASTM C 143.

H. Mineral-Fiber Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers manufactured from slag or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics.

I. Glazing: Comply with requirements in Section 088000 “Glazing”.

J. Bituminous Coating: Cold-applied asphalt mastic, compounded for 15-mil dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

2.7 FABRICATION

A. Fabricate hollow-metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for metal thickness. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.

B. Hollow-Metal Doors:

1. Steel-Stiffened Door Cores: Provide minimum thickness 0.026 inch, steel vertical stiffeners of same material as face sheets extending full-door height, with vertical webs spaced not more than 6 inches apart. Spot weld to face sheets no more than 5 inches o.c. Fill spaces between stiffeners with glass- or mineral-fiber insulation.
2. Fire Door Cores: As required to provide fire-protection ratings indicated.
3. Vertical Edges for Single-Acting Doors: Bevel edges 1/8 inch in 2 inches.
4. Top Edge Closures: Close top edges of doors with flush closures of same material as face sheets.
5. Bottom Edge Closures: Close bottom edges of doors with end closures or channels of same material as face sheets.
6. Exterior Doors: Provide weep-hole openings in bottoms of exterior doors to permit moisture to escape. Seal joints in top edges of doors against water penetration.
7. Astragals: Provide overlapping astragal on one (1) leaf of pairs of doors where required by NFPA 80 for fire-performance rating or where indicated. Extend minimum ¾ inch beyond edge of door on which astragal is mounted or as required to comply with published listing of qualified testing agency.

C. Hollow-Metal Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.

1. Sidelite and Transom Bar Frames: Provide closed tubular members with no visible face seams or joints, fabricated from same material as door frame. Fasten members at crossings and to jambs by butt welding.
2. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
3. Grout Guards: Weld guards to frame at back of hardware mortises in frames to be grouted.
4. Floor Anchors: Weld anchors to bottoms of jambs with at least four (4) spot welds per anchor; however, for slip-on drywall frames, provide anchor clips or countersunk holes at bottoms of jambs.
5. Jamb Anchors: Provide number and spacing of anchors as follows:

    a. Masonry Type: Locate anchors not more than 16 inches from top and bottom of frame. Space anchors not more than 32 inches o.c., to match coursing, and as follows:

        1) Two (2) anchors per jamb up to 60 inches high.
        2) Three (3) anchors per jamb from 60 to 90 inches high.
        3) Four (4) anchors per jamb from 90 to 120 inches high.
        4) Four (4) anchors per jamb plus one (1) additional anchor per jamb for each 24 inches or fraction thereof above 120 inches high.

    b. Stud-Wall Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:

        1) Three (3) anchors per jamb up to 60 inches high.
        2) Four (4) anchors per jamb from 60 to 90 inches high.
        3) Five (5) anchors per jamb from 90 to 96 inches high.
        4) Five (5) anchors per jamb plus one (1) additional anchor per jamb for each 24 inches or fraction thereof above 96 inches high.

    c. Compression Type: Not less than two (2) anchors in each frame.
    d. Postinstalled Expansion Type: Locate anchors not more than 6 inches from top and bottom of frame. Space anchors not more than 26 inches o.c.

6. Door Silencers: Except on weather-stripped frames, drill stops to receive door silencers as follows. Keep holes clear during construction.

    a. Single-Door Frames: Drill stop in strike jamb to receive three (3) door silencers.

b. Double-Door Frames: Drill stop in head jamb to receive two (2) door silencers.

D. Fabricate concealed stiffeners and edge channels from either cold- or hot-rolled steel sheet.

E. Hardware Preparation: Factory prepare hollow-metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to SDI A250.6, the Door Hardware Schedule, and templates.

1. Reinforce frames to receive nontemplated, mortised, and surface-mounted door hardware.
2. Comply with applicable requirements in SDI A250.6 and BHMA A156.115 for preparation of hollow-metal work for hardware.

F. Stops and Moldings: Provide stops and moldings around glazed lites and louvers where indicated. Form corners of stops and moldings with mitered hairline joints.

1. Single Glazed Lites: Provide fixed stops and moldings welded on secure side of hollow-metal work.
2. Provide fixed frame moldings on secure side of interior doors.
3. Provide loose stops and moldings on inside of hollow-metal work.
4. Coordinate rabbet width between fixed and removable stops with glazing and installation types indicated.

2.8 STEEL FINISHES

A. Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.

1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with SDI A250.10; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.

2.9 ACCESSORIES

A. Mullions and Transom Bars: Join to adjacent members by welding or rigid mechanical anchors.

B. Grout Guards: Formed from same material as frames, not less than 0.016 inch thick.

PART 3 - EXECUTION

3.1 COMMISSIONING OF COMPONENTS AND SYSTEMS

A. Engage a manufacturer authorized representative who is familiar with this project, to participate and assist as necessary, in the functional performance testing of the components and systems included in this Division with the Commissioning Authority.

3.2 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Examine roughing-in for embedded and built-in anchors to verify actual locations before frame installation.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 PREPARATION

A. Remove welded-in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces.

B. Drill and tap doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.

3.4 INSTALLATION

A. General: Install hollow-metal work plumb, rigid, properly aligned, and securely fastened in place. Comply with Drawings and manufacturer's written instructions.

B. Hollow-Metal Frames: Install hollow-metal frames for doors, transoms, sidelites, borrowed lites, and other openings, of size and profile indicated. Comply with SDI A250.11 or NAAMM-HMMA 840 as required by standards specified.

1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.

    a. At fire-rated openings, install frames according to NFPA 80.
    b. Where frames are fabricated in sections because of shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.
    c. Install frames with removable stops located on secure side of opening.

d. Install door silencers in frames before grouting.
e. Remove temporary braces necessary for installation only after frames have been properly set and secured.
f. Check plumb, square, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
g. Field apply bituminous coating to backs of frames that will be filled with grout containing antifreezing agents.

2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with postinstalled expansion anchors.

   a. Floor anchors may be set with power-actuated fasteners instead of postinstalled expansion anchors if so indicated and approved on Shop Drawings.

3. Metal-Stud Partitions: Solidly pack mineral-fiber insulation inside frames.
4. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with grout.
5. In-Place Concrete Construction: Secure frames in place with postinstalled expansion anchors. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
6. Installation Tolerances: Adjust hollow-metal door frames for squareness, alignment, twist, and plumb to the following tolerances:

   a. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
   b. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.
   c. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
   d. Plumbness: Plus or minus 1/16 inch, measured at jambs at floor.

C. Hollow-Metal Doors: Fit hollow-metal doors accurately in frames, within clearances specified below. Shim as necessary.

1. Non-Fire-Rated Steel Doors:

   a. Between Door and Frame Jambs and Head: 1/8 inch plus or minus 1/32 inch.
   b. Between Edges of Pairs of Doors: 1/8 inch to ¼ inch plus or minus 1/32 inch.
   c. At Bottom of Door: ¾ inch.
   d. Between Door Face and Stop: 1/16 inch to 1/8 inch plus or minus 1/32 inch.

2. Fire-Rated Doors: Install doors with clearances according to NFPA 80.
3. Smoke-Control Doors: Install doors and gaskets according to NFPA 105.

3.5 ADJUSTING AND CLEANING

A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow-metal work that is warped, bowed, or otherwise unacceptable.

B. Remove grout and other bonding material from hollow-metal work immediately after installation.

C. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.

D. Metallic-Coated Surface Touchup: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.

END OF SECTION 081113

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes:

1. Mechanical door hardware for the following:

a. Swinging doors.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product indicated. Include construction and installation details, material descriptions, dimensions of individual components and profiles, and finishes.

B. Shop Drawings: Details of door hardware.

C. Other Action Submittals:

1. Door Hardware Schedule: Prepared by or under the supervision of Installer, detailing fabrication and assembly of door hardware, as well as installation procedures and diagrams. Coordinate final door hardware schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.

a. Submittal Sequence: Submit door hardware schedule concurrent with submissions of Product Data. Coordinate submission of door hardware schedule with scheduling requirements of other work to facilitate the fabrication of other work that is critical in Project construction schedule.
b. Format: Use same scheduling sequence and format and use same door numbers as in the Contract Documents.
c. Content: Include the following information:

1) Identification number, location, hand, fire rating, size, and material of each door and frame.
2) Locations of each door hardware set, cross-referenced to Drawings on floor plans and to door and frame schedule.
3) Complete designations, including name and manufacturer, type, style, function, size, quantity, function, and finish of each door hardware product.

4) Fastenings and other pertinent information.
5) Explanation of abbreviations, symbols, and codes contained in schedule.
6) Mounting locations for door hardware.
7) List of related door devices specified in other Sections for each door and frame.

2. Keying Schedule: Prepared by or under the supervision of Installer, detailing Owner's final keying instructions for locks. Include schematic keying diagram and index each key set to unique door designations that are coordinated with the Contract Documents.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Product Certificates: For electrified door hardware, from the manufacturer.

1. Certify that door hardware approved for use on types and sizes of labeled fire-rated doors complies with listed fire-rated door assemblies.

C. Product Test Reports: For compliance with accessibility requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for door hardware on doors located in accessible routes.

D. Warranty: Special warranty specified in this Section.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: For each type of door hardware to include in maintenance manuals. Include final hardware and keying schedule.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: Supplier of products and an employer of workers trained and approved by product manufacturers who is available during the course of the Work to consult with Contractor, Architect, and Owner about door hardware and keying.

1. Warehousing Facilities: In Project's vicinity.
2. Scheduling Responsibility: Preparation of door hardware and keying schedules.
3. Engineering Responsibility: Preparation of data for electrified door hardware, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project.

B. Source Limitations: Obtain each type of door hardware from a single manufacturer.

C. Fire-Rated Door Assemblies: Where fire-rated door assemblies are indicated, provide door hardware rated for use in assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C, unless otherwise indicated.

D. Smoke- and Draft-Control Door Assemblies: Where smoke- and draft-control door assemblies are required, provide door hardware that meet requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105.

1. Air Leakage Rate: Maximum air leakage of0.3 cfm/sq. ft. at the tested pressure differential of 0.3-inch wg of water.

E. Means of Egress Doors: Latches do not require more than 15 lbf to release the latch. Locks do not require use of a key, tool, or special knowledge for operation.

F. Accessibility Requirements: For door hardware on doors in an accessible route, comply with the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.

1. Provide operating devices that do not require tight grasping, pinching, or twisting of the wrist and that operate with a force of not more than 5 lbf.
2. Comply with the following maximum opening-force requirements:

    a. Interior, Non-Fire-Rated Hinged Doors: 5 lbf applied perpendicular to door.
    b. Fire Doors: Minimum opening force allowable by authorities having jurisdiction.

3. Bevel raised thresholds with a slope of not more than 1:2. Provide thresholds not more than ½ inch high.
4. Adjust door closer sweep periods so that, from an open position of 70 degrees, the door will take at least three (3) seconds to move to a point 3 inches from the latch, measured to the leading edge of the door.

G. Keying Conference: Conduct conference at Project site." In addition to Owner**,** Contractor, and Architect, conference participants shall also include Installer's Architectural Hardware Consultant. Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system including, but not limited to, the following:

1. Function of building, flow of traffic, purpose of each area, degree of security required, and plans for future expansion.
2. Preliminary key system schematic diagram.
3. Requirements for key control system.
4. Requirements for access control.
5. Address for delivery of keys.

H. Preinstallation Conference: Conduct conference at Project site.

1. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
2. Inspect and discuss preparatory work performed by other trades.
3. Review required testing, inspecting, and certifying procedures.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Inventory door hardware on receipt and provide secure lock-up for door hardware delivered to Project site.

B. Tag each item or package separately with identification coordinated with the final door hardware schedule, and include installation instructions, templates, and necessary fasteners with each item or package.

C. Deliver keys to Owner by registered mail or overnight package service.

1.8 COORDINATION

A. Installation Templates: Distribute for doors, frames, and other work specified to be factory prepared. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.

B. Security: Coordinate installation of door hardware, keying, and access control with Owner's security consultant.

C. Existing Openings: Where hardware components are scheduled for application to existing construction or where modifications to existing door hardware are required, field verify existing conditions and coordinate installation of door hardware to suit opening conditions and to provide proper door operation.

1.9 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Structural failures including excessive deflection, cracking, or breakage.
b. Faulty operation of doors and door hardware.
c. Deterioration of metals, metal finishes, and other materials beyond normal weathering and use.

2. Warranty Period: Three (3) years from date of Substantial Completion, unless otherwise indicated.

a. Exit Devices: Two (2) years from date of Substantial Completion.
b. Manual Closers: Ten (10) years from date of Substantial Completion.

1.10 MAINTENANCE SERVICE

A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

B. Maintenance Service: Beginning at Substantial Completion, provide six (6) months' full maintenance by skilled employees of door hardware Installer. Include quarterly preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper door and door hardware operation. Provide parts and supplies that are the same as those used in the manufacture and installation of original products.

PART 2 - PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

A. Provide door hardware for each door as scheduled in Part 3 "Door Hardware Schedule" Article to comply with requirements in this Section.

1. Door Hardware Sets: Provide quantity, item, size, finish or color indicated, and products equivalent in function and comparable in quality to named products, where allowed.
2. Sequence of Operation: Provide electrified door hardware function, sequence of operation, and interface with other building control systems indicated.

B. Designations: Requirements for design, grade, function, finish, size, and other distinctive qualities of each type of door hardware are indicated in Part 3 "Door Hardware Schedule" Article. Products are identified by using door hardware designations, as follows:

1. Named Manufacturers' Products: Manufacturer and product designation are listed for each door hardware type required for the purpose of establishing minimum requirements. Manufacturers' names are abbreviated in Part 3 "Door Hardware Schedule" Article.

2.2 HINGES

A. Hinges: BHMA A156.1. Provide template-produced hinges for hinges installed on solid core wood doors and hollow-metal frames.

1. Basis of Design:

a. Stanley Commercial Hardware; Div. of The Stanley Works; **CB179**

2. 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. Hager Companies.
   b. McKinney Products Company; an ASSA ABLOY Group company.
   c. Substitutions: Under provisions of Section 016000 “Material and Equipment”.

