

PROJECT MANUAL

Poudre School District

Walk-In Freezer -Riffenburgh Elem.

Volume I: Division 0 – 11

October 19, 2023



POUDRE SCHOOL DISTRICT

Owner:

Poudre School District
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Architect:

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Poudre School District
FREEZER PROJECT AT RIFFENBURGH

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SECTION 01 11 00 - SUMMARY OF WORK

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Project Description
- B. Work by Owner
- C. Owner Furnished Products
- D. Contractor use of site (and premises)
- E. Future Work
- F. Work Sequence
- G. Owner Occupancy

1.2 PROJECT DESCRIPTION

- A. The project generally includes the following; installation of Walk-in Freezer at Riffenburgh ES. Work includes, but not limited to small interior finishes, roof patching, mechanical and electrical work.
- B. Contract: Work under a single prime, lump sum contract, including labor, equipment, materials, and services required for the completion of the project.

1.3 WORK BY OWNER – Owner Furnished/Owner Installed (OFOI)

- A. Shall include but not be limited to: N/A

1.4 OWNER FURNISHED PRODUCTS – Owner Furnished/Contractor Installed (OFCI)

- A. Products furnished to the site and paid for by Owner, Installed by Contractor: N/A
- B. Owner's Responsibilities:
 - 1. Arrange for and deliver Owner reviewed shop drawings, product data and samples to Architect.
 - 2. Arrange for and pay for product delivery to site.
 - 3. On delivery, inspect products jointly with Contractor
 - 4. Submit claims for transportation damage and replace damaged, defective, or deficient items.
 - 5. Arrange for manufacturer's warranties, inspections and service.
- C. Contractor's Responsibilities:
 - 1. Review Owner reviewed shop drawings, product data, and samples.
 - 2. Receive and unload products at site; inspect for completeness or damage, jointly with Owner.
 - 3. Handle, store, install and finish products.
 - 4. Repair or replace items damaged after receipt.
 - 5. Maintain product information for inclusion in Operation & Maintenance Manuals.
 - 6. Provide Owner with adequate scheduling information and material information to comply with contract schedule/requirements

1.5 WORK SEQUENCE

- A. Coordinate construction schedule and operations with Owner and Architect.
 - 1. Contractor to coordinate delivery with Owner.
 - 2. The special systems that require Contractor installation/wiring and Owner installation of equipment are to be completed three (3) weeks prior to the Substantial Completion Date. Contractor is responsible for correcting any defects found by testing of complete system.
- B. Contractor shall take into account the various portions of the Work and the time schedule when preparing and submitting shop drawings and other required submittals. The Contractor shall provide sufficient manpower and equipment during each portion of the Work to meet the various completion deadlines.
- C. The Work shall commence with the Notice to Proceed and shall be Substantially Complete per the Contract Documents.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

(END OF SECTION)

SECTION 01 25 13 - PRODUCT SUBSTITUTION PROCEDURE

PART 1 GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Contractor's selection of products
- B. Requests for substitution of products

1.2 RELATED REQUIREMENTS

- A. Section 00 20 00 - Instructions to Bidders
- B. Section 00 72 00 - General Conditions
- C. Section 01 33 00 - Submittal Procedures
- D. Section 01 33 23 - Shop Drawings, Product data, and Samples
- E. Section 01 77 00 - Closeout Procedures
- F. Section 01 78 23 - Operation and Maintenance Data
- G. Section 01 78 39 - Project Record Documents

1.3 SELECTION OF PRODUCTS

- A. Contractor(s) bid shall be based on the products, materials, or systems specified in the project manual to establish the standard of quality required and a uniform basis for evaluating the bids.
- B. For products specified by naming only one manufacturer, that manufacturer is to be included in the base bid.
- C. For products specified by naming more than one manufacture, any of the listed manufacturers of that section may be used in the base bid.
- D. When product or manufacture's names are not specifically specified, provide products, materials, or systems in strict accordance with performance requirements and install such products in strict accordance with the material manufacturer's recommendations.
- E. "Acceptable Substitution"
 - 1. For any listing of products and manufacturers found in the specification, it is understood that the phrase "Acceptable Substitution" will apply to that listing except as otherwise noted.
 - 2. Any product submitted as an "Acceptable Substitution" must be submitted to the Purchasing and Material Management prior to bid opening. Specific data substantiating a request for a substitution of an "Acceptable Substitution" item must be submitted Prior to Bid. An "Acceptable Substitution" submission will not be used as a basis for bid.
 - 3. Where the phrase "Acceptable Substitution" occurs in the project manual, do not assume that the products, materials or system submitted for substitutions will be accepted (even if accepted for use on previous projects) until the item has been specifically so accepted for this work by the Architect.
 - 4. Acceptance or rejections of a request for an "Acceptable Substitution" will be based on the Architect's opinion, as concurred by the Owner, to the adaptability, durability, quality, aesthetics, and contract amount change, compare to the specified or noted items.
 - 5. The decision of the Purchasing and Material Management shall be final.

1.4 REQUESTS FOR SUBSTITUTIONS

- A. Substitutions in the case of product unavailability will be considered under the following criteria:
 - 1. Cannot be delivered during the progress of the work.
 - a. Submit a letter to this effect written by the manufacturer.
 - 2. Will no longer be available during the progress of the work.
 - a. Submit a letter to this effect written by the manufacturer
 - 3. The quality of the material, as specified, no longer meets the specifications.
 - a. The Architect shall specify a substitute.
- B. The material cost differential (credit or extra), will be reflected in a change order to the contractor.
- C. The request for a subsequent substitution constitutes a representation that the Contractor has investigated the proposed product and has determined that it is equal to or superior in all respects to the specified product. In addition, the Contractor;
 - 1. Will provide same warranty for substitution as for specified product.
 - 2. Will coordinate installation of Acceptable Substitution, making such changes as may be required for Work to be complete in all respects.
 - 3. Will certify that cost data presented is complete and includes all related costs under this Contract.
 - 4. Waives claims for additional costs related to substitution which may later become apparent.

5. Will reimburse Owner and Architect/Engineer for review or redesign services associated with obtaining approval from regulating authorities.
- D. Acceptance or rejection of a request for an “Acceptable Substitution” will be based on the Architect’s opinion, as concurred by the Owner, to adaptability, durability, quality, aesthetics, and Contract Amount change, compare to the specified or noted items.
- E. For acceptable products, submit shop drawings, product data and samples under provisions of Sections 01 33 00 and 01 33 23.
- F. Substitutions will not be considered when they are INDICATED or implied on shop drawings or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

(END OF SECTION)

SECTION 01 26 00 - CONTRACT MODIFICATION PROCEDURES

PART 1 GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Authorized Personnel
- B. Documentation
- C. Preliminary Procedures
- D. Construction Change Directives
- E. Lump Sum Change Orders
- F. Time & Material
- G. Approval
- H. Correlation
- I. Overhead
- J. Execution

1.2 RELATED REQUIREMENTS

- A. Sample Contract
- B. Section 01 29 00- Application for Payment
- C. Section 01 32 16 - Progress Schedules and Reports

1.3 AUTHORIZED PERSONNEL

- A. Submit name of the individual authorized to accept changes, and to be responsible for informing others in Contractor's employ of changes in the Work.

1.4 DOCUMENTATION

- A. Maintain detailed records of Work done on a time and material basis. Provide full information required for evaluation of proposed changes, and to substantiate costs of change in the Work.
- B. Document each quotation for a change in cost or time with sufficient data to allow evaluation of the quotation.
- C. On request, provide additional data to support computations:
 - 1. Quantities of products, labor and equipment
 - 2. Taxes
 - 3. Overhead and profit
 - 4. Justification for any change in Contract Time according to CPM schedule
 - 5. Credit for deletions from Contract, similarly documented.
 - 6. Labor burden justification.
- D. Support each claim for additional costs, and for Work done on a time and material basis, with additional information.
 - 1. Origin and date of claim
 - 2. Dates and times Work was performed, and by whom
 - 3. Time records and wage rates paid
 - 4. Invoices and receipts for products, equipment, and subcontracts, similarly documented.
 - 5. Any RFI, NOC, RFP (original documentation) that effected claim.
 - 6. Pictures as requested

1.5 PRELIMINARY PROCEDURES

- A. Transmit each Request for Information (RFI) on a separate RFI Form (to be stipulated by Architect). The Architect shall have twelve (12) working days after receipt to review each RFI. However, should more time be required for evaluation, coordination, and/or review, the Contractor will be so notified.
- B. Owner may submit through the Architect a Proposal Request (PR) which includes: detailed description of change with supplementary or revised drawings and specifications, the projected time for executing the change with a stipulation of any overtime work required, and the period of time during which the required price will be considered valid. A fully signed PR constitutes approval and direction to proceed with said work and therefore becomes a Change Order to the Contract Documents.
- C. A PR number will be assigned to all CCD's and COR's for primary tracking of the issue and inclusion in a Change Order (CO).
- D. Contractor may initiate a change by submittal of a Change Order Request (COR) to the Architect describing the proposed change with a statement of the reason for the change, and the effect on Contract Sum and Contract Time with full documentation.

- 1.6 CONSTRUCTION CHANGE DIRECTIVE
- A. Owner may issue through the Architect a directive instructing the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
 - B. Construction Change Directive (CCD) will describe changes in the Work, and will designate method of determining any change in Contract Sum or Contract Time.
 - C. Promptly execute the change in Work.
 - D. The Contractor may not bill against a CCD until it has been processed as a Change Order.
 - E. A PR number will be issued to all CCD's, RFI's
- 1.7 LUMP SUM CHANGE
- A. Will be base on PR and agreed upon Contractor's lump sum quotation.
 - B. Contractor to provide supplemental description of cost derivation/assumptions made in determining lump sum cost.
- 1.8 TIME AND MATERIAL CHANGE
- A. Submit itemized account and supporting data after completion of change, within time limits in Conditions of the Contract.
 - B. Owner will determine the change allowable in Contract Sum and Contract Time as provided in Conditions of the Contract.
 - C. Photographs may be required to accompany data to assist in review of costs.
- 1.9 APPROVAL OF CHANGES
- A. Those Proposal Requests, which have the Architect and Owner's approval, shall be processed for payment in the form of a Change Order. Several approved proposals may be included under the same Change Order form. All PR's included in a CO shall be attached with full backup by the Architect.
 - B. Change Orders will be approved by the authorized Poudre School District representative.
 - C. The Architect will issue Change Orders for signatures of parties as provided in Conditions of the Contract. Acceptance of a Change Order shall be acknowledged by signature of the Architect, Contractor and Owner. Acceptance constitutes full compensation to the Contractor for all costs and expenses including all overhead, profit, general conditions, and contract time extensions for the items identified in this Change Order.
 - D. The Architect will distribute a full copy of the approved CO to the Contractor and to the Owner.
 - E. Change Orders cannot be included in the Application for Payment until approved by the authorized Poudre School District representative.
- 1.10 CORRELATION
- A. Promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Sum as shown on Change Order.
 - B. Revise the Cash Flow Plan as required to reflect the revised Schedule of Values incorporated into the Application for Payment.
 - C. Promptly revise CPM schedules to reflect any approved change in Contract Time, revise sub-schedules to adjust times for other items of Work affected by the change, and resubmit.
 - D. Promptly enter changes in Project Record Documents.
- 1.11 OVERHEAD AND PROFIT FEES APPLICABLE FOR CHANGES IN THE WORK
- A. The maximum combined mark-up to the Owner, for the Contractor and all affected Subcontractors, shall not exceed a total of fifteen percent (15%). Such mark-up shall constitute full compensation to the Contractor for all costs and expenses, including all overhead, profit, or commissions, which are otherwise enumerated above. Subcontractors, if employed by the Contractor on this part of the Work, shall receive such portion of the Contractor's fee as may be agreed and paid to them by the Contractor.
 - B. On proposals involving both increases and decreases in the amount of the Contract, the overhead and commission will be allowed on the net increase only.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.1 EXECUTION

- A. The Contractor shall proceed promptly with the changes in the Work as approved and/or directed in an approved PR, CCD or CO unless otherwise proved in the Change Order.

(END OF SECTION)

SECTION 01 29 00 - APPLICATIONS FOR PAYMENT

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Format
- B. Preparation
- C. Change Orders
- D. Retainage
- E. Submittal Procedures
- F. Substantiating Data
- G. Quality Assurance

1.2 RELATED SECTIONS

- A. Section 01 26 00 - Contract Modification Procedures
- B. Section 01 29 73 - Schedule of Values
- C. Section 01 32 33 - Construction Photographs
- D. Section 01 32 16 - Progress Schedules and Reports
- E. Section 01 33 00 - Submittal Procedures
- F. Section 01 35 10 - Recycling / Sustainability Requirements
- G. Section 01 74 13 - Progress Cleaning
- H. Section 01 77 00 - Closeout Procedures: Final Payment
- I. Section 01 78 39 - Project Record Documents

1.3 FORMAT

- A. AIA G702 – Applications and Certificate for Payment, including continuation sheets AIA Form G703. Contractor shall submit Application and Certificate for Payment on original AIA G702 document.

1.4 PREPARATION

- A. Present required information in typewritten form.
- B. Reference the Poudre School District Project Number.
- C. Execute certification by signature of authorized representative.
- D. Provide detail data from Owner/Architect approved Schedule of Values. Provide dollar value in each column for each line item for portion of work performed.
- E. Required notary stamp shall bear an original signature.
- F. Progress payments to the Contractor will be made during the course of the Work not to exceed one payment per month. During the first 50 percent of the Work no payment will exceed 90 percent of the value of labor and materials incorporated in the Work during the preceding month.
- G. Prepare Application for Final Payment as specified in Section 01 77 00.

1.5 CHANGE ORDERS

- A. List each authorized Change Order as an extension on continuation sheet, listing Change Order number and dollar amount as an original item of Work.
- B. Change Orders cannot be included in the Application for Payment until approved by the Board of Education or by the authorized Poudre School District representative (to be determined at the Pre-Construction Conference).

1.6 RETAINAGE

- A. Retainage shall be held in the amount of **5%**. Retainage shall be held against each line item (Column I of the AIA Continuation Sheet) of the Schedule of Values as work is completed and/or stored throughout the project duration.
- B. Remaining retainage will be paid to the Contractor at final payment in accordance with the provisions of the Supplementary Conditions.

1.7 SUBMITTAL PROCEDURES

- A. Submit to the Engineer an electronic copy of AIA G702/G703 Application for Payment with original signature on each copy.
- B. Submit one updated CPM schedule with each Application for Payment.
 - 1. Hard copy – 8 ½” x 11” OR 8 ½” x 14 OR 11” x 17” (2 each)
- C. Submit one set of photographs showing construction progress in accordance with Section 01 32 33.

- D. Payment shall be based on approved Work installed and/or material properly stored as of the period ending date established at the Pre-construction Conference. The Contractors first application for payment will not be processed unless the submittals required at the Pre-construction Conference have been accepted as final by the Owner.
- E. Applications for Payment shall be neatly typed, with no erasures, strike-outs, white-outs or handwritten entries.

1.8 SUBSTANTIATING DATA

- A. When the Architect or Owner requires substantiating information, submit data justifying dollar amounts in question.
- B. Provide one (1) copy of data with cover letter for each copy of submittal. Show application number and date and line item by number and description.
- C. Stored Materials - Partial payments may be made to the extent of the delivered cost of materials to be incorporated in the Work, provided that such materials meet the contract requirements listed below:
 - 1. The Contractor shall bear all costs associated with the partial payment of stored or stockpiled materials. Materials must be delivered and stockpiled in an acceptable manner on an approved area on the Project site. Materials stored off the Project site must be stored within Larimer County, Colorado, in an insured or bonded warehouse.
 - 2. The Contractor must provide the following evidence with his request for partial payment of stored or stockpiled materials:
 - a. Evidence of the quantity and quality of the stored or stockpiled materials.
 - b. Evidence that transportation costs have been paid.
 - c. Evidence the material stored or stockpiled is insured against loss by damage to or disappearance at anytime prior to use in the Work.
 - d. Evidence the materials stored or stockpiled are free of liens or encumbrances of any kind.
 - 3. The Contractor must furnish the Owner with legal title. Transfer of title to the Owner nor payment for stored or stockpiled materials will relieve the Contractor of the responsibility for furnishing and placing such materials in accordance with the Contract requirements.
 - 4. In no case shall the amount of partial payments of materials on hand exceed the Contract price for such materials or the Contract price for the Contract item in which the material is intended to be used. Partial payments will not be made for stored or stockpiled living or perishable plant materials.

1.9 QUALITY ASSURANCE

- A. Verify that as-built drawings are up to date. As-builts to be reviewed by Architect prior to final processing of monthly pay request.
- B. Verify that Project has been maintained in a clean condition.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

(END OF SECTION)

SECTION 01 29 73 - SCHEDULE OF VALUES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Format
- B. Detail
- C. Updating
- D. Submittals

1.2 RELATED SECTIONS

- A. Section 00 62 02 - Expanded Listing
- B. Section 01 11 00 - Summary of Work
- C. Section 01 26 00 - Contract Modification Procedures
- D. Section 01 29 00 - Application for Payment
- E. Section 01 32 16 - Progress Schedules and Cash Flow Plan
- F. Section 01 33 00 - Submittal Procedures

1.3 FORMAT – SCHEDULE OF VALUES

- A. The Schedule of Values shall be submitted on the AIA Form G703 (Continuation Sheet) included by reference in the Project Manual or submittal with software using the same format as the AIA G703.
- B. The Schedule of Values shall separate values of the Work by phases and/or areas of the Project. The Schedule of Values shall be arranged by CSI Division and Section as applicable. Use the Specifications Table of Contents and Document 00 62 02 – Expanded Listing as a guide to establish the format for the Schedule of Values.
- C. Coordinate preparation of the Schedule of Values with preparation of the Contractor's Construction Schedule.
- D. Include the following Project information of the Schedule of Values:
 - 1. Poudre School District Project number
 - 2. Phase name and location as appropriate
 - 3. Contractor's name and address
 - 4. Date of submittal

1.4 DETAIL – SCHEDULE OF VALUES

- A. Submit a detailed Schedule of Values to satisfy the Owner's requirements. Schedule of Values shall be prepared in such form and supported by such data to substantiate its accuracy as may be required. The Schedule of Values must be accepted by the Owner and Architect prior to the acceptance of the 1st Application for Payment. The accepted Schedule of Values shall be used as a basis for reviewing the Contractor's Applications for Payment.
- B. The Schedule of Values shall separate values of the work by phases and/or areas of the project, and by CSI Division and Sections as applicable. It shall be divided so as to facilitate payments to subcontractors and materials suppliers and shall aggregate the total Contract Sum. Each item in the Schedule of Values shall be complete, including its total cost and its proper share of overhead and profit.
- C. The Schedule of Values shall include a line item for the completed CPM baseline project schedule, O&M Manuals, Record Documents and Commissioning.
- D. Break principal subcontract amounts down into several line items.
- E. For each part of the Work where an Application for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed, provide separate line items on the Schedule of Values for cost of the materials, and for subsequent installation costs for the materials.
- F. At the Contractor's option, temporary facilities and other major cost items that are not direct costs of actual work-in-place may be shown as separate line items in the appropriate sections of the Schedule of Values, or distributed as general overhead or mobilization expense.

1.5 UPDATING – SCHEDULE OF VALUES

- A. Update and resubmit the Schedule of Values when Contract Change Orders result in a change in the total Contract Sum.

1.6 SUBMITTALS

- A. Submit two (2) copies of the proposed Schedule of Values to the Owner and Architect at the Pre-construction Conference.
- B. Participate in the review of proposed Schedule of Values jointly with the Owner and Architect as requested.
- C. Revise and resubmit, if require, within ten (10) days after the review, incorporating all comments from the review.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

(END OF SECTION)

SECTION 01 31 13 - COORDINATION

PART 1 GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Coordination of Work

1.2 RELATED REQUIREMENTS

- A. Section 01 32 16 - Progress Schedules and Reports
- B. Section 01 33 00 - Submittal Procedures
- C. Section 01 33 23 - Shop Drawings, Product Data, and Samples
- D. Section 01 45 00 - Quality Control
- E. Section 01 60 00 - Product Requirements
- F. Section 01 25 13 - Product Substitution Procedures
- G. Section 01 73 29 - Cutting and Patching
- H. Section 01 77 00 - Closeout Procedures

1.3 DESCRIPTION

- A. Coordinate scheduling, submittals, and Work of the various sections of specifications to assure efficient and orderly sequence of installation of construction elements, with provisions for accommodating items to be installed later.

