

MIDDLETON ASSOCIATES INCORPORATED
1702 W. COLLEGE AVE., SUITE E
NORMAL, IL 61761-2793
PHONE 309/452-1271 FAX 309/454-8049

SPECIFICATIONS FOR LABOR AND MATERIALS

FOR

GLENN ELEMENTARY SCHOOL TEACHER WORKROOM
REMODEL AND ADDITION
306 GLENN AVENUE, NORMAL, IL 61761

FOR

MCLEAN COUNTY UNIT DISTRICT NO. 5
1809 HOVEY AVENUE
NORMAL, ILLINOIS 61761-4339

PROJECT NUMBER: 24422319

ISSUE DATE: Monday, March 23, 2020

PRE-BID MEETING: Wednesday, April 1, 2020 – 10:30 a.m. Prevailing Time –
Glenn Elementary School
306 Glenn Avenue , Normal, IL 61761
Meet at Main entrance

BID DATE: Thursday, April 16, 2020 – 1:30 p.m.

BID DELIVERED TO: Unit 5 Maintenance Warehouse
1999 Eagle Road
Normal, IL 61761

SPECIFICATION BOOKLET NO. _____



Expiration Date
11/30/20

A handwritten signature in black ink, appearing to read "Randall E. Middleton", written over a horizontal line.

[Seal and Signature]

DIVISION 0 – BIDDING & CONTRACT REQUIREMENTS

Section 00020 – Table of Contents

PROJECT TITLE: McLean County Unit District No. 5
Glenn Elementary School Teacher Workroom Remodel and Addition
600 Grandview Dr., Normal, IL
A/E Project No.: 24422319

FOR: McLean County Unit District No. 5
District Office: 1809 Hovey Ave., Normal, IL 61761-4339
Maintenance Warehouse: 1999 Eagle Rd., Normal, IL 61761

SUPERINTENDENT OF SCHOOLS: Dr. Mark Daniel

ARCHITECT/ENGINEER: Middleton Associates, Incorporated
1702 W. College Avenue, Suite E
Normal, IL 61761-2793
middleton@middletonassociates.net

ISSUE DATE: March 20, 2020

DIVISION	SECTION	TITLE	PAGES
0		BIDDING & CONTRACT REQUIREMENTS	
	00020	Table of Contents	00020-1- 3
	00030	Invitation for Bids	00030-1- 1
	00040	Instructions for Bidders	00040-1-15
	00045	Prevailing Wages.....	00045-1- 1
	00050	General Conditions AIA Documents A201-97	00050-1- 1
	00300	Proposal Form	00300-1- 3
	00301	Award & Contract Form	00301-1- 1
	00307	Voluntary Alternate & Substitution Form	00307-1- 1
	00800	General & Supplementary Conditions	00800-1- 8
	00860	Drawings Index	00860-1- 1
1		<u>GENERAL REQUIREMENTS</u>	
	01010	Project Summary	01010-1- 4
	01030	Alternates	01030-1- 1
	01040	Field Engineering.....	01040-1- 5
	01041	Project Coordination	01041-1- 4
	01045	Cutting & Patching	01045-1- 3
	01051	Grades, Lines & Levels.....	01051-1- 2
	01055	Anchorage & Fastenings.....	01055-1- 4
	01060	Codes & Standards.....	01060-1- 2
	01120	Remodeling Project Procedures.....	01120-1- 4
	01310	Construction Schedules	01310-1- 2
	01340	Submittals.....	01340-1- 2
	01370	Schedule of Values.....	01370-1- 2
	01420	Inspections	01420-1- 2
	01510	Temporary Utilities.....	01510-1- 3
	01530	Barriers.....	01530-1- 2
	01540	Security.....	01540-1- 1

DIVISION	SECTION	TITLE	PAGES
1		<u>GENERAL REQUIREMENTS (CONTINUED)</u>	
	01550	Access Roads & Parking Areas	01550-1- 4
	01561	Construction Cleaning.....	01561-1- 2
	01630	Substitutions & Product Options.....	01630-1- 3
	01700	Project Closeout	01700-1- 1
	01740	Guarantees, Warranties & Bonds.....	01740-1- 2
2		<u>SITE WORK</u>	
	02072	Minor Demolition for Remodeling	02072-1- 2
	02200	Earthwork & Backfill	02200-1- 4
3		<u>CONCRETE</u>	
	03300	Concrete	03300-1- 9
5		<u>METALS</u>	
	05120	Structural Steel	05120-1- 6
	05300	Metal Decking	05300-1- 1
	05400	Cold Formed Metal Framing	05400-1- 4
	05500	Metal Fabrications	05500-1- 3
	05580	Sheet Metal Fabrication	05580-1- 2
6		<u>WOOD</u>	
	06100	Rough Carpentry	06100-1- 4
	06200	Finish Carpentry	06200-1- 2
	06416	Plastic Laminate Clad Cabinets	06416-1- 4
7		<u>THERMAL & MOISTURE PROTECTION</u>	
	07190	Water Repellent Coatings	07190 1- 4
	07200	Insulation	07200-1- 4
	07240	EIFS System.....	07240-1- 5
	07530	EPDM Elastomeric Membrane Roofing.....	07530-1-11
	07600	Sheet Metal Flashing & Trim.....	07600-1- 6
	07900	Sealants & Caulks	07900-1- 5
8		<u>DOORS & WINDOWS</u>	
	08100	Hollow Metal Work.....	08100-1- 5
	08400	Aluminum Frames, Aluminum Door, FRP Doors, & Hardware.....	08400-1- 7
	08500	Aluminum Windows.....	08500-1- 4
	08700	Door Hardware	08700-1- 6
	08800	Glazing	08800-1- 5
9		<u>FINISHES</u>	
	09250	Gypsum Wallboard	09250-1- 5
	09500	Acoustical Ceilings.....	09500-1- 4
	09670	Resilient LVT Flooring.....	09670-1- 4
	09900	Painting.....	09900-1- 5

DIVISION	SECTION	TITLE	PAGES
15		<u>MECHANICAL</u>	
	15010	Basic Mechanical Requirements	15010-1- 2
	15050	Basic Mechanical Materials and Methods	15050-1- 4
	15100	Valves.....	15100-1- 4
	15145	Hangers and Supports	15145-1- 3
	15260	Pipe Insulation	15260-1- 4
	15290	Duct Insulation	15290-1- 3
	15300	Plumbing Piping.....	15300-1- 2
	15410	Plumbing and Fixtures	15410-1- 2
	15510	Hydronic Piping.....	15510-1- 6
	15786	Water Source Heat Pumps	15786-1- 4
	15891	Metal Ductwork	15891-1- 4
	15932	Air Outlets and Inlets.....	15932-1- 1
	15990	Testing, Adjusting, and Balancing	15990-1- 2
23		<u>HEATING, VENTILATING, AND AIR CONDITIONING (HVAC)</u>	
	23 0501	Minor HVAC Demolition	23 0501-1- 2
26		<u>ELECTRICAL</u>	
	26 0501	Minor Electrical Demolition.....	26 0501-1- 2
	26 0519	Low-Voltage Electrical Power Conductors and Cables	26 0519-1- 2
	26 0529	Hangers and Supports for Electrical Systems	26 0529-1- 2
	26 0534	Conduit	26 0534-1- 3
	26 0537	Boxes	26 0537-1- 2
	26 0920	Electrical Fixtures	26 0553-1- 2
	26 0923	Lighting Control Devices	26 0923-1- 1
	26 2416	Panelboards	26 2416-1- 2
	26 2717	Equipment Wiring	26 2717-1- 2
28		<u>ELECTRONIC SAFETY AND SECURITY</u>	
	28 3100	Fire Detection and Alarm	28 3100-1- 1

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END 00020

DIVISION 0 – BIDDING & CONTRACT REQUIREMENTS
Section 00030 – Invitation for Bids

This notice shall be published not less than ten (10) days prior to the Bid date.

Sealed proposals will be received by: McLean County Unit District No. 5 for Glenn Elementary School Teacher Workroom Remodel and Addition, A/E Project No. 24422319.

Time of Bid Submission: Thursday, April 16, 2020 at 1:30 p.m. Bids will be opened following due time.

Location of Bid Submission: McLean County Unit District No. 5 Warehouse, Attn: Joe Adelman, 1999 Eagle Rd., Normal, Illinois 61761.

Proposals shall be delivered to the above location prior to 1:30 p.m. Proposals shall be clearly identified on the outside of the envelope as "Sealed Proposal" and must show the project title.

Terms of the proposal:

- Bid Security is required, 5% Bid Bond or Certified Check payable to McLean County Unit District No. 5.
- Owner protective bonds will be required in the amount of 100% of the Contract value after Board acceptance.
- Illinois Prevailing Wage Act P.A. 86-799 and HB 188 applies to this contract.
- 720 ILCS 5/ Illinois Criminal Code of 2012 is applicable to this project.
- The Board of Education has the right to reject or accept any or all parts of all bids submitted and to waive any irregularities in the bidding and to accept the bid considered in the best interest of the School District.

A Pre-Bid Meeting is scheduled for 10:30 a.m., Wednesday, April 1, 2020 at Glenn Elementary School. Meet at the main entrance.

Interested parties may check out Plans and Specifications at the Architect's office, Middleton Associates, Inc. There is a refundable deposit of \$25.00 per set, or download: www.middletonassociates.net, click on "Contractors."

END 00030

DIVISION 0 – BIDDING & CONTRACT REQUIREMENTS

Section 00040 – Instructions for Bidders

1. GENERAL

1.1. LOCATION OF THE PROJECT:

- A. **Glenn Elementary School, 306 Glenn Avenue., Normal, IL 61761**

1.2. OBTAINING DRAWINGS & SPECIFICATIONS

- A. Drawings and Specifications may be obtained from the Architect, Middleton Associates Incorporated, 1702 W. College Ave., Suite E, Normal, IL 61761-2793, Telephone 309/452-1271, FAX 309/454-8049
E-Mail: www.middleton@middletonassociates.net

- B. There is a refundable deposit of \$25.00 per set.