2.3 CONTINUOUS HINGES

A. Continuous Hinges: BHMA A156.26; minimum 0.120-inch-thick, hinge leaves with minimum overall width of 4 inches; fabricated to full height of door and frame and to template screw locations; with components finished after milling and drilling are complete.

2.4 BUTT HINGES

A. Provide five-knuckle, ball bearing hinges.
   1. Manufacturers and Products:
      a. Scheduled Manufacturer and Product:
         1) Ives 5BB series.
      b. Acceptable Manufacturers and Products:
         1) Bommer BB5000 series.
         2) McKinney TA/T4A series.

2.5 MECHANICAL LOCKS AND LATCHES

A. Lock Functions: As indicated in Part 3 “Door Hardware Schedule”.

B. Lock Throw: Comply with testing requirements for length of bolts required for labeled fire doors, and as follows:

   1. Bored Locks: Minimum ½-inch latchbolt throw.
   2. Mortise Locks: Minimum ¾-inch latchbolt throw.

C. Lock Backset: 2¾ inches, unless otherwise indicated.

D. Lock Trim:

   1. Levers: Cast.
   2. Escutcheons (Roses): Wrought.
   3. Dummy Trim: Match lever lock trim and escutcheons.
   4. Operating Device: Lever with escutcheons (roses).

E. Strikes: Provide manufacturer's standard strike for each lock bolt or latchbolt complying with requirements indicated for applicable lock or latch and with strike box and curved lip extended to protect frame; finished to match lock or latch.

1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
2. Aluminum-Frame Strike Box: Manufacturer's special strike box fabricated for aluminum framing.

F. Bored Locks: BHMA A156.2; Grade 1; Series 4000.

1. Basis of Design:

a. Schlage Commercial Lock Division; an Ingersoll-Rand company; **ND Series – Rhodes, Vandlgard** functions

2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Corbin Russwin Architectural Hardware; n ASSA ABLOY Group Company.
b. Medeco Security Locks, Inc.; an ASSA ABLOY Group company.
c. Substitutions: Under provisions of Section 016000 “Material and Equipment”.

G. Mortise Locks: BHMA A156.13; **Operational** and Grade **1**; stamped steel case with steel or brass parts; Series 1000.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Adams Rite Manufacturing Co; an ASSA ABLOY Group company.
b. Arrow USA; an ASSA ABLOY Group company.
c. Corbin Russwin, Inc.; an ASSA ABLOY Group company.

2.6 MANUAL FLUSH BOLTS

A. Manual Flush Bolts: BHMA A156.16; minimum ¾-inch throw.

1. Basis-of-Design Product:

a. Door Controls International, Inc.; **790F,** designed for mortising into door edge.

2. 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. Glynn-Johnson; an Ingersoll-Rand company.
b. IVES Hardware; an Ingersoll-Rand company.
c. Substitutions: Under provisions of Section 012500 “Substitution Procedures”.

2.7 EXIT DEVICES AND AUXILIARY ITEMS

A. Exit Devices and Auxiliary Items: BHMA A156.3.

1. Basis-of-Design Product:

a. Von Duprin; an Ingersoll-Rand company; **Series 99L** and **99L-F.**
b. No substitutions.

B. Coordinate exit device operation with cylinder locks where specified.

C. Interior panic hardware shall be cut ½ width of door from latch side only.

D. All exit devices shall be provided with cylinder dogging hardware for manual keying.

E. At paired exit device doors, provide keyed removable mullions similar to Von Duprin steel mullion, **Model #9954**.

2.8 LOCK CYLINDERS

A. Lock Cylinders: Tumbler type, constructed from brass or bronze, stainless steel, or nickel silver.

1. Manufacturer: Same manufacturer as for locking devices.

B. Standard Lock Cylinders: BHMA A156.5; Grade 1; permanent cores that are removable; face finished to match lockset.

C. Construction Cores: Provide construction cores that are replaceable by permanent cores. Provide ten (10) construction master keys.

2.9 KEYING

A. Keying System: Factory registered, complying with guidelines in BHMA A156.28, Appendix A. Incorporate decisions made in keying conference.

1. Great-Grand Master Key System: Change keys, a master key, a grand master key, and a great-grand master key operate cylinders.

B. Keys: Brass.

1. Stamping: Permanently inscribe each key with a visual key control number and include the following notation:

a. Notation: "DO NOT DUPLICATE."

2. Quantity: In addition to one (1) extra key blank for each lock, provide the following:

a. Great-Grand Master Keys: Five (5).

2.10 KEY CONTROL SYSTEM

A. Key Control Cabinet: BHMA A156.5; metal cabinet with baked-enamel finish; containing key-holding hooks, labels, two (2) sets of key tags with self-locking key holders, key-gathering envelopes, and temporary and permanent markers; with key capacity of one hundred fifty percent (150%) of the number of locks.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the the following:

a. American Key Boxes and Cabinets.
b. GE Security, Inc.
c. Lund Equipment Co., Inc.
d. Substitutions: Under provisions of Section 012500 “Substitution Procedures”.

2. Wall-Mounted Cabinet: Cabinet with hinged-panel door equipped with key-holding panels and pin-tumbler cylinder door lock.

2.11 OPERATING TRIM

A. Operating Trim: BHMA A156.6; stainless steel, unless otherwise indicated.

1. Basis-of-Design Product:

a. Rockwood Manufacturing Company

1) Push Plates: **70C 4x16**
2) Pulls: **RM4410-12**

2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Burns Manufacturing Incorporated
b. IVES Hardware; an Ingersoll-Rand company
c. Substitutions: Under provisions of Section 012500 “Substitution Procedures”.

2.12 ACCESSORIES FOR PAIRS OF DOORS

A. Coordinators: BHMA A156.3; consisting of active-leaf, hold-open lever and inactive-leaf release trigger; fabricated from steel with nylon-coated strike plates; with built-in, adjustable safety release.

B. Carry-Open Bars: BHMA A156.3; prevent the inactive leaf from opening before the active leaf; provide polished brass or bronze carry-open bars with strike plate for inactive leaves of pairs of doors unless automatic or self-latching bolts are used.

C. Astragals: BHMA A156.22.

2.13 SURFACE CLOSERS

A. Surface Closers: BHMA A156.4; rack-and-pinion hydraulic type with adjustable sweep and latch speeds controlled by key-operated valves and forged-steel main arm. Comply with manufacturer's written recommendations for size of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Provide factory-sized closers, adjustable to meet field conditions and requirements for opening force.

1. Basis-of-Design Product:

a. LCN Closers; an Ingersoll-Rand company; **4040 Series**
b. No substitutions.

B. Door closers, marked closer, shall be **Smoothee** series, with delayed action cylinder, sized to the door leaf size.

C. Door closers, marked closer/stop shall be **Cush-N-Stop** series, with delayed action cylinder, sized to the door leaf size.

D. Door closers are to be mounted on the least conspicuous side of the door. The hardware supplier shall consult with the Architect to verify applications, and note mounting locations on the hardware schedule.

2.14 MECHANICAL STOPS AND HOLDERS

A. Wall- and Floor-Mounted Stops: BHMA A156.16; polished cast brass, bronze, or aluminum base metal.

1. Basis-of-Design Product:

a. IVES Hardware; an Ingersoll-Rand company; **407 and 436 or 438**

1) Provide wall bumpers wherever possible. Provide floor stops where the use of wall bumpers is not feasible, provided the location of the stop is not a stumbling hazard or would cause the door to rack at the hinges.

2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Glynn-Johnson; an Ingersoll-Rand company.
b. Door Controls International, Inc.
c. Substitutions: In accordance with Section 012500 “Substitution Procedures”.

2.15 OVERHEAD STOPS AND HOLDERS

A. Overhead Stops and Holders: BHMA A156.8.

1. Basis-of-Design Product:

a. Glynn-Johnson; an Ingersoll-Rand company; **90S.**

2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Architectural Builders Hardware Mfg., Inc.
b. Rockwood Manufacturing Company.
c. SARGENT Manufacturing Company; an ASSA ABLOY Group company.
d. Substitutions: In accordance with Section 012500 “Substitution Procedures”.

2.16 SMOKE SEALS (SMOKE AND FIRE RATED DOORS)

1. Basis-of-Design Product:

a. Pemko Manufacturing Co.; an ASSA ABLOY Group company

1) Smoke Rated Doors: **S88D** at the jambs and heads.
2) Fire Rated Doors: Provided by the door manufacturer.

2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. National Guard Products.
b. Zero International.
c. Substitutions: In accordance with Section 012500 “Substitution Procedures”.

2.17 WEATHERSTRIPPING (DOOR GASKETING)

A. Door Gasketing: BHMA A156.22; air leakage not to exceed 0.50 cfm per foot of crack length for gasketing other than for smoke control, as tested according to ASTM E 283; with resilient or flexible seal strips that are easily replaceable and readily available from stocks maintained by manufacturer.

1. Basis-of-Design Product:

a. Zero International

1) Head and Jamb: **#328AA**, solid neoprene in an extruded aluminum housing.
2) Sill: **#339AA** with extruded aluminum housing, solid neoprene.

2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. National Guard Products.
    b. Pemko Manufacturing Co.; an ASSA ABLOY Group company.
    c. Substitutions: In accordance with Section 012500 “Substitution Procedures”.

2.18 THRESHOLDS

A. Thresholds: BHMA A156.21; fabricated to full width of opening indicated.

1. Basis-of-Design Product:

    a. Pemko Manufacturing Co.; an ASSA ABLOY Group company; **2005AT**

2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. National Guard Products.
    b. Zero International.
    c. Substitutions: In accordance with Section 012500 “Substitution Procedures”.

2.19 METAL PROTECTIVE TRIM UNITS

A. Metal Protective Trim Units: BHMA A156.6; fabricated from 0.050-inch-thick stainless steel; with manufacturer's standard machine or self-tapping screw fasteners.

1. Basis-of-Design Product: Burns Manufacturing Incorporated.

    a. Kick Plates: 16 inches high.
    b. All plates are 2 inches less width of door on single doors, 1 inch less width of door on pairs.

2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. IVES Hardware; an Ingersoll-Rand company.
    b. Rockwood Manufacturing Company.
    c. Substitutions: In accordance with Section 012500 “Substitution Procedures”.

2.20 AUXILIARY DOOR HARDWARE

A. Auxiliary Hardware: BHMA A156.16.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Hager Companies.
    b. Rockwood Manufacturing Company.
    c. Stanley Commercial Hardware; Div. of The Stanley Works.
    d. Substitutions: In accordance with Section 012500 “Substitution Procedures”.

2.21 FABRICATION

A. Base Metals: Produce door hardware units of base metal indicated, fabricated by forming method indicated, using manufacturer's standard metal alloy, composition, temper, and hardness. Furnish metals of a quality equal to or greater than that of specified door hardware units and BHMA A156.18.

B. Fasteners: Provide door hardware manufactured to comply with published templates prepared for machine, wood, and sheet metal screws. Provide screws that comply with commercially recognized industry standards for application intended, except aluminum fasteners are not permitted. Provide Phillips flat-head screws with finished heads to match surface of door hardware, unless otherwise indicated.

1. Concealed Fasteners: For door hardware units that are exposed when door is closed, except for units already specified with concealed fasteners. Do not use through bolts for installation where bolt head or nut on opposite face is exposed unless it is the only means of securely attaching the door hardware. Where through bolts are used on hollow door and frame construction, provide sleeves for each through bolt.
2. Fire-Rated Applications:

    a. Wood or Machine Screws: For the following:

        1) Hinges mortised to doors or frames; use threaded-to-the-head wood screws for wood doors and frames.
        2) Strike plates to frames.
        3) Closers to doors and frames.

    b. Steel Through Bolts: For the following unless door blocking is provided:

        1) Surface hinges to doors.
        2) Closers to doors and frames.
        3) Surface-mounted exit devices.

3. Spacers or Sex Bolts: For through bolting of hollow-metal doors.
4. Fasteners for Wood Doors: Comply with requirements in DHI WDHS.2, "Recommended Fasteners for Wood Doors."

2.22 FINISHES

A. Provide finishes complying with BHMA A156.18 as indicated in door hardware schedule.

B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Steel Doors and Frames: For surface applied door hardware, drill and tap doors and frames according to ANSI/SDI A250.6.

3.3 INSTALLATION

A. Mounting Heights: Mount door hardware units at heights to comply with the following unless otherwise indicated or required to comply with governing regulations.

1. Standard Steel Doors and Frames: ANSI/SDI A250.8.

B. Install each door hardware item to comply with manufacturer's written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing. Do not install surface-mounted items until finishes have been completed on substrates involved.

1. Set units level, plumb, and true to line and location. Adjust and reinforce attachment substrates as necessary for proper installation and operation.
2. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.

C. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than the number recommended by manufacturer for application indicated or one (1) hinge for every 30 inches of door height, whichever is more stringent, unless other equivalent means of support for door, such as spring hinges or pivots, are provided.

D. Lock Cylinders: Install construction cores to secure building and areas during construction period.

1. Replace construction cores with removable cores as indicated in keying schedule.
2. Furnish permanent cores to Owner for installation.

E. Key Control System: Tag keys and place them on markers and hooks in key control system cabinet, as determined by final keying schedule.

F. Thresholds: Set thresholds for doors indicated in full bed of sealant complying with requirements specified in Section 079200 "Joint Sealants."

G. Stops: Provide wall or floor stops for doors unless other type stops are indicated in door hardware schedule. Do not mount floor stops where they will impede traffic.

H. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.

I. Door Bottoms: Apply to bottom of door, forming seal with threshold when door is closed.

3.4 ADJUSTING

A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.
1. Door Closers: Adjust sweep period to comply with accessibility requirements and requirements of authorities having jurisdiction.

3.5 CLEANING AND PROTECTION

A. Clean adjacent surfaces soiled by door hardware installation.

B. Clean operating items as necessary to restore proper function and finish.

C. Provide final protection and maintain conditions that ensure that door hardware is without damage or deterioration at time of Substantial Completion.

3.6 DOOR HARDWARE SCHEDULE

A. Provide hardware as specified in the previous articles in sets according to the following schedule and as indicated in the Door Schedule on the Drawings.