1.4 MEETINGS

- A. Contractor will hold coordination meetings and pre-installation conferences with personnel and subcontractors to assure coordination of Work.
- B. Progress Meetings:
 - 1. The Architect will prepare agendas, schedule, preside over, record and distribute minutes for meetings weekly throughout the progress of the Work.
 - 2. Progress Meetings will be held weekly until bi-weekly is approved by Owner.
 - 3. Contractor shall have representatives in attendance: superintendent, project managers, subcontractors and suppliers as required by the Owner/Architect. Contractor representative shall have the authority to make Project decisions/commitments.
- C. Special Meetings:
 - 1. As required during the Project Duration, Architect will schedule, preside over, record and distribute minutes for meetings.
- D. Pre-Construction Conference: scheduled by the Owner and Architect, with the Contractor in attendance; prior to work commencing on site. Discuss at a minimum:
 - 1. Lines of communication
 - a. Superintendent is required to be contacted at any time during working hours. Cellular telephone is acceptable.
 - b. Emergency contact numbers will be provided by all parties (Owner, Architect, Contractor) for after-hours emergencies.
 - c. Electronic communications will be accepted. Format and specific use to be discussed at Pre-Construction Conference. On site Superintendent may communicate via email, but capability is not required.
 - 2. Set Progress Meeting time/day
 - 3. Deliver items required in other Sections of the Specifications
 - 4. Discuss site access, security and safety measures
 - 5. Architect and Owner to prepare agenda and preside over meeting. Architect to record and distribute minutes.

1.5 COORDINATION OF SUBMITTALS

- A. Schedule and coordinate submittal specified in Sections 01 33 00 and 01 33 23.
- B. Coordinate Work of various sections having interdependent responsibilities for installing, connecting to and placing in service such equipment.

1.6 COORDINATION OF SPACE

- A. Coordinate use of project space and sequence of installation of mechanical and electrical Work which is indicated diagrammatically on drawings. Follow routings shown for pipes, ducts, and conduits as

closely as practicable, with due allowance for available physical space; make runs parallel with lines of building. Utilize space efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

- B. In finished areas except as otherwise shown conceal pipes, ducts, and wiring in the construction. Coordinate locations of fixtures and outlets with finish elements.

1.7 COORDINATION OF CONTRACT CLOSEOUT

- A. Coordinate completion and cleanup of Work of separate sections in preparation for Substantial Completion.
- B. After Owner occupancy of premises, coordinate access to site by various sections for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.
- C. Assemble and coordinate closeout submittals specified in Section 01 77 00.

1.8 COORDINATION WITH OWNER/ARCHITECT

- A. Contractor to coordinate with/assist any and all consultants and/or representatives of the Owner and Architect as requested/required during the project.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

(END OF SECTION)

SECTION 01 32 16 - PROGRESS SCHEDULES AND REPORTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Format
- B. Meetings
- C. Definitions
- D. Submittals
- E. Updating Schedules
- F. Schedule Revisions
- G. Time Extensions
- H. Three week look ahead schedule

1.2 RELATED SECTIONS

- A. Section 01 11 00 - Summary of Work
- B. Section 01 26 00 - Contract Modification Procedures
- C. Section 01 29 00 - Application for Payment
- D. Section 01 29 73 - Schedule of Values
- E. Section 01 33 00 - Submittals

1.3 FORMAT

- A. **RESPONSIBILITY.** The Contractor will be responsible for planning, scheduling, managing and reporting the progress of the Work in accordance with all of the specific methods and submittals described in this section. Although Owner and Architect will be reviewing, commenting and finally approving the "Baseline" schedule format, the Contractor is the construction expert and is responsible for creating/maintaining/complying with the Project Schedule.
- B. **CRITICAL PATH METHOD.** The Critical Path Method (CPM) of network calculation shall be used to generate the Project Schedule. The Contractor shall provide the Project Schedule in the Precedence Diagram Method (PDM).
- C. **COMPETENT SCHEDULER.** The Construction Schedule shall be prepared by a competent scheduler, and used by the Contractor to plan, prosecute and coordinate the Work in an orderly and expeditious manner. The Schedule will be used by the Contractor, Owner and the Architect to evaluate progress and status at the various stages of the Project, allocate funds, determine the impact of any changes to the Contract, and establish the basis for progress payments.
- D. **SOFTWARE APPLICATION.** The CPM schedule shall be developed using either of the following scheduling applications:
 - 1. Primavera Contractor
 - 2. Primavera SureTrak
 - 3. Microsoft ProjectThe Contractor must obtain approval by the Owner to use any other scheduling software application.
- E. **OWNER REVIEW.** Schedule submittals will be reviewed by the Architect and Owner; such review shall not constitute an approval or acceptance of the Contractor's construction means, methods, sequencing or its ability to complete the Work in a timely manner.
- F. **CONTRACT DURATION.** The Schedule shall not exceed time limits current under the Contract Documents. In calculating activity durations normal inclement weather shall be considered.
- G. **LEVEL OF DETAIL.** The Construction Schedule shall contain all salient features of the Work. In addition to construction activities, the Baseline Schedule shall include: the preparation, review and approval of each individual submittal, including those for Owner furnished items; the procurement, delivery and installation of materials and equipment; significant testing, inspection, and building commissioning activities; coordination of work with separate contractors; schedule or operating constraints imposed by the Owner: including Notice of Award, Notice to Proceed, Substantial Completion, Final Completion and any other intermediate or other contractual milestone dates. Activities related to separate buildings and features shall be separately identifiable by coding or use of subnetworks. The selection, coding and number of activities shall be subject to the Owner and Architect's review. Also include the following activities at a minimum:
 - 1. Permits
 - 2. Submission and approval of mechanical/electrical coordination drawings
 - 3. Milestone for Completion of Area _____.
 - 4. Milestone for Completion of Area _____.
 - 5. Milestone for Completion of Area _____.

- 6. Submission and approval of O&M manuals.
 - 7. Submission and approval of as-built/record drawings
 - 8. Systems Testing
 - 9. Pre-Final Inspection and Contractor Punchlist
 - H. DURATIONS. No activity on the Schedule shall have a duration longer than fifteen (15) workdays, except for submittals and/or fabrications and delivery, without prior approval of the Owner.
 - I. CONSTRAINTS. The Construction Schedule shall contain NO date constraints to activities except the start and finish activities and as permitted by the District.
 - J. PREDECESSOR/SUCCESSORS. All activities shall have successors except the final Project Complete activity. All activities shall have predecessors except the Start Project activity. Illogical relationships will not be accepted.
 - K. ACTIVITY LAG TIMES. Negative lags shall NOT be used at any time.
 - L. OWNER ACTIVITIES. Include those construction activities requiring coordination with the Owner; its consultants and contractors (i.e.: OFOI and OFCI items).
 - M. PROCUREMENT. Tasks related to the procurement of long lead or fabricated material or equipment shall be included as separate activities in the Project Schedule.
 - N. CRITICAL PATH. Illustrate complete sequence of construction by activity, including highlighting the critical path, using a level of detail the same as, or greater than, the Schedule of Values.
 - O. ACTIVITY CODES. All activities shall be identified in the Project Schedule by the work area in which the activity occurs, the CSI code associated with the activity, and the contractor or subcontractor performing the work. All activities shall be identified in the Project Schedule by the phase in which the activity occurs (procurement, submittals, mobilization, close-out). Coordinate construction activities within all CSI Divisions within each phase or area as shown in the Schedule of Values. Each activity shall be identified by the appropriate CSI Division Number in order to tie into Contractor's Application for Payment.
 - P. PAYMENTS. Include the completed baseline schedule as a line item on the Schedule of Values. No Applications for Payment will be approved until the Baseline Schedule Documents are approved.
 - Q. SCHEDULE SUBMITTALS. Failure to provide the required schedule information at the required times will result in denial of the relative portion of progress payments until such time that the schedule information is submitted in the correct format at the sole option of the Owner.
- 1.4 PRE-CONSTRUCTION CONFERENCE: Submit, in triplicate to the Owner and Architect, the following preliminary documents defining planned operations:
- A. Preliminary schedule that will illustrate, at a minimum, a schedule for those activities commencing within the first thirty (30) calendar days after the Notice of Award is issued by the Owner.
- 1.5 SCHEDULE REVIEW MEETING: The Contractor, including its primary superintendent, will participate in a Schedule review meeting with the Owner and Architect. As part of the review meeting, the Contractor will be prepared to explain its approach to the scheduling, sequencing of the work, site utilization plan and its cash flow forecast.
- 1.6 SUBMITTALS
- A. Within fifteen (15) calendar days from the date of the schedule review meeting, based on comments provided by the Owner and Architect, as well as agreed to changes by all parties, the Contractor will revise and submit.
- 1.7 UPDATING SCHEDULE DOCUMENTS
- A. Updated schedules shall accompany each Application for Payment, reflecting progress since previous submittal.
 - B. Submit one (1) updated Cash Flow Progress Curve.
 - C. Submit two (2) 8.5 x 11 OR 8.5 x 14 OR 11 x 17 inch Bar Chart schedules
 - D. Submit one (1) electronic copy of the updated schedule, in the software application from which the schedule was developed.
 - E. The schedule update shall show the status of all activities, including those in progress, completed, or not started, indicated by start and finish dates, whether forecasted or actual, completion percentages based on time, original and remaining durations, and any changes in network logic or activity durations, and any other relevant information.
 - F. Activities shall be grouped as noted in section 1.3.
 - G. Identify activities modified since previous submittal, major changes in Work, changes associated with approved Change Orders, and any other identifiable changes.

- H. With each update, the Contractor shall submit a brief narrative report, including descriptions of schedule revisions such as changes in network logic, planned activity start dates, durations, or in the critical path. The report will include a description of the amount of progress during the last month, a description of any problem areas, current or anticipated delays and their estimated schedule impacts. In the narrative report, the Contractor shall provide explanation for any slippage in contractual completion or other milestone dates. Provide an explanation for all negative float activities and actions taken to mitigate negative float and delays to the Project. The Contractor shall propose remedial measures necessary to recover any lost time, whether actual or forecasted. Contractor shall take such additional steps as are necessary in order to effectively eliminate or minimize such delays and to comply with the Contract Schedule.
- I. The Contractor Applications for Payment for each pay period shall be based upon physical percentages of completion for each scheduled activity as agreed between the Owner, Architect, and Contractor.
- J. The Contractor shall utilize and conform to its most recent schedule.

1.8 SCHEDULE REVISIONS

- A. Updating the schedule to reflect actual progress made up to the data date of a schedule update shall not be considered revisions to the Baseline schedule.
- B. If, as a result of a schedule update, it appears the baseline schedule no longer represents the actual prosecution and progress of the work, the Architect or Owner may request a proposed completion schedule from the Contractor. The revision shall address the Contractor's current construction plan for completing the work without impacting contract time and cost. Approved revisions to the schedule shall be incorporated into the Baseline schedule at the next schedule update submission.
- C. The Contractor may also request revisions to the Baseline schedule in the event the Contractor's planning of the work is revised. If the Contractor desires to make changes in the Baseline schedule to reflect revisions in its method of operating and scheduling of the work, the Contractor shall notify the Architect and Owner in writing, stating the reason for the proposed revisions. The revision shall address the Contractor's current construction plan for completing the work without impacting contract time and cost. Approved revisions to the schedule shall be incorporated into the Baseline schedule at the next schedule update submission.

1.9 TIME EXTENSIONS

- A. Extensions of time to the Contract may be granted only for delays to activities on the critical path that actually delay the Project completion beyond the date of Substantial Completion or contract milestone date.
- B. For any period in which a change in Contract Time is anticipated or proposed by the Contractor whether for a change order, proposal request, change order request, construction change directive, or a delay, with impact to contract specified Milestones and/or Substantial Completion, a Time Impact Analysis (TIA) is to be submitted to the Architect and Owner. Each Evaluation shall include a detailed bar chart schedule demonstrating where the Contractor proposes to incorporate the change or delay in the current schedule. The detailed bar chart schedule shall show the current activities affected by the change or delay and the proposed activity logic relationships due to the change or delay. The TIA shall demonstrate the time impact based on the date the modification is given to the Contractor or the date the delay occurred; the status of construction at that point in time; and the event time computation of all affected activities. The event times used in the TIA shall be those included in the latest schedule update or as adjusted by mutual agreement. A narrative shall be provided containing the rationale used in developing the evaluation, plus a description of the Contractor's efforts to reschedule work in order to mitigate the impact of the changes to the schedule.. The preparation of the TIA is considered part of the construction process and will be performed at no additional cost to the Owner.
- C. A contract change shall only be authorized when a TIA indicates impact to a Contractual/Milestone date or the Substantial Completion date. The Baseline schedule shall be revised only upon Contractor's receipt of an approved Change Order for the Contract. The revision shall then be incorporated into the next schedule update submission.
- D. Following the receipt of an executed Change Order, the activity data and logic relationships in the TIA shall be incorporated into the current detailed CPM schedule during the next scheduled progress update. Change Order activities shall be identified in the same format and level of detail as contained in the Baseline schedule, and coded in a manner that they can be identified to the specific Change Order.
- E. Weather Delays: If abnormal weather conditions are the basis for a request for an extension of the Contract Time, such request shall be documented by data substantiating that weather conditions were unusually severe for the period of time, and could not have been reasonable anticipated. To establish the existence of abnormal weather, the Contractor must submit documentation which establishes that

the weather conditions experienced fall outside of the extreme ranges of weather data published by the National Climatic Data Center for the Fort Collins Metropolitan Area for the ten (10) year period immediately preceding the date of the Contract. Regardless of actual weather conditions, any Day in which the Contactor is able to work eighty percent (80%) or more of its scheduled work force shall not be counted as an abnormal weather Day for purposes of calculating weather related time extensions.

1.10 THREE WEEK LOOK-AHEAD SCHEDULE

- A. The Contractor shall provide a three week detailed short-interval schedule for each building or area of the Work, at regularly scheduled progress meetings. The format shall be satisfactory to the Owner and Architect. Short interval schedules shall be based upon the most current approved/updated project schedule, and will indicate the actual progress achieved the previous week as well as the detailed activities scheduled for the next two weeks and will show anticipated durations, start and completion dates for activities.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

(END OF SECTION)

SECTION 01 32 33 - CONSTRUCTION PHOTOGRAPHS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Photography
- B. Camera
- C. Prints
- D. Technique
- E. Submittals

1.2 RELATED SECTIONS

- A. Section 01 29 00 - Applications for Payment
- B. Section 01 33 00 - Submittal Procedures
- C. Section 01 77 00 - Closeout Procedures

1.3 PHOTOGRAPHY

- A. Provide photographs of the site before any construction is started and throughout the progress of the Work. Photographs shall be of a quality acceptable to the Owner and Architect.
- B. Photographs should be taken within three days of each Application for Payment and should represent work completed during the period preceding the Application for Payment. Photographs should be taken throughout the progress of the Work, up to and including Substantial Completion.

1.4 CAMERA

- A. Digital; capable of date recognition.

1.5 PRINTS

- A. Not applicable.

1.6 COMPACT DISK

- A. Deliver compact disk of all pictures taken during the project with the close-out document submittals.
- B. Save each picture with the date of the picture in the name of the file. The date the photo was taken will also be burned into the photo by the camera as a requirement.

1.7 TECHNIQUE

- A. Provide factual presentation.
- B. Provide correct exposure and focus, high resolution and sharpness, maximum depth of field, and minimum distortion.

1.8 SUBMITTALS

- A. Submit on CD or electronically with each Application for Payment. Pictures should convey a reasonable representation of the status of the Work at that time in all areas under construction.
 - 1. Pictures are to be in a format allowing for 2 pictures per 8.5 x 11" sheet. Pictures to be laid out in Portrait OR Landscape, to best illustrate the content.
 - 2. Software to be used is up to the Contractor. Similar to:
 - a. Word
 - b. Photo suite applications
 - 3. Minimum quantity of pictures:
 - a. Amount of pictures to accurately reflect Work completed, in all areas of the project, at that time. Number of pictures, content and format may be revised if Architect, Owner and Contractor are in agreement to change.
 - b. 10 pictures minimum per Application for Payment.
 - 4. Each picture to be identified with:
 - a. Project name
 - b. Project number
 - c. Subject/phase of work
 - d. Orientation of view
 - e. Approximate time of view
 - f. Date-imprinted ON picture by camera.
 - g. Signature of person taking the photo
- B. All pictures are to be submitted as part of the closeout documents.

1. Individual Pictures – in order of date
2. In format per paragraph 1.8.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

(END OF SECTION)

SECTION 01 33 00 - SUBMITTALS

PART 1 GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Procedures
- B. Expanded Construction Progress Schedules
- C. Construction Progress Schedule
- D. Schedule of Values
- E. Shop Drawings Submittal Schedule
- F. Manufacturer's Instructions
- G. Hazardous Materials
- H. Spare Parts
- I. Other submittals required at Pre-Construction Conference

1.2 RELATED REQUIREMENTS

- A. Section 00 20 00 - Instructions to Bidders
- B. Section 01 32 16 - Progress Schedules and Reports
- C. Section 01 33 23 - Shop Drawings, Product Data, and Samples
- D. Section 01 25 13 - Product Substitution Procedures
- E. Section 01 78 43 - Spare Parts and Maintenance Materials
- F. Divisions 2 through 49

1.3 PROCEDURES

- A. Deliver submittals to the Architect at address listed in the Project Manual, unless otherwise instructed.
- B. Transmit each item with a separate Submittal Routing Form.
- C. Identify project, project number, contractor, subcontractor, major supplier, pertinent drawings sheet(s) and detail number, specification section number, and individual product or other descriptive data as appropriate. Identify deviations from Contract Documents. If deviations are not indicated, submittal will be reviewed as contract compliant.
- D. Coordinate submittals of related items.
- E. The number of submittals for each item may vary. Contractor to submit, at a minimum, 3 Architect, 1 Owner, 1 Commissioner.

1.4 EXPANDED SUBCONTRACTORS AND MATERIAL SUPPLIERS LISTING

- A. Submit in duplicate Document 00 62 02 – Expanded Subcontractor Listing to the Owner and Architect at Preconstruction Conference.

1.5 CONSTRUCTION PROGRESS SCHEDULE

- A. Submit proposed Construction Progress Schedule in duplicate to the Owner and Architect at the Pre-Construction Conference.

1.6 SCHEDULE OF VALUES

- A. Submit proposed schedule of values in duplicate to the Owner and Architect at the Pre-Construction Conference.

1.7 SHOP DRAWINGS SUBMITTAL SCHEDULE

- A. Submit the Submittal Schedule (Section 01 33 23) in duplicate to the Owner and Architect at the Pre-Construction Conference.

1.8 MANUFACTURER'S INSTRUCTIONS

- A. When required in individual specification section, submit manufacturer's printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, in quantities specified for product data, in Section 01 33 23.
- B. When required in individual specification sections, any software and/or hardware unique to components, equipment or systems applied under this contract require to setup, operate, maintain, calibrate, trouble shoot or repair such components and equipment, or systems shall be provided by the contractor/manufacturer/vendor.

1.9 HAZARDOUS MATERIALS

- A. All Contractors and Subcontractors bringing hazardous materials to an Owner's facility must submit a Material Safety Data Sheet (MSDS) along with the Submittal Routing Form. Submit a MSDS for each hazardous material prior to use. Include information pertaining to the hazardous material with the MSDS.

1.10 SPARE PARTS AND MAINTENANCE MATERIALS

- A. Submit an expanded list of products requiring spare parts specified in the individual specification sections and in Section 01 78 43, Spare Parts and Maintenance Materials. This detailed list is to include manufacturer's product description and quantity description and quantity of spare parts by individual product, maintenance tools and maintenance material to be provided to the owner. This detailed list is required thirty (30) days prior to substantial completion.

1.11 SUPERINTENDENT RESUME

- A. Submit proposed Superintendent's Resume in duplicate to the Owner and Architect at the Pre-Construction Conference.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

(END OF SECTION)

SECTION 01 33 23 - SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

PART 1 GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Shop Drawings
- B. Product Data
- C. Samples
- D. Contractor Review
- E. Submittal Requirements
- F. Re-Submittals
- G. Architect Review
- H. Distribution

1.2 RELATED REQUIREMENTS

- A. Section 01 29 00 - Application for Payment
- B. Section 01 33 00 - Submittal Procedures
- C. Section 01 60 00 - Product Requirements
- D. Section 01 25 13 - Product Substitution Procedures
- E. Section 01 77 00 - Closeout Procedures
- F. Section 01 78 39 - Project Record Documents
- G. Divisions 2 through 49

1.3 SHOP DRAWINGS

- A. Present in a clear and thorough manner. Title each drawing with Project name and number; identify each element of drawings by reference to sheet number and detail, schedule, or room number of Contract Documents.
- B. Identify field dimensions; show relation to adjacent or critical features or work or products.
- C. Minimum Sheet Size: Multiples of 8.5 x 11 inches
- D. Maximum sheet size: 30 x 42 inches
- E. Scale required: unless otherwise specifically directed by the Architect, make all shop drawings accurate to a scale sufficiently large to show all pertinent features of the item and its methods of connection to the Work.

1.4 PRODUCT DATA

- A. Submit only pages which are pertinent: mark each copy of standard printed data to identify pertinent products, referenced to Specification Section and Article number. Show reference standards, performance characteristics, and capacities; wiring and piping diagrams and controls; component parts; finishes; dimensions; and required clearances.
- B. Modify manufacture's standard schematic drawings and diagrams to supplement standard information and to provide information specifically applicable to the Work. Delete information not applicable.