- C. All sets of Bid Documents, except those held by the low bidder, are to be returned to the Architect/Engineer in good usable condition within ten (10) days following bid opening. Failure to do so shall be grounds for forfeiture of the otherwise refundable deposit. Drawings and Specifications may be examined at the office of the Owner or Architect without charge.

1.3. INTERPRETATION OF DOCUMENTS (See AIA General Conditions Section 00050 and Supplementary General Conditions Section 00800).

- A. Anyone having a doubt concerning the meaning of the Contract Documents, or any other questions, may submit a request for interpretation from the Architect/Engineer. All pre-bid interpretation shall be requested FIVE (5) DAYS prior to the bid due date. Response, other than minor clarification, will be in the form of Addenda and will be mailed to each Bidder.

- B. It shall be the Architect/Engineer's responsibility to clarify conflicts in requirements as may be reported to the Architect/Engineer. After bid due date, the Architect/Engineer shall determine the course to be followed for said clarification with no cost change to the Owner.

- C. All work in these documents shall be as described, including any and all trade subcontractors of the contractor's determination and designation with no cost increase to the Owner.

1.4. INTENT, ERRORS AND OMISSIONS

- A. Any known conflict between requirements of various portions of the Contract Documents shall be reported to the Architect/Engineer prior bid due date and shall fall under the authority of Interpretation of Documents.

- B. The Drawings are descriptive and directive in concept and are not intended to exhaust all detail situations required to complete the work. The procedures detailed shall establish the general character of solutions needed for typical, non-typical, and peculiar situations at the job site.

- C. It is the intent of the documents that specified work and equipment be installed in a proper and finished manner, fully operational, at a minimum of generally accepted standards for good quality commercial construction. All necessary materials, labor, controls, accessories, brackets, fasteners, sealants, etc., to properly install and complete the work shall be provided unless specifically noted otherwise.
- D. Each Contractor and Subcontractor shall coordinate and cooperate with the other Contractors to provide proper installation. Verify dimensions, services, installation conditions, obstacles to the work and modifications necessary to complete the work and coordinate the fit, finish and scheduling of the work.

1.5. DOCUMENT INTENT: PROJECT COMPLETION, HIGH LEVEL FIT AND FINISH FULLY FUNCTIONAL, USER READY

- A. It is the intent that all items of work included in the project are to be completely finished and all necessary associated components and accessories for proper completion are to be included in the work.
- B. Drawings are schematic in nature; every single element needed is not necessarily labeled, dimensioned or positioned. Unless specifically exempted, the Contractor shall provide as follows:
 - 1. Good quality fit, finish and workmanship at a level of competency and quality equal to or exceeding commercial construction in the area.
 - a. Sealants, caulks, flashings, transitions, closures and components to assure infiltration and weather tight result and finished appearance inside and out.
 - b. Sealants, flashings, closures at building connections.
 - c. Upper and lower flashings, in new construction and whenever possible, to shed water outward.
 - 2. All components and assemblies to assure proper installation and performance of manufactured equipment, per manufacturer's or industry association standards as a minimum.
 - a. Mechanical equipment, plumbing, piping, ventilation, valves back checks, connections etc.
 - b. Mechanical and electrical coordination, coordination of installation locations, hidden where possible, routed through the construction in the most expedient but concealed manner,
 - c. Minor relocation of piping, equipment, installations shall be provided without cost change within 10' either way or reasonable pathways of similar distance.
 - d. All other equipment, kitchen, doors, hardware, windows and any other operable equipment
 - e. Service access, filters replacement, and repairs; always

allow for reasonable repair and maintenance access.

1.6. BIDDING REQUIREMENTS

- A. See Paragraph 1.20: Scheduling.
- B. Any Contractor Proposal may include Document 00307 Product Substitutions Form / Voluntary Alternates Form. Basic materials have been selected as noted in these Specification Sections and on the Drawings in order to reduce or eliminate any schedule / ordering delays. Any Contractor may propose substitute materials or voluntary alternates to the basic specified materials on this form. If any Contractor desires to offer substitutions or voluntary alternates, include this form with your Bid.

1.7. ADDENDA

- A. Addenda may be issued before the bid opening date to clarify or modify the Contract Documents.
- B. Said addenda shall become a part of the Contract documents and supersede any conflicting specifications or clarify intent of same.

1.8. BID SECURITY

- A. The Bidder shall furnish, along with his proposal, a bid bond or certified check in the amount of five percent (5%) of the bid proposal including all additive alternates. The above instrument shall be made payable to the Owner and shall serve as a guarantee that the Contractor will enter into the Contract with the Owner as per his bid, should the job be awarded to him.
- B. Should said Contractor refuse or fail to enter into a Contract with Owner per his bid for the work included in these Contract Documents within forty-five (45) days following bid due date, said bid guarantee shall become collectible, in full, by the Owner in payment for damages. See 00040/1.12 "RETURN OF BID SECURITY."

- 1.9. WITHDRAWAL OF BIDS. Bids may be withdrawn by the Owner or Corp. Officer of Contractor prior to the bid due date and time, after which time no bids may be withdrawn for a period of forty-five (45) days unless a Bidder has been released by the Owner's action.

1.10. PROPOSAL FORMS

- A. Each bidder shall submit his proposal on proposal form provided. All applicable blank spaces on forms shall be filled out fully; numbers shall be stated both in writing and in figures; signatures shall be live in longhand. Completed forms shall be without delineation, alteration or erasure.
- B. Proposals shall not contain any recapitulation of the work and no oral proposals or modifications are invited for consideration. The Proposal & Contract Form automatically becomes the Contract upon the acceptance and signature of the Owner. See Paragraph 1.15 "COMMENCEMENT OF

CONSTRUCTION."

- C. Substitutions of material other than that specified may be included on the proposal. See related Specification Sections for more information on Substitutions.

1.11. SIGNING OR BIDS

- A. All proposals shall be signed (live signatures, no copies of signatures accepted) by persons fully and duly authorized to sign bids.
- B. Any bid signed by a person other than as set forth above shall enclose with his bid proposal evidence of Power of Attorney.

1.12. AWARD OR REJECTION OF BIDS

- A. Although it is the intention of the Owner to accept the lowest qualified bid the Owner specifically reserves the right to waive all formalities and/or informalities, to reject any and all bids and/or accept the bid that, in the Owner's judgment, will be in the Owner's best interest.
- B. Contractor will note: All alternates that are applicable, or as may become applicable by addendum, must be bid.

1.13. RETURN OF BID SECURITY

- A. After bids have been read along with alternates and/or substitutions as applicable and a successful Bidder has been approved by Owner, a Letter of Intent will be sent to the successful bidder and bid security may be returned to the unsuccessful bidders:
 - 1. Except the deposits of the two (2) bidders in line may be retained until Owner/Contractor agreements have been consummated.
 - 2. The Owner has released them.
 - 3. The Bid has expired.
- B. Following the signing of the Contracts and receipt of bonds, remaining bid security will be returned. If the successful Bidder fails to accept the Contract and submit acceptable bonds, same will be grounds for forfeiture of his bid security.

1.14. OWNER'S PROTECTIVE BONDS: A 100% of value Labor and Material Payment Bond and a Performance Bond including all alternates accepted is required in the Contract and shall be included in the Contractor's Proposal.

- A. Periodic Change Orders that may occur to the Contract shall be included in each respective bond.
- B. Bonds shall cover the entire Contract without regard to the Contractor's assignment of work to Subcontractors or Suppliers.

1.15. COMMENCEMENT OF CONSTRUCTION

- A. Contractor shall not commence work until the agreement has been executed by both Owner and Contractor and Insurance Certificate and Owner's Protective Bonds have been accepted by the Owner and the Architect. However, work shall commence promptly upon the Owner and Architect's acceptance of Insurance certification and applicable bonds. Commence progress and work completion shall be coordinated with the Owner's programmed use of the buildings.
 - 1. **All insurance certificates shall specifically list McLean County Unit District No. 5 and the Architect, Middleton Associates Incorporated and their consultants and sub-consultants to the work, as added insureds or named insureds.**
 - 2. **Start date: Construction must begin as soon as possible after contract signatures are completed, with consideration of COVID-19 unforeseen problems. Work may begin no later than 8:00 a.m. June 1, 2020.**
 - a. Negotiations to begin construction before Bond & insurance certificates might occur.
- B. **The McLean County Unit School District No. 5 must occupy all spaces of the currently existing building of Glenn Elementary School including the modifications to Rooms 117, 117.1, 118, 119, and 120 for the start of the 2020-2021 School Year on or before August 16, 2020. There is no alternative to completion occurring by January 8, 2021.**
- C. **Material for this construction project must be ordered ASAP after contract signatures are complete and Bonds and Insurance are completed.**
- D. Progress at job site shall be continuous once work has commenced.

1.16. EXAMINATION OF SITE AND CONTRACT DOCUMENTS

- A. Bidder shall carefully examine bidding documents and inspect the sites to obtain first-hand knowledge of existing conditions.
- B. **A Pre-Bid Meeting is scheduled for 10:30 a.m., Wednesday, April 1, 2020 at Glenn Elementary School, 306 Glenn Avenue, Normal, IL 61761. Meet at the Main Entrance of Glenn.**
- C. Each Bidder, by submitting his bid, represents that he has so examined the bidding documents and inspected the site and premises, that he understands the provisions of the bidding documents, and that he has familiarized himself with the local conditions under which the work is to be performed. Bidders will not be given extra payment or contract time for conditions, which could have been determined by such examination.