B. The hardware supplier shall meet with the Architect and/or Owner to determine lock functions and keying requirements.

HW-1: NEW DOUBLE DOOR 101

EACH TO HAVE:

6	BUTT HINGES
1	BORED LOCK AND CYLINDER (STORAGE LOCKSET)
2	LEVER SETS, POSITIVE LATCHING, WITH KNURLED FINISH
1	ASTRAGAL
2	KICKPLATE
2	AUTOMATIC SMOKE SEALS
	SILENCERS

HW-2: EXISTING DOUBLE DOOR 102

EACH TO HAVE:

2	LEVER SETS WITH KNURLED FINISH

END OF SECTION 087100

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Non-load-bearing steel framing systems for interior gypsum board assemblies.

B. Related Requirements:

1. Section 09-2900 “Gypsum Board” for gypsum board to be attached to non-structural metal framing.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Test-Response Characteristics: For fire-resistance-rated assemblies that incorporate non-load-bearing steel framing, provide materials and construction identical to those tested in assembly indicated, according to ASTM E 119 by an independent testing agency.

2.2 FRAMING SYSTEMS

A. Framing Members, General: Comply with ASTM C 754 for conditions indicated.

1. Steel Sheet Components: Comply with ASTM C 645 requirements for metal unless otherwise indicated.
2. Protective Coating: ASTM A 653, G60, hot-dip galvanized unless otherwise indicated.

B. Studs and Runners: ASTM C 645.

1. Steel Studs and Runners:

a. Minimum Base-Metal Thickness: 20 gage.
b. Depth: As indicated on Drawings.

C. Firestop Tracks: Top runner manufactured to allow partition heads to expand and contract with movement of the structure while maintaining continuity of fire-resistance-rated assembly indicated; in thickness not less than indicated for studs and in width to accommodate depth of studs.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

a. Fire Trak Corp.; **Fire Trak System attached to studs with Fire Trak Posi Klip**
b. Grace Construction Products; **FlameSafe FlowTrak System**
c. Metal-Lite, Inc.; **The System**
d. Substitutions: Under provisions of Section 01-2500 “Substitution Procedures”.

2.3 AUXILIARY MATERIALS

A. General: Provide auxiliary materials that comply with referenced installation standards.

1. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

A. Installation Standard: ASTM C 754.

1. Gypsum Board Assemblies: Also comply with requirements in ASTM C 840 that apply to framing installation.

3.3 INSTALLING FRAMED ASSEMBLIES

A. Install framing system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.

B. Install studs so flanges within framing system point in same direction.

C. Install studs so flanges within framing system point in same direction.

D. Install tracks (runners) at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts penetrating partitions above ceiling.

1. Fire-Resistance-Rated Partitions: Install framing to comply with fire-resistance-rated assembly indicated and support closures and to make partitions continuous from floor to underside of solid structure.

a. Firestop Track: Where indicated, install to maintain continuity of fire-resistance-rated assembly indicated.

E. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch from the plane formed by faces of adjacent framing.

END OF SECTION 09-2216

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Interior gypsum board.

B. Related Requirements:
1. Section 092216 “Non-Structural Metal Framing” for metal framing to which interior gypsum board will be mechanically attached.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For the following products:

1. Trim Accessories: Full-size Sample in 12-inch-long length for each trim accessory indicated.

1.4 DELIVERY, STORAGE AND HANDLING

A. Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and supported on risers on a flat platform to prevent sagging.

1.5 FIELD CONDITIONS

A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.

B. Do not install paper-faced gypsum panels until installation areas are enclosed and conditioned.

C. Do not install panels that are wet, those that are moisture damaged, and those that are mold damaged.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.

2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.

B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.

2.2 GYPSUM BOARD, GENERAL

A. Recycled Content of Gypsum Panel Products: Postconsumer recycled content plus one-half of preconsumer recycled content not less than twenty-five percent (25%).

B. Size: Provide maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

2.3 INTERIOR GYPSUM BOARD

A. 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:

1. Georgia-Pacific Gypsum LLC.
2. National Gypsum Company.
3. USG Corporation.
4. Substitutions: Under provisions of Section 012500 “Substitution Procedures”.

B. Abuse-Resistant Gypsum Board (NOT USED): ASTM C 1629, Level 1.

1. Core: As indicated on Drawings.
2. Long Edges: Tapered.
3. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.

C. Gypsum Board, Type X: ASTM C 1396/C 1396M.
1. Thickness: 5/8 inch (15.9 mm).
2. Long Edges: Tapered.

2.4 TRIM ACCESSORIES

A. Interior Trim: ASTM C 1047.

1. Material: Galvanized or aluminum-coated steel sheet or rolled zinc.
2. Shapes:

a. Cornerbead.
b. Bullnose bead.
c. LC-Bead: J-shaped; exposed long flange receives joint compound.
d. L-Bead: L-shaped; exposed long flange receives joint compound.
e. U-Bead: J-shaped; exposed short flange does not receive joint compound.
f. Expansion (control) joint.

B. Aluminum Trim: Extruded accessories of profiles and dimensions 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. Fry Reglet Corp.
b. Gordon, Inc.
c. Pittcon Industries
d. Substitutions: Under provisions of Section 012500 “Substitution Procedures”.

2. Aluminum: Alloy and temper with not less than the strength and durability properties of ASTM B 221, Alloy 6063-T5.
3. Finish: Mill.

2.5 JOINT TREATMENT MATERIALS

A. General: Comply with ASTM C 475.

B. Joint Tape:

1. Interior Gypsum Board: Paper.

C. Joint Compound for Interior Gypsum Board: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.

1. Prefilling: At open joints, rounded or beveled panel edges, and damaged surface areas, use setting-type taping compound.
2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use drying-type, all-purpose compound.
3. Fill Coat: For second coat, use drying-type, all-purpose compound.
4. Finish Coat: For third coat, use drying-type, all-purpose compound.

5. Skim Coat: For final coat of Level 5 finish, use drying-type, all-purpose compound.

2.6 AUXILIARY MATERIALS

A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.

B. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.

C. Sound Attenuation Blankets: ASTM C 665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.

1. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.
2. Recycled Content of Blankets: Postconsumer recycled content plus one-half of preconsumer recycled content not less than twenty-five percent (25%).

D. Acoustical Joint Sealant: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834. Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

a. Pecora Corporation; **AC-20 FTR**
b. Specified Technologies, Inc.; **Smoke N Sound Acoustical Sealant**
c. USG Corporation; **SHEETROCK Acoustical Sealant**
d. Substitutions: Under provisions of Section 012500 “Substitution Procedures”.

2. Acoustical joint sealant shall have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

E. Thermal Insulation: As specified in Section 072100 "Thermal Insulation."

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and substrates including welded hollow-metal frames and framing, with Installer present, for compliance with requirements and other conditions affecting performance.

B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 APPLYING AND FINISHING PANELS, GENERAL

A. Comply with ASTM C 840.

B. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.

C. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.

D. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.

E. Form control and expansion joints with space between edges of adjoining gypsum panels.

F. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.

1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. in area.
2. Fit gypsum panels around ducts, pipes, and conduits.
3. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow ¼ to 3/8-inch-wide joints to install sealant.

G. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments, except floors. Provide ¼ to ½ inch-wide spaces at these locations and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.

H. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.

I. STC-Rated Assemblies: Seal construction at perimeters, behind control joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through

penetrations. Comply with ASTM C 919 and with manufacturer's written recommendations for locating edge trim and closing off sound-flanking paths around or through assemblies, including sealing partitions above acoustical ceilings.

J. Install sound attenuation blankets before installing gypsum panels unless blankets are readily installed after panels have been installed on one side.

3.3 APPLYING INTERIOR GYPSUM BOARD

A. Install interior gypsum board where indicated on Drawings.

B. Single-Layer Application:

1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing unless otherwise indicated.
2. On partitions/walls, apply gypsum panels in most economical direction, with ends and edges occurring over firm bearing unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.

    a. Stagger abutting end joints not less than one framing member in alternate courses of panels.
    b. At stairwells and other high walls, install panels horizontally unless otherwise indicated or required by fire-resistance-rated assembly.

3. Fastening Methods: Apply gypsum panels to supports with steel drill screws.

C. Multilayer Application:

1. On ceilings, apply gypsum board indicated for base layers before applying base layers on walls/partitions; apply face layers in same sequence. Apply base layers at right angles to framing members and offset face-layer joints one framing member, 16 inches minimum, from parallel base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly.
2. On partitions/walls, apply gypsum board indicated for base layers horizontally (perpendicular to framing) and face layers vertically (parallel to framing) with joints of base layers located over stud or furring member and face-layer joints offset at least one (1) stud or furring member with base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly. Stagger joints on opposite sides of partitions.
3. Fastening Methods: Fasten base layers and face layers separately to supports with screws.

3.4 INSTALLING TRIM ACCESSORIES

A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.

B. Control Joints: Install control joints according to ASTM C 840 and in specific locations approved by Architect for visual effect.

C. Interior Trim: Install in the following locations:

1. Cornerbead: Use at outside corners, unless otherwise indicated.
2. Bullnose Bead: Use at outside corners.
3. LC-Bead: Use at exposed panel edges.
4. L-Bead: Use where indicated.
5. U-Bead: Use at exposed panel edges.

D. Aluminum Trim: Install in locations indicated on Drawings.

3.5 FINISHING GYPSUM BOARD

A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.

B. Prefill open joints, rounded or beveled edges, and damaged surface areas.

C. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.

D. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840:

1. Level 1: Ceiling plenum areas, concealed areas, and where indicated.

2. Level 4: At panel surfaces that will be exposed to view, receiving flat paints.

    a. Primer and its application to surfaces are specified in Section 099123 "Interior Painting."

3. Level 5: At panel surfaces that will be exposed to view, receiving gloss, or semi-gloss enamels.

    a. Primer and its application to surfaces are specified in Section 099123 "Interior Painting."

3.6 PROTECTION

A. Protect adjacent surfaces from drywall compound and promptly remove from floors and other non-drywall surfaces. Repair surfaces stained, marred, or otherwise damaged during drywall application.

B. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.

C. Remove and replace panels that are wet, moisture damaged, and mold damaged.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 092900

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Resilient base.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For each exposed product and for each color and texture specified, not less than 12 inches long.

1.4 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Furnish not less than 10 linear feet for every 500 linear feet or fraction thereof, of each type, color, pattern, and size of resilient product installed.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store resilient products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F or more than 90 deg F.

1.6 FIELD CONDITIONS

A. Maintain ambient temperatures within range recommended by manufacturer, but not less than 70 deg F or more than 95 deg F, in spaces to receive resilient products during the following time periods:

1. Forty-eight (48) hours before installation.
2. During installation.
3. Forty-eight (48) hours after installation.

B. After installation and until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than 55 deg F or more than 95 deg F.

C. Install resilient products after other finishing operations, including painting, have been completed.

1.7 WARRANTY

A. Provide manufacturer's written limited warranties against defects in materials and against premature wear prior to warranty expiration for the materials as follows:

1. Wall Base: Two (2) years.

PART 2 - PRODUCTS

2.1 REGULATORY REQUIREMENTS

A. Conform to Class I rating with a flame spread of 0 to 25 in accordance with the requirements of Class A material in accordance with ASTM E 84. Rubber products shall be Class I, 0.45 watts/sq. cm in accordance with ASTM E 648 and NFPA 255.

2.2 THERMOPLASTIC-RUBBER BASE

A. Basis of Design Manufacturer: Johnsonite.

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Burke Mercer Flooring Products, Division of Burke Industries Inc.
2. Roppe Corporation, USA.
3. Substitutions: Under provisions of Section 012500 “Substitution Procedures”.

C. Product Standard: ASTM F 1861, Type TP (rubber, thermoplastic).

1. Group: I (solid, homogeneous).
2. Style and Location:

a. Style B, Cove, location as indicated in Drawings.

D. Lengths: Cut lengths 48 inches long or coils in manufacturer's standard length.

E. Thickness: 0.125 inch.

F. Size: 6 inches.

G. Color and Texture: As selected by Architect and Owner from Manufacturer’s full range of standard colors and textures.

H. Outside Corners: Preformed.

I. Inside Corners: Preformed.

J. Locations: At both sides of all new or repaired gypsum board walls.

2.3 INSTALLATION MATERIALS

A. Trowelable Leveling and Patching Compounds: Latex-modified, Portland cement based or blended hydraulic-cement-based formulation provided or approved by resilient-product manufacturer for applications indicated.

B. Adhesives: Water-resistant type recommended by resilient-product manufacturer for resilient products and substrate conditions indicated.

1. Adhesives shall have a VOC content of 50 g/L or less except that adhesive for rubber stair treads shall have a VOC content of 60 g/L or less.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

1. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of resilient products.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

1. Installation of resilient products indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.

B. Concrete Substrates for Resilient Base and Accessories: Prepare horizontal surfaces according to ASTM F 710.

1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.

2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
3. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrate alkalinity falls within range on pH scale recommended by manufacturer in writing, but not less than 5 or more than 9 pH.
4. Moisture Testing: Proceed with installation only after substrates pass testing according to manufacturer's written recommendations, but not less stringent than the following:

    a. Perform anhydrous calcium chloride test according to ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in twenty-four (24) hours.
    b. Perform relative humidity test using in situ probes according to ASTM F 2170. Proceed with installation only after substrates have maximum seventy-five percent (75%) relative humidity level.

C. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.

D. Do not install resilient products until they are the same temperature as the space where they are to be installed.

1. At least forty-eight (48) hours in advance of installation, move resilient products and installation materials into spaces where they will be installed.

E. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient products.

3.3 RESILIENT BASE INSTALLATION

A. Comply with manufacturer's written instructions for installing resilient base.

B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.

C. Install resilient base in lengths as long as practical without gaps at seams and with tops of adjacent pieces aligned.

D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.

E. Do not stretch resilient base during installation.

F. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient base with manufacturer's recommended adhesive filler material.