1.5 SAMPLES

- A. Submit to the Architect the full range of manufacturer's standard finishes except when more restrictive requirements are specified, indicating colors, textures, and patterns, for Architect selection. All color charts are to be originals (no photo reproduction copies).
- B. Submit samples to illustrate functional characteristics of products, including parts and attachments.
- C. Approved samples which may be used in the Work are indicated in the specification section. Label each sample with identification required for transmittal letter.
- D. Provide field samples of finishes and assemblies at the site, at location acceptable to the Architect, as required by individual specification sections. Install each sample or assembly complete and finished. Acceptable finishes in place may be retained in completed Work.
- E. Architect reviewed samples will set the standard by which all Work performed thereafter will be judged.
- F. Label each sample with identification required for transmittal letter.

1.6 CONTRACTOR REVIEW

- A. Review submittals prior to transmittal; determine and verify field measurements, field construction criteria, manufacturer's catalog numbers, and conformance of submittal with requirements of Contract Documents.
- B. Coordinate submittals with requirements of Work and of Contract Documents.

- C. Sign or initial each sheet of shop drawings and product data, and each sample label to certify compliance with requirements of Contract Documents using submittal stamp illustrated under 1.7C of this Section.
- D. Do not fabricate products or begin Work which requires submittals until submittal is returned with Architect's stamp of review.

1.7 SUBMITTAL REQUIREMENTS

- A. Submittals may be electronic to the full extent possible. The format and process for a full electronic submittal process shall be detailed at the preconstruction conference. The Owner, Architect and Contractor must agree on process, format, etc.
- B. Transmit submittals in accordance with Shop Drawings Submittal Schedule. The Contractor is solely responsible for coordinating the delivery of submittals, including any necessary corrections and re-submittals, to assure that Architect's review can be obtained without delaying the Work. All submittals are to be delivered to the Architect within 120 calendar days after the Pre-construction Conference.
 - 1. At the Pre-Construction Conference, submit two (2) copies of Attachment B to the Architect and Owner.
 - 2. Attachment B shall be prepared in detail, using one line for each item, sorted by section.
 - 3. The submittal schedule shall be included in the Baseline Schedule Documents per Section 01325.
 - 4. The Architect shall have approval of the proposed Shop Drawings Submittal Schedule.

Contractor shall have prepared and will use the submittal stamp (or one similar/approved by Architect) as illustrated. Provide 4 x 5-inch blank space on each submittal for the submittal stamp.

<p>By making this submittal No. _____, <u>Contractor Name</u> does hereby approve said submittal and does certify that it has determined and verified all materials, field measurements and field construction criteria related thereto, or will do so, and has checked and coordinated the information contained within this submittal with the requirements of the Work and of the contract documents. The Contractor further certifies that, to the best of its knowledge, the material described within this submittal does not contain any asbestos containing materials.</p>	
<p>_____ Signed for the Contractor</p>	<p>_____ Date</p>

Number submittals consecutively. Re-submittals shall be identified by means of an alphabetical suffix (beginning with A) after original submittal number.

- C. Coordinate submittals into logical grouping to facilitate interrelation of the several items:
 - 1. Finishes which involve Architect selection of colors, textures, or patterns.
 - 2. Associated items which require correlation for efficient function or for installation.
 - 3. Provide:
 - a. All submittals required by a particular section at one time.
 - b. Shop drawings, schedules, product data, coordination drawings, samples, color charts and other information required (whether listed or not) for Architects complete evaluation.
 - 4. Incomplete information or partial submittal shall be cause for rejection.
- D. Submit one (1) transparency capable of rendering legible reproductions and four (4) opaque copies of shop drawings.
- E. Submit a minimum of one (1) copy of required data and samples (unless otherwise specified in specific Section). The one (1) copy, in full, will be returned.
- F. Contractor will be responsible for making copies of approved submittals; for Owner, Architect, subcontractors as required.
- G. Contract Documents shall not be used or reproduced as submittals or any part thereof.
- H. Submit number of samples specified in individual specification sections.
- I. Submit in accordance with provisions of Section 01330.
- J. All submittals shall be made through the Contractor or they will be rejected.
- K. No portion of the Work which requires a shop drawing or sample submissions shall be commenced until the submission has been reviewed and returned by the Architect.

1.8 RE-SUBMITTALS

- A. Make re-submittals under procedures specified for initial submittals; identify changes made since previous submittal.

- B. The Owner will not authorize a reduction in retainage unless all shop drawing submittals have been received and reviewed by the Architect with no required re-submittals.

1.9 ARCHITECT REVIEW

- A. The Architect will review shop drawings, product data, and samples and return submittals to the Contractor.
- B. Contractor is to schedule his submittals so that the Architect has twelve (12) working days after receipt at Architects office to review each submittal, however, should more time be required for evaluation, coordination, and/or review, the Contractor will be so notified.
- C. Extension of review time shall not constitute a basis to automatically extend the Contract Time.
- D. The Contractor shall make any corrections required by the Architect and shall resubmit the required number of corrected copies of shop drawings or new samples. The Contractor shall direct specific attention in writing or on resubmitted shop drawings to revisions other than the correction required by the Architect on previous submissions.

1.10 DISTRIBUTION

- A. Duplicate and distribute reproductions of shop drawings, copies of product data, and samples, which bear Architect stamp of review, to job site file, record documents file, subcontractors, suppliers, and other entities requiring information.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

(END OF SECTION)

SECTION 01 35 23 - SAFETY / ENVIRONMENTAL REQUIREMENTS

PART 1 GENERAL

1.1 RELATED SECTIONS

- A. Construction Recycling

1.2 LAWS AND REGULATIONS

- A. Contractor shall comply with all applicable safety order, regulations, other rules and laws applicable during the progress of the Work.
- B. The Contractor shall have copies of the following posted at the work site.
 - 1. A copy of the Occupational Safety and Health Act and Regulations for enforcement of OSHA program.
 - 2. Material Safety Data Sheets for all chemicals or potentially hazardous materials being used or stored at the site.
 - 3. Permits as required for the Work.

1.3 SAFETY AND HEALTH

- A. The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the work.
- B. The Contractor shall publish an alcohol, drug and smoke-free work site policy statement notifying all employees that the unlawful manufacture, distribution, dispensing, possession, or use of alcohol or a controlled substance is prohibited at the work site and specifying the actions that will be taken against employees for violation of such prohibition. Additionally, the Contractor shall publish a "No Smoking on the Construction Site" policy statement notifying all employees that smoking, or any tobacco products, will not be allowed on the construction site.
- C. All persons shall be required to wear hard hats and suitable hard-soled work shoes in good repair (safety style steel or fiberglass toe shoes are recommended) while at work at the work site. Sandals, athletic shoes, and other soft footwear may not be worn on the work site.
- D. The Contractor shall make every effort to ensure the safety of all inspectors and other employees, consultants, and agents of Poudre School District personnel. The Contractor shall not permit inspectors, employees, consultants, and agents to enter any unsafe place for the purpose of making inspections, except where an inspection is required to determine if previously detected unsafe conditions have been corrected. Where work is required to be inspected, and the inspection is not performed due to the existence of an unsafe condition, such work is subject to rejection, or the work may be suspended.

1.4 DUST ABATEMENT

- A. The Contractor shall furnish all labor, equipment, and means required and shall carry out effective measures wherever and as often as necessary to prevent its operations from causing visible dust emissions from leaving the work areas. These measures shall include, but are not limited to, providing additional watering equipment, reducing vehicle speed on haul road, restricting traffic on haul roads, and covering haul vehicles. The Contractor shall be responsible for any damage resulting from any dust originating from operations. The dust abatement measures shall be continued for the duration of the contract.
- B. The Contractor shall hose down any vehicle or equipment leaving the project area with water prior to entering the public right of way if the vehicles appear to be transporting excessive amounts of dust. When any material or debris is tracked out from the project area, the Contractor shall clean all paved public roads near the site entrances as often as required to prevent spreading of dust by vehicles.
- C. As all permits are the responsibility of the Contractor, if a "Fugitive Dust Permit" OR an "Air Pollution Permit" is required, the Contractor is to obtain them.

1.5 SECURITY PROCEDURES

- A. Criminal Record Verification: Contractor will be required to complete Criminal Record Check on all employees who work on the Project. Employees who are not able to work in the USA legally and/or have been convicted of a felony, including but not limited to crimes involving physical assault, sexual assault, drug use, and crimes that require registration on the National Sexual Offender Registry will not be allowed to work on the project. The Owner reserves the right to disqualify other employees who have a felony conviction. Contractor must complete and submit the Owner's Criminal Records Check Certification form prior to starting work. Each Contractor will be responsible to adhere to any Federal, State or Local privacy and confidentiality requirements.

- B. The Contractor shall be responsible to the Owner for the acts and omissions of all his employees. The Contractor shall further be responsible for the acts and omissions of all subcontractors, their agents and employees, and all other persons acting on behalf or for the Contractor or subcontractors.
- C. The Contractor is responsible for any costs associated with the Criminal Records Check process.

1.6 SUBMITTALS

- A. The Contractor shall submit, within thirty (30) days from the Notice to Proceed date, the name of the Contractor's on-site safety representative.
- B. The Contractor shall inform the Owner and Architect of the number and character of all accidents resulting in loss of time, medical treatment and first aid treatment.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

Criminal Records Check Certification

I, _____, certify that:
Name of Contractor

1. I have carefully read and understand the requirements set forth in Section 01-35-23, paragraph 1.5, regarding the Criminal Records Check required by Poudre School District.
2. Due to the nature of the work I will be performing for the District, my employees MAY have contact with the students in the District.
3. None of the employees who will be performing the work have been convicted of a violent or serious felony as defined herein, Section 01-35-23, 1.5. This determination was made by a background check through the Department of Justice OR the Colorado Bureau of Investigation. (www.cbirecordscheck.com/index.asp)

I declare under penalty of perjury that the foregoing is true and correct.

Executed at _____, Colorado, on _____
Town or City Date

Signature _____

Typed or Printed Name _____

Title _____

Address of Company _____

END OF SECTION

SECTION 01 41 00 - REFERENCE STANDARDS AND STATUTORY REQUIREMENTS

PART 1 GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Quality Assurance
- B. Statutory Requirements for Construction Contract and subcontracts

1.2 QUALITY ASSURANCE

- A. For Products or workmanships specified by association, trade, or Federal Standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Conform to reference standards by date of issue current on date of Contract Documents unless a date is specified in the product section.
- C. Should specified reference standards conflict with Contract Documents, request clarification from Owner before proceeding.
- D. The contractual relationship of the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.3 STATUTORY REQUIREMENTS FOR CONSTRUCTION CONTRACT AND SUBCONTRACTS

- A. Each Contractor or Subcontractor shall comply with laws and all applicable standards, orders or regulations issued pursuant thereto.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

(END OF SECTION)

SECTION 01 43 26 - TESTING LABORATORY/AGENCY SERVICES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Selection and payment
- B. Laboratory and testing agency reports
- C. Limits on testing laboratory/agency authority
- D. Tolerances
- E. References and Standards
- F. Contractor responsibilities
- G. Manufacturer's Field Service
- H. Examination

1.2 RELATED SECTIONS

- A. Section 00 30 0 - Information Available to Bidders
- B. Section 01 33 00 - Submittal Procedures: Manufacturer's Instructions
- C. Section 01 45 00 - Quality Control
- D. Section 01 75 00 - Starting and Adjusting
- E. Section 01 77 00 - Closeout Procedures
- F. Section 01 79 00 - Demonstration and Training
- G. Mechanical Divisions – (20 thru 29)
- H. Individual Specification Sections: Inspection and tests required and standards for testing.

1.3 SELECTION AND PAYMENT

- A. Owner shall employ and pay for services of an independent testing laboratory/agency to perform specified inspection and testing, unless otherwise noted.
- B. The independent agency will perform tests and other services specified in individual specification sections, code and by the Architect.
- C. The Owner may employ and pay for services of an independent firm to camera underground lines during construction. Sewer, sanitary sewer, roof drains at a minimum.

1.4 LABORATORY / AGENCY REPORTS

- A. After each inspection and test, the laboratory will submit a copy of the laboratory/agency report to the Contractor, Owner and Architect.
- B. Include:
 - 1. Date issued
 - 2. Project title and number
 - 3. Name of inspector or certified testing engineer.
 - 4. Date and time of sampling or inspection
 - 5. Identification of product and specifications sections
 - 6. Location in the Project
 - 7. Type of inspection or test
 - 8. Date of test
 - 9. Results of tests
 - 10. Conformance with Contract Documents

1.5 LIMITS ON TESTING LABORATORY / AGENCY AUTHORITY

- A. Laboratory/agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
- B. Laboratory/agency may not approve or accept any portion of the Work.
- C. Laboratory/agency may not assume any duties of Contractor.
- D. Laboratory/agency has no authority to stop the Work.

1.6 TOLERANCES

- A. Monitor fabrication and installation tolerance control of Products to produce acceptable Work. Do not permit tolerances to accumulate.
- B. Comply with manufacturer's tolerances. Should manufacturer's tolerances conflict with Contract Documents, request clarification from Architect before proceeding.

1.7 REFERENCES AND STANDARDS

- A. For Products or workmanship specified by association, trade or other consensus standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

1.8 CONTRACTOR RESPONSIBILITIES

- A. Deliver to laboratory/agency at designated location, adequate samples of materials proposed to be used which require testing, along with proposed mix designs. Deliver to the independent testing laboratory/agency copies of submittals.
- B. Cooperate with laboratory/agency personnel and provide access to the Work.
- C. Provide incidental labor and facilities to provide access to Work to be tested to obtain and handle samples at the site or at source of products to be tested, to facilitate tests and inspections, storage and curing of test samples.
- D. Testing does not relieve Contractor to perform Work to contract requirements.
- E. Re-testing required because of non-conformance to specified requirements shall be performed by the same independent firm on instruction by the Architect/Engineer. Payment for re-testing will be charged to the Contractor via a deductive Change Order.
- F. If Work is shown as non-compliant via the video of the underground, Work required to repair/replace said Work will be at the Contractor's expense via a deductive Change Order. The work will be inspected via video after the repair at the cost of the Contractor.
- G. Notify Architect and Owner when Work will be ready for testing and/or video. Contractor to coordinate directly with testing firm. Contractor to coordinate video of underground lines with Owner.
- H. Contractor is responsible for coordinating all Owner paid inspections in a timely fashion to correlate with the project schedule. Adequate notification and coordination are required, and any special timing requirements will be conveyed to the Contractor at the Pre-Construction conference.

1.9 MANUFACTURER'S FIELD SERVICE

- A. When specified in individual specification sections, require material or Product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation and quality of workmanship, as applicable, and to initiate instructions when necessary.
- B. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturer's written instructions.

PART 2 PRODUCTS – Not Used

PART 3 EXECUTION

1.1 EXAMINATION

- A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Beginning new Work means acceptance of existing conditions.
- B. Verify that existing substrate is capable of structural support or attachment of new Work being applied or attached.
- C. Examine and verify specific conditions described in individual specification sections.
- D. Examine and verify specific conditions described in individual specification sections.
- E. Verify that utility services are available, of the correct characteristics, and in the correct locations.

(END OF SECTION)

SECTION 01 45 00 - QUALITY CONTROL

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Quality assurance and control of installation
- B. Submittals
- C. References
- D. Inspection and testing laboratory/agency services
- E. Daily Project Reports
- F. Surveys

1.2 RELATED SECTIONS

- A. Section 01 33 00 - Submittal Procedures
- B. Section 01 43 26 - Testing Laboratory/Agency Service
- C. Section 01 60 00 - Product Requirements
- D. Section 01 79 00 - Demonstration and Training

1.3 QUALITY ASSURANCE/CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship to produce Work of specified quality.
- B. Comply fully with manufacturer's instructions, including each step-in sequence.
- C. Should manufacturer's instructions conflict with Contract Documents, request clarification from the Architect before proceeding.
- D. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform Work by persons qualified to produce workmanship of specified quality.
- F. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibrations, physical distortion or disfigurements.

1.4 SUBMITTALS

- A. Daily Project Reports/Logs: Contractor to maintain daily project reports. Submit copies of daily reports to the Owner or Architect on a weekly basis. Indicate general information pertaining to job progress (activities, construction progress), weather conditions, temperatures, which subcontractors are working, work in progress, delays anticipated and cause of such delays, quality control, inspections made by other authorities, conferences held and visitors to the site. Weekly submittal may include progress photographs as detailed in Section 01380 – Construction Photographs.

1.5 REFERENCES

- A. Conform to reference standard by date of issue current on date of Contract Documents.
- B. Should specified reference standards conflict with Contract Documents, request clarification from the Architect before proceeding.
- C. The contractual relationship of the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.6 LABORATORY/AGENCY SERVICES

- A. Owner will appoint, employ and pay for services of an independent firm to perform inspection and testing, unless noted otherwise (Section 01 43 26).

1.7 SURVEYS

- A. Contractor to conduct and maintain site survey; maintain controls, protect staking throughout project duration. Surveyor to be certified and licensed to conduct required survey in the State of Colorado.
- B. Project Survey (As Built) for closeout: Horizontal and vertical control to be established. Control points established from the Topo and Land Survey Plat to be used throughout construction and through final record survey. Survey to contain information from a Topographical and Land Survey Plat. To include but not be limited to:
 - 1. Manholes, Sewer lines, sidewalk edges, final grade, finish floor elevations.
- C. Contractor to also GPS underground utilities:
 - 1. Survey Coordinate system: State Plane, Colorado North NAD 83.
 - 2. A center meter inch or better GPS must be used to locate each point. Horizontal and Vertical.
 - 3. Included lines to be GPS located: Water, Gas, Electric, Fiber Optic, Sewer, Storm Water

4. A top of line and finish grade must be GPS located at each point starting at the tap location and every 20' there after.
 5. All bends must be GPS located at the beginning, apex and end of each bend.
 6. Each manhole must have top rim and invert located. Each Vault box must have a top of box and invert of pipe location.
 7. Building corners at finish grade must also be GPS located.
 8. Fire lines, geothermal well field (header pipes), property lines, and benchmark control points to be GPS located.
 9. Any surveys must contain an ACAD file as well a GIS format with shape files.
- D. Final Record Survey and information to be submitted in electronic and hard copy with close out documents.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

(END OF SECTION)

SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Temporary Utilities: electricity, lighting, heat, ventilation, telephone service, water, and sanitary facilities.
- B. Temporary Controls: barriers, enclosures and fencing, protection of the Work, and water control.
- C. Construction facilities: access roads, parking, signs.

1.2 RELATED SECTIONS

- A. Section 01 52 00 - Field Offices and Sheds
- B. Section 01 77 00 - Closeout Procedures

ADDITION/REMODEL PROJECTS:

1.3 ADDITION/REMODEL PROJECTS

- A. Existing utility services must be maintained and operational at all times. Service interruptions must be scheduled with the Owners Representative at least 72 hours in advance. Disruption of existing services will not be allowed if it results in the closure of school activities.

1.4 TEMPORARY VENTILATION

- A. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors or gases.

1.5 TEMPORARY SANITARY FACILITIES

- A. Contractors will not have access to facility restrooms.
- B. Provide and maintain required facilities and enclosures.
 - C. Adequate barriers are to be provided to protect building occupants from access, physically and visually.
 - D. Location to be determined with Owner and Architect at the Pre-construction conference.
 - E. Weekly cleaning of the facilities is required.

1.6 BARRIERS

- A. Provide barriers to prevent unauthorized entry to construction areas and to protect adjacent properties from damage from construction operations and demolition.
- B. Provide barricades and covered walkways required by Governing Authorities for public rights-of-way.
- C. Provide protection for plant life designated to remain. Replace damaged plant life.
- D. Protect non-owned vehicular traffic, stored materials, site and structures from damage.
- E. Provide adequate barriers for routing building occupants around construction areas during phasing of projects within occupied buildings. Methods to be approved by Owner and Architect.

1.7 FENCING

- A. Provide six (6) foot high chain link fence around construction site. Equip with vehicular and pedestrian gates with locks. Any use of barbed wire is not acceptable.

1.8 EXTERIOR ENCLOSURES

- A. Provide temporary weather-tight closure of exterior openings to accommodate acceptable working conditions and protection for products, to allow for temporary heating and maintenance of temperatures identified in individual specification sections, and to prevent entry of unauthorized persons. Provide access doors with self-closing hardware and locks.

1.9 PROTECTION OF INSTALLED WORK

- A. Protect installed Work and provide special protection where specified in individual specification sections.
- B. Provide temporary and removable protection for installed products. Control activity in immediate work area to minimize damage.
- C. Provide protective coverings at walls, projections, jambs, sills and soffits of openings.
- D. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet material.

- E. Prohibit traffic or storage upon waterproof or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- F. Prohibit traffic from landscaped areas.

1.10 SECURITY

- A. Provide security and facilities to protect Work and Owner's operations from unauthorized entry, vandalism or theft.

1.11 PARKING

- A. Provide adequate temporary parking areas to accommodate construction personnel.
- B. When site space is not adequate, provide additional off-site parking.
- C. Parking on occupied facility sites may be coordinated with the Owner. Not to interrupt or impede the use of the parking area by building occupants.