1.17. BIDDER QUALIFICATIONS

- A. Competency and responsibility of the Bidder, and of their proposed subcontractors, will be considered prior to award and may include:

1. A detailed statement regarding the business, technical organization and plant facilities for the work that is contemplated.
 2. Evidence of successful experience of personnel and previously completed construction projects.
 - a. Contractor and personnel, five years or more commercial construction experience, including recent projects or similar or greater value, similarity of types of work, technical content, and complexity.
 - b. Evidence that such projects have been aggressively pursued to conclusion without delay, frivolous claims for additional costs, or work requiring abnormal or extensive corrections.
- B. The Owner may reject a bidder, if an updated financial statement prepared by a CPA not in the Contractor's payroll (bearing the CPA's live signature) shows the net worth of a Contractor to be less than 25% of the Contractor's bid including elected alternates for this work. Said statement, if required by the Owner, shall be furnished and paid for by the Bidder.
1. Evidence of unpaid bills, unresolved liens, outstanding claims by the Dept. of Labor for wage, benefits or workman compensation violations or failure to provide accurate payroll information may be used to determine responsibility of Contractor prior to award.

1.18. LIST OF SUBCONTRACTORS

- A. **AT THE TIME OF BIDDING** the Contractor shall submit to the Architect/Engineer, a list of the names of the subcontractors and suppliers and other persons or organization as outlined in specification page 00300-4, subject to the approval of the Owner.
- B. After the Contractor's list of subcontractors and material suppliers has been submitted, no further changes shall be made without specific written authority and approval of the Architect/Engineer.

1.19. CONTRACT AWARD

- A. The Owner will make an award based on the selection of the lowest cost responsible bidder. After award is approved by the Board of Education, the contract timeline is as follows:
1. The Architect will fill in the Contract Form of Agreement (specification section 00301-2). The Architect will obtain the signature of the person designated by the Board of Education.
 2. The Architect will send two (2) Forms of Agreement, and the Contractor shall sign both, keep one (1) for their file, send one (1) back to Architect. This shall happen within seven (7) calendar days of the date of award.
 3. When the Contractor has signed both copies of the Form of Agreement, the project starts, with consideration given to

- governmental requirements for COVID-19.
 4. The Contractor shall immediately obtain Proof of Insurance, Labor and Materials, Payment and Performance Bonds. All of the above to be completed fifteen (15) days after award.
 5. Master Cost Breakdown (CVS), thirty (30) days after award.
 6. Proposed Schedule and timeline: Contractor to present at Pre-Construction meeting, fifteen (15) days after award.
 7. Contractor to send Shop Drawings and Catalog Cuts/Samples or bring same to Pre-Construction meeting.
- B. Failure or refusal to provide the preceding Contract information in a timely manner may be cause for cancellation of the award or termination of the agreement if signed and the Owner will be entitled to compensation under the terms of the Bid Security for failure to execute contract terms in good faith.

1.20. SCHEDULING

- A. The orderly and rapid execution of the required work is of paramount importance.
- B. The work shall proceed with the exterior addition to be constructed and closed in prior to the present exterior wall being removed and work proceeding on renovation of interior spaces.
1. Moving the present Hat Pump to the new location must be done as soon as the existing exterior wall is removed.
- C. Contractors' Master Schedule
1. The Contractor shall prepare and maintain a Master Schedule, including the work of all sub contractors.
 2. Prior to preparation of the Master Schedule, all Subcontractors shall coordinate scheduling needs with the General Contractor.
 3. Upon preparation of a detailed schedule, same shall be reviewed by the Architect and the Owner. Once accepted, it shall become the basis for determining the on time progress of the work.
 4. **Contractor's Master Schedule shall be submitted by June 1, 2020.**
- D. Completion of the Contract
1. Provide manpower crews, overtime double shift, and equipment as needed to maintain the schedule. The Owner will not authorize additional payment for overtime or additional manpower needed to maintain, achieve, or make up time to meet the schedule. The General Contractor shall notify the Architect and the Owner promptly of any deficiency in performance, which is unacceptably impacting the schedule or delaying progress, and provide a plan of action to regain performance to meet the schedule.
 2. The Subcontractor(s) shall immediately notify the General Contractor, in the event any trade area Contractor's progress is

- impeding their ability to maintain the schedule.
3. The General Contractor shall immediately provide notification of this report to the Architect and the Owner and shall include a plan of action to regain schedule.
 4. Contractors shall work 48 hour work week through August 14, 2020.
 5. If the General Contractor determines that more than 48 hours per week is needed at any time after project has started, contact Architect immediately.

E. Schedule

1. Submittals shall be prepared immediately following award.
2. Material acquisition may begin immediately following Award.
3. Upon return of review submittals, schedule material and equipment for timely delivery.
 1. Materials and equipment delivered on site or suitably stored with proof of insurance may be submitted for payment, subject to inspection.
 2. The Owner requests that equipment and materials to do the work be on site or readily available for delivery prior to the start of operations.

1.21. ALLOWANCE

- A. **The General Contractor shall include in his bid an allowance of \$14,000 for additional time and material for Change Order work as directed and approved IN WRITING by the Owner and A/E. \$14,000 to be added.**
1. This is primarily for unforeseen conditions that may arise during construction.
 2. Unused portion of allowance will be returned to owner at time of Final Payment request via Change Order.
- B. This is not for assignment or use by the Contractor or Subcontractors for any work that either perceives as additional effort unless the Owner is in concurrence IN WRITING.

1.22. PROGRESS PAYMENTS

- A. Pay Requests must be approved by the Architect / Engineer and the District Director of Operations, Joe Adelman. Submit all Pay Requests to the Architect, five (5) business days before the end of each month. Pay Requests will be accepted once per month. Note: See McLean County Unit School District #5 Board of Education meeting schedule at: <https://www.unit5.org/domain/79>. Pay Applications must be received in our office 8 business days prior to the Board Meetings to be processed at the Board Meeting.
- B. Payment will be made within thirty (30) days following approval.

- C. In accordance with the terms of the Contract periodic partial progress payments may be made monthly to the Contractor for: 90% of the value of the labor, materials, and/or equipment incorporated in the construction. Payment will be for installed materials only.
- D. After Contract award and before commencement of work, the Contractor shall submit a complete master cost breakdown. Said cost breakdown shall be used by the Owner only for the purpose of checking and certifying requests for payment.
- E. Pay requests shall indicate amounts completed of all items listed from the master breakdown.
- F. Submit notarized Contractor's affidavits with each pay request showing that total owed on Contract by Owner (after subject request has been paid to Contractor) is more than the amount to become due the Contractor for material, subcontractors and labor.
 - 1. 10% of each request will be retained by Owner until work has been satisfactorily completed. After 75% of the Contract has been satisfactorily completed retainage reduction will be considered.
- G. All the applications for payment shall be made in two (2) copies with all copies bearing live seals and signatures, notarized and complete and accurately filled in.
 - 1. See AIA General Conditions, Paragraph 9.3.1, 9.3.2 and 9.3.3.
 - 2. Applications for payment shall be submitted to Architect/Engineer on AIA G-702A Forms.
 - 3. EACH SUCCESSIVE PAY REQUEST SHALL BE ACCOMPANIED BY PARTIAL WAIVERS OF LIEN, DOLLAR FOR DOLLAR MATCHING THE PRECEDING PAY REQUEST.
 - 4. Attach one (1) copy of Contractor's Payroll with Pay Request in accord with Dept. of Labor requirements. Include Payroll for the major Subcontractors and upon request any minor or intermittent on-site Subcontractor.

1.23. CHANGE ORDERS

- A. Changes to the scope of work may occur after Contract Award. Contractor may initiate a Change Order by send an RFI to the Architect. The Architect and Owner may initiate a Change Order by verbal or written inquiry to the Contractor.
- B. When a change to the scope must occur the following procedure shall apply:
 - 1. The Change Order may be indicated as a fixed price or time and material. In all cases a written summation of work to be done shall

be submitted to the Architect or written by the Architect. In all case the Contractor shall be provided a signed Letter to Proceed before accruing any expenses toward the Change Order.

2. The Architect will try to provide the Letter to Proceed within twenty-four (24) hours of the time of origination of the request.

C. Cost of Change Orders

1. Cost of Change Orders shall be broken down into Labor, Material and Mark-up.
2. The mark-up will include a percentage of the cost of Labor and Material and shall include everything (bonds, insurance, project management, overhead and profit, etc.). Mark-up allowed is:
 - a. Prime Contractor on own labor and materials – maximum 15%. See 00800 Paragraph E.2.b.
 - b. Subcontractor on own labor and material – maximum 15%.
 - c. Prime Contractor on labor and material of Subcontractor – maximum 7.5%.
 - d. Change Orders may be by T & M with above add-on.

- 1.24. FINAL PAYMENT: The final application for payment shall not be made until all work and deficiency (punch list) items have been satisfactorily completed and approved by the Architect/Engineer for documents compliance.

- A. Contractor to submit Operation Manuals and As-Built Drawings to Architect, prior to Final Payment.

1.25. MATERIALS SPECIFIED AND QUALITY OF WORK

- A. Materials shall be as specified or approved equal.

1. Due to the previously completed renovations at other District Schools Elementary Schools the products and materials used therein are the basis for the Specification Sections to follow. Substitutions may be proposed on Specification Section 00307 Products Substitutions Form.

- B. "Approved equal" and "or equal" shall mean that the Contractor shall be required to receive the Owner's approval (via the Architect) on any substitute materials seven (7) days prior to the bid due date.

- C. Requests for substitution approval shall be submitted to the Architect/Engineer seven (7) calendar days before Bid Date.

1. Prior to considering substitutions, the Owner (via the Architect/Engineer) may require submission of samples, descriptive, technical and catalog data and lab reports of tests.
2. Said submittals shall be presented to Architect/ Engineer.
3. Approved substitutions can then be put on Bid Form.

- D. Substitute materials may be submitted after seven (7) day period indicated above by using the Product Substitution Form 00307.

1.26. TOBACCO AND ALCOHOL FOR CONSUMPTION PRODUCTS

- A. Smoking, chewing, etc. shall not be permitted anywhere on school property by State Statute.
- B. Alcoholic beverages are not allowed on school property.
 - 1. Working under the influence of anything containing alcohol or any prescription or non-prescription drug is not allowed on the job site.
- C. Violators may be removed from the job sites subject to conditional return privileges in the future.