G. Preformed Corners: Install preformed corners before installing straight pieces.

3.4 CLEANING AND PROTECTION

A. Comply with manufacturer's written instructions for cleaning and protecting resilient products.

B. Perform the following operations immediately after completing resilient-product installation:

1. Remove adhesive and other blemishes from exposed surfaces.

C. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.

D. Cover resilient products subject to wear and foot traffic until Substantial Completion.

END OF SECTION 096513

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes surface preparation and the application of paint systems on the following interior substrates:
   1. Steel.
   2. Concrete Masonry Unit.
   3. Wood.
   4. Gypsum board.

B. Related Requirements:

   1. Section 092900 "Gypsum Board" for priming and painting gypsum board substrates with primers and paints specified in this Section.

1.3 DEFINITIONS

A. Gloss Level 1: Not more than 5 units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.

B. Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.

C. Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product. Include preparation requirements and application instructions.

B. Samples: For each type of paint system and in each color and gloss of topcoat.

   1. Submit Samples on rigid backing, 8 inches square.
   2. Step coats on Samples to show each coat required for system.
   3. Label each coat of each Sample.
   4. Label each Sample for location and application area.

C. Product List: For each product indicated, include the following:

1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
2. Printout of current "MPI Approved Products List" for each product category specified in Part 2, with the proposed product highlighted.
3. VOC content.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Paint: Five percent (5%), but not less than 1 gal. of each material and color applied.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F (7 deg C).

1. Maintain containers in clean condition, free of foreign materials and residue.
2. Remove rags and waste from storage areas daily.

1.7 FIELD CONDITIONS

A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F (10 and 35 deg C).

B. Do not apply paints when relative humidity exceeds eighty-five percent (85%); at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis of Design: Sherwin-Williams Company (The)

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Behr.
2. Benjamin Moore.
3. Substitutions: As permitted under Specification Section 012500 “Substitution Procedures”.

2.2 PAINT, GENERAL

A. MPI Standards: Provide products that comply with MPI standards indicated and that are listed in its "MPI Approved Products List."

B. Material Compatibility:

1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

C. VOC Content: Products shall comply with VOC limits of authorities having jurisdiction and, for interior paints and coatings applied at Project site, the following VOC limits, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

1. Flat Paints and Coatings: 50 g/L.
2. Nonflat Paints and Coatings: 150 g/L.
3. Dry-Fog Coatings: 400 g/L.
4. Primers, Sealers, and Undercoaters: 200 g/L.
5. Anticorrosive and Antirust Paints Applied to Ferrous Metals: 250 g/L.
6. Zinc-Rich Industrial Maintenance Primers: 340 g/L.
7. Pretreatment Wash Primers: 420 g/L.
8. Floor Coatings: 100 g/L.
9. Shellacs, Clear: 730 g/L.
10. Shellacs, Pigmented: 550 g/L.

D. Colors: As selected by Architect and Owner from manufacturer’s full range.

2.3 BLOCK FILLERS

A. Block Filler, Latex, Interior/Exterior: **MPI #4**.

2.4 PRIMERS/SEALERS

A. Primer Sealer, Latex, Interior: **MPI #50**.

B. Primer Sealer, Alkyd, Interior: **MPI #45.**

2.5 METAL PRIMERS

A. Primer, Rust-Inhibitive, Water Based: **MPI #107**.

2.6 WATER-BASED PAINTS

A. Latex, Interior, Flat, (Gloss Level 1): **MPI #53**.

B. Latex, Interior, (Gloss Level 3): **MPI #52**.

C. Latex, Interior, Gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees): **MPI #114.**

D. Latex, Interior, Institutional Low Odor/VOC, (Gloss Level 3): **MPI #145**.

2.7 FLOOR COATINGS

A. Sealer, Water Based, for Concrete Floors: **MPI #99.**

B. Floor Paint, Latex, Low Gloss (Maximum Gloss Level 3): **MPI #60.**

2.8 SOURCE QUALITY CONTROL

A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure:

1. Owner will engage the services of a qualified testing agency to sample paint materials. Contractor will be notified in advance and may be present when samples are taken. If paint materials have already been delivered to Project site, samples may be taken at Project site. Samples will be identified, sealed, and certified by testing agency.
2. Testing agency will perform tests for compliance with product requirements.
3. Owner may direct Contractor to stop applying coatings if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two (2) paints are incompatible.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:

1. Concrete: Twelve percent (12%).

2. Masonry (CMU): Twelve percent (12%).
3. Wood: Fifteen percent (15%).
4. Gypsum Board: Twelve percent (12%).

C. Gypsum Board Substrates: Verify that finishing compound is sanded smooth.

D. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

E. Proceed with coating application only after unsatisfactory conditions have been corrected.

1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates indicated.

B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.

C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.

D. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.

E. Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces or mortar joints exceed that permitted in manufacturer's written instructions.

F. Steel Substrates: Remove rust, loose mill scale, and shop primer, if any. Clean using methods recommended in writing by paint manufacturer but not less than the following:

1. SSPC-SP 2, "Hand Tool Cleaning."
2. SSPC-SP 3, "Power Tool Cleaning."

G. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.

H. Wood Substrates:

1. Sand surfaces that will be exposed to view, and dust off.
2. Prime edges, ends, faces, undersides, and backsides of wood.

3.3 APPLICATION

A. Apply paints according to manufacturer's written instructions and to recommendations in "MPI Manual."

1. Use applicators and techniques suited for paint and substrate indicated.
2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
5. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.

B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.

C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

E. Painting Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:

1. Paint the following work where exposed in equipment rooms:

a. Equipment, including panelboards.
b. Uninsulated metal piping.
c. Uninsulated plastic piping.
d. Pipe hangers and supports.

e. Metal conduit.
f. Plastic conduit.
g. Tanks that do not have factory-applied final finishes.
h. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.

2. Paint the following work where exposed in occupied spaces:

a. Equipment, including panelboards.
b. Uninsulated metal piping.
c. Uninsulated plastic piping.
d. Pipe hangers and supports.
e. Metal conduit.
f. Plastic conduit.
g. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
h. Other items as directed by Architect.

3. Paint portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets that are visible from occupied spaces.

3.4 FIELD QUALITY CONTROL

A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.

1. Contractor shall touch up and restore painted surfaces damaged by testing.
2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

3.5 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.6 INTERIOR PAINTING SCHEDULE

A. Steel Substrates:

1. Institutional Low-Odor/VOC Latex System:

a. Prime Coat: Primer, rust-inhibitive, water based **MPI #107**.
b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
c. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3), **MPI #145**.
d. Colors: Match existing.

B. Concrete Masonry Unit Substrates:

1. Latex System:

a. Prime Coat: Primer sealer, latex, interior, **MPI #50**.
b. Prime Coat: Latex, interior, matching topcoat.
c. Intermediate Coat: Latex, interior, matching topcoat.
d. Topcoat: Latex, interior, (Gloss Level 3), **MPI #52**.
e. Colors: Match existing.

C. Wood Substrates, Traffic Surfaces:

1. Latex Floor Paint System:

a. Prime Coat: Primer sealer, alkyd, interior**, MPI #45**.
b. Topcoat: Floor paint, latex, low gloss (maximum Gloss Level 3)**, MPI #60**.
c. Colors: Match existing.

D. Gypsum Board Substrates:

1. Latex System:

a. Prime Coat: Primer sealer, latex, interior, **MPI #50**.
b. Prime Coat: Latex, interior, matching topcoat.
c. Intermediate Coat: Latex, interior, matching topcoat.
d. Topcoat: Latex, interior, flat, (Gloss Level 1), **MPI #53**, at ceilings.
e. Topcoat: Latex, interior, (Gloss Level 3), **MPI #52**.
f. Colors: Match existing.

END OF SECTION 099123

PART I –GENERAL

1.01 DESCRIPTION

A. Specification sections, general conditions, supplemental general conditions and drawings are to be considered integral parts of this Contract.

B. Where items of the General Conditions are repeated in another Section of the Specifications, it is merely intended to qualify or to call particular attention to them. It is not intended that any other parts of the General Conditions be omitted if not repeated.

C. This Section applies equally and specifically to all Contractors supplying labor and/or equipment and/or materials as required under each Section of this Division.

1.02 INTENT

A It is the intent of the Drawings and Specifications to call for finished work, tested and ready for operation.

B. Any apparatus, appliance, material or work not shown on the Drawings but mentioned in the Specifications, or vice versa, or any incidental accessories necessary to make the work complete and perfect in all respects and ready for operation, even if not particularly specified, shall be furnished, delivered and installed under their respective Division without additional expense to UCHC.

1.03 DEFINITIONS FOR DIVISION 260000

A. The word "Subcontractor" or "Contractor" means specifically the electrical subcontractor working under this Division. Other Contractors are specifically designated "Plumbing Subcontractor", "General Contractor" and so on. Prime contractor shall be responsible for coordination and execution of all work.

B. The word "install" shall mean set in place complete with all mounting facilities and connections as necessary to be ready for normal use.

C. The words "furnish" or "supply" shall mean purchase, deliver to, and off-load at the job site, all ready to be installed including where appropriate all necessary interim storage and protection.

D. The word "provide" shall mean furnish (or supply) and install (including configuring for the application) as necessary.

E. The words" approved equal," means any product, which, in the opinion of the

UCHC Agent, is equal in quality, arrangement, appearance, and performance to the product specified.

F. The word "wiring" shall mean cable assembly, raceway, conductors, fittings, hangers, tray and any other necessary accessories to make a complete wiring system.

G. The word "product" shall mean any item of equipment, material, fixture, apparatus, appliance or accessory installed under this Division.

1.04 SURVEYS AND MEASUREMENTS

A. **Before submitting** his Bid, the Electrical Contractor shall visit the site and shall become thoroughly familiar with all conditions under which his work will be installed as he will **be held responsible** for any assumptions, omissions or errors he makes as a result of his failure to become familiar with the site and the Contract Documents.

B. Should the Electrical Contractor discover any **discrepancies** between actual measurements and those indicated which prevent following good practice or the intent of the Drawings and Specifications; he shall notify the UCHC Agent and shall not proceed with that work until he has received instructions from the UCHC Agent.

1.05 CODES AND STANDARDS

A. The Codes and Standards listed below apply to all electrical work. Wherever Codes and/or Standards are mentioned in these Specifications or drawings, the **latest applicable** edition or revision shall be followed, including but not limited to:
IES - Illuminating Engineering Society Lighting Handbook
International Fire Code
Connecticut State Building Code
National Electrical Code - NEC
Underwriters Laboratories, Inc. - UL
National Fire Protection Association - NFPA
Factory Mutual Insurance Company - FM
NEMA - Standards

B. All materials furnished and all work installed shall comply with the rules and recommendations of the NFPA, the requirements of the local utility companies, the recommendations of the fire insurance rating organization having jurisdiction and with the requirements of all Governmental departments having jurisdiction. All materials and equipment **shall be listed** by Underwriter's Laboratories Inc., or equivalent organization, and bear the approval label.

1.06 ACCESSIBILITY:

A. Install all work with proper facilities for access for inspection, operation, maintenance and repair. Minor changes from the drawings will be permitted in order to accomplish this, but major changes shall not be made without prior written approval from the UCHC Agent.

B. Furnish and install access doors where products requiring access are installed behind plaster or gypsum board finishes.

C. Group as many items as practicable together to minimize the number of access doors required. Direct and be responsible for the correct location of all access doors required for the work of this Division.

D. Access doors shall be the flush type, ready to install and a minimum of 18" by 18". They shall be constructed of 14 gauge or heavier steel with radial safety corners and finished with zinc chromate coating. All doors shall have heavy-duty concealed hinges of the pin-less type to insure no rusting or wearing. All doors shall have sturdy screwdriver locks. In public areas less than 7' AFF doors shall have cylinder locks. Where clearances do not allow doors to swing open, they shall have double butt hinge or snap-on clips for quick removal.

1.07 RECORD DRAWINGS

A. Maintain a record set of Electrical Drawings at the job site on which any changes in location of equipment and conduits shall be recorded. These shall be clearly marked on a clean set of drawings at the completion of work for Record Drawings and turned over to the UCHC Agent.

1.08 MATERIALS AND WORKMANSHIP

A. All materials and equipment required for the work, except as otherwise specified in contract drawings or specifications, shall be new and of first-class quality and shall be furnished, delivered, installed and finished in every detail and so selected and arranged as to fit properly into the building spaces. Where no specific kind or quality of material is given, a first-class standard article as accepted by the UCHC Agent shall be furnished.

B. The Electrical Contractor shall furnish the services of an experienced foreman who shall be constantly in charge of the installation of the work, together with all skilled workmen, helpers and labor required to unload, transfer, erect, connect, adjust, start, operate and test each system.

C. Unless otherwise specifically indicated on the Drawings or in the Specifications, all equipment and materials shall be installed with the acceptance of the UCHC Agent and in accordance with the recommendations of the manufacturer. This includes the performance of such tests as the manufacturer recommends.

D. All work shall be of a quality consistent with good trade practice and shall be installed in a neat, workmanlike manner. The UCHC Agent reserves the right to reject any work, which, in his opinion, has been installed in a substandard, dangerous or unserviceable manner. The Electrical Contractor shall replace said work in a satisfactory manner at no extra charge to the Owner.

E. The contractor shall clean the area and equipment when completed. This shall include, but not be limited to, vacuuming, touchup painting, etc.

1.09 PRELIMINARY OPERATION

A. Operate electrical systems with required supervision for at least two full days prior to substantial completion. Make necessary adjustments and check proper operation.

1.10 TESTING:

A. Perform the required tests in the presence of the UCHC Agent and representative of the Authority Having Jurisdiction. Provide minimum of (10) working days notice of testing to all parties concerned. Provide all test equipment.

B. Furnish certification of satisfactory testing, signed by subcontractor's authorized representative countersigned where appropriate by the authority having jurisdiction.

C. All test equipment shall be calibrated by a recognized firm, sticker with date and reference # and in Date. All **testing and certification shall be complete** before any claim for completion will be considered.

1.11 OWNERS MANUAL:

A. **Thirty-days prior** to claim for completion submit 3 copies of the Operating & Maintenance Manual. Each binder of the manual shall be **titled (both on the front and edge),** 1" to 3" diameter 3-ring loose leaf and divided with Mylar tabbed separators by subject matter (lighting, panelboards, etc.). Each binder shall be less than **60% full** (1-inch binder shall have no more than 0.6 inch of filling).