1.12 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary above grade or buried utilities, equipment, facilities, materials, prior to Substantial Completion.
- B. Clean and repair damage caused by installation or use of temporary Work.
- C. Restore permanent facilities used during construction to specified condition.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

(END OF SECTION)

SECTION 01 60 00 – PRODUCT REQUIREMENTS

PART 1 GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Products
- B. Transportation and Handling
- C. Storage and Protection

1.2 RELATED REQUIREMENTS

- A. Section 01 77 00 - Closeout Procedures

1.3 PRODUCTS

- A. Products include material, equipment, and systems.
- B. Comply with Specifications and referenced standards as minimum requirements.
- C. Components required to be supplied in quantity within a specification section shall be of one manufacturer for the same product.

1.4 TRANSPORTATION AND HANDLING

- A. Transport products by methods to avoid product damage; deliver in undamaged condition in manufacturer's unopened containers or packaging.
- B. Provide equipment and personnel to handle products by methods to prevent soiling or damage.
- C. Promptly inspect shipments to assure that products comply with requirements, quantities are correct, and products are undamaged.

1.5 STORAGE AND PROTECTION

- A. Store products in accordance with manufacturer's instructions with seals and labels intact and legible. Store sensitive products in weather-tight enclosures; maintain within temperature and humidity ranges required by manufacturer's instructions.
- B. For exterior storage of fabricated products, place on sloped supports above ground. Cover products subject to deterioration with impervious sheet covering; provide ventilation to avoid condensation.
- C. Store loose granular materials on solid surfaces in a well-drained area; prevent mixing with foreign matter.
- D. Arrange storage to provide access for inspection. Periodically inspect to assure products are undamaged, and are maintained under required conditions.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

(END OF SECTION)

SECTION 01 66 00 - NON-UTILIZATION OF ASBESTOS MATERIAL

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Restrictions on the use of asbestos containing products and requirements for certification by Contractor and subcontractors.
- B. If asbestos containing material (ACM) is discovered during construction, Contractor is to notify the Owner immediately for evaluation and removal.

1.2 NON-USE OF ASBESTOS CONTAINING MATERIAL

- A. No asbestos or asbestos containing products shall be used in this construction or in any tools, devise, clothing or equipment used to affect this construction. Specific exceptions to this exclusion are as follows: vehicles with asbestos containing material (ACM) brake linings; elevator brake linings; laboratory muffle furnace with interior ACM insulation.

1.3 DEFINITION AND TESTING

- A. Asbestos and/or asbestos-containing products shall be defined as all items containing chrysotile, crocidolite, amosite, anthophyllite, tremolite or actinolite.
 - 1. Any or all material containing greater than one tenth of one percent (0.1%) asbestos shall be defined as ACM.
 - 2. Any disputes involving the question of whether or not material contains asbestos shall be settled by electron microscopy; the costs of any such tests which confirm the presence of ACM shall be paid by the Contractor; if no ACM is found, the cost of such tests shall be borne by the Owner.

1.4 REMEDIATION

- A. All work or materials found to contain asbestos or work or material installed with asbestos-containing equipment will be immediately rejected upon discovery and this Work will be remediated at no additional cost to the Owner. Such cost for remediation shall include, but is not limited to, cost of; the asbestos contractor, insurance, asbestos consultant, analytical and laboratory fees, and any other additional cost as may be incurred by Owner.

1.5 CERTIFICATION

- A. The Contractor shall certify, on the Certification of Nonuse of Asbestos Form – Attachment C, that to the best of his knowledge no ACM was used as a building material in the construction of the Project. Attachment C is to be submitted in a separate folder with the closeout documents. Attachment C follows this section.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

(END OF SECTION)

FORM
CONTRACTORS/ARCHITECTS CERTIFICATION
OF NON-USE OF ASBESTOS CONTAINING BUILDING MATERIAL

PROJECT NAME: _____ PROJECT NO. _____

PROJECT ARCHITECT: _____

CONSTRUCTION DATES:
NOTICE TO PROCEED (START): _____

SUBSTANTIAL COMPLETION DATE: _____

SQUARE FEET: _____
(BUILDING OR PROJECT AREA)

I certify that for the project described above, to the best of my knowledge, no asbestos-containing material (ACM) was used as a building material in the construction of this project.

Construction Company's Name

Name & Title

Signature

Date

I certify that for the project described above, to the best of my knowledge, no asbestos-containing material (ACM) was used as a building material in the construction of this project.

Architect's Company's Name

Name & Title

Signature

Date

SECTION 01 73 29 - CUTTING AND PATCHING

PART 1 GENERAL

- 1.1 REQUIREMENTS INCLUDED
 - A. Requirements and limitations for cutting and patching of Work
- 1.2 RELATED REQUIREMENTS
 - A. Section 01 60 00 - Product Requirements
 - B. Individual Specification Sections:
 - 1. Cutting and patching incidental to Work of the Section
 - 2. Advance notification to other sections of openings required in Work of those sections.
 - 3. Limitations on cutting structural members
- 1.3 SUBMITTALS
 - A. Submit written request to the Architect with copy to Owner for approval prior to proceeding in advance of cutting or alteration which affects:
 - 1. Structural integrity of any element of Project
 - 2. Integrity of weather-exposed or moisture-resistant element
 - 3. Efficiency, maintenance, or safety of any operational element
 - 4. Visual qualities of sight-exposed elements
 - B. Include in request:
 - 1. Identification of Project
 - 2. Location and description of affected Work
 - 3. Necessity for cutting or alteration
 - 4. Description of proposed Work, and products to be used
 - 5. Alternatives to cutting and patching
 - 6. Effect on Work of Owner or separate contractor
 - 7. Date and time Work will be executed

PART 2 PRODUCTS

- 2.1 MATERIALS
 - A. Those required for original installation

PART 3 EXECUTION

- 3.1 EXAMINATION
 - A. Inspect existing conditions, including elements subject to damage or movement during cutting and patching.
 - B. After uncovering, inspect conditions affecting performance of Work.
 - C. By starting cutting or patching operations, the contractor acknowledges acceptance of existing conditions and the responsibility to restore cut and patched area to its original condition.
- 3.2 PREPARATION
 - A. Provide supports to assure structural integrity of surrounding, devise and methods to protect other portions of Project from damage.
 - B. Provide protection from elements for areas which may be exposed by uncovering Work.
 - C. Maintain excavations free of water.
- 3.3 CUTTING AND PATCHING
 - A. Execute cutting, fitting and patching to complete Work and to: Fit the several parts together, to integrate with other Work.
 - B. Uncover Work to install ill-timed Work.
 - C. Remove and replace defective and non-conforming Work.
 - D. Remove samples of installed Work for testing.
 - E. Provide openings in elements of Work for penetrations of mechanical and electrical work.
- 3.4 PERFORMANCE
 - A. Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.

- B. Employ experienced installers to perform cutting and patching for weather-exposed and moisture-resistant elements, and sight-exposed surfaces.
- C. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.
- D. Restore Work with new products in accordance with requirements of Contract Documents.
- E. Fit Work airtight and watertight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- F. At penetrations of fire-rated wall, ceiling or floor construction, completely seal voids with fire-resistant material, full thickness of the construction element.
- G. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection; for an assembly, refinish entire unit.

(END OF SECTION)

SECTION 01 74 13 - PROGRESS CLEANING

PART 1 GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Cleaning and disposal of waste materials, debris, and rubbish during construction.

1.2 RELATED REQUIREMENTS

- A. Section 00 72 00 - General Conditions
- B. Section 01 35 10 - Construction Recycling
- C. Section 01 74 23 - Final Cleaning
- D. Individual Specification Sections: specific cleaning for product or Work

PART 2 PRODUCTS

2.1 EQUIPMENT

- A. Provide covered containers for deposit of waste materials, debris, and rubbish.

PART 3 EXECUTION

3.1 CLEANING

- A. Maintain areas under Contractor's control free of waste materials, debris, and rubbish. Maintains site in a clean and orderly condition. Site to be broom swept once per week.
- B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to closing the space.
- C. Daily clean interior areas to provide suitable conditions for Work.
- D. Broom clean interior areas prior to start of surface finishing, and continue cleaning on an as-needed basis.
- E. Control cleaning operations so that dust and other particles will not adhere to wet or newly coated surfaces.
- F. Measures to be taken to prevent debris from leaving the construction area via wind or run off. Lids on containers may be required, regular cleaning of site.
- G. In operating facilities, no trash/debris or construction materials shall be located in occupied areas or where occupants will be walking.
- H. Cleaning may extend beyond the limits of construction in occupied facilities. The Architect and Owner will determine the extent of the cleaning if needed. Contractor is to make every effort to coordinate cleaning with the Owner. Projects in occupied facilities typically create dust and traffic dirt that extends into the occupied areas.
- I. Contractor is to make every effort to contain construction dust, trash, debris within the limits of construction. This may include, but is not limited to; temporary doors, tenting of areas and modifying traffic routes through the facility.

3.2 DISPOSAL

- A. Remove waste materials, debris, and rubbish from site weekly and dispose of off-site in a legal manner.
- B. Recycling of unused materials is required to meet the requirements of Section 01 35 10 – Construction Recycling.
- C. Removal shall be coordinated with the facility schedule to avoid conflict with building occupants.

(END OF SECTION)

SECTION 01 74 23 - FINAL CLEANING

PART 1 GENERAL

- 1.1 REQUIREMENTS INCLUDED
 - A. Final cleaning of project
- 1.2 RELATED REQUIREMENTS
 - A. Section 00 72 00 - General Conditions
 - B. Section 01 74 13 - Progress Cleaning
 - C. Section 01 77 00 - Closeout Procedures
 - D. Individual Specification Sections: Specific cleaning for product or work
- 1.3 DESCRIPTION
 - A. Execute cleaning prior to inspection for Substantial Completion of each designated portion of the Work.
 - B. Engagement of a professional cleaning firm is the responsibility of the Contractor.

PART 2 PRODUCTS

- 2.1 CLEANING MATERIALS
 - A. Use materials which will not create hazards to health or property and which will not damage surfaces.
 - B. Use only materials and methods recommended by manufacturer of material being cleaned.

PART 3 EXECUTION

- 3.1 CLEANING
 - A. In addition to removal of debris and cleaning specified in other sections, clean interior and exterior of surfaces. No construction debris shall be evident.
 - B. Final Cleaning may extend beyond the limits of construction in occupied facilities due to the construction operations. The Architect and Owner will determine the extent of the cleaning that is required during various site inspections and punch list walks.
 - 1. Contractor is to make every effort to contain construction dust, trash, debris within the limits of construction. This may include, but is not limited to; temporary doors, tenting of areas and modifying traffic routes through the facility.
 - C. Remove temporary protection and labels not required to remain.
 - D. Clean finishes free of dust, stains, films and other foreign substances.
 - E. Clean transparent and glossy materials to a polished condition; remove foreign substances. Polish reflective surfaces to a clear shine.
 - F. Vacuum clean carpeted and similarly soft surfaces. Sweep and mop all VCT/CT and similar hard surfaces. Materials should be free from all construction evidence (from spills, dents, cuts, etc.).
 - G. Clean permanent filters of ventilation equipment and replace disposable filters when units have been operated during construction. In addition, clean ducts, blowers and coils when units have been operated without filters during construction.
 - H. Clean light fixtures and lamps.
 - I. Maintain cleaning until Completion.
 - J. Remove waste, debris, and surplus materials from site. Clean grounds. Remove stains, spills and foreign substances from paved areas and sweep clean. Rake clean other exterior surfaces.

(END OF SECTION)

SECTION 01 75 00 – STARTING AND ADJUSTING

PART 1 GENERAL

- 1.1 SECTION INCLUDES
 - A. Starting systems

- 1.2 RELATED SECTIONS
 - A. Section 01 45 00 - Quality Control
 - B. Section 01 75 00 - Testing, adjusting and balancing of systems
 - C. Section 01 77 00 - Closeout Procedures
 - D. Section 01 79 00 - Demonstration and Training
 - E. Divisions 20 thru 29 - Mechanical

- 1.3 STARTING SYSTEMS
 - A. Coordinate schedule for start-up of various equipment and systems
 - B. Notify the Architect (10) days prior to start-up of each item
 - C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, or other conditions which may cause damage.
 - D. Verify that each component of each system performs as designed and in conformance to manufacturer's recommendations to comprise complete and fully functional environmental systems.
 - E. Verify that test, meter reading, and specified electrical characteristics agree with those required by the equipment or system manufacturer.
 - F. Verify wiring and support components for equipment are complete and tested i.e. electrical systems are properly open without restriction, all normally open positions are active, controls safely operational.
 - G. All mechanical equipment shall be started and placed into operation by the manufacturer's authorized representative under the supervision of responsible Contractor's personnel and the Owner's representative. Any equipment requiring field assembly fabrication or wiring shall have such work done under the direct supervision of the manufacturer's representative. Prior to final approval, the Contractor shall submit letters of evidence from the manufacturer verifying conformance with these requirements.
 - H. The operation and function of all air conditioning equipment and controls shall be fully understood by the air conditioning contractor's project representative. This representative shall be present at the site on a full-time basis during start-up. Prior to final approval, contractor shall submit in triplicate copies of the system start up report. This report shall contain a daily log prepared by the project representative of all events involving the system during start-up.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

(END OF SECTION)

SECTION 01 77 00 - CLOSEOUT PROCEDURES

PART 1 GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Administrative provisions for Substantial Completion and for final acceptance.

1.2 RELATED REQUIREMENTS

- A. ~~Section 00 72 00 - General Conditions~~: Fiscal provisions and additional administrative requirements.
- B. Section 01 11 00 - Summary of Work
- C. Section 01 45 00 - Quality Control
- D. Section 01 60 00 - Non-Utilization of Asbestos Material
- E. ~~Section 01 71 23 - Field Engineering / Survey~~
- F. Section 01 74 23 - Final Cleaning
- G. Section 01 78 23 - Operation and Maintenance Data
- H. Section 01 78 43 - Spare Parts and Maintenance Materials
- I. Section 01 78 39 - Project Record Drawings
- J. All other Sections and submittals/requirements therein.

1.3 SUBSTANTIAL COMPLETION

- A. Courtesy Inspection: When Contractor considers Work or designated portion of Work is nearly or substantially complete, he shall submit written notice and request a courtesy inspection by the Architect. If the courtesy inspection indicates Contractor is ready for Substantial Completion Inspection, it will be scheduled at this time. Contractor to provide 10 days notice.
- B. Contractor is to conduct Punch List inspection prior to Substantial Inspection. Contractor is to submit the punch list with the request for Substantial Completion Inspection. Punch List by Contractor should show all items which remain deficient.
- C. Substantial Completion Inspection: Upon written notice, and submission of Contractor's deficiency list, the Architect will inspect the project with the Contractor. Additional deficiencies will be noted and a comprehensive list of items to be completed or corrected shall be prepared by the Architect.
 - 1. During the inspection, should the list become too extensive in the judgment of the Architect to constitute Substantial Completion, the inspection may be terminated, and the Contractor notified in writing. Reinspection will not take place until the majority of deficiencies are corrected. Contractor would have to formally request the reinspection.
 - 2. Reinspection Fee: Should the Contractor fail to complete and correct punch list items such that numerous additional inspections are required by the Architect, the Contractor will be billed at \$95 per hour for the Architect's and/or his consultants time or additional services. The Architect shall inform the Contractor prior to coordinating inspections that will be charged in this manner. If the Contractor has any questions with regard to any items on the punch list, he shall request clarification before final inspection. The Architect is to conduct a Substantial Completion Inspection and a Final Inspection for each area as agreed upon during the Project.
 - 3. Should the Architect find the Work is Substantially Complete after reviewing the list, a Certificate of Substantial Completion shall be prepared in accordance with provisions of the General Conditions of the Contract Documents (Refer to section 9.8 of the AIA A201). The list of deficiencies shall be attached to the Certificate of Substantial Completion. List shall include all inspections i.e. mechanical, electrical, landscaping, structural depending on portion of work being inspected for Substantial Completion.
- D. Should the Architect's inspection find Work that is not substantially complete, he will promptly notify Contractor in writing, listing observed deficiencies.
- E. Contractor shall remedy deficiencies and send a second written notice of Substantial Completion.

1.4 FINAL COMPLETION

- A. When Contractor considers Work is complete, submit written certification:
 - 1. Contract Documents have been reviewed.
 - 2. Work has been inspected for compliance with Contract Documents.
 - 3. Work has been completed in accordance with Contract Documents, and deficiencies listed with Certificate of Substantial Completion have been corrected in full.
 - 4. Equipment and systems have been tested, adjusted and balanced and are fully operational.
 - 5. Operation of systems has been demonstrated to Owner's personnel.
 - 6. Work is complete and ready for final inspection.
 - 7. Contractor to allow 10 days notice for coordination of Final Inspection.

- B. Should the Architect find Work incomplete, he will promptly notify Contractor in writing listing observed deficiencies.
- C. Contractor shall remedy deficiencies and send a second certification of final completion.
- D. When the Architect finds work is complete, closeout submittals will be considered.

1.5 REINSPECTION FEES

- A. Should status of completion of Work require reinspection by the Architect due to failure of Work to comply with Contractor's claims on initial inspection, Owner will deduct the amount of Architect's compensation for reinspection services from final payment to Contractor.

1.6 CLOSEOUT SUBMITTALS

- A. Evidence of compliance with requirements of governing authorities, governing entities, and governing utility companies:
 - 1. Certificate of Occupancy (permit sign off)
 - 2. Certificate of Inspection required for fire alarm, sprinkler, sound, mechanical and electrical systems (others as applicable).
 - 3. Letter of Acceptance from governing entity for all offsite improvements.
 - 4. Letters of Acceptance from sanitation district, water district, electric company, gas company and telephone company.
 - 5. Completion of Final Inspection Punchlist items.
- B. Project record documents: under provisions of Section 01 78 39.
- C. Operation and Maintenance Data: under provisions of Section 01 78 23.
- D. Warranties and Bonds
- E. Spare Parts and Maintenance Materials: under provisions of Section 01 78 43.
- F. Keys and keying schedule: under provisions of Section 08 00 00.
- G. Evidence of Payment and Release of Liens: in accordance with Conditions of the Contract.
- H. Consent of Surety to Final Payment.
- I. Certificates of Insurance for Products and Completed Operations: in accordance with Supplementary Conditions.
- J. Contractor's one-year guarantee of materials and workmanship
- K. All guarantees, warranties and submittals, as specified
- L. Receipts for extra materials delivered to the Owner
- M. Miscellaneous keys, switches, etc.
- N. Final Application for Payment
- O. HVAC Test and Balance Report
- P. Spare Parts 01 78 43
- Q. Construction Photographs 01 32 33
- R. Survey per Section 01 71 23.
- S. Non-utilization of asbestos material –Section 01 66 00.

1.7 STATEMENT OF ADJUSTMENT OF ACCOUNTS

- A. Submit final statement reflecting adjustments to Contract Sum indication.
 - 1. Original Contract Sum
 - 2. Previous change orders
 - 3. Changes under unit prices
 - 4. Deductions for uncorrected work
 - 5. Deduction for liquidated damages
 - 6. Deductions for reinspection fees
 - 7. Other adjustments to Contract Sum
 - 8. Total Contract Sum as adjusted
 - 9. Previous payments
 - 10. Sum remaining due
- B. The Architect will issue a final Change Order reflecting approved adjustments to Contract Sum not previously made by change orders.

1.8 APPLICATION FOR FINAL PAYMENT

- A. Submit application for final payment in accordance with provisions of the Contract Documents.
- B. Final Payment will be made to the Contractor after all listed deficiencies have been corrected, all closeout submittal have been received/approved, all certification(s) and/or authorizations from the Colorado State Labor Commission and the State Industrial Insurance System (SIIS) have been received and approved by the Owner.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

(END OF SECTION)

SECTION 01 78 23 – OPERATION AND MAINTENANCE DATA

PART 1 GENERAL

- 1.1 SECTION INCLUDES
 - A. Format and content of manuals
 - B. Instruction of Owner's personnel
 - C. Schedule of submittals

- 1.2 RELATED SECTIONS
 - A. Section 01 33 00 - Submittal Procedures
 - B. Section 01 60 00 - Product Requirements
 - C. Section 01 77 00 - Closeout Procedures
 - D. Section 01 79 00 - Demonstration and Training
 - E. Individual Specification Sections: Specific requirements for operation and maintenance data

- 1.3 QUALITY ASSURANCE
 - A. Provide complete instruction manuals and data prepared by personnel experienced in maintenance and operation of described products.

- 1.4 FORMAT
 - A. Provide data in the form of an equipment and system instructional manual.
 - B. Electronic version required in pdf format (1 continuous file).
 - C. Cover: identify each binder with typed or printed information:
 - 1. Title: "OPERATION AND MAINTENANCE INSTRUCTIONS".
 - 2. Project name, number
 - D. Arrange contents by system under section numbers and sequence of Table of Contents of this Project Manual.
 - 1. Provide tabbed fly leaf for each separate product and system with typed description of product and major component parts of equipment.
 - 2. Manufacturer's printed data and contractor provided documentation.
 - 3. Drawings.