1.27. SEXUAL HARASSMENT POLICY

- A. The Owner will not tolerate sexual harassment in any form. Sexual harassment is defined, for the purpose of this policy, as "unsolicited, deliberate or repeated sexually derogatory statements, gestures or physical contact, which cause discomfort or humiliation. Sexual harassment may involve pressure from a person of either sex against a person of the opposite sex or same sex . . ."
 - 1. Should evidence that a Contractor, or a Contractor's employee, has harassed a student or other individuals, the harasser shall be removed from the job site.

1.28. EMPLOYEE-STUDENT RELATIONSHIPS

- A. Except in an emergency situation involving safety, intermingling of the Contractors' employees and the school faculty, staff and students is to be avoided. Contractor or Subcontractor personnel violating this requirement shall be removed from employment at this site. The Contractor Superintendent shall monitor this to the best of his ability. Contractor employees experiencing problems with students or faculty shall report same to their Project Superintendent, who shall promptly report the problem to an authorized representative of the Owner and the Architect/Engineer.
 - 1. Avoid profanity and inappropriate subject matter in conversation as students and staff may be within audible range and walls or ceiling spaces may allow sound transmission.
 - 2. Verbal or physical action interpreted as sexual in nature or as sexual harassment will be grounds for removal of the employee. Further legal action remains the option of the persons affected.
 - 3. In all aspects of this provision, the Contractor's employees as adults have the greater responsibility and should not respond to inappropriate student behavior.

1.29. BACKGROUND INVESTIGATION AND SEX OFFENDERS ON SCHOOL GROUNDS

- A. Illinois Criminal Background checks are applicable to this Contract. The Contractor or subcontractor shall only send construction workers to the site

that have successfully passed an Illinois Criminal Background check, per 105 ILCS 5/10-21.9 and 105 ILCS 5/14-7.02

B. The Contractor shall provide:

1. Prior to start of work; maintain a list available to the Owner of all the employees who will be or are anticipated will be employed on site. This list shall be updated when new persons not originally listed will be working on site. This list shall also include names of personnel employed by subcontractors.
 - a. Contractor insures that all persons have had background check paperwork initiated and sent to: Ann Fair, Unit 5 Maintenance Office, 1999 Eagle Road, Normal, IL 61761: Tel: 309-557-4100 or Fax: 309-557-4537.
2. Persons temporarily on site such as truck drivers or employees making deliveries do not need to be listed, but the Owner reserves the right to request a background check.
3. Provide an affidavit to the Owner that the Contractor or his subcontractor has performed an ISP background check by name on all personnel on site.
4. Copies of employee lists and affidavits shall be promptly provided to the owner upon request.

C. The Contractor shall not knowingly employ on school grounds any person who has not signed or will not sign an authorization for a criminal background check.

D. The Owner reserves the right to run fingerprint background checks on any or all employees on site, randomly or specifically, and the cost of this check will be borne by the Owner. Upon request, provide information, which will not be shared, as needed to complete checks. This may include SSN, home addresses, fingerprint, address, etc. and any alias or former names used.

E. The Contractor shall assume the responsibility to notify all on site employees or potential employees of this provision, and of the consequences of this provision.

1.30. SUBSTANCE ABUSE PREVENTION ACT ON PUBLIC WORKS PROJECTS

A. The Contractor shall comply with 820 ILCS 265/ which establishes a process for Drug Abuse on Public Projects. The Contractor shall have in place a written program that meets the requirement of this Act.

1.31. PROJECT ACCESS: The Contractor shall be aware that the Town of Normal, respectively, has authority over various approach roads for site access and the Contractor is responsible to observe load limits and arrange for any exceptions to load restrictions that may be required for this project. Arrangements for road

cleanup, barricades and surface patches and repairs shall comply with city requirements.

1.32. **EQUAL OPPORTUNITY EMPLOYMENT:** The following clause is applicable unless this Contract is exempt under the rules and regulations of the Secretary of Labor of the State of Illinois.

A. During the Performance of this Contract, the Contractor agrees as follows:

1. The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, age or national origin. The Contractor will take affirmative action to ensure that all applicants are considered and that employees are treated, during employment, without regard to their race, color, religion, sex, age or national origin."

1.33. **SALES TAX**

A. Materials supplied to a public school district are exempt from state sales taxes.

1. Sales tax exemption number for Unit District No. 5 is: E9994-9091.

B. The Contractor shall determine the extent of exemption and shall comply with the regulations established by the Illinois Department of Revenue and allow for this in his proposal.

1.34. **BUILDING PERMITS**

A. This project is exempt from local permit fees associated with the construction.

1. This Contractor shall fully cooperate with the local authorities and shall apply for and obtain all required permits and comply with local regulations and requirements. Only the fee is exempt.
2. Provide necessary permit related information to local city authorities.
3. Architect will provide Drawings and Specifications to Town of Normal Building Safety Dept.
4. Architect will assist Owner in obtaining a Building Permit from the Regional Office of Education, DeWitt, Livingston & McLean Counties.

1.35. **PREVAILING WAGE:** The Contractor shall pay and shall require his subcontractors to pay the prevailing hourly wages for the type of work performed in the job locality as is determined by the Illinois Department of Labor pursuant to the Illinois Prevailing Wage (820 ILCS 130/.01 et. seq.) see section 00045. **Provide Certified Payroll data per Dept. of Labor and HB 188.**

1.36. **ILLINOIS STEEL PROCUREMENT ACT 30 ILCS 565/1**

The Contractor is to be aware that a point of origin certification to show compliance with 30 ILCS 565/1 may be requested for any steel fabricated item and shall demonstrate compliance with the law.

A. Exemptions:

1. Products costing less than \$500
2. Products not produced in the United States in sufficient quantity to meet schedules
3. Products purchased or produced in the United States would increase purchase cost by more than 10%

CONTRACT CHECKLIST

1.37. Proposal:

- A. Proposal Form properly filled out and signed, (live signatures)
- B. Bid Bond/Bid Security for 5% of base bid amount (live signatures)
- C. Return of documents within ten (10) working days after bid due date

1.38. Letter of Intent:

- A. Proposal & Contract Form prepared by the Architect
- B. Labor and Material Payment Bond, two copies (15 days after Award)
- C. Performance Bond, two copies (15 days after Award)
- D. Insurance Certificates, liability and hold harmless, 2 copies (7 days after Award) *
- E. Master Cost Breakdown (7 days after Award)
- F. Bar Graph Progress Schedule, copies as required (7 days after Award)
- G. Supplier List, 2 copies (7 days after Award)
- H. Subcontractors List, 2 copies (7 days after Award)

1.39. Periodic Application for Payment:

- A. Submit per the monthly scheduling, to be determined
- B. Application and Certificate for Payment, 3 copies (AIA G702A)
- C. Contractor's Affidavit, 2 copies (AIA G706)
- D. Breakdown Estimate, 3 copies
- E. Partial Waivers of Lien, 2 copies
- F. Partial Waiver of Lien from Subcontractors/Suppliers, 2 copies
- G. Updated Progress Schedule, resubmit with each pay request
- H. Contractor's payroll information per HB 188.
- I. Insurance Certificate covering materials stored off site, 2 copies

1.40. Final Application for Payment:

- A. Letter to Architect that deficiency work is complete
- B. Final Lien Waiver from the Contractor, 2 copies
- C. Final Lien Waivers from Subcontractors/Suppliers, 2 copies
- D. Final Affidavit showing \$0.00 due to Subcontractors and \$0.00 due to Suppliers, 2 copies
- E. Final Payment Approval Letter from Bonding Co., 2 copies
- F. Certification of all guarantees, 2 copies
- G. Final Application & Certificate for Payment, 3 copies (AIA G702A)
- H. Additional certifications as may be requested, 2 copies
- I. Operating manuals & instructions, 3 copies-indexed and bound

*THE OWNER AND THE ARCHITECT/ENGINEER MUST BE NAMED ADDED INSURED AND MUST BE SO LISTED ON THE CERTIFICATE OF INSURANCE.

END 00040

DIVISION 0 - BIDDING & CONTRACT REQUIREMENTS

Section 00045 – Prevailing Wage

1. GENERAL

- 1.1. This is a project requiring the payment of prevailing wages. Proper written notification as required under Public Act 96-0437:

This contract calls for the construction of a “public work,” within the meaning of the Illinois Prevailing Wage Act, 820ILCS 130/.01 *et seq.* (“the Act”). The Act requires contractors and subcontractors to pay laborers, workers and mechanics performing services on public works projects no less than the current “prevailing rate of wages” (hourly cash wages plus amount for fringe benefits) in the county where the work is performed. The Department publishes the prevailing wage rates on its website at <http://labor.illinois.gov/>. The Department revises the prevailing wage rates and the contractor/subcontractor has an obligation to check the Department’s web site for revisions to prevailing wage rates. For information regarding current prevailing wage rates, please refer to the Illinois Department of Labor’s website. All contractors and subcontractors rendering services under this contract must comply with all requirements of the Act, *including but not limited to*, all wage requirements and notice of record keeping duties.

END 00045

DIVISION 0 - BIDDING & CONTRACT REQUIREMENTS

Section 00050 - General Conditions of the Contract

1. GENERAL

- 1.1. The General Conditions of these Contract Documents are included herein by reference: AIA Document A201, 1997 Edition.
- 1.2. Copies are available for inspection and review from the Architect and will be made available upon request. Copies that are checked out of the Architect's office shall be recorded as an attachment to the documents and shall be subject to return in usable condition along with the Drawings and Specifications Booklets.
- 1.3. See Section 00800 Supplementary General Conditions.

END 00050

DIVISION 0 – BIDDING & CONTRACT REQUIREMENTS

Section 00300 – Proposal Form

1. GENERAL

1.1. WORK INCLUDES

- A. All work included on the Drawings and Specifications for Project No. 24422319 – Glenn Elementary School Teacher Workroom Remodel and Addition.
- B. Contractor submit bid on the following pages: 00300-2 and 00300-3.