B. **The manual shall contain** the following:
Table of Contents
Operating instructions
Maintenance instructions
Manufacturers catalog sheets
List of materials used on project
Service call list
Installation instructions packaged with equipment
Parts list for items replaced under regular maintenance
Guarantees and warrantees for each piece of equipment with the purchase order number, effective dates and the contact name and phone number.
8-1/2" x 11" and 11" x 17" wiring diagrams
Copy of panelboard indexes

1.12 TRAINING:

A. Furnish all necessary labor and services for the UCHC specified period to instruct the Owner's staff in the operation of all systems and equipment provided **prior to claim for completion.** Include the services of manufacturers' technical personnel to instruct the Owner in the use, adjustment and maintenance of systems. Instruction shall include sufficient demonstration of equipment and systems, explanation of furnished technical manuals and instruction in the use of any special tools or instruments so that the Owner will be fully conversant and knowledgeable of operating and maintenance procedures.

B. The training shall use the Owner's Manuals provided above. Copies of sections of the manual shall be provided to each trainee as required during the training.

1.13 DEMOLITION AND DISPOSAL

A. Deliver equipment requested to be saved by the UCHC agent to the UCHC Electrical Department. Everything else shall be disposed of or recycled, properly and legally.

B. Remove all raceway that will not be reused back to the contract boundary. Reused raceway must be brought up to UCHC 260550.

C. Remove all unused **wiring** back to the protection device.

D. Abandoned **cables shall be removed.** Cable that is not terminated at equipment and not identified for future use with a tag will be considered as abandoned.

E. Fire alarm component(s) shall not be removed or altered (covered) until coordinated through the UCHC fire department.

1.14 USE OF BUILDING:

A. The **building will be occupied** during the duration of this contract.

B. No work shall proceed until a **written schedule** is submitted to the UCHC Agent and his permission is obtained.

C. **Power shall not be affected** to areas outside the contract area without written UCHC approval. Approval entails at least one-week notification of the affected building occupants by UCHC.

D. Electrical closets may be used for temporary storage subject to following:
   1. Permission to use shall be obtained from Electrical through the UCHC agent

2. Nothing shall be within 3 feet of existing electrical equipment
3. No trash or empty boxes shall be in the closet, a box 10% full is empty
4. No loose paper shall be in the closet
5. No liquids shall be in the closet
6. No work shall be done in the closet
7. All items shall be removed before the job is completed

1.15 ENERGY SAVINGS

A. This contract shall take advantage of any and all CL&P Conservation and Load Management programs for “energy efficient technologies” and/or all State of Connecticut “state buildings program monies”.

1.16 CLEANLINESS

A. All equipment shall be cleaned both inside and outside of dust, dirt, etc to like new condition

B. All extra parts, components, paper, etc shall be removed from the area and inside of equipment

1.17 PRODUCT DATA SUBMITTALS

A. Product Data includes printed information such as manufacturer's installation instructions, catalog cuts, standard color charts, roughing-in diagrams and templates, standard wiring diagrams and performance curves. Where Product Data must be specially prepared because standard printed data is not suitable for use, submit as "Shop Drawings."

Mark each copy to show applicable choices and options. Where printed Product Data includes information on several products, some of which are not required, mark copies to indicate the applicable information.

B. Submittals shall be approved by the UCHC before procurement.

C. Submit 6 copies of each product to the UCHC. The UCHC will retain one, Electrical Engineer will retain one, Architect or primary designer will retain one, and three will be returned within two weeks marked with approval or modifications required.

PART 2 –PRODUCTS – Not Used

PART 3 –EXECUTION – Not Used

END OF SECTION

PART I - GENERAL

1.01 GENERAL PROVISIONS

It is the intent of this Standard to define design, product and installation criterion for basic materials and methods utilized in contract drawings and specifications. Requests of non-compliances to this document shall be requested in writing from the UCHC Agent prior to inclusion in contract drawings and specifications.

1.02 DESCRIPTION

Following is a table of contents for Parts 2 and 3 of this document:

PART 2 - PRODUCTS provides a description of:

PART 3 - EXECUTION provides a description of requirements and installation methods to be followed:

.

1.03 GENERAL REQUIREMENTS

A. All materials and equipment shall be new and of first-class quality.

B. The **nameplate** of a subcontractor, contractor or distributor shall **not be affixed** to any equipment.

C. All electrical equipment shall bear the Underwriters' Laboratories' **(UL) label or other NRTL label.**

D. **Relocatable power taps** shall not be used.

E. Space in electrical closets is at a premium, mounting locations in electrical closets shall be specifically approved by the UCHC agent **prior** to equipment being located

1.04 DESIGN REQUIREMENTS

A. Each feeder and branch circuit shall be **identified** on the construction drawings.

PART 2 - PRODUCTS (The following product references are those typically used at UCHC. Contractor shall refer to the contract drawings for specific products).

2.01 RACEWAYS

A. Electrical Metallic Tubing (EMT) - Couplings and connectors shall be **compression** type; indent screw or crimp type connectors are not acceptable. Tubing shall be 3/4 inch or larger.

B. Rigid Non-Metallic Conduit (RNM) -. All RNM Conduits shall be **Schedule 80** and 3/4 inch or larger.

C. Metal-Clad (MC) Cable – where MC is acceptable for use, only **galvanized armor** shall be used. Fittings to be screw type, not clip.

D. Armored Cable (AC) – when used in patient care areas this shall be AFC – model HCF-90 or approved equivalent.

E. Flexible Metallic Conduit (FMC) - Fittings shall be galvanized or **copper-free** aluminum type. Flexible Metallic Conduit shall be 1/2 inch or larger

F. Liquid tight Flexible Metallic Conduit - All **liquid tight** flexible metallic conduit shall be used with liquid tight fittings. The conduit shall be 1/2 inch or larger.

G. Wireways - The complete wireway shall be constructed of sheet metal finished with **rust inhibiting** phosphate coating and gray baked enamel finish. Wireway shall be furnished with a hinged cover, spring steel wire retainer, and without knockouts. The wireway shall be as manufactured by SquareD, General Electric or Cutler-Hammer.

H. No die cast fittings shall be used.

2.02 CIRCUIT BREAKERS

A. Branch circuit breakers shall be **adjustable trip electronic** bolt-on type with visible trip position.

B. All multi-pole breakers shall have a common trip. Single-pole breakers equipped with **handle ties** for multi-pole use shall not be used.

C. Circuit breakers used for controlling lighting circuits shall be UL rated for **switching duty**.

D. Circuit breakers shall be from one of the **manufacturers** listed on the contract documents.

E. Breakers provided for panels that do not have lockable doors shall be capable of being padlocked **without use of an adapter.**

2.03 WIRE AND TERMINATIONS

A. All building lighting and power conductors shall be rated at **600 Volts** and carry the appropriate UL label.

B. Black (A), red (B), blue(C) and white (neutral) shall be used for 208/120-Volt distribution systems.

C. Brown (A), orange (B), yellow (C) and white (neutral) shall be used for 480/277-Volt distribution systems.

D. Compression type terminals equivalent to T&B "Color Keyed" shall be used**. Bolted type** shall not be used.

E. Use THHN insulation for dry and 90°C maximum operating temperature applications unless otherwise specified or approved by UCHC Agent.

F. The grounding conductor for each isolated ground receptacle outlet shall be **green with a stripe**. A different colored stripe shall be used for each receptacle outlet.

G. Wire not in a raceway shall be UL listed as **plenum cable**.

H. Wire shall be no smaller than the following minimum sizes:

1. Lighting and Power Wiring - #12 AWG with 600-Volt insulation

2. Control Wire up to 50 Volts - stranded #16 AWG with 600-Volt insulation

3. Control Wire at l20Volts –stranded #12 AWG with 600-Volt insulation

Exceptions: Wiring in compliance with NEC Article 725.

2.04 SAFETY SWITCHES

A. Safety switches shall be UL listed and of the **heavy-duty** (TH) fused or (THN) non-fused type as manufactured by General Electric, Square D or Cutler-Hammer. They shall be lockable in the off position.

B. The switches shall be in enclosures suitable for the environment in which they will be installed. Enclosures used out doors shall be stainless steel or non-metallic.

2.05 FUSES – No Standard

2.06 ENCLOSURES

A. Non-flush mounted units shall be fabricated of Code-gauge steel meeting or exceeding the requirements of the NEC. Units shall have a gray, baked enamel finish and be provided with knockouts for the size of the raceway to which they are connected.

C. Flush mount enclosures to be recessed in finished walls shall be constructed of Code-gauge steel, finished with gray, baked enamel and furnished with conduit knockout holes and flush combination trim cover and door assembly at least two inches higher and two inches wider than the box dimensions. The door shall be furnished with a continuous, concealed-type hinge and lockable panelboard type latches.

D. Enclosures used outdoors shall be stainless steel or non-metallic.

2.07 OUTLET AND JUNCTION BOXES

A. Boxes and accessories shall be made from 14-gauge hot-rolled steel and protected from rust and corrosion by zinc galvanizing. Boxes and component parts shall be as manufactured by Raco, Steel City or Appleton.

B. Where conduit is exposed boxes shall be **drawn-type** with covers to fit devices used.

C. Solid gang boxes shall be used; **no "built-up" boxes** shall be used.

D. **M**inimum box size shall be **4 inches square**.

E. **Extension boxes or rings** to extend a box are not permitted.

2.09 FIRE-STOPS AND WATER SEALS

A. Fire stop compound shall be a UL approved sealant with a **3-hour** rating.

B. **Water seals** for conduits entering building shall be provided and installed by the Electrical Contractor.

PART 3 - EXECUTION

GENERAL **(Reference** sections 1.03 General Requirements and 1.04 Design Requirements for addition information)

A. The Contractor shall **coordinate** his work with other trades involved so that exact locations may be obtained for all switches, outlets, apparatus, appliances and wiring.

B. Electrical equipment, such as junction boxes, pull boxes, controls and apparatus shall be installed **accessible**.

C. The Electrical Contractor shall seal conduits passing into the building **watertight**.

D. A-B-C type **wiring arrangement** (left-to-right, top-to-bottom, and front-to-rear) shall be used throughout.

E. Fuses shall be installed such that the size is readily **visible**.

F. Provide a label in a visible location near the fuseholder indicating UL **fuse class and size**.

3.02 RACEWAYS

A. **Application**:

- Outdoors – use Rigid Non-metallic Conduit except:
  - Concealed or above ground – use Rigid Metal Conduit
  - Where not subjected to damage and at least 10 feet above ground level use rigid non-metallic conduit schedule 80 (RMC).
  - Underground use rigid non-metallic conduit schedule 80 (RMC).
  - When connecting to equipment - use Liquid tight Flexible Metal Conduit (LFMC)
- Indoors in **patient care areas** - use Electrical Metallic Tubing, except:
  - In exposed **finished** areas use metal surface raceway.
  - When necessary for fishing in concealed spaces Armor Clad Cable (AC) may be used when approved by the UCHC agent. Metal Clad (MC) cable shall **NOT** be used
  - Up to a 6 foot AC cable whip shall be used for luminaires to lighting junction box. Luminaires shall not to be "**daisy chained**".

- Indoors **not in** patient care areas - use Electrical Metallic Tubing, except:
  - When connecting to equipment use Flexible Metal Conduit (FMC) or Liquid tight Flexible Metal Conduit (LFMC) not to **exceed 6 feet**.
  - In unfinished areas subject **to abuse** use Rigid Metal Conduit
  - In exposed **finished** areas use surface raceway as in 16110.
  - Up to a 6 foot MC whip may be used to tie in luminaires to a junction box. Luminaires are not to be "**daisy chained**".

B. Conduit shall be **concealed** below floors, above ceilings and in walls in all finished areas.

C. In this specification, the word **"conduit"**, without a modifying adjective, refers to Galvanized Rigid Steel (GRS), Intermediate Metallic Conduit (IMC), Electrical Metallic Tubing (EMT) and Rigid Non-Metallic Conduit – PVC.

D. Conduit shall be supported to prevent distortion and misalignment during wire pulls.
- Individual conduits shall be supported by means of adjustable **malleable** hangers placed not more than 8'-0" on center. Perforated pipe straps or wire shall **not be acceptable**.
- Conduit shall be grouped together and run parallel to building lines and as tight to the building structure as possible. Steel channel racks or struts with vertical hanger rods at both ends shall be used to support parallel runs. Provide space on the rack for **25 percent additional conduit**.
- Supports for conduit on concrete **masonry walls** may be attached to walls, with all-metal expansion shields.

E. Exposed conduit passing vertically through floor slabs shall be **grouped** together, and in no case shall the conduits block openings or work access.

F. Corrosion protection (cold galvanizing) shall be applied on field cut threads of rigid metal conduit. This corrosion protective compound must also be electrically conductive to maintain the effective ground-fault current path. Currently there is no product ("Zinc Rich Paint", ZRC) that is listed for this purpose, so a product that is recommended by the raceway manufactures shall be used and it shall be applied in accordance with the instructors of the compound manufacturer.

G. Conduits shall not be installed in **structural concrete floors or slabs**. All conduits installed below slabs shall be located in the sub-grade at 36" to permit a uniform thickness when the floor or slab is poured.

H. A minimum of 6-inch clearance shall be maintained between **conduit and piping**. A minimum of 12-inch clearance shall be maintained between conduit and heat sources such as steam pipes, flues or heating appliances.

I. All conduits shall be installed free of dents and be fished before pulling wires. All conduits shall be suitably protected against damage and the entrance of dirt and moisture during construction.

J. The ends of all conduits shall be cut square and **reamed**. Conduit connections to boxes shall be with malleable iron insulated bushings. Grounding bushings shall be provided at panel connections.

K. Conduit shall not cross between buildings except when necessary and pre-approved by the UCHC Agent.

L. UL approved **expansion couplings** shall be used when crossing building joints and to compensate PVC conduit for thermal expansion.