- 1.5 CONTENT, EACH VOLUME
 - A. Table of Contents: provide title of Project, names, addresses and telephone numbers of Architect, sub consultants, and Contractor with name of responsible parties; schedule of products and systems, indexed to content of the volume.
 - B. Warranty matrix: Summary spreadsheet listing every item under warranty indicating: length of warranty, start/end dates, contact (name, address, contact, phone/fax numbers), and the corresponding tab under which item can be found.
 - C. For each product or system: list names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts and data applicable to installation. Delete inapplicable information.
 - D. Drawings: supplement product data to illustrate relations of component parts of equipment and systems to show control and flow diagrams. Do not use project record documents as maintenance drawings.
 - E. Type text: as required to supplement product data.
 - F. Warranties and bonds: under corresponding equipment tab.
 - G. Materials matrix: Summary of all materials used including color and texture.
 - H. Additional requirements: as specified in individual product specification sections.

- 1.6 MANUAL FOR EQUIPMENT AND SYSTEMS
 - A. Each item of equipment and each system: include description of unit or system and component parts. Identify function, normal operating characteristics, and limiting conditions. Include performance curves with engineering data and tests and complete nomenclature and commercial number of replaceable parts.
 - B. Panelboard circuit directories: provide electrical service characteristics, controls and communications.
 - C. Include color-coded wiring diagrams as installed.
 - D. Operating procedures: include manufacturer's start up, break in and routine normal operating instruction and sequences. Include regulation, control, stopping, shut down and emergency instructions. Include summer, winter and any special operating instruction.

- E. Maintenance requirements: include manufacturer's routine procedures and guide for trouble-shooting, disassembly, repair and reassembly instructions. Alignment, adjusting, balancing and checking instructions to be included.
- F. Provide servicing and lubrication schedule and list of lubricants required.
- G. Include sequence of operation by controls manufacturer.
- H. Provide original manufacturer's parts list, illustrations, assembly drawings and diagrams required for maintenance.
- I. Provide control diagrams by controls manufacturer as installed.
- J. Provide Contractor's coordination drawings with color-coded piping diagrams as installed.
- K. Provide list of original manufacturer's spare parts, current prices and recommended quantities to be maintained in storage.
- L. Additional requirements as specified in individual product specification sections.

1.7 SUBMITTALS

- A. Submit to the Architect adequate original manuals to allow the Owner to keep one (1) complete/approved manuals containing all equipment and system manufacturer's product data. Manual contents and organization shall be as required herein.
- B. For equipment or component parts of equipment put into service during construction and operated by Owner, submit documents within ten (10) days after acceptance. Additional copies of any such documents shall also be provided in final manual.
- C. Submit one CD of manuals in pdf format. They must be complete.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

(END OF SECTION)

SECTION 01 78 39 - PROJECT RECORD DOCUMENTS

PART 1 GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Maintenance of Record Documents
- A. Submittal of Record Documents

1.2 RELATED REQUIREMENTS

- A. Section 01 33 00 - Submittal Procedures
- B. Section 01 77 00 - Closeout Procedures
- C. Individual Specification Sections: Manufacturer's certificates and certificates of inspection.

1.3 MAINTENANCE OF DOCUMENTS AND SAMPLES

- A. In addition to requirements in General Conditions, maintain at the site one record copy of:
 - 1. Contract Drawings
 - 2. Specifications
 - 3. Addenda
 - 4. Change Orders and other modifications to the Contract
 - 5. Reviewed shop drawings product data, and samples
 - 6. Inspection certificates
 - 7. Manufacturer's certificates
- B. Store record documents and sample in field office apart from documents used for construction. Provide files, racks and secure storage for record documents and samples.
- C. Label and file record documents and samples in accordance with section number listings in Table of Contents of the Project Manual. Label each document "PROJECT RECORD" in neat, large, printed letters.
- D. Maintain record documents in a clean, dry and legible condition. Do not use record documents for construction purposes.
- E. Keep record documents and samples available for inspection by Architect.

1.4 RECORDING

- A. Contract drawings and shop drawings: legibly mark each item to record actual construction including:
 - 1. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of construction.
 - 2. Field changes of dimension and detail.
 - 3. Changes made by modifications
 - 4. Details not on original contract drawings.
 - 5. References to related shop drawings and modifications.
 - 6. Daily record information on a set of blue line opaque drawings and in a copy of a Project Manual, provided by Owner.
 - 7. Any GPS info as is conducted on site.
- B. Specifications: legibly mark each item to record actual construction including:
 - 1. Manufacturer, trade name, and catalog number of each product actually installed, particularly optional items and substitute items.
 - 2. Changes made by addenda and modifications.
 - 3. Daily record information on a set of blue line opaque drawings, and in a copy of a Project Manual, provided by Owner.
 - 4. The information in this document to be copied to a 3-ring bound Project Manual and submitted as the Project Record Specification at Final Completion.
- B. Provide felt tip marking pens, maintaining separate colors for each major system, for recording information.
- C. Record information concurrently with construction progress. Do not conceal any work until required information is recorded.
- D. Other documents: maintain manufacturer's certifications, inspection certifications required by individual specifications sections.

1.5 SUBMITTALS

- A. At Contract closeout, deliver record documents and samples to the Architect.
- B. Record documents required, include but are not limited to the following list:

1. Record drawings
 2. Record specifications
 3. Record survey
 4. Contractor's certified punch list
- C. Transmit with cover letter in duplicate, listing:
1. Date
 2. Project title and number
 3. Contractor's name, address, and telephone number
 4. Number and title of each record document
 5. Signature of Contractor or authorized representative
- D. Contractor is to sign each sheet of the record drawings that are turned over to the Architect. Subcontractors are to sign their respective sheets of the Work.
- E. Final payment to the Contractor is contingent on the satisfactory completion of items A-D above and confirmation from the Architect that all of the project information needed to complete a Record Set of Documents has been provided.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

(END OF SECTION)

SECTION 01 78 43 - SPARE PARTS AND MAINTENANCE MATERIALS

PART 1 GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Products required
- B. Storage and delivery of products

1.2 RELATED REQUIREMENTS

- A. Section 01 33 00 - Submittal Procedures
- B. Section 01 60 00 - Product Requirements: Storage and Protection
- C. Section 01 77 00 - Closeout Procedures
- D. Section 01 78 23 - Operation and Maintenance Data
- E. Individual Specification Sections: Specific spare parts and materials required.

1.3 PRODUCTS REQUIRED

- A. Provide quantities of products, spare parts, maintenance tools and maintenance materials specified in individual sections to be provided to Owner, in addition to that required for completion of Work.
- B. Products: identical to those installed in the Work. Include quantities in original purchase from supplier to avoid variations in manufacturer.
- C. Summary reference schedule to supplement individual Sections is included in this Section.

1.4 STORAGE AND MAINTENANCE

- A. Store products with products to be installed in the Work, under provisions of Section 01 60 00.
- B. When adequate, secure storage facilities are available at site, capable of maintaining conditions required for storage and not required for Contract Work or storage, spare products may be stored in available space.
- C. Maintain spare products in original containers with labels intact and legible, until delivery to Owner. No opened or partially used cans of paint will be accepted.

1.5 DELIVERY

- A. Coordinate with Architect/Owner:
 - 1. Provide Architect with list of all items (see paragraph 1.6 of this Section) required per the specifications, for review and approval, listing:
 - a. Section
 - b. Paragraph
 - c. Item
 - d. Requirement (quantity, color, etc.)
 - 2. Upon approval, Contractor will deliver and unload spare products at Project Site and coordinate inspection by the Architect.
 - 3. Architect will confirm all required items are provided in acceptable condition and accept the materials in writing. Contractor to obtain receipt prior to final payment.

1.6 SCHEDULE OF SPARE PARTS AND MAINTENANCE MATERIALS

- A. Separate the summary of materials by: Architectural, Mechanical/Plumbing, Electrical. Use the following format.

ARCHITECTURAL

Section	Paragraph	Item	Requirement	Architect's acceptance (date)

(END OF SECTION)

SECTION 01 79 00 – DEMONSTRATION AND TRAINING

PART 1 GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Procedures for demonstration of equipment operation and instruction of Owner's personnel.

1.2 RELATED REQUIREMENTS

- A. Section 01 45 00 - Quality Control
- B. Section 01 75 00 - Starting and Adjusting
- C. Section 01 77 00 - Closeout Procedures
- D. Section 01 78 23 - Operation and Maintenance Data
- E. Facility Services Subgroup (Divisions 20 thru 29) – Mechanical / Electrical
- F. Individual Sections: Specific requirements for demonstrating systems and equipment.

1.3 QUALITY ASSURANCE

- A. When specified in individual Sections, require manufacturer to provide authorized representative to demonstrate operation of equipment and systems, instruct Owner's personnel, and provide written report that demonstrations and instruction have been completed.
- B. Owner/Architect will provide list of personnel to receive instructions, and will assist in coordinating their attendance at agreed-upon times.

1.4 SUBMITTALS

- A. Submit preliminary schedule for Architect and Owner's approval, listing times and dates for demonstration of each item of equipment and each system, two weeks prior to proposed dates.
- B. Submit reports within one week after completion of demonstrations, that demonstrations and instructions have been satisfactorily complete. Give time and date of each demonstration, and hours devoted to demonstration, with a list of persons present.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.1 PREPARATION

- A. Verify equipment has been inspected and put into operation in accordance with Section 01 91 00 – Testing, Adjusting and balancing has been performed in accordance with Section 01 75 00, and equipment and systems are fully operational.
- B. A set of Operation and Maintenance Manuals must be available for use in demonstrations and instructions, in a form as approved by Architect and Owner, appropriate for the level/intensity of training required.

3.2 DEMONSTRATION AND INSTRUCTIONS

- A. Demonstrate operation and maintenance of equipment and systems to Owner's personnel two weeks prior to date of final inspection. For equipment requiring seasonal operation, perform instruction for other seasons within nine months.
- A. Use Operation and Maintenance manuals and HVAC test and balance reports as basis of instruction. Review contents of manual and reports with personnel in detail to explain all aspects of operation and maintenance.
- B. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at agreed-upon times at equipment location.
- C. Prepare and insert additional data in operations and maintenance manuals when needed for additional data becomes apparent during instructions.

3.3 TIME ALLOCATED FOR INSTRUCTIONS

- A. The cost of time required for instruction on each item of equipment and system is to be included in the base bid.

(END OF SECTION)

SECTION 024119 - SELECTIVE DEMOLITION AND REMOVALS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Removal of selected site and building elements.
2. Salvage of existing items to be reused or recycled, as indicated on the drawings, and including but not limited to:
 - a. ACP Ceiling Systems including Grid and Panels
 - b. Door Hardware
 - c. Ceiling-mounted electrical devices.
 - d. Reference responsibility matrix in Drawings.

B. Related Requirements:

1. Section 011000 "Summary" for restrictions on the use of the premises, Owner-occupancy requirements, and phasing requirements.

1.2 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.
- 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.
- E. Demolish: Remove.

1.3 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.

1.4 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.

1.5 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.

1.6 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.

1.7 QUALITY ASSURANCE

- A. Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.

1.8 COORDINATION

- A. Coordinate removals and new construction of architectural, structural, mechanical, plumbing and electrical systems prior to initiating construction. Establish a schedule for removals, noting duration between service interruptions and new systems being operational.

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. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- C. Hazardous Materials: Hazardous materials are present in buildings and structures to be selectively demolished. A report on the presence of hazardous materials is on file for review and use. Examine report to become aware of locations where hazardous materials are present.
 - 1. Hazardous materials will be removed by Owner before start of the Work.
 - 2. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.
- D. Storage or sale of removed items or materials on-site is not permitted.
- E. Building Services: Maintain all existing building systems and services, except those specifically identified for removal. Where required, protect building systems and services against damage during selective demolition operations.

1.10 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties. Notify warrantor before proceeding.
- B. Notify warrantor on completion of selective demolition, and obtain documentation verifying that existing system has been inspected and warranty remains in effect. Submit documentation at Project closeout.

PART 2 - PRODUCTS

2.1 PERFORMANCE 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. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs and preconstruction video recordings.
 - 1. Inventory and record the condition of items to be removed and salvaged. Provide photographs or video of conditions that might be misconstrued as damage caused by salvage operations.
 - 2. Before selective demolition or removal of existing building elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction.

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."
- 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. Arrange to shut off indicated utilities with utility companies.
 3. 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.
 4. 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 "Temporary Facilities and 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 "Temporary Facilities and 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. Comply with requirements in Section 017419 "Construction Waste Management and Disposal."
- 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, 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 3/4 inch (19 mm) 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. Concrete: Demolish in sections. Cut concrete full depth at junctures with construction to remain and at regular intervals using power-driven saw, then remove concrete between saw cuts.
- C. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain, using power-driven saw, then remove masonry between saw cuts.
- D. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, then break up and remove.
- E. 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.
- F. Roofing: Remove no more existing roofing than what can be covered in one day by new roofing and so that building interior remains watertight and weathertight. See Section 075216, "SBS Membrane Roofing" for new roofing requirements.
 - 1. Remove existing roofing system down to substrate.

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.
 - 4. Comply with requirements specified in Section 017419 "Construction Waste Management and Disposal."
- 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

SECTION 075216 - STYRENE-BUTADIENE-STYRENE (SBS) MODIFIED BITUMINOUS MEMBRANE ROOFING

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes modification and repairs to an existing roofing system, including the following:
1. SBS-modified bituminous membrane roofing.
 2. Cover board.
 3. Roof insulation.
 4. Substrate board.

- B. At completion of the Work, written manufacturer's certification shall be provided, documenting that the existing warranty remains valid and in force.

- C. Work of this Section shall be performed by one of the Poudre School District-approved contractors below:

B&M Roofing – John Weber	jweber@bmroofing.com
D & D Roofing – Chris Frey	cfrey@danddroofing.com
CMC Roofing – Brad Titus	bradtitus@cmcroofing.com
Front Range Roofing – Greg Farris	gfarris@frontrangerooofing.com
United Materials – Paul Rouse	paul@unitedmtls.net
Alpine Roofing – Rob Tichy	rdtichy@alpineroofingco.com
Tecta America – John Cook	jdcook@tectaamerica.com

- D. Related Sections include the following:
1. Division 05 Section "Steel Decking" for furnishing acoustical deck rib insulation.
 2. Division 06 Section "Miscellaneous Rough Carpentry" for wood nailers, cants, curbs, and blocking.
 3. Division 07 Section "Sheet Metal Flashing and Trim" for metal roof penetration flashings, flashings, and counterflashings.

- E. Unit Prices:

1. Refer to Division 01 for information regarding Unit Prices that relates to Work in this Section.

1.2 DEFINITIONS

- A. Roofing Terminology: Refer to ASTM D 1079 "Terminology Relating to Roofing and Waterproofing"; glossary of NRCA's "The NRCA Roofing and Waterproofing Manual"; and the Roof Consultants Institute "Glossary of Roofing Terms" for definition of terms related to roofing work in this Section.

- B. Sheet Metal Terminology and Techniques: SMACNA Architectural Sheet Metal Manual.

1.3 PERFORMANCE REQUIREMENTS

- A. General: Provide installed roofing membrane and base flashings that remain watertight; do not permit the passage of water; and resist specified uplift pressures, thermally induced movement, and exposure to weather without failure.
- B. Material Compatibility: Provide roofing materials that are compatible with one another and with the existing roofing system under conditions of service and application required, as demonstrated by roofing manufacturer based on testing and field experience.
- C. Jobsite Safety: Execute all operations and provide a safe work environment in accordance to OSHA standards and regulations. This requirement applies to all contractor personnel, associated subcontractors, workers in other trades, and jobsite visitors.
 - 1. Follow all industry fire prevention guidelines for storage of materials, staging areas, roof access, and application means and methods.
 - 2. Any applicable local fire codes supersede industry guidelines.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other Work.
 - 1. Base flashings, cants, and membrane terminations.
 - 2. Tapered insulation, including slopes.
 - 3. Crickets, saddles, and tapered edge strips, including slopes.
 - 4. Insulation fastening patterns.
- C. Installer Certificates: Signed by roofing system manufacturer certifying that Installer is approved, authorized, or licensed by manufacturer to modify and install roofing system.
- D. Manufacturer Certificates: Signed by roofing manufacturer certifying that roofing system complies with requirements.
- E. Warranties: Special warranties specified in this Section.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's warranty.
- B. Source Limitations: Obtain all components from single source roofing manufacturer.
- C. Preinstallation Conference: Conduct conference at Project site. Comply with requirements in Division 01 Section "Project Management and Coordination." Review methods and procedures related to roofing system including, but not limited to, the following:
 - 1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, deck

- Installer, and installers whose work interfaces with or affects roofing including installers of roof accessories and roof-mounted equipment.
2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
 3. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 4. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
 5. Review structural loading limitations of roof deck during and after roofing.
 6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
 7. Review governing regulations and requirements for insurance and certificates if applicable.
 8. Review temporary protection requirements for roofing system during and after installation.
 9. Review roof observation and repair procedures after roofing installation.
 10. Require all trades listed in Preliminary Roofing Conference to be present.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, and directions for storage.
- B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
 1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.
- C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.
- D. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

1.7 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.

1.8 GUARANTEE

- A. At completion of the Work, provide manufacturer's certification that the existing roofing warranty remains in force.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. Johns Manville Roofing Systems

2.2 SBS-MODIFIED ASPHALT-SHEET MATERIALS

- A. Roofing Membrane Sheet: ASTM D 6162, Grade S, Type II, composite polyester- and glass-fiber-reinforced, SBS-modified asphalt sheet; smooth surfaced; suitable for application method specified. Product: DynaPly.
- B. Roofing Membrane Cap Sheet: ASTM D 6162, Grade G, Type II, composite polyester- and glass-fiber-reinforced, SBS-modified asphalt sheet; surface to match existing; suitable for application method specified. Product: DynaKap FR.

2.3 BASE FLASHING SHEET MATERIALS

- A. Backer Sheet: ASTM D 6162, Grade S, Type II, composite polyester- and glass-fiber- reinforced, SBS-modified asphalt sheet; smooth surfaced; suitable for application method specified. Product: DynaPly.
- B. Flashing Sheet: ASTM D 6164, Grade G, Type II, polyester-reinforced, SBS-modified asphalt sheet; granular surfaced; suitable for application method specified. Product: DynaWeld Cap 180 FR.
- C. Liquid Applied Flashing: A liquid and fabric reinforced flashing system created with a stitchbonded polyester scrim and a two-component, moisture cured, elastomeric, liquid applied flashing material, consisting of an asphalt extended urethane base material and an activator. Product: PermaFlash System.

2.4 AUXILIARY ROOFING MEMBRANE MATERIALS

- A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with roofing membrane.
- B. Roofing Asphalt: ASTM D 312, Type III.
- C. Cold-Applied Adhesive: Roofing system manufacturer's asphalt-based, two-component, asbestos-free, cold-applied adhesive specially formulated for compatibility and use with membrane applications. Product: MBR Bonding Adhesive.
- D. Cold-Applied Flashing Adhesive: Roofing system manufacturer's asphalt-based, two-component, asbestos-free, trowel-grade, cold-applied adhesive specially formulated for compatibility and use with flashing applications. Product: MBR Flashing Cement.
- E. Mastic Sealant: As required by Johns Manville.

- F. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion- resistance provisions in FMG 4470, designed for fastening roofing membrane components to substrate, tested by manufacturer for required pullout strength, and provided by the roofing system manufacturer. Product: All Purpose Fasteners and Plates.
- G. Metal Flashing Sheet: Metal flashing sheet is specified in Division 07 Section "Sheet Metal Flashing and Trim."
- H. Miscellaneous Accessories: Provide all miscellaneous accessories recommended by roofing system manufacturer.

2.5 COVER BOARD

- A. Perlite Board: ASTM C 728; composed of expanded perlite, cellulosic fibers, binders and waterproofing agents with top surface seal-coated. Product: 3/4" DuraBoard

2.6 ROOF INSULATION

- A. General: Provide preformed roof insulation boards that comply with requirements and referenced standards, selected from manufacturer's standard sizes and of thicknesses indicated.
- B. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, Product: ENRGY 3.
 1. Provide insulation package with minimum thickness of 1 inch, or as indicated.
 2. Install no boards thicker than 1.5". If insulation package required is thicker than 1.5", install in multiple layers.

2.7 TAPERED INSULATION

- A. Tapered Insulation: ASTM C 1289, provide factory-tapered insulation boards fabricated to slope of 1/4 inch per 12 inches (1:48), unless otherwise indicated. Product: Tapered ENRGY 3.

2.8 INSULATION ACCESSORIES

- A. General: Roof insulation accessories recommended by insulation manufacturer for intended use and compatible with membrane roofing.
- B. Provide factory preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.
- C. Cold Fluid-Applied Adhesive: Manufacturer's No VOC, two-component cold fluid-applied adhesive formulated to adhere roof insulation to substrate. Product: MBR Bonding Adhesive.
- D. Insulation Cant Strips: ASTM C 728, perlite insulation board. Product: FesCant Plus.
- E. Wood Nailer Strips: Comply with requirements in Division 06 Section "Miscellaneous Rough Carpentry."