1.2. **Add \$19,000 to Base Bid as an allowance for unforeseen conditions.**

- A. **Unused portion of allowance will be returned to Owner at the conclusion of the work, via Change Order.**

00300 PROCUREMENT FORMS

Section 00300 -Proposal Form

Bid form may be copied, original signatures are required

PROJECT TITLE: McLean County Unit District No. 5, Glenn Elementary School Teacher Workroom Remodel and Addition

DATE OF PROPOSAL: **Thursday, April 16, 2020** TIME: **1:30 p.m. Prevailing**

LOCATION OF BID: McLean County Unit District No. 5 Warehouse
Attn: Joe Adelman
1999 Eagle Rd.
Normal, Illinois 61761

NAME OF FIRM: _____

PROPOSAL FOR: All work single contract

A/E PROJECT NO. 24422319

THE BID ACKNOWLEDGES THE FOLLOWING ADDENDA (as applicable):
Failure to acknowledge may cause bid rejection

NO. 1 _____, NO. 2 _____, NO. 3 _____, NO. 4 _____, NO. 5 _____

EACH BID SHALL INCLUDE:

- A. The bid forms and certifications completed and signed, (*this form may be copied.*)
- B. Bid security (bid bond) (*standard industry forms may be employed*)
- C. BIDS SHALL INCLUDE **ALLOWANCE** – See 00040 (1.21 Allowance)

**BASE BID: McLean County Unit District No. 5
Glenn Elementary School Teacher Workroom Remodel and Addition**

The bidder agrees to perform all base bid work, inclusive of all trades for the sum of:

_____ **Dollars**
BASE BID WRITTEN AMOUNT

\$ _____
Base Bid Numerical Amount

ALTERNATE BID(S) Alternates may be proposed for this work.

No. 1 ADD/DEDUCT \$ _____ from _____
No. 2 ADD/DEDUCT \$ _____ from _____

VOLUNTARY ALTERNATES OR SUBSTITUTIONS

Did you offer or include voluntary alternates or product substitution on form provided.

YES _____ **NO** _____

SEE PRODUCT SUBSTITUTION OR VOLUNTARY ALTERNATES FORM, ATTACH IF ANY ARE OFFERED. Voluntary alternates or substitutions may or may not be considered in making the award and are not required.

THE BIDDER AGREES TO:

1. Hold this bid open for twenty (10) calendar days after bid opening date.
2. Enter into and execute a contract with McLean County Unit District No. 5 if awarded this contract.
3. Comply with the contract and bidding documents with respect to bid security, all bonds, insurance, work requirements, schedule and Bonus / Penalty Clause
4. Comply with the Contract Documents with respect to scheduling as described in the documents, noted on drawings.

THE BIDDER MAKES THE FOLLOWING REPRESENTATIONS AND CERTIFICATIONS:

- A. A surety company has agreed to issue payment and performance bonds to fulfill the contracting requirements.
- B. The Bidder is not barred from contracting with any unit of state or local government as a result of violating the bid rigging or bid rotating provisions contained in 720 ILCS 5/33E.
- C. The Bidder is not barred from contracting with the State of Illinois as a result of a bribery conviction per 30 ILCS 505/10.2.
- D. All on site labor and wage compensation provided by this contractor or his subcontractors will comply with the Illinois Prevailing Wage Act (820 ILCS 130E).
- E. This proposal is made without any connection with any person making another bid for the same contract, that the bid is in all respects fair and without collusion or fraud, that no member of the McLean County Unit District #5 School Board, other officer or any person in the employment of McLean County School District No. 5 is directly or indirectly interested in the bid or any portion of the profit there from, except as allowed by the Illinois Law or the Illinois School Code.
- F. I agree to provide a drug-free workplace as required by the Illinois Drug-free Workplace Act.
- H. I do hereby certify that I am either the bidder or duly authorized agent of the referenced bidder, and I am authorized to execute the certifications hereon.
- G. I certify that by submission of this proposal the bidder confirms that he is familiar with the site, existing conditions, the Bid Documents, requirements and the project schedule.

CONTRACTOR:

Firm Name: _____

Address: _____

Telephone: _____

FAX: _____

Email: _____

Date: _____

SIGNATURE:

Title: _____

For Corporations Only

SUBCONTRACTOR: Proposed for work on this project.

HVAC: _____

PLUMBING: _____

ELECTRICAL: _____

CONCRETE: _____

MASONRY: _____

END 00300

DIVISION 00 – PROCUREMENT REQUIREMENTS
Section 00301 – Award & Contract Form

OWNER - CONTRACTOR AGREEMENT

To be filled out upon award

Between:

The Owner: McLean County Unit District No. 5
 1809 Hovey Ave.
 Normal, IL 61761

And the General Contractor: _____

For the Project: **GLENN ELEMENTARY SCHOOL TEACHER WORKROOM REMODEL AND ADDITION
FOR MCLEAN COUNTY UNIT DISTRICT NO. 5**

The Owner and Contractor agree to enter into a contract in accordance with the terms and conditions of the Documents (Plans & Specifications), A/E Project Number 24422319 and the Contractor's Bid Proposal dated April 16, 2020 which become the Contract for completion of the project as follows:

Base Bid Substantial Completion Date: **August 16, 2020. Work inside building will not be possible.**

Additional Terms & Conditions: None (or as applicable)

Addenda: #1 _____ #2 _____ #3 _____ #4 _____ (list as applicable)

Contract Amount: (to be listed as appropriate)

Base Bid Proposal	\$ _____
Alternate Bids as awarded to be listed	\$ _____
Total Contract Amount	\$ _____

(Written) _____ Dollars

Date of Agreement: April 22, 2020

Signatures:

Owner: **McLean County Unit District No. 5**

Contractor:

Contractor's Seal
(Corporation Only)

This Agreement must be signed and returned with the Contractor's Performance Labor and Materials Payment Bonds within fifteen (15) days of notice or the Contractor will be considered in default on acceptance of the award.

END 00301

00 4000 PROCUREMENT FORMS
Section 00 4010 - Voluntary Alternate and Substitution Form

The Bidder should include this form with the Bid Forms if a material substitution is offered at that time.

The Base Bid and Alternate Bids include only those products specified in the bidding documents. Following is a list of substitute products which bidder proposes to furnish on this project, with the difference in price being added to or deducted from the Base Bid or Alternate Bids.

Bidder understands that acceptance of any proposed substitution is at Owner's option. Approval or rejection of any substitutions listed below will be subject to review after Contract award. Hold open for thirty-five (35) days from Bid Date.

SUBSTITUTIONS

MANUFACTURER'S NAME AND PRODUCT	ADD OR (DEDUCT)
<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>

VOLUNTARY ALTERNATE

DESCRIPTION	ADD OR (DEDUCT)
<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>

EVALUATION. Contract award will be made in accord with Instructions To Bidders. Only the lowest responsible bidder's Proposed Product Substitution Voluntary Alternates Form will be evaluated. Contract award will be established by adding the BASE BID plus any required alternates selected by the Board of Education.

Attach with herewith or submit on day of bid a general description of the proposed option being offered.

Provide detailed information promptly upon request.

END 00 4010

DIVISION 00 – PROCUREMENT REQUIREMENTS
Section 00 70 00 – General and Supplementary Conditions

1. GENERAL

1.1. GENERAL CONDITIONS

- A. The conditions outlined in this and following paragraphs are to supplement and complement the conditions found in the articles of the AIA Document A201, 2007 Edition.
 - 1. Included in these Specifications by reference is AIA Document A201 General Conditions.
- B. AIA Document A201, 2007 Edition, can be purchased directly on line from a variety of vendors including the AIA and are available in electronic format as well as printed.
 - 1. AIA A201 2007 version can be reviewed at the Architects office without charge.
- C. To the page one of the AIA A201 General conditions Document:
 - 1. Project: Glenn Elementary School Teacher Workroom Remodel and Addition
 - 2. The Owner: McLean County Unit District No. 5, 1809 Hovey Ave., Normal, IL 61761
 - 3. The Architect: Middleton Associates Incorporated, 1702 W. College Ave., Suite E, Normal, IL 61761

1.2. SIGNING OF DOCUMENTS AND INSTRUMENTS OF THE CONTRACT

- A. All documents shall be signed by persons fully and duly authorized to so sign. Any documents signed by a person other than person prescribed by the Contractor's legal organization shall enclose with his signature the evidence of "Power of Attorney."

2. SUPPLEMENTARY GENERAL CONDITIONS

2.1. SUPPLEMENTS TO AIA DOCUMENT A201 (2007 EDITION) THE GENERAL CONDITIONS OF THE CONTRACT.

- A. The following sections represent modifications or additions to the AIA A201 -2007 Document.
- B. TO ARTICLE 2/OWNER
 - 1. Add Subparagraph 2.2.2.1 Easements off site required by the Contractor to execute the work, such as space for storage, access, scaffolding, lane enclosure, etc., shall be arranged for by the Contractor and included in the contract amount.

C. TO ARTICLE 3 CONTRACTOR

1. To Subparagraph 3.3.1, delete the last two (2) sentences listed under 3.3.1 in their entirety.
2. To Subparagraph 3.3.1 insert: If the Contractor determines that such means, methods, techniques, sequences or proceedings may not be safe, or may not be appropriate to the equipment and task as becomes apparent, then said Contractor shall have included in his proposal amount allowance to complete this work per a revised plan for which he can assume responsibility and shall notify the Owner and Architect before proceeding. In no case do the Owner and Architect take responsibility for directing Contractor Operations.
3. To Subparagraph 3.12
 - a. Add 3.12.6.1 Submittals unmarked will not be reviewed at the Architect's option. Said unmarked submittals may be returned to the Contractor for re-submittal and the time loss shall not extend the time of completion of the project.
 - b. Add 3.12.6.2 Submittals reviewed by the A/E and returned or held as a record copy presume the Contractor responsibilities in paragraph 3.12.6 have been included whether noted or not.

D. TO ARTICLE 5 SUBCONTRACTORS

1. To Subparagraph 5.2
 - a. Add 5.2.5 The assignment of work or a portion of the work by the Contractor to Subcontractor(s) is the election of the Contractor and in no way changes or reduces the Contractor's obligations under the Contract to properly complete the work and/or provide clear title to the work, including the work by said Subcontractor(s).