M. Conduit penetrations through walls, floors, and ceilings or between heated and unheated areas and laboratory animal use rooms shall be **sealed**.

N. Conduits passing through built-up roofs or waterproof membranes shall be installed with flashing and **pitch boxes** in order to provide watertight joints.

O. Pull boxes shall be installed as minimum after the equivalent of every **three (3) 90° bends**.

P. Particular care shall be paid to **drainage** for conduit runs. Wherever possible, conduit runs shall be installed so as to drain to one or both ends of the run. Where pockets or inverted loops are impossible to avoid, low points in the conduit shall be drilled to allow them to drain.

Q. Connections to motor frames shall have a **minimum** of 18 inches and a max of 6 feet of flexible metallic conduit with bonding jumper. Connections shall have UL listed grounding fittings.

R. Hydraulic one-shot conduit bender or factory bends shall be used for all **bends** in conduit larger than two (2") inches in size. Conduit bodies may be used to make changes in direction where elbows are not practical.

S. Seismic lateral restraints designed and constructed to resist horizontal movement in any direction shall be installed on **all suspended conduits** 2-1/2 inches in diameter or greater. Quantity and location of the lateral restraints shall be based on the conduit system layout and in general shall be installed at conduit bends, J-boxes and approximately every 20 feet along conduit runs. Seismic lateral restraints are not required for any piping suspended by individual hangers 12 inches or less in length from the top of the conduit to the bottom of the support for the hanger.

S. Wireway openings shall **face up if accessible for service**, and if that is not possible, to the side.

3.03 GROUNDING

A. EQUIPMENT GROUNDING CONDUCTOR **-** All raceways shall contain a separate grounding conductor. Conduit shall not be used as the sole means of grounding. Grounding conductors shall be stranded copper conductors with green insulation. Grounding conductors shall be installed in one continuous length **without splice**.

3.04 OUTLET BOXES AND ENCLOSURES

A. All boxes and enclosures shall be securely fastened to the building structure, not by the “wall board”, etc.

B. Recessed outlet boxes or plaster rings shall be set flush with face of finished wall, but **in no case set greater then 1/4 inch behind finished face** of wall.

C. Boxes and enclosures shall be located for **convenient** access for inspection or work.

3.05 WIRE AND TERMINATIONS

A. Each branch circuit shall have **its own grounded conductor (neutral)** wire back to the panel.

B. Splices for conductors or cables shall be kept to a minimum and made only in accessible splice boxes, junction boxes, outlet boxes or cabinets. The splice shall possess equivalent or better mechanical strength than the conductor. **No splice shall be pulled into raceway or made in raceway fittings**.

C. **Oxide-inhibiting** joint compound such as Penetrox or approved equivalent shall be used wherever there is a joint, bolted or compression, involving aluminum conductor.

D. Compression connectors shall be applied with special tools according to manufacturer’s recommendations. **Bolted** pressure connectors **shall not be used**

E. Wire in cabinets; panels, outlet boxes or equipment shall have sufficient length to make up circuit splices for extending circuits or connecting wiring termination devices. Minimum wire length shall be **six (6") inches.**

F. **Swab-out** all conduits and tubing before installing wires and cables and install no wires and cables before conduit systems are complete.

G. Only **one conductor** shall be installed under a screw terminal or clamp even if it is approved for 2 or more.

H. When more than one **grounded conductor (neutral)** is run in the same raceway each conductor shall be distinguished at both ends with an **identification** number.

I. Cable shall be tied at a minimum of every **four feet with a UL listed device.**

J. Cable shall be **tied to the structure** and **not** to other cabling, conduit, piping or ductwork.

K. Cable shall run **parallel and within 6 inches** of walls except when connecting to a device.

L. Horizontal runs of conduit or open cabling shall be a **minimum of 6 inches** above the finished ceiling

M. **Conduit shall be used for the following cabling applications**:

- Voltages equal to or greater than 50 volts in Buildings C, F& H. (Exception: luminaire in all areas may use up to 6 foot whips)
- Life support, patient care and critical equipment such as blood bank refrigeration, medical gas alarms, vacuum pumps, critical care communication systems, etc.
- Life safety systems such as egress lighting and exit signage.
- All wiring in anesthetizing areas.
- Fire and smoke alarm system.

N. **Open cabling (conduit is not used or required from 3.06M.) is permitted only as follows:**

- Cable shall be used for less than 50 volts
- Cable shall be UL listed CMP.
- **Before open cabling is designed** into new installations the UCHC Agent shall approve the proposal per Facilities Management Policy 551.00.

3.06 SLEEVES AND INSERTS

A. **Sleeve through all outside walls** with cast iron with intermediate, integral flange. Sleeves shall be set with ends flush with each face of the wall. The space between sleeve and conduit shall be made watertight with Link-Seal compressed rubber sleeves as manufactured by Thunderline Corporation or an approved equal.

B. **Sleeve through all concrete floors and interior masonry walls** with Schedule 40 black steel pipe set flush with finished walls or ceiling surfaces, but extending six (6") inches above the finished floor.

C. **Sleeve through all interior partitions** with 22-gauge galvanized sheet steel set flush with finished surfaces or partitions.

3.07 FIRE-STOPS, SEALS AND SPECIAL FITTINGS

A. All wires, cables and conduit, which pass through floors, ceilings and firewalls, shall be **sleeved** (see 3.07) and fire stopped according to the manufacturers directions.

B. **Expansion type fittings shall be used** on all conduit runs subject to expansion and contraction due to temperature change and building movement. Deflection and expansion type fittings shall be installed where conduit crosses building expansion joints.

3.08 IDENTIFICATION SYSTEMS (ref. NEC 110.22)

Generally, every device or piece of equipment that is powered by, distributes or controls electricity shall be labeled with identification of where it can be turned on/off and what it controls.

A CIRCUIT BREAKER

1. Panelboard indexes shall define the **room number** and device protected for each circuit breaker.

2. The indexes shall be neatly **typed**

B. CONDUCTOR

1. Plastic-coated wire markers of the wraparound, self-adhesive type with legible numbers, letters and symbols shall be used to identify **all conductors**.

2. The ungrounded and grounded conductors for each branch circuit shall have the same identification code.

3. All conductors shall be marked at the time wires are **pulled in** and tested; markers shall not be removed for any reason.

4. All wire and cables shall be labeled with wire markers in **all junction** boxes, panels, switchgear, etc.

C. EQUIPMENT IDENTIFICATION

1. Nameplates designating the **power source** and the equipment being controlled and its location shall be furnished and installed on all electrical or electrically powered equipment.

2. Nameplates shall consist of black (red for emergency) **Lamacoid**, or equal pre-approved by the UCHC Agent, with 3/8-inch white letters.

3. Nameplates shall be securely attached in place by **sheet metal screws**.

3.9 SAFETY SWITCHES

A. Each motor, motor controller and other hardwired piece of electrical equipment shall have a safety switch which is within **sight** of the equipment and capable of disconnecting the equipment from the circuit. Controllers or starters which have an integral disconnect switch, as in the case of combination starter/disconnect units, are not required to have a separate disconnect means. Motors or other equipment, which have remote-mounted controllers, shall have a separate safety switch as close as possible and within sight of the motor or equipment served.

B. Where more than one motor is connected to a single-branch feeder, **each motor** shall have a disconnect switch even if within sight of the feeder branch breaker.

C. **Install** fuses in fusible disconnect switches. Install fuses with **label oriented** such that manufacturer, type and size are easily readable. Apply permanent **adhesive label** inside door indicating NEMA fuse class and size required.

D. The Electrical Contractor shall furnish and install disconnect switches for motors and/or power equipment to meet applicable Code requirements. Disconnect switches, unfused or fusible, for motors **1/2 HP** and larger shall be as specified in this Section. Disconnect switches for motors under 1/2 HP shall be of the thermal trip, toggle switch type for the motor involved.

E. Surface-mounted disconnect switches shall be vertically **mounted** on ¾" fire-rated plywood painted with 2 coats of fire-retardant light gray paint.

3.10 LOAD BALANCE

A. The Electrical Subcontractor shall balance the loads **within 10%** of the panelboard OCP feed. on the three phases in all electrical switchgear and provide the panel loading data to the UCHC Agent in writing.

3.11 WORKMANSHIP

A. The Electrical Contractor shall at all times have someone on the project **authorized** to make decisions and receive instructions exactly as if the Contractor himself were present.

B. All work shall be done and all equipment shall be installed in strict accordance with the requirements of all applicable codes and UCHC Standards. Where Code requirements exceed those shown on the Drawings and in the Specifications, Code requirements shall prevail.

3.12 INSPECTION AND ACCEPTANCE TESTS --- **all testing shall be done with the UCHC agent present 3 days following written notification.**

A. All installations shall be available for inspection by UCHC during installation and at completion.

1. An **interim inspection** shall be done by the UCHC Agent before electrical wiring is covered by wallboard, ceiling, etc.
2. An open **panelboard inspection** shall be done once all of the wiring is done and the index and labeling is completed.
3. At the time of the **final inspection** all devices and equipment installed, labeled and properly operating ready for acceptance testing.

B. The contractor shall test each **feeder circuit** for an insulation resistance of not less than 0.5 megohms when tested with a 500 VDC potential between conductors and between conductors and grounds at ambient temperature.

END OF SECTION

PART 1 - GENERAL

A. Procured electrical equipment shall comply with this specification.

B. This specification applies to all electric powered facility equipment and any associated motors, controls, safety switches and starters that is:
- Supplied with the equipment but stands alone.
- Internal to equipment.
- Supplied independently.

C. This specification may be used as a guideline for other than facility equipment.

PART 2 - PRODUCT

2.01 EQUIPMENT

A. Equipment with a nameplate rating of less than 16 amps may operate on 120 +/- 10% volts.

- Equipment that draws more power shall operate on 480+/-10% Volt 3-phase power if it is available.
- If 480 is not available then operate on 208+/-10% Volt 3-phase or 2-phase if the current is less than 10 amps. All refrigeration equipment and other equipment with capacitance start motors operating on 208 volts shall be provided with a buck/boost transformer for the motor(s).

B. Equipment shall have only one power source. Equipment shall be equipped with internally derived 120 VAC control power where required.

C. The equipment shall be labeled with the panel and branch circuit designation nameplates. Nameplates shall be black (red for emergency) Lamacoid with 3/8-inch white letters designating the power source. Nameplates shall be securely attached in place by sheet metal screws.

D. Equipment to be UL listed as a system

2.02 CONTROL

A. Equipment shall automatically restart when power is restored after a power interruption. Alarms shall be automatically reset after restart.

B. Equipment shall have a **HAND – OFF - AUTOMATIC** selector switch in the enclosure cover or other appropriate location if it will be remotely controlled.

2.03 MOTORS --- (provide the following if optional)

A. Motors 1 HP and larger shall be **Premium Efficient** three phase induction motors, open drip proof (ODP) or totally enclosed fan cooled (TEFC). Totally enclosed fan cooled (TEFC) shall be used in all damp, wet or outdoor locations.

B. Provide motors that **meet the qualifying efficiency levels** established by the Northeast Premium-Efficiency Motor Initiative. **UCHC will apply for and retain the rebate** - the contractor or supplier shall provide the documentation required for the rebate. In this document, **Premium Efficient motors shall refer to qualifying motors** as defined above.

C. General Electric, U S Motor or Baldor shall manufacture all motors.

D. All motors shall have a service factor of **1.15** or greater.

E. All motors 1HP and greater shall have **Class F** insulation.

F. The motors used with **variable frequency drive**s shall be designed for use with variable frequency.

G. Where there are lag/lead motors each motor shall have a safety switch to permit lockout/tag out of either motor to work on it while the other one is powered. This shall be interlocked with the motor selection logic to prevent the process from going down.

H. Lag/lead variable speed drives and motors shall be supplied as independent systems – two motors and two drives. Each system shall have safety switches to permit lockout/tag out of either system to work on it while the other one is powered. This shall be interlocked with the system selection logic to prevent the process from going down.

I. Motor Voltage

- Motors smaller than 1HP may operate on single phase 120 +/-10% volts.
- Motors 1HP and larger and located in the **machine rooms shall operate on 480+/-10%** Volt 3-phase power.
- Motors 1 HP and larger and located in **labs, offices and clinical areas shall operate on 208+/-10% Volt** 3-phase or 2 phase if the phase current is less than 10 amps. Motors operating on 208 shall be provided with **buck/boost** transformers if they power compressors unless specifically eliminated in writing by the UCHC Agent.

2.03 MOTOR PROTECTION -- (provide the following if optional)

A. General Electric, Square D, Cutler-Hammer, Furnas or Allen Bradley shall manufacture the motor starter.

B. **Combination starters** shall be used in-lieu of a separate disconnect and protection.

C. Motor starters shall be **NEMA** rated and be suitable for the required load, duty and voltage.

D. Motor starters shall typically be class **20** and rated for type **2** coordination.

E. The motor overload protection shall be **compensated** for ambient temperature to 140°F for indoor locations and 170°F for outdoor locations.

F. Motor starters shall be equipped with **internally derived** 120 VAC control circuits where required.

G. Motor starters shall have one (1) set of **auxiliary** normally open / normally closed contacts.

H. Motor starters shall be mounted in a NEMA enclosure suitable for the environment in which they are located. Outside installation shall be NEMA 4 stainless steel enclosure. Motor starters shall be **flush mounted** in finished areas.

I. Three-phase motors less than 200HP and started less than three times a day or less than twice an hour may be furnished with an across-the-line motor starter. The UCHC agent shall specifically approve starters for all other applications in writing.

2.04 SAFETY SWITCH -- (provide the following if optional)

A. General Electric, Square D, Cutler-Hammer or ITE shall manufacture the safety switch.

B. Safety switches shall be heavy duty; **NEMA** rated and be suitable for the load, duty and voltage.

C. Safety switches shall be mounted in a NEMA enclosure suitable for the environment in which they are located. Outside installation shall be NEMA 3R. Motor starters shall be **flush mounted** in finished areas.

D. The safety switch shall be lockable in the OFF position.

2.04 CONTROL CONSOLE

ENCLOSURE

A. The enclosure shall be one freestanding enclosure consisting of two NEMA rated compartments

B. The Service compartment shall be a NEMA rated compartment that houses the main service power components and the motor starter components.