2.9 SUBSTRATE BOARD

- A. Substrate Board: ASTM C 728, perlite board, 3/4 inch (19 mm) thick, seal coated. Product: Fesco Board.
- B. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion- resistance provisions in FMG 4470, designed for fastening substrate panel to roof deck. Product: All Purpose Fasteners and Plates.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine the entire building roof, not only areas where work is indicated.
 - 1. Document conditions that require repair to maintain the existing warranty.
 - 2. Proposals for base bid shall be accompanied by a detailed list of warranty work required.
- B. Examine work area substrates and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing system:
 - 1. Verify that roof openings and penetrations are in place and set and braced and that roof drains are securely clamped in place.
 - 2. Verify that wood cants, blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.
 - 3. Verify that surface plane flatness and fastening of steel roof deck complies with requirements in Division 05 Section "Steel Decking."
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.
- B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.
- C. Prime surface of concrete deck with asphalt primer at a rate recommended by roofing manufacturer and allow primer to dry.
 - 1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 SUBSTRATE BOARD INSTALLATION

- A. Install substrate board with long joints in continuous straight lines, perpendicular to roof slopes with end joints staggered between rows. Tightly butt substrate boards together.
 - 1. Fasten substrate board to top flanges of steel deck according to recommendations in FMG's "Approval Guide" for specified Windstorm Resistance Classification.

2. Fasten substrate board to top flanges of steel deck to resist uplift pressure at corners, perimeter, and field of roof according to roofing system manufacturer's written instructions.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.4 INSULATION AND COVER BOARD INSTALLATION

A. Coordinate installing roof system components so insulation and cover board is not exposed to precipitation or left exposed at the end of the workday.

B. Comply with roofing system manufacturer's written instructions for installing roof insulation and cover board.

C. Insulation Cant Strips: Install and secure preformed 45-degree insulation cant strips at junctures of roofing membrane system with vertical surfaces or angle changes greater than 45 degrees per manufacturer's instruction.

D. Install tapered insulation under area of roofing to conform to slopes indicated.

E. Install boards with long joints in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch (6 mm) with like material.

1. Cut and fit boards within 1/4 inch (6 mm) of nailers, projections, and penetrations.

F. Install one or more layers of insulation under area of roofing to achieve required thickness. Where overall thickness is 1.5 inches (38 mm) or greater, install 2 or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches (150 mm) in each direction.

G. Trim surface of boards where necessary at roof drains so completed surface is flush and does not restrict flow of water.

H. Install tapered edge strips at perimeter edges of roof that do not terminate at vertical surfaces.

I. Proceed with installation only after unsatisfactory conditions have been corrected.

3.5 ROOFING MEMBRANE INSTALLATION, GENERAL

A. Install roofing system specification 2CID-CA according to roofing system manufacturer's written instructions, applicable recommendations of Johns Manville "Bituminous Roofing Binder", and requirements in this Section.

B. Start installation of roofing membrane in presence of roofing system manufacturer's technical personnel.

C. Where roof slope exceeds 1/2 inch per 12 inches, contact the membrane manufacturer for installation instructions regarding installation direction and backnailing

- D. Cooperate with testing and inspecting agencies engaged or required to perform services for installing roofing system.
- E. Coordinate installing roofing system so insulation and other components of the roofing membrane system not permanently exposed are not subjected to precipitation or left uncovered at the end of the workday or when rain is imminent.
 - 1. Provide tie-offs at end of each day's work to cover exposed roofing membrane sheets and insulation with a course of coated felt set in roofing cement or hot roofing asphalt with joints and edges sealed.
 - 2. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system.
 - 3. Remove and discard temporary seals before beginning work on adjoining roofing.
- F. Substrate-Joint Penetrations: Prevent roofing asphalt from penetrating substrate joints, entering building, or damaging roofing system components or adjacent building construction.
- G. Proceed with installation only after unsatisfactory conditions have been corrected.

3.6 SBS-MODIFIED BITUMINOUS MEMBRANE INSTALLATION

- A. Install modified bituminous roofing membrane sheet and cap sheet according to roofing manufacturer's written instructions, starting at low point of roofing system. Extend roofing membrane sheets over and terminate beyond cants, installing as follows:
 - 1. Adhere to substrate in cold-applied adhesive.
 - 2. Unroll roofing membrane sheets and allow them to relax for minimum time period required by manufacturer.
- B. Laps: Accurately align roofing membrane sheets, without stretching, and maintain uniform side and end laps. Stagger end laps. Completely bond and seal laps, leaving no voids.
 - 1. Repair tears and voids in laps and lapped seams not completely sealed.
 - 2. Apply roofing granules to cover exuded bead at laps while bead is hot.
- C. Install roofing membrane sheets so side and end laps shed water.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.7 FLASHING AND STRIPPING INSTALLATION

- A. Install base flashing over cant strips and other sloping and vertical surfaces, at roof edges, and at penetrations through roof, and secure to substrates according to roofing system manufacturer's written instructions and as follows:
 - 1. Prime substrates with asphalt primer if required by roofing system manufacturer.
 - 2. Backer Sheet Application: Install backer sheet and adhere to substrate in cold-applied adhesive at rate required by roofing system manufacturer.
 - 3. Flashing Sheet Application: Adhere flashing sheet to substrate in cold-applied adhesive at rate required by roofing system manufacturer.

- B. Extend base flashing up walls or parapets a minimum of 8 inches (200 mm) above roofing membrane and 4 inches (100 mm) onto field of roofing membrane.
- C. Mechanically fasten top of base flashing securely at terminations and perimeter of roofing.
- D. Roof Drains: Flash drain using PermaFlash system. Clamp roofing membrane, flashing, and stripping into roof-drain clamping ring.
 - 1. Install stripping according to roofing system manufacturer's written instructions.
- E. Proceed with installation only after unsatisfactory conditions have been corrected.

3.8 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to perform roof tests and inspections and to prepare test reports.
- B. Final Roof Inspection:
 - 1. Final inspection of roofing system shall include the entire building SBS Membrane Roofing system, regardless of whether the area was indicated to be part of the Work or not.
 - 2. Notify Architect or Owner 48 hours in advance of date and time of inspection.
 - 3. Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion and submit report to Architect.
- C. Repair or remove and replace components of roofing system where test results or inspections indicate that they will not support continuation of the roofing warranty.
- D. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.9 PROTECTING AND CLEANING

- A. Protect roofing system from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.
- B. Correct deficiencies in or remove roofing system that does not comply with requirements, repair substrates, and repair or reinstall roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.
- C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION 075216

SECTION 078413 - PENETRATION FIRESTOPPING

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. Penetrations in fire-resistance-rated walls.
 - 2. Penetrations in horizontal assemblies.
 - 3. Penetrations in smoke barriers.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Product Schedule: For each penetration firestopping system. Include location and design designation of qualified testing and inspecting agency.
 - 1. Where Project conditions require modification to a qualified testing and inspecting agency's illustration for a particular penetration firestopping condition, submit illustration, with modifications marked, approved by penetration firestopping manufacturer's fire-protection engineer as an engineering judgment or equivalent fire-resistance-rated assembly.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified Installer.
- B. Installer Certificates: From Installer indicating penetration firestopping has been installed in compliance with requirements and manufacturer's written recommendations.
- C. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for penetration firestopping.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: A firm experienced in installing penetration firestopping similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful performance. Qualifications include having the necessary experience, staff, and training to install manufacturer's products per specified

requirements. Manufacturer's willingness to sell its penetration firestopping products to Contractor or to Installer engaged by Contractor does not in itself confer qualification on buyer.

- B. Fire-Test-Response Characteristics: Penetration firestopping shall comply with the following requirements:
 - 1. Penetration firestopping tests are performed by a qualified testing agency acceptable to authorities having jurisdiction.
 - 2. Penetration firestopping is identical to those tested per testing standard referenced in "Penetration Firestopping" Article. Provide rated systems complying with the following requirements:
 - a. Penetration firestopping products bear classification marking of qualified testing and inspecting agency.
 - b. Classification markings on penetration firestopping correspond to designations listed by the following:
 - 1) UL in its "Fire Resistance Directory."
 - 2) Intertek ETL SEMKO in its "Directory of Listed Building Products."
 - 3) FM Global in its "Building Materials Approval Guide."

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install penetration firestopping when ambient or substrate temperatures are outside limits permitted by penetration firestopping manufacturers or when substrates are wet because of rain, frost, condensation, or other causes.
- B. Install and cure penetration firestopping per manufacturer's written instructions using natural means of ventilations or, where this is inadequate, forced-air circulation.

1.7 COORDINATION

- A. Coordinate construction of openings and penetrating items to ensure that penetration firestopping is installed according to specified requirements.
- B. Coordinate sizing of sleeves, openings, core-drilled holes, or cut openings to accommodate penetration firestopping.
- C. Notify Owner's testing agency at least seven days in advance of penetration firestopping installations; confirm dates and times on day preceding each series of installations.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. A/D Fire Protection Systems Inc.
 - 2. Grace Construction Products.
 - 3. Hilti, Inc.

4. Johns Manville.
5. Nelson Firestop Products.
6. NUCO Inc.
7. Passive Fire Protection Partners.
8. RectorSeal Corporation.
9. Specified Technologies Inc.
10. 3M Fire Protection Products.
11. Tremco, Inc.; Tremco Fire Protection Systems Group.
12. USG Corporation.

2.2 PENETRATION FIRESTOPPING

- A. Provide penetration firestopping that is produced and installed to resist spread of fire according to requirements indicated, resist passage of smoke and other gases, and maintain original fire-resistance rating of construction penetrated. Penetration firestopping systems shall be compatible with one another, with the substrates forming openings, and with penetrating items if any.
- B. Penetrations in Fire-Resistance-Rated Walls: Provide penetration firestopping with ratings determined per ASTM E 814 or UL 1479, based on testing at a positive pressure differential of 0.01-inch wg (2.49 Pa).
 1. Fire-resistance-rated walls include fire walls, fire-barrier walls, smoke-barrier walls and fire partitions.
 2. F-Rating: Not less than the fire-resistance rating of constructions penetrated.
- C. Penetrations in Horizontal Assemblies: Provide penetration firestopping with ratings determined per ASTM E 814 or UL 1479, based on testing at a positive pressure differential of 0.01-inch wg (2.49 Pa).
 1. Horizontal assemblies include floors, floor/ceiling assemblies and ceiling membranes of roof/ceiling assemblies.
 2. F-Rating: At least 1 hour, but not less than the fire-resistance rating of constructions penetrated.
 3. T-Rating: At least 1 hour, but not less than the fire-resistance rating of constructions penetrated except for floor penetrations within the cavity of a wall.
- D. Penetrations in Smoke Barriers: Provide penetration firestopping with ratings determined per UL 1479.
 1. L-Rating: Not exceeding 5.0 cfm/sq. ft. (0.025 cu. m/s per sq. m) of penetration opening at 0.30-inch wg (74.7 Pa) at both ambient and elevated temperatures.
- E. W-Rating: Provide penetration firestopping showing no evidence of water leakage when tested according to UL 1479.
- F. Exposed Penetration Firestopping: Provide products with flame-spread and smoke-developed indexes of less than 25 and 450, respectively, as determined per ASTM E 84.
- G. VOC Content: Penetration firestopping sealants and sealant primers shall comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
 1. Sealants: 250 g/L.

2. Sealant Primers for Nonporous Substrates: 250 g/L.
 3. Sealant Primers for Porous Substrates: 775 g/L.
- H. Accessories: Provide components for each penetration firestopping system that are needed to install fill materials and to maintain ratings required. Use only those components specified by penetration firestopping manufacturer and approved by qualified testing and inspecting agency for firestopping indicated.
1. Permanent forming/damming/backing materials, including the following:
 - a. Slag-wool-fiber or rock-wool-fiber insulation.
 - b. Sealants used in combination with other forming/damming/backing materials to prevent leakage of fill materials in liquid state.
 - c. Fire-rated form board.
 - d. Fillers for sealants.
 2. Temporary forming materials.
 3. Substrate primers.
 4. Collars.
 5. Steel sleeves.

2.3 FILL MATERIALS

- A. Cast-in-Place Firestop Devices: Factory-assembled devices for use in cast-in-place concrete floors and consisting of an outer metallic sleeve lined with an intumescent strip, a radial extended flange attached to one end of the sleeve for fastening to concrete formwork, and a neoprene gasket.
- B. Latex Sealants: Single-component latex formulations that do not re-emulsify after cure during exposure to moisture.
- C. Firestop Devices: Factory-assembled collars formed from galvanized steel and lined with intumescent material sized to fit specific diameter of penetrant.
- D. Intumescent Composite Sheets: Rigid panels consisting of aluminum-foil-faced elastomeric sheet bonded to galvanized-steel sheet.
- E. Intumescent Putties: Nonhardening dielectric, water-resistant putties containing no solvents, inorganic fibers, or silicone compounds.
- F. Intumescent Wrap Strips: Single-component intumescent elastomeric sheets with aluminum foil on one side.
- G. Mortars: Prepackaged dry mixes consisting of a blend of inorganic binders, hydraulic cement, fillers, and lightweight aggregate formulated for mixing with water at Project site to form a nonshrinking, homogeneous mortar.
- H. Pillows/Bags: Reusable heat-expanding pillows/bags consisting of glass-fiber cloth cases filled with a combination of mineral-fiber, water-insoluble expansion agents, and fire-retardant additives. Where exposed, cover openings with steel-reinforcing wire mesh to protect pillows/bags from being easily removed.

- I. Silicone Foams: Multicomponent, silicone-based liquid elastomers that, when mixed, expand and cure in place to produce a flexible, nonshrinking foam.
- J. Silicone Sealants: Single-component, silicone-based, neutral-curing elastomeric sealants of grade indicated below:
 - 1. Grade: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces, and nonsag formulation for openings in vertical and sloped surfaces, unless indicated firestopping limits use of nonsag grade for both opening conditions.

2.4 MIXING

- A. For those products requiring mixing before application, comply with penetration firestopping manufacturer's written instructions for accurate proportioning of materials, water (if required), type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other items or procedures needed to produce products of uniform quality with optimum performance characteristics for application indicated.

PART 3 - EXECUTION

3.1 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.

3.2 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. Priming: Prime substrates where recommended in writing by manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.
- C. Masking Tape: Use masking tape to prevent penetration firestopping from contacting adjoining surfaces that will remain exposed on completion of the Work and that would otherwise be permanently stained or damaged by such contact or by cleaning methods used to remove stains. Remove tape as soon as possible without disturbing firestopping's seal with substrates.

3.3 INSTALLATION

- A. General: Install penetration firestopping 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 fill materials during their application and in the position needed to produce cross-sectional shapes and depths required to achieve fire ratings indicated.
 - 1. After installing fill materials and allowing them to fully cure, remove combustible forming materials and other accessories not indicated as permanent components of firestopping.
- C. Install fill materials for firestopping by proven techniques to produce the following results:
 - 1. Fill voids and cavities formed by openings, forming materials, accessories, and penetrating items as required to achieve fire-resistance ratings indicated.
 - 2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.
 - 3. For 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. Identify penetration firestopping with preprinted metal or plastic labels. Attach labels permanently to surfaces adjacent to and within 6 inches (150 mm) of firestopping edge so labels will be visible to anyone seeking to remove penetrating items or firestopping. 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 - Penetration Firestopping - Do Not Disturb. Notify Building Management of Any Damage."
 - 2. Contractor's name, address, and phone number.
 - 3. Designation of applicable testing and inspecting agency.
 - 4. Date of installation.
 - 5. Manufacturer's name.
 - 6. Installer's name.

3.5 FIELD QUALITY CONTROL

- A. Owner will engage a qualified testing agency to perform tests and inspections.
- B. Where deficiencies are found or penetration firestopping is damaged or removed because of testing, repair or replace penetration firestopping to comply with requirements.
- C. Proceed with enclosing penetration firestopping with other construction only after inspection reports are issued and installations comply with requirements.

3.6 CLEANING AND PROTECTION

- A. Clean off excess fill 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.

3.7 PENETRATION FIRESTOPPING SCHEDULE

- A. Where UL-classified systems are indicated, they refer to system numbers in UL's "Fire Resistance Directory" under product Category XHEZ. Apply one of the systems scheduled below based upon fire piping used, and the existing wall construction being penetrated, for the following time periods required:
 - 1. Floors shall meet requirements for 2 hour rating.
 - 2. Walls shall meet requirements for 1 hour rating.
- B. Firestop Systems for Metallic Pipes, Conduit or Tubing FS-1: Comply with one of the following at Contractor's option:
 - 1. Available UL-Classified Systems: C-BJ-1001-1999 that meets an "F" rating of at least 1 hour.
 - a. Use for sprinkler pipe penetrating concrete or masonry walls up to 8 inches in thickness.
 - 2. Available UL-Classified Systems: W-J-1001-1999 that meets an "F" rating of at least 1 hour.
 - a. Use for fire sprinkler pipe penetrating concrete or masonry walls up to 8 inches in thickness.
- C. Firestop Systems for Metallic Pipes, Conduit or Tubing FS-2: Comply with one of the following at Contractor's option:
 - 1. Available UL-Classified Systems: C-BK-1001-1999 that meets an "F" rating of at least 1 hour.
 - a. Use for sprinkler pipe penetrating concrete or masonry walls greater than 8 inches in thickness.
 - 2. Available UL-Classified Systems: W-K-1001-1999 that meets an "F" rating of at least 1 hour.
 - a. Use for fire sprinkler pipe penetrating concrete or masonry walls greater than 8 inches in thickness.
- D. Firestop Systems for Metallic Pipes, Conduit or Tubing FS-3: Comply with one of the following at Contractor's option:
 - 1. Available UL-Classified Systems: C-BJ-2001-2999 that meets an "F" rating of at least 1 hour.
 - a. Use for CPVC fire sprinkler pipe penetrating concrete or masonry walls up to 8 inches in thickness.

2. Available UL-Classified Systems: W-J-2001-2999 that meets an “F” rating of at least 1 hour.
 - a. Use for fire sprinkler pipe penetrating concrete or masonry walls up to 8 inches in thickness.
- E. Firestop Systems for Metallic Pipes, Conduit or Tubing FS-4: Comply with one of the following at Contractor’s option:
1. Available UL-Classified Systems: C-BK-2001-2999 that meets an “F” rating of at least 1 hour.
 - a. Use for CPVC sprinkler pipe penetrating concrete or masonry walls greater than 8 inches in thickness.
 2. Available UL-Classified Systems: W-K-2001-2999 that meets an “F” rating of at least 1 hour.
 - a. Use for CPVC fire sprinkler pipe penetrating concrete or masonry walls greater than 8 inches in thickness.
- F. Firestop Systems for Metallic Pipes, Conduit or Tubing FS-5: Comply with one of the following at Contractor’s option:
1. Available UL-Classified Systems: C-BL-2001-2999 that meets an “F” rating of at least 1 hour.
 - a. Use for CPVC sprinkler pipe penetrating metal framed plaster walls.
 2. Available UL-Classified Systems: W-L-2001-2999 that meets an “F” rating of at least 1 hour.
 - a. Use for fire sprinkler pipe penetrating metal framed plaster walls.
- G. Firestop Systems for Metallic Pipes, Conduit or Tubing FS-6: Comply with one of the following at Contractor’s option:
1. Available UL-Classified Systems: C-B-1001-1999 that meets an “F” rating of at least 2 hours.
 - a. Use for sprinkler pipe penetrating floors.
 2. Available UL-Classified Systems: F-B-1001-1999 that meets an “F” rating of at least 2 hours.
 - a. Use for fire sprinkler pipe penetrating floors.
- H. Firestop Systems for Groupings of Penetrations FS-7: Comply with the following:
1. UL-Classified Systems: W-L-8001-8999 that meets an “F” rating of at least 1 hour.
 - a. Use at smokestop construction.
- I. Firestop Systems for Sheet Metal Duct: Comply with one of the following at Contractor’s option:
1. Available UL-Classified Systems: W-J-7091: FS-One, that meets an “F” rating of at least 1 hour.
 - a. Use for max. 24” x 48” sheet metal duct

END OF SECTION 078413

SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Silicone joint sealants.
 - 2. Latex joint sealants.
- B. Related Sections:
 - 1. Section 078413 "Penetration Firestopping" for sealing joints in fire-resistance-rated construction.

1.2 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified Installer.

1.3 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 years from date of Substantial Completion.

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.

2.2 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, provide one of the following:
 - a. BASF Building Systems; Sonolac.
 - b. Bostik, Inc.; Chem-Calk 600.
 - c. Pecora Corporation; AC-20+.
 - d. Tremco Incorporated; Tremflex 834.
 - 2. Joint Locations:

- a. Perimeter joints between interior wall surfaces and frames of interior doors and windows.

2.3 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. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 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.

3.2 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. Masonry.
 - 3. Remove laitance and form-release agents from concrete.
- B. 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.

3.3 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.

3.4 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.

3.5 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.

END OF SECTION 079200

SECTION 095113 - ACOUSTICAL CEILINGS

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 acoustical panels and exposed suspension systems for ceilings.
- B. Section includes acoustical tiles.
- C. Products furnished, but not installed under this Section, include anchors, clips, and other ceiling attachment devices to be cast in concrete.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.