E. TO ARTICLE 7 CHANGES IN THE WORK

1. To Subparagraph 7.1.2
 - a. Add 7.1.2.1 The Contractor and/or his Subcontractor shall not proceed with any work, directive or change for which he intends to claim extra cost without providing written notice to the Architect.
 - b. Add 7.1.2.2 The Architect and Owner shall provide response to claims for additional cost within a reasonable time period upon receipt of notice or quote.
 - c. Add 7.1.2.3 Work for which an agreement cannot be reached prior to implementation can proceed as time and

material work with all parties to agree on what is additional work over that which should have been included to complete the work as originally intended.

2. To Subparagraph 7.2.2

- a. Add 7.2.2.1 Change Order quotes shall be based on an approved quote or estimate which shall be based on labor and material cost, actual or estimated as prior agreed upon, and:
- b. Add 7.2.2.2 Overhead and profit may be charged proportional to this category of work on the Contractor's CSV or not to exceed the greater of:
 - 1) Fifteen percent (15%) for the Contractor's own work forces
 - 2) Ten percent (10%) Subcontractor plus ten percent (10%) Contractor, for twenty percent (20%) total for work completed under a Subcontractor arrangement.
 - 3) These allowances shall include all off site and indirect costs, including insurance, project management, bonds and profit.

F. TO ARTICLE 9 PAYMENT AND COMPLETION

1. To Subparagraph 9.6.1

- a. Add 9.6.1.1 Wherein the Owner is governed by a public Board, payment requests must be received by the A/E 5 days prior to the established time for entering into agenda prior to the next regular Board Meeting. Payments will be made within twenty-five (25) days following Board approval. Failure to make agenda dates will result in a minimum one (1) month delay in payment.

G. TO ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

1. To Subparagraph 10.2.1

- a. Add 10.2.1.4 The Contractor shall be responsible to provide and maintain on site MSDS Sheets for all required materials to be brought on site.
 - 1) These sheets shall be readily available upon request to the owner on remodeling renovation projects which are Owner occupied.
 - 2) Comply with VOC regulations.
 - 3) Comply with IEPA regulations.

2. To Subparagraph 10.2.3

- a. Add 10.2.3.1 Provide for the general safety of public and Owners employees, such safety provision shall be adjusted as appropriate to the age and volume of public anticipated in the project vicinity.
- b. Add 10.2.3.1 Provide for traffic safety as appropriate to the operations; cooperate with the governing authorities on road activities, lane closures, excavations, surface cleaning etc.

H. TO ARTICLE 11 INSURANCE & BONDS

1. To Subparagraph 11.1.2

- a. Add 11.1.2.1 Minimum Limits of Liability for preceding coverage are:
 - 1) Workers Compensation - Statutory Limit
 - 2) Applicable Federal (*such as Longshoreman's*) Statutory limits.
 - 3) Liability Insurance may be written as Comprehensive General Liability policy form or Commercial General Liability policy form with the following coverages:
 - a) Bodily Injury - \$1,000,000 each occurrence, \$2,000,000 aggregate
 - b) Property Damage - \$1,000,000 each occurrence, \$5,000,000 aggregate.
 - c) Property Damage – Broad Form - \$1,000,000 each occurrence, \$2,000,000 aggregate.
 - d) Personal injury (*with employment clause deleted*) \$1,000,000 aggregate.
 - e) Products and completed operations \$1,000,000 to be maintained one year following final completion.
 - f) Business Automobile Liability, (*including owned and non-owned and hired vehicles*)
 - g) Bodily Injury and Property damage \$1,000,000 each person, \$1,000,000 each occurrence.
 - 4) Umbrella Insurance \$10,000,000 over primary insurance limits.
 - 5) \$10,000 Retention for self insured hazards each occurrence
 - 6) In the event that a claim is filed or a settlement reached whether related to this project or not which compromises the aggregate limits of liability then the

Owner and Architect shall be notified and arrangements shall be made to provide additional insurance as needed to keep aggregate limits in force for the remainder of the Contract.

2. To Subparagraph 11.1.4
 - a. Add 11.1.4.1 The Owner, Architect, and Consulting Engineers including their employees and representatives shall be included as Additional Insureds or Named Insureds on the insurance and shall be shown as such on the Certificate.
3. To Article 11
 - a. Add 11.1.5 Contractor's insurance shall be maintained in force through basic warranty and guarantee periods, not less than one (1) year following Final Completion.
4. To 11.3. Property Insurance
 - a. Add 11.3.1.1 The Owner's property and vandalism insurance has \$1,000 deductible. The Contractor shall insure and thus pay the costs not covered by the Owner's deductibles.
 - b. Add 11.3.1.2 The Owner's Builder's Risk will cover only normally included Owner risks, on site, Owner's interest only, excluding tools and property of the Contractor and improperly stored or unsecured materials.
5. To Paragraph 11.4.1 add the following Subparagraphs:
 - a. Add 11.4.1.1 The Contractor shall furnish Performance and Labor and Material Payment Bonds covering the faithful performance by the Contractor of the work specified in accordance with the plans and specifications and according to the time and terms and Conditions of the Contract, and also that the Contractor shall properly pay all debts incurred in the prosecution of the work, including those for labor and materials furnished and including labor obligations as interpreted by the Illinois Department of Labor and/or the courts.
 - b. Add 11.4.1.2 The cost of each bond shall be included in the Contract Sum plus any changes to the Contract Sum. The Contractor shall include in all bonds provisions as will guarantee faithful performance of the prevailing wage provisions of the Contract if applicable.
 - c. Add 11.4.1.3 Bonds shall be written by surety, approved by Owner, with a minimum rating of B or better, Financial Class V, or higher, in A.M. Best's Insurance Guide, current edition. The company must also be licensed in the State of Illinois.

- d. Add 11.4.1.4 The Contractor shall require the attorney-in-fact who executes the bonds on behalf of the surety to affix thereto a certified and current copy of power-of-attorney.
- e. Add 11.4.1.5 The Contractor shall deliver the required bonds to the Owner not later than fifteen (15) days following the date the agreement is executed.

I. TO ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

1. To Subparagraph 12.2.2.1 After Substantial Completion:

- a. Add 12.2.2.1.1 Latent Defects, for a period of 10 years after Substantial Completion, upon demand by the Owner, the Contractor shall promptly repair or replace, including associated work repairs and cleanup necessary, defective or non-conforming work resulting from or constituting latent defects, fraud, fraudulent concealment or gross negligence.
- b. Add 12.2.2.1.2 Seasonal equipment such as temperature controls and building systems subject to seasonal loads such as heating equipment and air conditioning, shall be warranted to perform as intended for two years. Exception would be equipment damaged by incorrect operation or maintenance procedures, specifically covered in training, but improperly implemented by the Owner.
- a. Add 12.2.2.1.3 Prompt Repair. Upon notice from the Owner or Architect of defects or nonconforming work, the Contractor shall promptly visit the site in the company of the Owner's representative to determine the extent of all defects or nonconforming work. The Contractor shall provide all labor, material and equipment to promptly repair or replace the defective or nonconforming work. The repair shall include all adjacent work not necessarily provided by the Contractor, but damaged as a result of correcting or remedying such defects or non-conforming work. If the Contractor does not promptly pursue correction, the Owner may repair or replace such work and charge the cost to the Contractor. Work which is repaired or replaced by the Contractor shall be inspected and shall be warranted by the Contractor in accordance with this Article.
- b. Add 12.2.2.1.4 The warranties set forth herein are in addition to all warranties or guarantees expressed or implied by operation of law, statute or ordinance.

2. To Subparagraph 12.2.2.3, Delete the word 'not'. Clarification; all materials and equipment are expected to perform satisfactorily for one year, items or equipment needing periodic attention during the first year of use, shall continue to be serviced by the Contractor until such time that the material, item or equipment is deemed to be doing its intended purpose without repeated service.

3. To Subparagraph 12.2.5

- a. Add 12.2.5.1 Extended Warranties and Commercial Warranties. The Contractor shall deliver all commercial and extended warranties received from manufacturers to the A/E prior to Final Payment. Extended warranties and guarantees will be as described under the various trade work sections of these documents, and may be the responsibility of third parties to the contract such as dealers or manufacturer's from whom such extended coverage is specified or as advertised such as a commercial limited warranty of performance or service. Such extended warranties may or may not include labor unless specified, or in the case of commercially advertised warranties as offered by the party selling the product or equipment.
- b. 12.2.5.2 Prompt Repair. Upon notice from the Owner or Architect of such defects or nonconforming work, the Contractor shall promptly visit the site in the company of the Owner's representative to determine the extent of all defects or nonconforming work. The Contractor shall provide all labor, material and equipment to promptly repair or replace the defective or nonconforming work. The repair shall include all adjacent work not necessarily provided by the Contractor, but damaged as a result of such defects or nonconforming work or as a result of remedying them. If the Contractor does not promptly repair or replace defective or non-conforming work, the Owner may repair or replace such work and charge the cost thereof to the Contractor. Work which is repaired or replaced by the Contractor shall be inspected and shall be warranted by the Contractor in accordance with this Article. The warranties set forth herein are in addition to all warranties or guarantees expressed or implied by operation of law, statute or ordinance.