C. The Control compartment shall be rated compartment the houses all controls associated with the panel. The maximum voltage within this compartment is to be 120vac.

D. All compartments shall be fabricated as one complete unit with singular common separation walls resulting in one complete enclosure. The NEMA Type rating integrity of each compartment shall be maintained at all times from the factory manufactured enclosure through final installation.

E. The reduction of the Arc Flash potential shall be by isolating potential of 480 volts to the separate compartment

F. The Control compartment only contains control voltage (maximum of 120vac) and be touch safe. Minimal Personnel Protection Equipment (PPE) is required for operators and maintenance personnel. .

G. Electrical schematic shall be permanently affixed to inside of the outer door of the Control and MCC compartments. The schematic shall resist water to prevent removal and discoloration from heat, gasses, and ultraviolet light.

H. Each compartment shall be “Arc Flash” labeled separately

SERVICE COMPARTMENT COMPONENT AND REQUIREMENTS

A. The main circuit breaker shall be a thermal-magnetic molded case circuit breaker rated to 600V and sized according to the NEC and the load requirements of the control panel. It shall be mounted in the compartment with a lockable handle mechanism mounted on the Service compartment door.

B. Circuit breakers to be a thermal-magnetic molded case breaker

C. Control transformer primary circuit breaker shall be sized according to the rating of the primary windings of the control power transformer. The line side of

the circuit breaker shall be supplied from a tap from the load side of the main circuit breaker.

CONTROLS COMPARTMENT COMPONENT AND REQUIREMENTS

A. Control circuit breakers shall be located in the Control compartment and used to protect all 120 volt circuits. The 120 volt circuit breakers shall be supplied by the secondary side of the control transformer

B. Selector Switches - mounted on the Control compartment door.

a. There shall be an ON-OFF -AUTO switch for each individual pump. When in On, the pump shall run at a preset speed. In the Off position, the pump will neither run in the auto or manual mode. When in Auto, the pumps will cycle.

b. LED alarm lights shall be mounted on the Control compartment door. Push Buttons

c. An alarm test button shall be mounted on the Control compartment door. The alarm test button activates both the horn and strobe light to ensure proper operation.

d. An alarm silence button shall be mounted on the enclosure below the horn/light assembly. When pressed, the silence button will silence the audible alarm. The audible alarm will latch in silence mode until all alarms are reset and there are no longer any alarm conditions.

C. Audible and Visual Alarm

1. An alarm horn and red strobe beacon shall be mounted on the outside of the Control compartment and be activated on High-level. If the audible is silenced, the alarm light will continue to flash until the alarm condition is cleared. The red strobe beacon should be mounted in a way that it is visible from 180 deg. around the panel.

a. Lens Color: Red

b. Horn to be a minimal of 100dB

PART 3 - EXECUTION

3.01 GENERAL

A. The contractor shall verify all existing conditions applicable to this project, and shall include all costs and equipment necessary for the completion of the work, based on the existing conditions. The Contractor shall dispose of items not needed unless otherwise directed.

B. All electrical work shall comply with all local, State of Connecticut and National Electrical codes and UCHC specifications.

C. Minimum size power and lighting wiring conductors shall be # 12 AWG stranded copper with THHN-THWN insulation rated 600v color coded.

D. Raceways shall be EMT, 3/4 inch min size, unless noted otherwise, run concealed.

E. Each branch circuit conductor shall be tagged with a nonflammable Brady type B322 (or equivalent) sleeve marker at the panel board and at each device with the panelboard

and circuit designation. Device plates shall be labeled with the same designation. Directories in all affected panels shall be up-dated. Neatly type all updated information with room number and usage.

F. The contractor shall be responsible for any required floor core boring and wall penetrations.

G. All cables and wiring which pass through floors or fire walls shall be sleeved and packed tight with T&P FST -601 fire stop compound (3 hr. rating).

H. The exact location of devices and routing of conduits shall be determined in the field. At time of installation, the contractor shall review final location with UCHC Agent.

I. Coordinate working on any fire alarm devices, public address speakers, lighting energy saving devices, etc. with the UCHC Agent. Any devices or wiring that must be dismounted or disconnected during the course of the project shall be reinstalled or reconnected and restored to operating condition as soon as possible. When necessary, the contractor shall make provisions for temporary connection of such systems during the project timeframe.

J. Access and working space at the electric panel on the HVAC equipment shall comply with NEC 110.26.

K. Emergency system wiring shall be kept entirely independent of all other wiring and equipment and shall not enter the same raceway, cable, box or cabinet with other wiring per national electrical code article 700-9.

3.02 ELECTRICAL DEMOLITION

A. Replaced system components (conduit, wiring. Junction boxes. Etc.) shall be removed in their entirety unless noted and approved otherwise by the UCHC agent. Existing unused conduit shall be removed back to the nearest 8 x 8 or larger junction box, and wiring back to its source.

B. All removed electrical items and equipment shall be returned to UCHC electrical depart or disposed of as directed by the UCHC Agent.

3.03 DOCUMENTATION

A. Provide 3 copies of Operating and Maintenance/Service Manuals that contain:

1. Operating instructions
2. Maintenance instructions
3. Manufacturers catalog sheets
4. List of materials
5. Service call list
6. Parts list for items replaced under regular maintenance
7. Guarantees and warrantees with effective dates, contact name and phone number.
8. Wiring diagrams

3.04 TRAINING

A. Furnish all necessary labor and services to instruct the Owner's staff in the operation of equipment provided. Instruction shall include sufficient demonstration of equipment and systems, explanation of furnished technical manuals and instruction in the use of any special tools or instruments.

B. The training shall use the manuals provided above.

--- END OF SECTION ---

OVERCURRENT PROTECTIVE DEVICE COORDINATION STUDY26-0573-1

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes computer-based, overcurrent protective device coordination studies to determine overcurrent protective devices and to determine overcurrent protective device settings for selective tripping.

1. Study results shall be used to determine coordination of series-rated devices.

1.3 DEFINITIONS

A. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

B. One-Line Diagram: A diagram which shows, by means of single lines and graphic symbols, the course of an electric circuit or system of circuits and the component devices or parts used therein.

C. Protective Device: A device that senses when an abnormal current flow exists and then removes the affected portion from the system.

D. SCCR: Short-circuit current rating.

E. Service: The conductors and equipment for delivering electric energy from the serving utility to the wiring system of the premises served.

1.4 ACTION SUBMITTALS

A. Product Data: For computer software program to be used for studies.

B. Other Action Submittals: Submit the following after the approval of system protective devices submittals. Submittals may be in digital form.

1. Coordination-study input data, including completed computer program input data sheets.
2. Study and equipment evaluation reports.

3. Overcurrent protective device coordination study report; signed, dated, and sealed by a qualified professional engineer.

    a. Submit study report for action prior to receiving final approval of the distribution equipment submittals. If formal completion of studies will cause delay in equipment manufacturing, obtain approval from Architect for preliminary submittal of sufficient study data to ensure that the selection of devices and associated characteristics is satisfactory.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Coordination Study Specialist.

B. Product Certificates: For overcurrent protective device coordination study software, certifying compliance with IEEE 399.

1.6 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For the overcurrent protective devices to include in emergency, operation, and maintenance manuals.

1. In addition to items specified in Section 017823 "Operation and Maintenance Data," include the following:

    a. The following parts from the Protective Device Coordination Study Report:

        1) One-line diagram.
        2) Protective device coordination study.
        3) Time-current coordination curves.

    b. Power system data.

1.7 QUALITY ASSURANCE

A. Studies shall use computer programs that are distributed nationally and are in wide use. Software algorithms shall comply with requirements of standards and guides specified in this Section. Manual calculations are unacceptable.

B. Coordination Study Specialist Qualifications: Professional engineer in charge of performing the study and documenting recommendations, licensed in the state where Project is located. All elements of the study shall be performed under the direct supervision and control of this professional engineer.

C. Field Adjusting Agency Qualifications: An independent agency, with the experience and capability to adjust overcurrent devices and to conduct the testing indicated,

that is a member company of the InterNational Electrical Testing Association or is a nationally recognized testing laboratory (NRTL) as defined by OSHA in 29 CFR 1910.7, and that is acceptable to authorities having jurisdiction.

PART 2 - PRODUCTS

2.1 COMPUTER SOFTWARE DEVELOPERS

A. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:

1. CGI CYME.
2. EDSA Micro Corporation.
3. ESA Inc.
4. Operation Technology, Inc.
5. SKM Systems Analysis, Inc.

2.2 COMPUTER SOFTWARE PROGRAM REQUIREMENTS

A. Comply with IEEE 399.

B. Analytical features of fault-current-study computer software program shall include "mandatory," "very desirable," and "desirable" features as listed in IEEE 399.

C. Computer software program shall be capable of plotting and diagramming time-current-characteristic curves as part of its output. Computer software program shall report device settings and ratings of all overcurrent protective devices and shall demonstrate selective coordination by computer-generated, time-current coordination plots.

1. Optional Features:

a. Arcing faults.
b. Simultaneous faults.
c. Explicit negative sequence.
d. Mutual coupling in zero sequence.

2.3 PROTECTIVE DEVICE COORDINATION STUDY REPORT CONTENTS

A. Executive summary.

B. Study descriptions, purpose, basis and scope. Include case descriptions, definition of terms and guide for interpretation of the computer printout.

C. One-line diagram, showing the following:

1. Protective device designations and ampere ratings.
2. Cable size and lengths.
3. Transformer kilovolt ampere (kVA) and voltage ratings.
4. Motor and generator designations and kVA ratings.
5. Switchgear, switchboard, motor-control center, and panelboard designations.

D. Study Input Data: As described in "Power System Data" Article.

E. Protective Device Coordination Study:

1. Report recommended settings of protective devices, ready to be applied in the field. Use manufacturer's data sheets for recording the recommended setting of overcurrent protective devices when available.

    a. Phase and Ground Relays:

        1) Device tag.
        2) Relay current transformer ratio and tap, time dial, and instantaneous pickup value.
        3) Recommendations on improved relaying systems, if applicable.

    b. Circuit Breakers:

        1) Adjustable pickups and time delays (long time, short time, ground).
        2) Adjustable time-current characteristic.
        3) Adjustable instantaneous pickup.
        4) Recommendations on improved trip systems, if applicable.

    c. Fuses: Show current rating, voltage, and class.

F. Time-Current Coordination Curves: Determine settings of overcurrent protective devices to achieve selective coordination. Graphically illustrate that adequate time separation exists between devices installed in series, including power utility company's upstream devices. Prepare separate sets of curves for the switching schemes and for emergency periods where the power source is local generation. Show the following information:

1. Device tag and title, one-line diagram with legend identifying the portion of the system covered.
2. Terminate device characteristic curves at a point reflecting maximum symmetrical or asymmetrical fault current to which the device is exposed.
3. Identify the device associated with each curve by manufacturer type, function, and, if applicable, tap, time delay, and instantaneous settings recommended.
4. Plot the following listed characteristic curves, as applicable:

    a. Power utility's overcurrent protective device.

b. Low-voltage equipment circuit-breaker trip devices, including manufacturer's tolerance bands.
c. Transformer full-load current, magnetizing inrush current, and ANSI through-fault protection curves.
d. Cables and conductors damage curves.
e. Ground-fault protective devices.
f. Motor-starting characteristics and motor damage points.
g. Generator short-circuit decrement curve and generator damage point.
h. The largest feeder circuit breaker in switchboard.

5. Series rating on equipment allows the application of two series interrupting devices for a condition where the available fault current is greater than the interrupting rating of the downstream equipment. Both devices share in the interruption of the fault and selectivity is sacrificed at high fault levels. Maintain selectivity for tripping currents caused by overloads.
6. Provide adequate time margins between device characteristics such that selective operation is achieved.
7. Comments and recommendations for system improvements.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine Project overcurrent protective device submittals for compliance with electrical distribution system coordination requirements and other conditions affecting performance. Devices to be coordinated are indicated on Drawings.

1. Proceed with coordination study only after relevant equipment submittals have been assembled. Overcurrent protective devices that have not been submitted and approved prior to coordination study may not be used in study.

3.2 PROTECTIVE DEVICE COORDINATION STUDY

A. Comply with IEEE 242 for calculating short-circuit currents and determining coordination time intervals.

B. Comply with IEEE 399 for general study procedures.

C. The study shall be based on the device characteristics supplied by device manufacturer.

D. The extent of the electrical power system to be studied is the existing switchboard, generator and associated transfer switch.

E. Begin analysis at the service, extending down to the system overcurrent protective devices as follows:

1. To normal system low-voltage load buses where fault current is 10 kA or less.
2. Exclude equipment rated 240-V ac or less when supplied by a single transformer rated less than 125 kVA.

F. Study electrical distribution system from normal and alternate power sources throughout electrical distribution system for Project. Study all cases of system-switching configurations and alternate operations that could result in maximum fault conditions.

G. Transformer Primary Overcurrent Protective Devices:

1. Device shall not operate in response to the following:

   a. Inrush current when first energized.
   b. Self-cooled, full-load current or forced-air-cooled, full-load current, whichever is specified for that transformer.
   c. Permissible transformer overloads according to IEEE C57.96 if required by unusual loading or emergency conditions.

2. Device settings shall protect transformers according to IEEE C57.12.00, for fault currents.

H. Motor Protection:

1. Select protection for low-voltage motors according to IEEE 242 and NFPA 70.
2. Select protection for motors served at voltages more than 600 V according to IEEE 620.

I. Conductor Protection: Protect cables against damage from fault currents according to ICEA P-32-382, ICEA P-45-482, and protection recommendations in IEEE 242. Demonstrate that equipment withstands the maximum short-circuit current for a time equivalent to the tripping time of the primary relay protection or total clearing time of the fuse. To determine temperatures that damage insulation, use curves from cable manufacturers or from listed standards indicating conductor size and short-circuit current.