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. Acoustical Ceiling Panels: Full-size panels equal to 2 percent of quantity installed.
 - 2. Suspension-System Components: Quantity of each exposed component equal to 2 percent of quantity installed.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver acoustical panels, suspension-system components, and accessories to Project site in original, unopened packages and store them in a fully enclosed, conditioned space where they will be protected against damage from moisture, humidity, temperature extremes, direct sunlight, surface contamination, and other causes.
- B. Before installing acoustical panels, permit them to reach room temperature and a stabilized moisture content.
- C. Handle acoustical panels carefully to avoid chipping edges or damaging units in any way.

1.6 FIELD CONDITIONS

- A. Environmental Limitations: Do not install acoustical panel ceilings until spaces are enclosed and weatherproof, wet work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.
 - 1. Pressurized Plenums: Operate ventilation system for not less than 48 hours before beginning acoustical panel ceiling installation.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Surface-Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - 1. Flame-Spread Index: Comply with ASTM E 1264 for Class A materials.
 - 2. Smoke-Developed Index: 50 or less.
- B. Fire-Resistance Ratings: Comply with ASTM E 119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - 1. Indicate design designations from UL's "Fire Resistance Directory" or from the listings of another qualified testing agency.

2.2 ACOUSTICAL PANELS, GENERAL

- A. Source Limitations: Obtain each type of acoustical ceiling panel and supporting suspension system from single source from single manufacturer.
- B. Glass-Fiber-Based Panels: Made with binder containing no urea formaldehyde.
- C. Acoustical Panel Colors and Patterns: Match adjacent appearance characteristics for each product type.

2.3 ACOUSTICAL PANELS

- A. Manufacturer: Subject to compliance with requirements, provide the following products:
 - 1. **ACP-1:** 345 Omni Fissured USG, 24 inches x 48 inches, white, square edge.

2.4 METAL SUSPENSION SYSTEMS, GENERAL

- A. Metal Suspension-System Standard: Provide manufacturer's standard direct-hung metal suspension systems of types, structural classifications, and finishes indicated that comply with applicable requirements in ASTM C 635/C 635M.

- B. Wire Hangers, Braces, and Ties: Provide wires complying with the following requirements:
 - 1. Zinc-Coated, Carbon-Steel Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper.
 - 2. Size: Select wire diameter so its stress at three times hanger design load (ASTM C 635/C 635M, Table 1, "Direct Hung") will be less than yield stress of wire, but provide not less than 0.135-inch- (3.5-mm-) diameter wire.

2.5 METAL SUSPENSION SYSTEM

- A. Manufacturers: Subject to compliance with requirements, provide products by the following:
 - 1. USG Interiors, Inc.; Subsidiary of USG Corporation.
- B. Wide-Face, Capped, Double-Web, Steel Suspension System: Main and cross runners roll formed from cold-rolled steel sheet; prepainted, electrolytically zinc coated, or hot-dip galvanized according to ASTM A 653/A 653M, not less than G30 (Z90) coating designation; with prefinished 15/16-inch- (24-mm-) wide metal caps on flanges.
 - 1. Structural Classification: Intermediate-duty system.
 - 2. Face Design: Flat, flush.
 - 3. Cap Material: Steel cold-rolled sheet; painted white.

2.6 METAL EDGE MOLDINGS AND TRIM

- A. Manufacturers: Subject to compliance with requirements, provide products by the following:
- B. Roll-Formed, Sheet-Metal Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that comply with seismic design requirements; formed from sheet metal of same material, finish, and color as that used for exposed flanges of suspension-system runners.
 - 1. Provide manufacturer's standard edge moldings that fit acoustical panel edge details and suspension systems indicated and that match width and configuration of exposed runners unless otherwise indicated.
 - 2. For circular penetrations of ceiling, provide edge moldings fabricated to diameter required to fit penetration exactly.

PART 3 - EXECUTION

- A. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width panels at borders, and comply with layout shown on reflected ceiling plans.

3.3 INSTALLATION

- A. General: Install acoustical panel ceilings to comply with ASTM C 636/C 636M and seismic design requirements indicated, according to manufacturer's written instructions and CISCA's "Ceiling Systems Handbook."
- B. Secure bracing wires to ceiling suspension members and to supports with a minimum of four tight turns. Suspend bracing from building's structural members as required for hangers, without attaching to permanent metal forms, steel deck, or steel deck tabs. Fasten bracing wires into concrete with cast-in-place or postinstalled anchors.
- C. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical panels.
 - 1. Apply acoustical sealant in a continuous ribbon concealed on back of vertical legs of moldings before they are installed.
 - 2. Screw attach moldings to substrate at intervals not more than 16 inches (400 mm) o.c. and not more than 3 inches (75 mm) from ends, leveling with ceiling suspension system to a tolerance of 1/8 inch in 12 feet (3.2 mm in 3.6 m). Miter corners accurately and connect securely.
 - 3. Do not use exposed fasteners, including pop rivets, on moldings and trim.
- D. Install suspension-system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.
- E. Install acoustical panels with undamaged edges and fit accurately into suspension-system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide a neat, precise fit.

3.4 CLEANING

- A. Clean exposed surfaces of acoustical panel ceilings, including trim, edge moldings, and suspension-system members. Comply with manufacturer's written instructions for cleaning and touchup of minor finish damage. Remove and replace ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION 095113

SECTION 096513 - RESILIENT BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Resilient base.
 - 2. Resilient molding accessories.

PART 2 - PRODUCTS

2.1 RUBBER BASE

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Burke Industries Inc.
 - 2. Johnsonite
 - 3. Flexco.
 - 4. R.C. Musson Rubber Company
 - 5. Roppe Corporation, USA.
- B. Top-set coved rubber base:
 - 1. Thickness: 0.125 inch (3.2 mm).
 - 2. Height: 4-1/2" inches.
- C. Lengths: Cut lengths 48 inches (1219 mm) long.
- D. Outside Corners: Job formed.
- E. Inside Corners: Job formed.
- F. Colors: Matte finish black, or as otherwise indicated.

2.2 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.
 - 1. Products: Webcrete95, or approved equal.
- B. Adhesives: Water-resistant type recommended by resilient-product manufacturer for resilient products and substrate conditions indicated.

PART 3 - EXECUTION

3.1 RESILIENT BASE INSTALLATION

- A. Comply with manufacturer's written instructions for installing resilient base.
- B. Apply resilient base to walls, 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. Job-Formed Corners:
 - 1. Outside Corners: Use straight pieces and form with returns not less than 24 inches in length.
 - a. Form without producing discoloration (whitening) at bends.
 - 2. Inside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 24 inches in length.
 - a. Miter corners to minimize open joints.

END OF SECTION 096513

SECTION 09 91 13

PAINTING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes surface preparation and the application of paint systems on exterior and interior substrates. Finish all interior and exterior surfaces exposed to view, unless fully factory finished or indicated in this Section not to be finished. Schedule of Exterior and Interior Surface Painting Systems to be provided is located at the end of Part 3 Execution.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Benjamin Moore & Co.
 - 2. Diamond Vogel Paints.
 - 3. ICI Paints.
 - 4. Kwal Paint.
 - 5. PPG Architectural Finishes, Inc.
 - 6. Sherwin-Williams Company (The).
 - 7. 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.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates and paint systems 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.

3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions and recommendations in "MPI Manual."
 - 1. Use applicators and techniques suited for paint and substrate indicated.
- B. Paint entire wall where patching is to be painted and nearest horizontal break line, or ceiling, if none is existing.

3.4 INTERIOR PAINTING SCHEDULE

- A. Concrete Block - Flat Latex Enamel Finish: Two finish coats over an undercoat and a filled surface.
 - 1. Block Filler: High performance latex-based block filler applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness not less than 5.0 mils. Apply in two coats to permit identification and correction of CMU surface irregularities, pinholes not filled and the like after the first coat.
 - a. D-V: BF-1515.

2. First and Second Coats: Interior, satin latex enamel, total dry film thickness of not less than 2.8 mils.
 - a. D-V: DS 1541Hide Plus Semi.
- B. Zinc Coated Metal (Galvanized): Acrylic Eggshell Finish: Two finish coats over a primer.
 1. Primer: Galvanized metal primer, total dry film thickness of not less than 1.2 mils.
 - a. D-V: MC-1501 Vers-Acryl Maintenance Primer/Finish.
 2. Finish Coats: Exterior, semi-gloss, acrylic enamel, total dry film thickness of not less than 1.2 mils each.
 - a. D-V: Finium DTM-AT Acrylic Semi-Gloss Enamel.
- C. Ferrous Metal: Semi-Gloss Enamel Finish: Two coats over a primer.
 1. Primer: Synthetic, quick-drying, rust-inhibiting primer, total dry film thickness of not less than 1.5 mils.
 - a. D-V: MC-1501 Vers-Acryl Maintenance Primer/Finish.
 2. Finish Coat: Exterior, gloss, acrylic enamel, total dry film thickness of not less than 1.2 mils.
 - a. D-V: DS-1541 Hide Plus.

END OF SECTION 099113

SECTION 114000 – FOODSERVICE EQUIPMENT

1. SCOPE / OVERVIEW

The Contractor is to purchase the walk in and refrigeration system as a package and have it delivered to the job site. The package includes but is not limited to, walk in COOLER/FREEZER box sized per the drawings, internal supporting steel structure, condensers, evaporator coils, doors, lighting, temperature monitoring system, etc.

The contractor will be responsible for, but not limited to, assembling the walk in panels, hanging the refrigeration coils, setting the condensers / racks, running / charging the refrigeration lines, installation of condensate pump, to make the entire walk in COOLER/FREEZER system fully functional.

Reference Responsibility Matrix at the end of this Section.

2. WALK IN FREEZER BOX

A. WALK IN FREEZER PANELS

1. Exposed and unexposed panel surfaces to be 26 gauge stucco embossed aluminum.
2. The panels shall be an NSF approved cleanable surface, UL classified or verifiable equivalent.
3. The manufacture shall submit complete specifications referencing panel thickness, R value, K value and U value.
4. Each panel shall be filled with rigid “Foamed-in-place” urethane having a thermal conductivity (K factor) of 0.133 BTU/hr./ft squared per degrees Fahrenheit/inch and an overall coefficient of heat transfer (U factor) of not more than 0.03. “R” factor shall be 31 or greater for cooler walls and ceiling and 40 or greater for freezer walls and ceiling. Insulation shall have a 97% closed cell structure. Overall thickness shall be 4” minimum.
5. The panels shall be constructed as to be self supporting or perform adequately when supported by an appropriate steel ceiling support structure. They will include an integral cam locking mechanism and weather stripping to create an air tight seal at all joints.
6. Where the panels meet the floor surface an NSF cove / angle is required, in compliance with local health department regulations.
7. The manufacturer shall submit a sample of the walk in panel 12”x 12” square and floor contact screed / floor securing system, with their bid package.

B. FREEZER FLOOR CONSTRUCTION

1. Freezer sections to set on the existing concrete / slab on grade and leveled. If the bidder has any exception to the freezer floor section setting slab on grade, they are required to immediately bring those exceptions to the attention of the owner, prior to bidding.
2. Freezer Structured Floor Panels: 4” thick insulated floor panels with integral ramp containing non-conductive fiberglass structural imbeds, with an additional ¾” Plywood adhered to the floor skin, and 3/16” Diamond Tread plate overlay to support a “rolling load” of 4,000 lbs. per square foot.

C. ~~COOLER FLOOR CONSTRUCTION~~

- ~~1. Cooler Floor Panels: Floor panels shall be placed on a concrete and leveled.~~
- ~~2. Reinforced Cooler Floor: ½" Plywood or ½" OSB with 16 Ga. Stainless Steel 3/16" Aluminum Diamond Tread. These panels are designed to support a "uniformly distributed load" of 2,500 lbs. per square foot.~~
- ~~3. The general contractor shall be responsible for all trim or sealant required / detailed by the manufacturer at the concrete floor / walk in panel contact point.~~

D. FREEZER DOORS

1. The manufacturer shall provide (1) Hinged Entrance Door with heated jambs at each location.
2. Hinged Entrance Door Dimensions:
Widths: Reference Drawings for each location.
Heights: 84"
3. See drawings for door swing directions at each location.
4. Deadbolt Handle Latch: Security latch with sliding deadbolt and inside safety release.
5. All doors shall have a 48" high aluminum diamond tread kick plate mounted to the interior and exterior of each door.
6. Doors will include heated jambs.
7. Each door shall include a contact activated, auto reversing function.
8. Each door shall include a strip curtain to contain as much cold air as possible during loading and unloading.
9. The contractor is responsible for installation, alignment, electrical connections, etc. to make the doors operational.

E. ~~COOLER DOORS~~

- ~~1. The manufacturer shall provide (1) Hinged Entrance Door at each location.~~
- ~~2. Hinged Entrance Door Dimensions:
Widths: Reference Drawings for each location.
Heights: 84"~~
- ~~3. See drawings for door swing directions at each location.~~
- ~~4. Deadbolt Handle Latch: Security latch with sliding deadbolt and inside safety release.~~
- ~~5. All doors shall have a 48" high aluminum diamond tread kick plate mounted to the interior and exterior of each door.~~
- ~~6. Each door shall include a contact activated, auto reversing function.~~
- ~~7. Each door shall include a strip curtain to contain as much cold air as possible during loading and unloading.~~
- ~~8. The contractor is responsible for installation, alignment, electrical connections, etc. to make the doors operational.~~

F. LIGHTING

1. The manufacturer shall provide lighting inside the walk in to a minimum of 40 foot candles in all areas. However additional lighting may be designated or required by code.
2. The lighting fixture shall be a type allowing for its continued operation in a sub-zero degree Fahrenheit environment in the freezer sections and +35 Fahrenheit environment in the cooler sections.

3. The contractor is responsible to install, hang, support, and connection of all lighting within the walk in. Owner will provide and install electrical power required for lighting.
4. The manufacturer is responsible to supply a lighting plan which will evenly distribute the appropriate amount of light through the walk in, based on the rack arrangement as shown.

3. REFRIGERATION

A. TEMPERATURE REQUIREMENTS

1. Freezer section is required to hold a temperature of (-) 10 degrees Fahrenheit.
2. Cooler Section is required to hold a temperature of (+) 35 degrees Fahrenheit.

B. LOCATION

1. The walk in freezer shall be located in a climate controlled building, with an ambient temperature of approximately (+) 80 Fahrenheit during summer months and approximately (+) 70 degrees Fahrenheit during winter months.
2. The walk in and refrigeration system should be designed to operate in an environment of (+) 60 degrees to (+) 90 degrees Fahrenheit.
3. The building and walk in will reside at approximately 5000 ft. above sea level.

C. EVAPORATOR COILS

1. The manufacturer shall provide the evaporator coils with the appropriate cold controls, defrost controls, freezer condensate drain line heat tape, etc. It is the responsibility of the contractor to install / hang each evaporator coil as per manufacturer's recommendation.
2. The manufacturer is to locate the evaporator coils for maximum efficiency.
3. The contractor shall provide all condensate line piping, p-traps, ejector pumps, lift pumps, etc, for collection and discharge of condensate, required for a fully functional drain system.
4. Owner will install condensate drain lines from ejector/lift pumps to Owner selected discharge location (See Section 6 – Walk-In Freezer Responsibility Matrix).

D. CONDENSING UNITS

1. The manufacturer shall provide an engineered refrigeration system capable of maintaining the temperatures called out in the TEMPERATURE REQUIREMENTS section.
2. The condensers will be located on the roof above the walk-in in an exterior location.
3. The condensers should be properly equipped with suction accumulators, sight glass, filters, vibration absorbers, etc.
4. The Contractor is responsible for installing new Mechanical Equipment curbs per the drawings, and for placing condensing units on the roof in locations indicated in the drawings.
5. The Contractor is responsible for, but not limited to mounting condensers, condenser rack installation, refrigeration line runs / insulation, refrigerant charging, connection and control wire runs to condensers and evap. coils, etc, to make the walk in refrigeration system fully functional. (See Section 6 – Walk-In Freezer Responsibility Matrix).

6. The Contractor will furnish and install electrical power to the condenser location. (See Section 6 – Walk-In Freezer Responsibility Matrix).
11. The contractor will terminate all electrical connections to the freezer, evaporator, condenser, lights, etc. and power up the installation for a fully functioning system

4. GENERAL:

A. ENVIRONMENTAL COMPLIANCE

1. The walk in panels, doors and refrigeration system will comply with all current government regulations regarding energy efficiency and environmental safe guards.

B. WARRANTY

1. The walk in box and panels shall carry a (10) ten year warranty and a (1) year warranty on all other components through the manufacturer.
2. **Compressors shall carry a 5 year warranty through the manufacturer.**
3. Refrigeration work: Through the refrigeration contractor.

5. SPECIFICATION NOTES

1. Different manufacturers have differing locations for electrical feeds for the coils, condensers, etc. for the Walk-In units. **The contractor will coordinate with Owner for these conditions in the final construction and installation phase.**

6. WALK-IN COOLER/FREEZER RESPONSIBILITY MATRIX:
BENNETT, O’DEA, & PUTNAM ELEMENTARY SCHOOLS

O = Owner C = Contractor

ITEM	FURNISHED BY	INSTALLED BY
SITWORK:		
Site Preparation	O	O
WALK-IN UNITS		
Walk-In Cooler Units and All Accessories per Specifications	C	C
Condensing Units per Specifications	C	C
Condensing Units Placement on Roof as indicated	C	C
Evaporator Coils per Specifications	C	C
Condensate Pumps per Specifications	C	C
Condensate Piping per Specifications	C	C
ARCHITECTURAL:		
All Architectural Work Scope as Indicated.	C	C
Misc. Roof Demo – Fans, Curbs, etc. as Indicated.	C	C
New Mechanical Equipment Curbs and installation as indicated.	C	C
MECHANICAL:		
Removal of Existing Misc. Mechanical items as indicated	C	C
ELECTRICAL:		
Existing Ceiling Mounted Electrical Items Removal	C	C
Ceiling Mounted Electrical Items Re-Installation as indicated	C	C
Misc. Electrical as indicated	C	C

Electrical Power to Walk-In Locations as indicated	C	C
Walk-In Connection (ALL) to Owner Furnished Power	C	C
Electrical Power to Roof Mounted Condensing Units	C	C
Condenser Connection to Owner Furnished Power	C	C
Electrical Power to Condensate Pumps	C	C
Condensate Pumps Connection to Owner Furnished Power	C	C
FIRE ALARM		
Remove/Reinstall Existing Ceiling Mounted Fire Alarm Devices	C	C
Remove/Reinstall Device Wiring as indicated.	C	C
Remove/Reinstall Pull Stations / Horn-Strobes as indicated.	C	C

END OF SPECIFICATION



POUDRE SCHOOL DISTRICT
RIFFENBURGH ELEMENTARY
 WALK-IN FREEZER UPGRADE
 1320 EAST STUART STREET
 FORT COLLINS, COLORADO 80525

OWNER:

POUDRE SCHOOL DISTRICT
 2445 LAPORTE AVENUE
 FORT COLLINS, COLORADO 80521
 PHONE: 970|490|3594
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Brian Schlicting
 Project Manager II