B. TO ARTICLE 13 MISCELLANEOUS PROVISIONS

1. To Subparagraph 13.1

- a. Add 13.1.1 Location of the project is Illinois.
- b. Add 13.1.2 The Contractor shall, to the best of his knowledge and capability, perform all work encompassed by the documents, in compliance with the Environmental Barriers Act (Ill. Rev. Stat. 1985, ch. 111-1/2, pars. 3711 et seq. as amended), the Illinois Accessibility Code, 71 Illinois Administrative Code 400; The Uniform Federal Accessibilities Standards (UFAS); Section 504 of the Rehabilitation Act of 1973, and the Americans with Disabilities Act of 1990 (effective January 26, 1992) known as ADA requirements. This obligation shall apply to the contractual work described as the project and the conduct

- of work processes initiated to accomplish the work.
- c. Add 13.1.3 All parties to this Contract are subject to the rules and regulations of the Illinois Department of Human Rights and the statutory requirements thereof, including the requirement that every party to a public contract shall have adopted written sexual harassment policies (PA 87-1257).
 - d. Add 13.1.4 It shall be mandatory that the Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, national origin or ancestry, age, marital status, physical or mental disabilities.
 - e. Add 13.1.5 Illinois Department of Labor requirements. It shall be mandatory upon the Contractor to whom the Contract is awarded and upon any Subcontractors thereof to be in compliance with applicable wage and reporting regulations. This project is a Prevailing Wage Public Works contract.
2. To Subparagraph 13.3.
- a. Add 13.3.1 Notice served by facsimile (fax) to facsimile number used during bidding and construction shall be official written notice.
 - b. Add 13.3.2 Notice served by electronic means (email) to the electronic address used during bidding and construction shall be official written notice.
 - c. Add 13.3.3 The Bidder shall notify the Architect and/or the Owner at any time of changes in the facsimile or electronic contact addresses that will reach the contractor. Failure to so notify is the Contractors responsibility.

C. TO ARTICLE 15 CLAIMS AND DISPUTES

- 1. To Subparagraph 15.3.1 Delete the word 'SHALL' and Insert the word 'MAY'.
 - a. Add 15.3.1.1 Mediation may be employed to resolve disputes if agreed to by both parties to the Contract.
- 2. To Subparagraph 15.4.1 Delete the word Shall and insert the word 'MAY'.
 - a. Add 15.4.1.1 Arbitration may be employed to resolve disputes if agreed to by both parties to the Contract.

End 00800

DIVISION 0 - BIDDING & CONTRACT REQUIREMENTS

Section 00860 - Drawings Index

1. GENERAL

- 1.1. SCHEDULE OF DRAWINGS – Glenn Elementary School Teacher Workroom Remodel and Addition, PROJECT NO. 24422319.

<u>SHEET</u>	<u>TITLE</u>
T-1	TITLE SHEET – JOB INFORMATION
G-1	PHOTO GALLERY
C-1	SITE PLAN
S-1	STRUCTURAL PLAN AND DETAILS
A-1	PLANS
A-2	ELEVATIONS
MEP-1	REFLECTED CEILING PLAN AND M.E.P. PLANS

END 00860

DIVISION 1 – GENERAL REQUIREMENTS
Section 01010 – Project Summary

DIVISION 0 and DIVISION 1 are hereby made a part of each division and section of the project specifications as related items specified elsewhere.

1. GENERAL

1.1. REQUIREMENTS INCLUDE

- A. Base Bid – Glenn Elementary School Teacher Workroom Remodel and Addition, Project No. 24422319
 - 1. Remodel the present Rooms 117 and 117.1 to better serve their existing use. Provide appropriate demolition. Provide remodeling of the present to form a new room Office 120. Provide minor remodeling of Rooms 118 and 119 to achieve remodeling of Rooms 117 and 117.1.
 - 2. Provide a new addition onto Room 117 of approximately 230 sq. ft.

1.2. PRODUCTS FURNISHED BY OTHERS: All products, components, spaces, and equipment furnished by the Owner or by other Contractors are a part of this total project. so that work involving placing Classroom furnishings can be completed.

- A. Contractor's Incidental Duties
 - 1. Designate specific delivery date for each product in approved construction schedule. **After June 30, 2020, material must be stored in trailers on site.**
 - 2. Promptly inspect delivered products, report damaged or defective items.
 - 3. Handle at site, including unloading, uncrating, and storage.
 - 4. Protect material from exposure to elements and damage.
 - 5. Repair or replace items damaged as result of Contractor's operations.
 - 6. Install, connect and finish products in system assembly ready to function, including incidental related work.

1.3. WORK SEQUENCE

- A. See Section 01031.
- B. Coordinate the work schedule with the Director of Operations, Joe Adelman, 309/275-8803.

1.4. CONTRACTOR USE OF PREMISES

- A. Confine operations at site to areas permitted by:
 - 1. Law
 - 2. Contract
 - 3. The Owner's Representative, per 1.3.B. above.

- B. Do not unreasonably encumber site with materials or equipment. Do not block the Owner's pedestrian traffic patterns except as prior arranged with the Owner's approval.
- C. Do not load structure, or components thereof, with weight that will endanger or damage structure.
- D. Assume full responsibility for protection and safekeeping of products stored on premises.
- E. Move and relocate as necessary all stored products or equipment that interferes with operations of the Owner.
- F. Obtain and pay for use of additional off site storage or work area needed for operations.
- G. Limited use of site for work and storage
 - 1. All vehicular on site activity shall have been prearranged and approved by the Owner.
- H. Cooperate with the Owner's use of the premises and other Contractors providing work on site under separate Contracts with the Owner.

1.5. CONTINUOUS OCCUPANCY BY OWNER

- A. Owner will occupy areas for general maintenance during construction.
- B. Contractors shall provide
 - 1. Access by Owner's personnel and pupils when applicable.
 - 2. Operation of Mechanical and Electrical systems with a minimum of down time. **Turn off Bard HVAC Units in room 117 and put Visqueen and tape over grilles to prevent dust migration.**
 - 3. Operation of exhaust systems with a minimum of down time.
 - 4. Adequate security of the premises in which work is in progress.
- C. Upon (after) the work being completed and accepted by Owner, the Owner shall provide:
 - 1. Custodial services
 - 2. Security
 - 3. General custodial maintenance

1.6. ASBESTOS

- A. The contractor shall perform his own examination of the buildings of concern on the project prior to bidding and be responsible for the determination of the existence or nonexistence of suspect asbestos in a state that is likely to be interrupted or become hazardous to the health of the Contractor, his employees, his subcontractors and their employees.

1. ACM is believed to be removed from the building.
- B. The Contractor may deem it advisable to contact the Office of Superintendent of Schools and request access to the Asbestos Management Survey applicable to the building pursuant to Section 855.30 (including updated amendments thereto) of AN ACT KNOWN AS THE ASBESTOS ABATEMENT ACT: P.A. 83-1325, approved and eff. Sept. 5, 1984, amended by P.A. 84-0951, approved and eff. Sept. 20, 1985, and amended by P.A. 84-1096, approved eff. Dec. 9, 1985, amended by P.A. 84-1245, approved and eff. July 29, 1986, amended by P.A. 84-1346, and approved and eff. Sept. 10, 1986, inclusive of such amendments and regulations applicable since 1986.
1. Upon determination prior to bidding, or after bidding discovery by the Contractor that an asbestos hazardous condition does exist in the path of execution of the work of his Contract, he shall so notify the Owner immediately.
 2. Pursuant to Item 1.6.B.1 above, the Owner (McLean County Unit District No. 5, Normal, IL) may implement the following action:
 - a. Eliminating that portion of the work by revision and change order to these documents.
 - b. Institute removal or acceptance encapsulation.
 3. Wherein concealed asbestos is discovered, the Contractor shall notify the Owner of the existence of said apparent asbestos which may require analysis for hazardous determination. This notification shall be IN WRITING at no cost to the Owner. Should analysis indicate that hazardous substance does prevail, the procedure shall be set forth under Item 1.6.B.2. above.

1.7. COORDINATION AND COOPERATION

- A. It is the intent and purpose of the Owner to cooperate with the Contractor to the extent feasible under existing applicable laws and regulations and the Owner and the Contractor alike shall not construe this portion of the documents, that is, Section Paragraph 1.6.A, and B to the disadvantage of the other.
- B. Should the bidding Contractor not understand the foregoing, he shall notify the Architect/Engineer for clarification prior to bidding in accordance with Section 00040, Paragraph 1.3., 1.4., and 1.15.
- C. This Contractor shall cooperate with other Contractors and their Subcontractors working on site duly employed by the Owner to perform service related and unrelated to work outlined by these Documents.
1. Interior renovation work will be underway in other parts of this building. Contractor for that work is SCI General Contractors, phone 309/473-3926.

1.8. FITTING AND FINISHING THE WORK

- A. Contractor shall verify all field conditions, dimensions, elevations that relate to the work and properly accommodate these in the work as appropriate to the intended result within the Contract amount.
 - 1. In place construction, obstacles and site conditions and elements which can be seen and reasonably inferred.
 - 2. New construction, obstacles and conditions that can be seen or are to occur in the completion of the work.
 - 3. Allow to fit structural elements and all equipment as occur or will occur during the implementation of the Contract.
 - 4. Make adjustments as needed to fit and properly complete the work. This includes coordination of work by all trades.
- B. Contractor and his Subcontractors shall coordinate, accommodate, adjust and fit as appropriate all work to achieve the intended finished intent to normal commercial industry standards.
 - 1. Provide finishing elements, trim, sealants, scribes, receivers and accessories necessary and normal to the installations proposed and as recommended by manufacturers for proper use of products.
 - 2. All construction (all trades) to be weather and infiltration tight. Include appropriate weather seals, infiltration barriers, sealants, non-corrosive flashings and sealants to properly complete the intent of the project.

END 01010

DIVISION 1 - GENERAL REQUIREMENTS
Section 01030 - Alternates

1. GENERAL

1.1. DESCRIPTION

- A. The alternates are to provide the Owner with optional systems and comparative material prices for determining the most advantageous construction package.
- B. Work included in alternates shall be commensurate with and in compliance with all the applicable project specifications and conditions and shall include all necessary related project adjustments and additional labor and/or material as may become apparent to complete the alternative work. No additional charge will be considered after bidding for the purposes of making additional construction or adjustments in order to accomplish alternative work which has been included in the Contract.
- C. All Base Bid requirements and material specifications not specifically mentioned or deleted by the alternate shall remain as originally set forth.
- D. All Contract Document requirements shall apply to alternates.
- E. Incidental Work: All necessary adjustment in the work shall be made to accommodate accepted alternates without cost change in and above the alternate cost.

1.2. ALTERNATE BIDS

- A. No Alternates at time of issue of this project.