J. Generator Protection: Select protection according to manufacturer's written recommendations and to IEEE 242.

K. The calculations shall include the ac fault-current decay from induction motors, synchronous motors, and asynchronous generators and shall apply to low- and medium-voltage, three-phase ac systems. The calculations shall also account for the fault-current dc decrement, to address the asymmetrical requirements of the interrupting equipment.

1. For grounded systems, provide a bolted line-to-ground fault-current study for areas as defined for the three-phase bolted fault short-circuit study.

L. Calculate short-circuit momentary and interrupting duties for a three-phase bolted fault and single line-to-ground fault at each of the following:

1. Electric utility's supply termination point.
2. Switchgear.
3. Standby generators and automatic transfer switches.

M. Protective Device Evaluation:

1. Evaluate equipment and protective devices and compare to short-circuit ratings.
2. Adequacy of switchgear, motor-control centers, and panelboard bus bars to withstand short-circuit stresses.
3. Any application of series-rated devices shall be recertified, complying with requirements in NFPA 70.

3.3 POWER SYSTEM DATA

A. Obtain all data necessary for the conduct of the overcurrent protective device study.

1. Verify completeness of data supplied in the one-line diagram on Drawings. Call discrepancies to the attention of Architect.
2. For new equipment, use characteristics submitted under the provisions of action submittals and information submittals for this Project.
3. For existing equipment, whether or not relocated obtain required electrical distribution system data by field investigation and surveys, conducted by qualified technicians and engineers. The qualifications of technicians and engineers shall be qualified as defined by NFPA 70E.

B. Gather and tabulate the following input data to support coordination study. The list below is a guide. Comply with recommendations in IEEE 551 for the amount of detail required to be acquired in the field.

1. Product Data for overcurrent protective devices specified in other Sections and involved in overcurrent protective device coordination studies. Use equipment designation tags that are consistent with electrical distribution system diagrams, overcurrent protective device submittals, input and output data, and recommended device settings.
2. Electrical power utility impedance at the service.
3. Power sources and ties.
4. Short-circuit current at each system bus, three phase and line-to-ground.
5. Full-load current of all loads.
6. Voltage level at each bus.

7. For transformers, include kVA, primary and secondary voltages, connection type, impedance, X/R ratio, taps measured in percent, and phase shift.
8. For reactors, provide manufacturer and model designation, voltage rating, and impedance.
9. For circuit breakers and fuses, provide manufacturer and model designation. List type of breaker, type of trip and available range of settings, SCCR, current rating, and breaker settings.
10. Generator short-circuit current contribution data, including short-circuit reactance, rated kVA, rated voltage, and X/R ratio.
11. For relays, provide manufacturer and model designation, current transformer ratios, potential transformer ratios, and relay settings.
12. Maximum demands from service meters.
13. Motor horsepower and NEMA MG 1 code letter designation.
14. Low-voltage cable sizes, lengths, number, conductor material, and conduit material (magnetic or nonmagnetic).
15. Medium-voltage cable sizes, lengths, conductor material, and cable construction and metallic shield performance parameters.
16. Data sheets to supplement electrical distribution system diagram, cross-referenced with tag numbers on diagram, showing the following:

    a. Special load considerations, including starting inrush currents and frequent starting and stopping.
    b. Transformer characteristics, including primary protective device, magnetic inrush current, and overload capability.
    c. Motor full-load current, locked rotor current, service factor, starting time, type of start, and thermal-damage curve.
    d. Generator thermal-damage curve.
    e. Ratings, types, and settings of utility company's overcurrent protective devices.
    f. Special overcurrent protective device settings or types stipulated by utility company.
    g. Time-current-characteristic curves of devices indicated to be coordinated.
    h. Manufacturer, frame size, interrupting rating in amperes rms symmetrical, ampere or current sensor rating, long-time adjustment range, short-time adjustment range, and instantaneous adjustment range for circuit breakers.
    i. Manufacturer and type, ampere-tap adjustment range, time-delay adjustment range, instantaneous attachment adjustment range, and current transformer ratio for overcurrent relays.
    j. Panelboards, switchboards, motor-control center ampacity, and SCCR in amperes rms symmetrical.
    k. Identify series-rated interrupting devices for a condition where the available fault current is greater than the interrupting rating of the downstream equipment. Obtain device data details to allow verification that series application of these devices complies with NFPA 70 and UL 489 requirements.

3.4 FIELD ADJUSTING

A. Adjust relay and protective device settings according to the recommended settings provided by the coordination study. Field adjustments shall be completed by the engineering service division of the equipment manufacturer under the Startup and Acceptance Testing contract portion.

B. Make minor modifications to equipment as required to accomplish compliance with protective device coordination studies.

C. Testing and adjusting shall be by a full-time employee of the Field Adjusting Agency, who holds NETA ETT Level III certification or NICET Electrical Power Testing Level III certification.

1. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters. Perform NETA tests and inspections for all adjustable overcurrent protective devices.

3.5 DEMONSTRATION

A. Engage the Coordination Study Specialist to train Owner's maintenance personnel in the following:

1. Acquaint personnel in the fundamentals of operating the power system in normal and emergency modes.
2. Hand-out and explain the objectives of the coordination study, study descriptions, purpose, basis, and scope. Include case descriptions, definition of terms, and guide for interpreting the time-current coordination curves.
3. Adjust, operate, and maintain overcurrent protective device settings.

END OF SECTION 260573

1 GENERAL

1.1 The automatic closed transition transfer switch shall be rated as specified and shall have 600-volt insulation on all parts in accordance with NEMA standards.

1.2 The current rating shall be a continuous rating when the switch is installed in an unventilated enclosure in an unconditioned room. It shall conform to NEMA temperature rise standards.

1.3 The unit shall be rated based on all classes of loads; i.e., resistive, tungsten, ballast, and inductive loads.

1.4 The transfer switch shall be listed by Underwriters Laboratories, under Standard UL 1008 (automatic transfer switches) and approved for use on emergency systems.

1.5 The transfer switch manufacturer shall submit test data showing it can withstand fault currents of the magnitude and the duration necessary to maintain system integrity. The withstand current rating shall match the existing unit and switchboard.

1.6 The closed transition switch shall transfer the load in a parallel mode, thus momentarily connecting both sources of power. A closed transition transfer shall occur only when both sources are available and within specified limits. The maximum interconnect time is 100 milliseconds. The transfer switch shall operate in an "open transition" mode (break before make) when the power source servicing the load fails.

1.14 The automatic transfer switch shall be by Russelectric or approved equal.

1.15 The transfer switch shall be equipped with a manual selector switch to allow the unit to operate in either open or closed transition, based on the position of the selector switch.

1.16 Provide service technician for 2 hours of startup and 2 hours of training on site, on 2 different days.

2 SEQUENCE OF OPERATION

2.1 The ATS shall incorporate adjustable three phase under and over-voltage and three phase under and over-frequency sensing on the normal source.

2.2 When the voltage on any phase of the normal source is reduced to 85% of rated voltage for 5 seconds (programmable), a pilot contact shall close to initiate starting of the standby plant.

2.3 The ATS shall incorporate adjustable three phase under and over-voltage and three phase under and over-frequency sensing on the emergency source.

2.4 When the standby plant is delivering not less than 90% of rated voltage and 95% of rated frequency, the load shall be transferred to the emergency source after an adjustable time delay. During test or other source-to-source transfer, 95% voltage and frequency, phase rotation and angle shall be verified.

2.5 When the normal source has been restored to not less than 95% and not more than 105% of nominal voltage on all phases, proper phase rotation is verified, and after a time delay of 10 minutes (adjustable1 to 30 minutes), the load shall be transferred to the normal source in a closed transition operation. The standby plant shall run unloaded for 5 minutes (adjustable) and then shut down. The generator shall be ready for automatic operation upon the next failure of the normal source.

2.6 If the engine generator should fail while carrying the load, open transition retransfer to the normal source shall be made instantaneously upon restoration of proper voltage (90%) on the normal source.

2.7 A sync check relay (in-phase monitor) shall be provided for closed transition operation. The monitor shall control transfer and retransfer between live sources and operate by sensing the zero voltage point. It shall be factory set to accomplish transfer within 5 electrical degrees and +/-5% voltage differential. An alarm shall be provided to indicate if closed transition transfer is not accomplished within a preset time period due to a failure to meet operational parameters.

2.8 Closed transition transfer in conjunction with over/under-voltage, phase rotation and angle sensing shall be accomplished when both sources are within specified parameters without any power interruption and without altering the speed or actively controlling the standby plant.

2.9 During closed transition operation, the control circuit shall monitor interconnect time. Should connection exceed 100 ms, the set of power contacts just closed shall be reopened and an alarm circuit shall be energized. If the main contacts fail to open, the control system shall energize a 24 VDC shunt trip circuit to the standby feeder breaker to disconnect this source and the alarm circuit shall be closed. 24 VDC from the engine batteries shall be supplied for the shunt trip and alarm backup circuits.

2.10 The transfer switch shall be equipped with a microprocessor based control panel. The control panel shall perform the operational and display functions of the transfer switch. The display functions of the control panel shall include ATS position and source availability.

2.11 The digital display shall be accessible without opening the enclosure door. The programming functions shall be pass code protected.

2.12 The control panel shall be provided with menu driven display screens for transfer switch monitoring, control and field changeable functions and settings.

2.13 Provide the following

- o Key operated switch to simulate normal source power failure.
- o Pushbutton retransfer to normal

2.14 The control panel shall be opt isolated from electrical noise and provided with the following inherent control functions and capabilities:

a. Multipurpose display for continuous monitoring and control of the ATS functions and settings. All field changeable functions shall be pass code protected and accessible through the keypad.

b. Built-in diagnostic display that includes the capturing of historical data, such as number of transfers and time on emergency power source, for ease of troubleshooting.

c. Power meter, with power data sent to LAN. Also capability for external communication and network interface through an RS 485 serial port.

d. Touch pad test switch with Fast Test/Load/No Load positions to simulate a normal source failure.

e. Time delay to override momentary normal source failure prior to engine start. Field programmable 0-10 seconds (adjustable by increments of 0.1 second) factory set at 3 seconds.

f. Time delay on retransfer to normal source, programmable 0-60 minutes (adjustable by increments of 0.1 minute) factory set at 10 minutes. If the emergency source fails during the retransfer time delay, the transfer switch controls shall automatically bypass the time delay and immediately retransfer to the normal position.

g. Time delay on transfer to emergency, programmable 0-5 minutes, factory set at 1 second.

h. Time delay on transfer in either direction in the center-off position, programmable 0-2 minutes, factory set at 5 seconds.

i. Terminals for remote test/peak slave operation and transfer inhibit to the emergency source.

j. Auxiliary contacts (1 N.O.) shall be provided to indicate normal and emergency source availability.

k. A timed auxiliary contact (1 N.C.) adjustable 0-60 seconds shall be provided to allow motor loads to be disconnected prior to transfer in either direction.

m. Provide a momentary pushbutton to bypass the time delays on transfer and retransfer and programmable commit/no commit control logic.

3 CONSTRUCTION AND PERFORMANCE

3.1 The automatic transfer switch shall be a double throw switch operated by a reliable dual electrical mechanism momentarily energized. The switch shall be furnished with by-pass isolation.

3.2 The contact structure shall consist of a main current carrying contact, which is a silver alloy with a minimum of 50% silver content. The current carrying contacts shall be protected by silver tungsten arcing contacts on all sizes.

3.3 A dielectric test at the conclusion of the withstand and closing tests shall be performed.

3.4 During open transition operation, the transfer switch manufacturer shall certify arc interrupting capabilities for 50 cycles of operation between a normal and emergency source that are 120 degrees out of phase at 480 volts, 600% of rated current at .50 power factor. This certification is to ensure that there will be no current flow between the two isolated sources during switching.

3.5 Temperature rise tests in accordance with UL 1008 shall have been conducted after the overload and endurance tests to confirm the ability of the units to carry their rated currents within the allowable temperature limits.

3.6 All relays shall be continuous duty industrial type with wiping contacts. Customer interface contacts shall be rated 10 amperes minimum. Coils, relays, timers and accessories shall be front accessible. The control panel and power section shall be interconnected with a harness and keyed disconnect plugs for maintenance.

3.7 Main and arcing contacts shall be visible without major disassembly to facilitate inspection and maintenance.

3.8 A manual handle shall be provided for maintenance purposes with the switch de-energized. An operator disconnect switch shall be provided to defeat automatic operation during maintenance, inspection or manual operation.

3.9 The switch shall be mounted in NEMA 1 enclosure. The enclosure shall be sized to exceed minimum wire bending space required by UL 1008.

3.10 Switches composed of molded case breakers, contactors or components thereof not specifically designed as an automatic transfer switch will not be acceptable.

SPECIFICATIONS:

Switches shall be in conformance with the applicable portions of:

UL 1008:	Underwriters Laboratories standard for automatic transfer switches
CSA:	C22.2 No. 178 certified at 600 VAC
IEC:	947-6-1 certified at 480 VAC

NFPA 70: National Electrical Code including use in emergency and standby systems in accordance with Articles 517,700, 701, 702

NFPA 99:	Essential electrical systems for health care facilities
NFPA 101:	Life safety code
NFPA 110:	Standard for emergency and standby power systems
IEEE 241:	I.E.E.E. recommended practice for electrical power systems in commercial buildings
IEEE 446:	I.E.E.E. recommended practice for emergency and standby power systems
NEMA ICS 2-447:	AC automatic transfer switches
UL 50/508:	Enclosures
ICS 6:	Enclosures
ANSI C33.76:	Enclosures
NEMA 250:	Enclosures
IEEE 472:	(ANSI C37.90A): Ringing wave immunity
EN55022	(CISPR11): Conducted and radiated emissions (Exceeds Class B: EN55011 & MILSTD 461 Class 3)
EN61000-4-2:	(Level 4): ESD immunity test
EN61000-4-3:	(ENV50140): Radiated RF, electromagnetic field immunity test
EN61000-4-4:	Electrical fast transient/burst immunity test
EN61000-4-5:	IEEE C62.41: Surge immunity test (1.2 x 50µs, 5 & 8 kV)
EN61000-4-6:	(ENV50141): Conducted immunity test
EN61000-4-11:	Voltage dips and interruption immunity

END OF SECTION