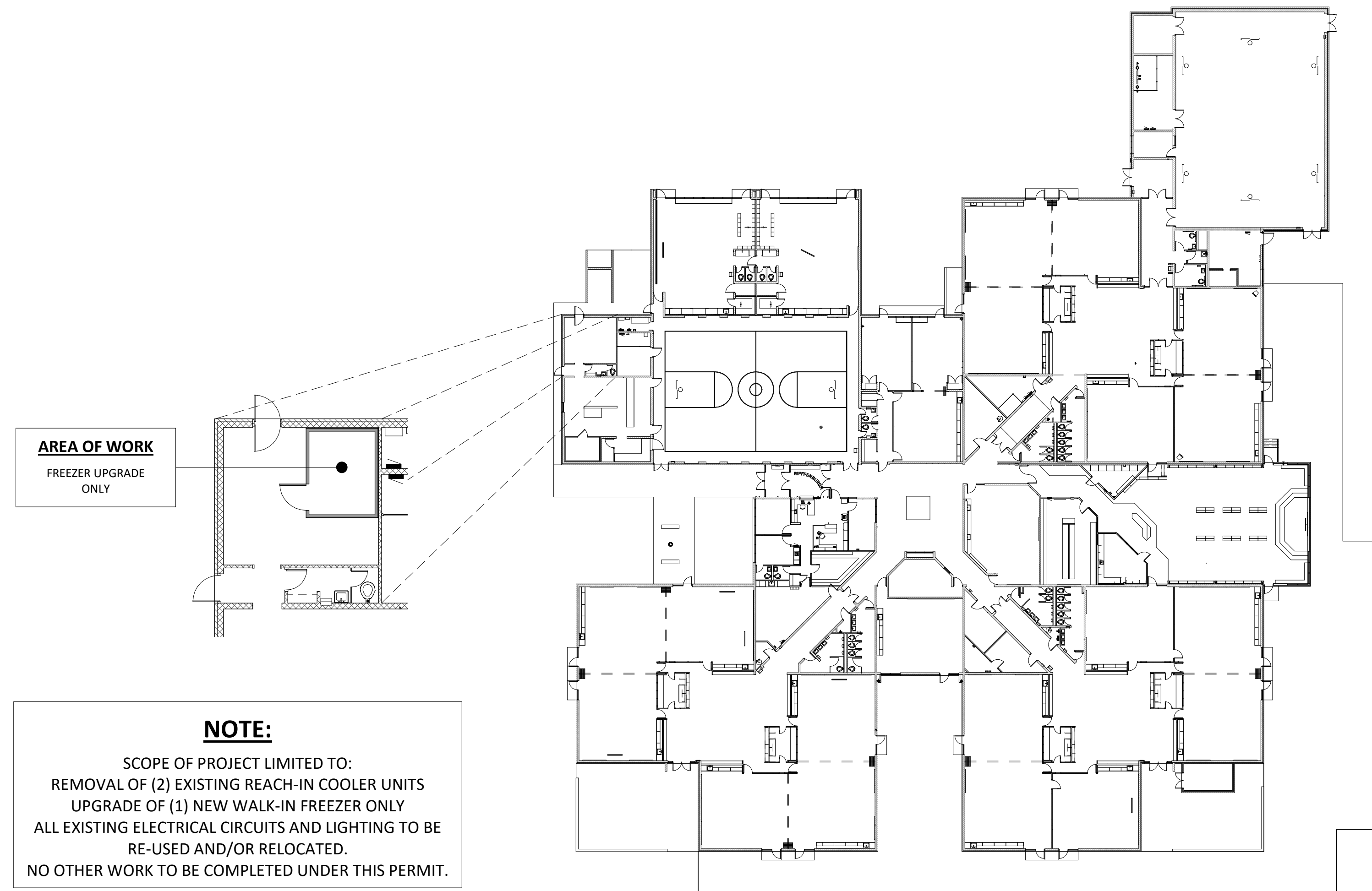
ARCHITECT:

DIGITAL ARCHITECTURAL MODELING | LLC
 FORT COLLINS, COLORADO 80521
 PHONE: 970|234|8569
 EMAIL: sean@damodeling.com

Sean Christian | NCARB
 Architect

DRAWING INDEX:

- A0.0 VICINITY MAP, KEY PLAN AND PROJECT INFORMATION
- A1.0 FLOOR PLAN, CEILING PLAN, RESPONSIBILITY MATRIX AND DETAILS



KEY PLAN AND PROJECT INFORMATION:

NOT TO SCALE



VICINITY MAP:

NOT TO SCALE



RIFFENBURGH ELEMENTARY
 1320 EAST STUART STREET
 FORT COLLINS, COLORADO 80525
 VICINITY MAP, KEY PLAN AND PROJECT INFORMATION

ISSUE FOR BIDDING AND PERMIT

PROJECT	011.23	
DATE	09.08.23	
DRAWN	DAM	
NO.	DESCRIPTION	DATE

REVISIONS		

SHEET

A0.0

ISSUE FOR BIDDING AND PERMIT

PROJECT	011.23	
DATE	09.08.23	
DRAWN	DAM	
NO.	DESCRIPTION	DATE
REVISIONS		

SHEET

A1.0

GENERAL NOTES:

- A. SCOPE OF WORK TO INCLUDE WALK-IN FREEZER UPGRADE ONLY - NO OTHER WORK TO BE COMPLETED WITH THIS PERMIT
- B. PROTECT ALL FINISHES DURING CONSTRUCTION - TYPICAL
- C. FIELD VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO CONSTRUCTION
- D. SEE RESPONSIBILITY MATRIX FOR OWNER/CONTRACTOR SCOPE OF WORK

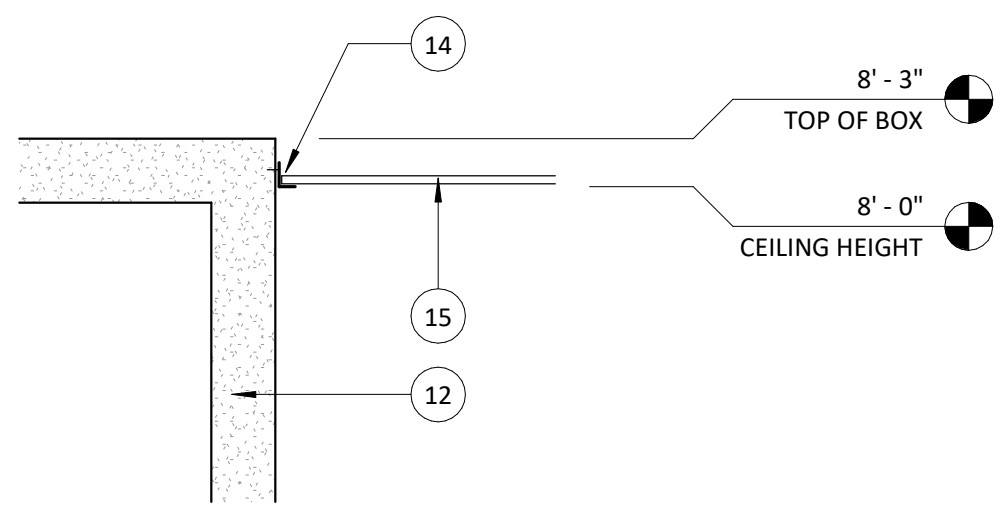
KEY NOTES:

- 1. LIGHT SWITCH - SHOWN FOR REFERENCE ONLY
- 2. EXISTING REACH-IN UNITS TO BE REMOVED BY OWNER - SHOWN FOR REFERENCE ONLY
- 3. SURFACE MOUNTED J-BOX WITH DUPLEX OUTLET - POWER TO EXISTING REACH-IN UNITS - EXISTING CIRCUIT TO BE REUSED FOR NEW WALK-IN FREEZER POWER
- 4. EXISTING 4" ROOF DRAIN LEADER - SHOWN FOR REFERENCE ONLY
- 5. EXISTING SURFACE MOUNTED FIRE ALARM HORN/STROBE TO REMAIN - SHOWN FOR REFERENCE ONLY
- 6. 12" VCT FLOORING IN DRY STORAGE AREA
- 7. EXISTING CEILING MOUNTED SPEAKER TO REMAIN - SHOWN FOR REFERENCE ONLY
- 8. EXISTING SURFACE MOUNTED J-BOX WITH DUPLEX OUTLET TO REMAIN - SHOWN FOR REFERENCE ONLY
- 9. RELOCATE EXISTING SURFACE MOUNTED J-BOX WITH DUPLEX OUTLET TO LOCATION SHOWN
- 10. EXISTING 2x4 RECESSED TROFFER LIGHT FIXTURE
- 11. REMOVE EXISTING ACP GRID AND PANELS, SAVE FOR REINSTALLATION TIGHT TO NEW WALK-IN UNIT, MATCH EXISTING CEILING HEIGHT, GRID, ETC. - SEE DETAILS
- 12. NEW PREFABRICATED WALK-IN FREEZER UNIT, SEE DIMENSIONS, PROVIDE 1" AIR GAP WHERE BOX ABUTS WALLS - TYPICAL
- 13. 36" WALK-IN UNIT DOOR
- 14. PROVIDE NEW CEILING EDGE ANGLE, ATTACH TO SIDE OF NEW WALK-IN UNIT
- 15. REINSTALL SALVAGED CEILING TILES - SEE CEILING PLANS
- 16. EXISTING MEMBRANE ROOFING - PROTECT DURING INSTALLATION OF NEW ROOF CURB AND LINE-SET
- 17. NEW CONDENSER INSULATED LINE-SET
- 18. 24 GAUGE G.S. PELICAN HOOD
- 19. TERMINATION BAR AND SEALANT OVER THE MEMBRANE FLASHING AND WATER BLOCK MASTIC
- 20. NEW MEMBRANE FLASHING 8" MIN UP SIDE OF NEW METAL CHASE
- 21. NEW CORNER FLASHING, HEAT WELD TO EXISTING MEMBRANE ROOFING

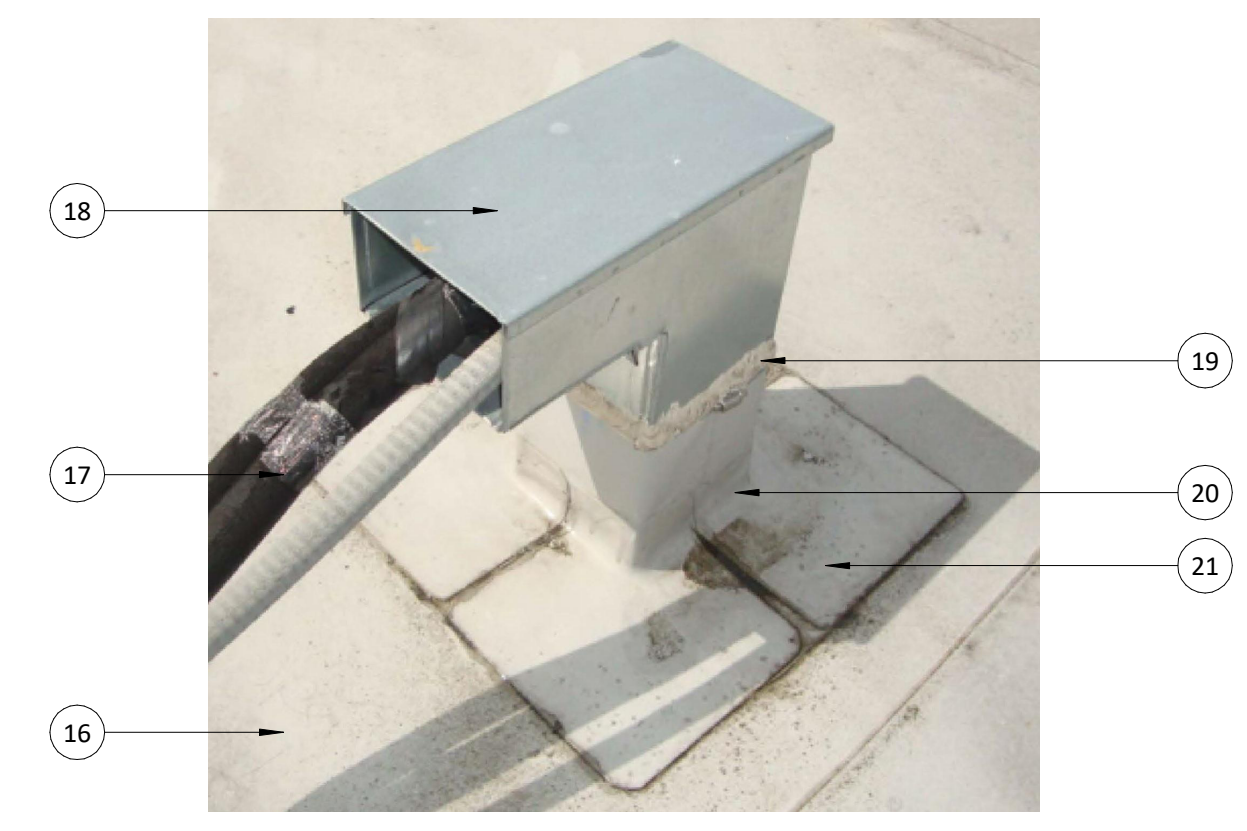
RESPONSIBILITY MATRIX

O = OWNER GC = GENERAL CONTRACTOR

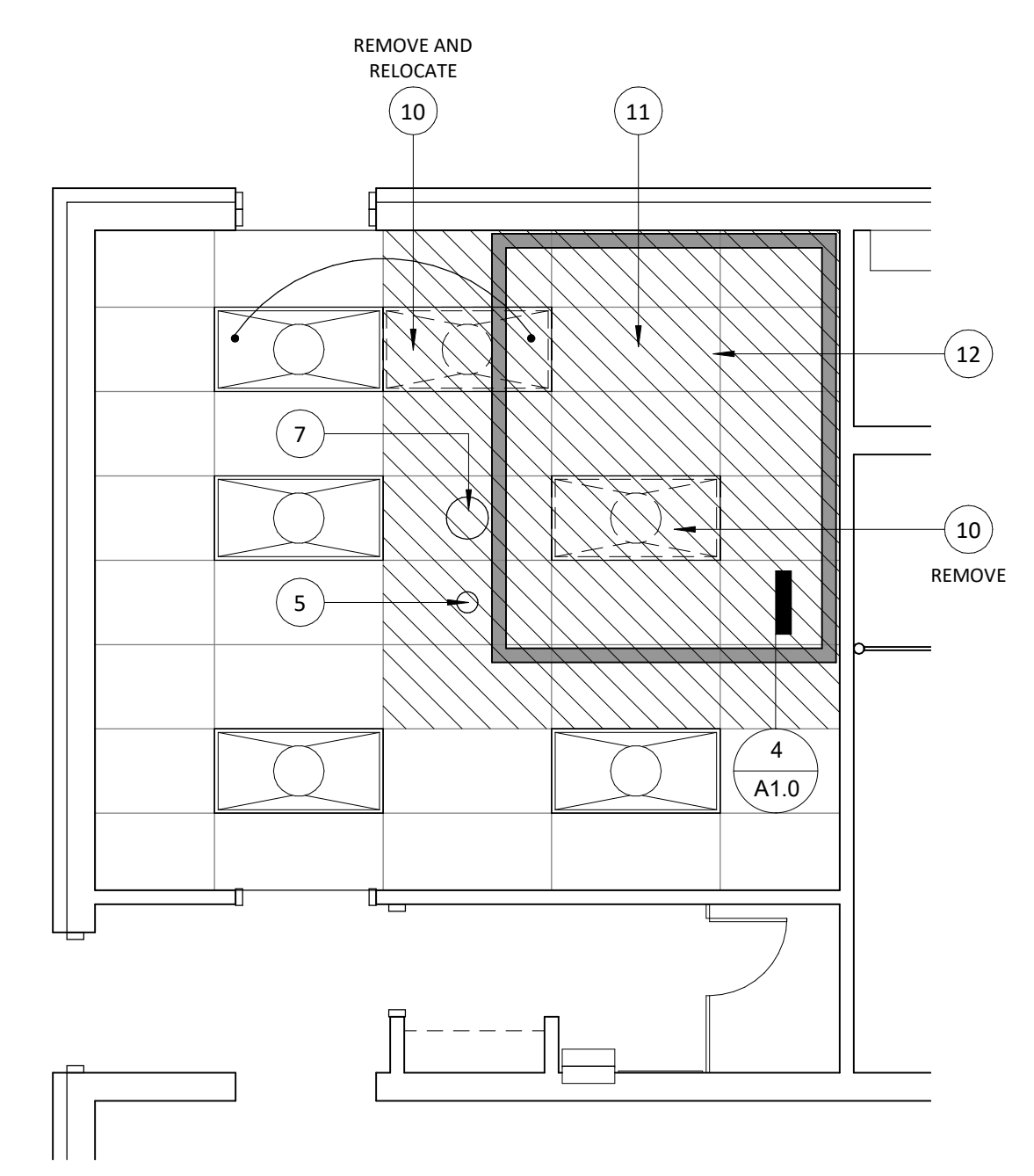
ITEM	FURNISHED BY	INSTALLED BY
SITework:		
SITE PREP - WHERE OCCURS	O	O
WALK-IN UNITS:		
NEW WALK-IN FREEZER UNITS PER PSD STANDARDS	O	GC
ARCHITECTURAL:		
REMOVE EXISTING ACP CEILING - PER DRAWINGS	GC	GC
REINSTALL ACP CEILING - PER DRAWINGS	GC	GC
MECHANICAL:		
REMOVE EXISTING REACH-IN UNIT	O	O
WALK-IN FREEZER CONDENSING UNIT	GC	GC
ROOF PLACEMENT OF CONDENSING UNIT	GC	GC
MISC. ROOF WORK TO ACCOMMODATE CONDENSING UNIT	GC	GC
EVAPORATOR COILS	GC	GC
CONDENSATE PUMP	GC	GC
CONDENSATE PIPING LINESET	GC	GC
ELECTRICAL:		
REMOVE EXISTING CEILING LIGHTING - PER DRAWINGS	GC	GC
REINSTALL EXISTING CEILING LIGHTING - PER DRAWINGS	GC	GC
MISC. ELECTRICAL	GC	GC
POWER TO ROOF MOUNTED CONDENSING UNIT	GC	GC
CONDENSING UNIT CONNECTION TO POWER	GC	GC
POWER TO CONDENSATE PUMP	GC	GC
CONDENSATE PUMP CONNECTION TO POWER	GC	GC
POWER TO WALK-IN COOLER UNIT	GC	GC
WALK-IN UNIT CONNECTION TO POWER	GC	GC
FIRE ALARM:		
REMOVE EXISTING FIRE ALARM DEVICES - PER DRAWINGS	GC	GC
REINSTALL EXISTING FIRE ALARM DEVICES - PER DRAWINGS	GC	GC
DEVICE WIRING	GC	GC
SMOKE AND/OR HORN-STROBE DEVICES	GC	GC



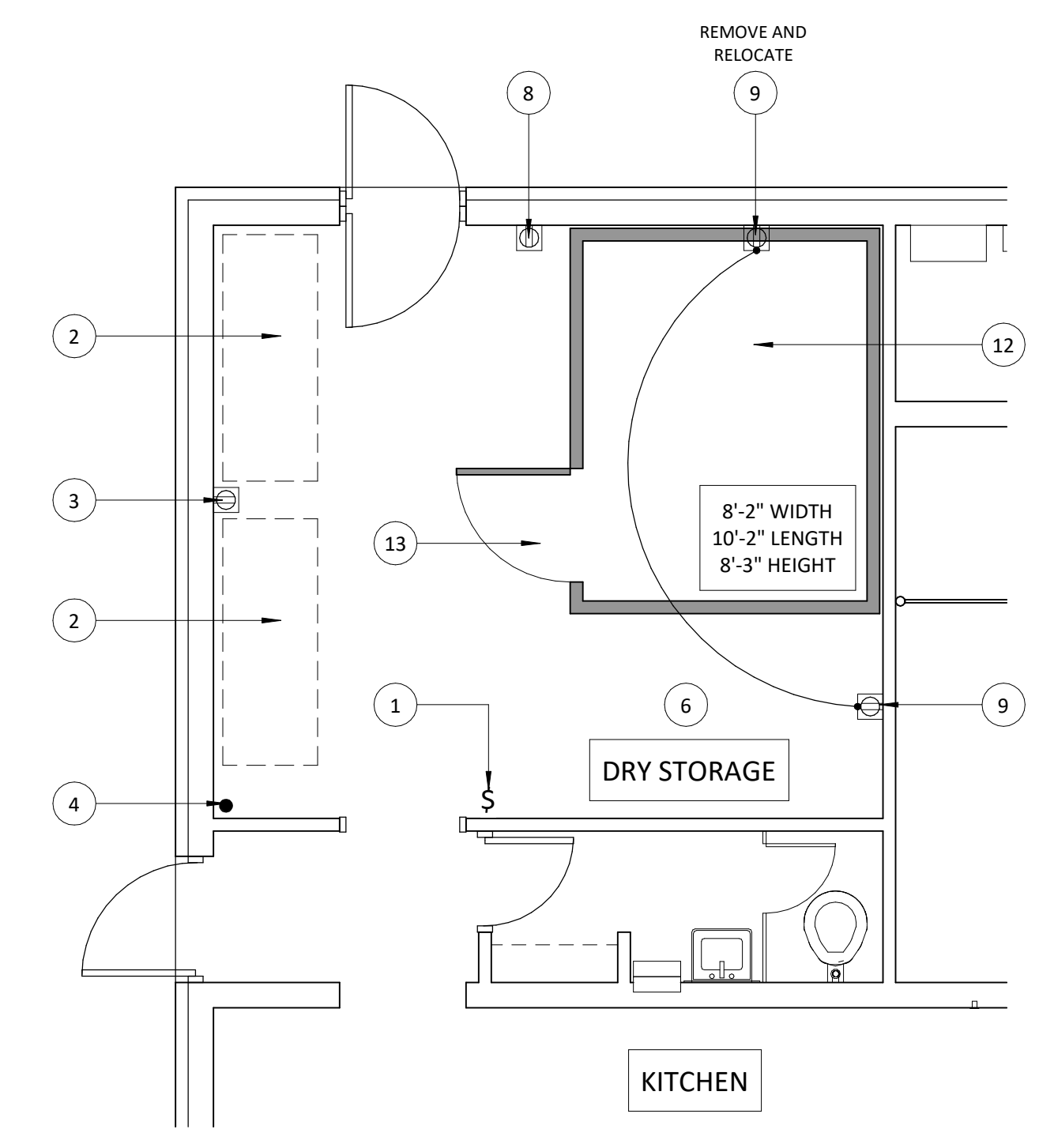
4 CEILING DETAIL



3 ROOF-TOP LINESET DETAIL



2 WALK-IN COOLER CEILING PLAN



1 WALK-IN COOLER PLAN



ISSUE FOR BIDDING AND PERMIT