END 01030

1. GENERAL

1.1. DESCRIPTION OF DRAWINGS AND LAYOUT

- A. Drawing data is intended to be reasonably accurate, however, strict accuracy in detail is not guaranteed. The Contractor must verify all of the conditions, measurements, dimensions, rough-in requirements, piping, conduit, wiring, duct work requirements and coordination necessary for each item or piece of equipment in the Contract Documents. Verification is the Contractor's responsibility and shall be completed prior to the fabrication or installation processes. All corrections necessary to provide properly installed, finished and operable system, in accordance with the intent of the Documents, shall be made at no cost beyond the contract agreement.
- B. All measurements and conditions must be verified by actual observation at the building and the Contractor shall be responsible for all of his work fitting into place in a satisfactory and workmanlike manner in every aspect and detail subject to the approval of the Architect. The Contractor shall provide layout work and verification measurement at his own cost.
- C. Before starting his work the Contractor shall examine all Contract Area Drawings and Specifications and if any discrepancies occur, he shall report same to the Architect and obtain instructions for interpretation of the work. The Contractor shall perform all layout work pursuant to site, building, grades and levels, and furnish such engineering services as he may require to execute the intent of the work included.
- D. The Drawings are instructive and diagrammatic and shall be followed as closely as actual construction will permit. All changes from Drawings necessary to make the work of the Contractor conform to the documents shall be done at no added cost charge to the Owner above the amount shown on the Owner/Contractor Agreement, unless unforeseen conditions are discovered.

1.2. CONSTRUCTION OPERATIONS

- A. Care shall be taken that completed structures are not overloaded during Contractor operations and the Contractor shall promptly remove all materials, which, in his opinion, may overload any part of the work. It shall not be the Owner or Architect/Engineer's responsibility to observe and check construction processes and temporary loading conditions that this Contractor may implement as director of his operations.
- B. Structural design, unless noted otherwise, is designed to accommodate design loads, per code, after all bracing and construction is in place.
 - 1. Temporary bracing and shoring for erection loads is the responsibility of the Contractor.

2. Bracing and shoring for loading prior to the installation of lateral support and diaphragm assemblies is the responsibility of the Contractor.
- C. All structural damage done by overloading the system shall be repaired by the Contractor overloading the system.
- D. The Architect/Engineer shall have no authority over the means, methods and procedures of the work and shall make no determination pursuant thereto nor render opinions concerning same.
 1. The Architect's Field Representative does not have authority to render opinions on structural questions.
- E. The Architect/Engineer and members of his staff shall have no authority over safety conditions related to the work and shall provide no observation of same, and make no comment regarding same.
 1. The contractor shall designate an employee of the contractor as the person in charge of and responsible for safety procedures on site.

1.3. PROTECTION OF WORK AND BUILDING

- A. The Contractor shall protect all work and stored materials from injury caused by or resulting from operations under this Contract, including physical damage or weather-caused damage through the opened up areas.

1.4. MOVING OF MATERIAL

- A. Contractor materials that are temporarily located or stored shall be relocated as needed to allow access by the Contractor, other Contractors and the Owner's personnel in and around the construction area. Such moving of any material shall be at no additional cost to the Owner.
- B. At no time shall tools, materials or workmen be allowed to block an exit.

1.5. SHORING, BRACING, AND BARRICADES

- A. The Contractor shall provide, construct and finally remove all temporary shoring, bracing, underpinning, scaffolding, needling, barricades, etc. as required by local restrictions and as necessary for general safety to protect all property and persons from damage or injury. The Contractor shall determine the need for these items and shall be fully responsible for the performance or failure of them and shall make good damages caused by failure or absence of same.
- B. Specific temporary shoring, supports, etc., called for elsewhere in the Documents shall be considered a minimum but shall not override Contractor's responsibility to provide adequate shoring, if actual construction conditions and processes so dictate.

1.6. MATERIALS, WORKMANSHIP, AND LABOR

- A. All installed materials and equipment shall be new and shall be installed and completed in a first class, workmanlike manner.
- B. The Architect reserves the right to direct the removal and the replacement of any item which, in his opinion, does not present a proper, orderly or reasonably neat installation. Such removal and replacement shall be done promptly when directed by the Architect or the Owner. All installations will be subject to the Architect and Owner's inspections, tests, and approval at all times from commencement of the work to Final Acceptance of the completed Contract.
- C. Work needing correction or replacement that is not corrected with reasonable promptness shall be subject to written notice thereof by the Architect. The Contractor by virtue of having tendered his bid for the work, agrees that progress payments by the Owner may be held (no payment made) until said faults have been corrected.

1.7. CLEANING UP

- A. All surfaces shall be cleaned of any paint, plaster, mortar, gook and other stains. Care shall be taken that no surface is scratched, marred or damaged in cleaning.
- B. Damaged, marred or scratched surfaces of any type shall be made right, sanded smooth (to bright metal for metal surfaces) and primed and painted as directed or replaced if necessary to provide a final installation acceptable to the Architect.

1.8. OPENINGS IN CONSTRUCTION

- A. Openings required for construction work shall be provided by the Contractor, complete with all necessary reinforcing, lintels, trim, finishing, etc. as shall become applicable including openings required for electrical and mechanical work.
- B. Concrete slabs, joists, concrete floors, finished floors, walls and structural elements, and other structural items shall not be cut or disturbed, except as approved by the Architect IN WRITING. The Contractor shall be held responsible for and correct any such damage that he may cause.
- C. Pipes passing through floors or partitions shall have sufficient clearance around pipes to prevent damage to the adjacent finish from expansion and contraction. All sleeves, flanges and forms, etc., shall be furnished by the Contractor requiring the opening.
 - 1. A Contractor or Subcontractor penetrating a wall, floor or ceiling surface shall provide sleeves, flanges and trim to provide a finished installation.

1.9. SUPPORTS

- A. The Contractor shall provide all concrete, steel bases and anchorage except as herein specified otherwise: vibration-absorbing foundation bases, hangers, platforms, anchor bolts, etc. for all equipment which he furnishes. These foundations shall be as specified under their respective headings or shown on the drawings and/or as recommended by Equipment Manufacturer.
- B. Materials and installation requirements for curbs and pads shall be commensurate with the need. Concrete shall be 4,000 PSI minimum strength, installed at a slump not exceeding six inches (6"). Concrete shall not be retempered sixty (60) minutes after that time at which water was first added to the mix. Air entrainment additives shall be employed to provide a seven percent (7%) by volume air content at time of placement.

1.10. PROTECTION OF WORK

- A. The Contractor shall protect his work and adjacent existing work from injury by keeping all piping, ductwork, etc. capped, plugged, drained, or otherwise protected from injury including damage done by freezing and damage from building materials, cement and/or dirt and concrete.

1.11. MOVING OF MATERIALS

- A. Moving of in-place materials that are located or stored in the path of construction shall be relocated as needed to allow construction and construction access in and around the construction area. Relocation of said materials shall be subject to Owner approval and whereby relocation is Owner designated as temporary, a post construction final location shall be determined by the Owner. Such moving of material shall be at no additional cost to the Owner.

1.12. ELECTRICAL SERVICES TO EQUIPMENT

- A. Unless otherwise specified (see 01010 Summary of Work) the Contractor shall furnish and install electrical feeders of proper size, and furnish, install and complete all power wiring and the control wiring for each motor, electrified signage and/or piece of equipment affected by the Contract.
- B. All such electrical procedures (temporary and permanent) shall comply with the National Electric Code, whether temporary or permanent.
- C. The Contractor shall extend or install temporary electrical service for his use during construction or he shall provide his own portable generator at his own expense. Wherein the Owner's electrical services are used, extended or tapped, the current consumed shall be at the Owner's expense provided same is metered through the Owner's meter.

1.13. SEALANTS

- A. Provide sealants in all locations where shown on the Drawings or called for in the Specifications and as necessary for infiltration-tight/weathertight building envelope and good visual appearance.

- B. Sealants shall be provided in locations as directed by the Architect, where equipment components or fixtures fit to surrounds, and when cracks between equipment and surrounds are undesirable or excessive. Provide sealants in all interior locations, as necessary to properly trim out.
- C. Sealants shall be installed and tooled in strict accordance with the Sealant Manufacturer's recommendations for joint preparation, using foam rope backer bars, etc. Sealant shall be installed by the respective Contractor providing the item requiring sealant installation.
- D. See the Sealant Specification Section 07900 or consult the Architect for the type of sealant materials to be employed.

1.14. PAINTING

- A. All exposed surfaces or equipment reworked and installations leaving damaged or unfinished surfaces shall be painted or have a corrosion resistant factory-applied coating or finish.
 - 1. Aluminum and stainless steel shall not require painting.
- B. Field paint unfinished equipment and surfaces for corrosion protection and visual appearance, except where clearly stated to the contrary on the Drawings.
- C. The Contractor shall paint specific components indicated in the contract documents.
 - 1. See drawing notes and these specifications Section 09900.

1.15. ALIGNMENT

- A. The Contractor shall be responsible for supervision of the reinstallation of equipment, as applicable to these Documents.

END 01040

1. GENERAL

1.1. REQUIREMENTS INCLUDE

- A. The Contractor shall coordinate work assigned under his Contract with the work of each and every other Contractor, Assigned Contractor and their Subcontractors as Contracted by the Owner to complete work related to the project or adjacent projects on the same site.
- B. The Contractor shall enforce predetermined on site lines of authority and communication and attend coordination meetings if required by:
 - 1. Contractor and Subcontractors
 - 2. Architect/Engineer
 - 3. Consultants
 - 4. Owner
 - 5. Town of Normal
 - 6. Regional Superintendent of Schools

1.2. RELATED WORK

- A. Specified elsewhere

1. DIVISION 0 – BIDDING & CONTRACT REQUIREMENTS

1.3. JOB CONDITIONS

- A. Construction Schedules – see Section 01310.
 - 1. Develop and maintain project schedules.
 - 2. Monitor schedules as work progresses.
 - 3. Identify potential variance between schedules and probable completion dates.
 - a. Report to Architect/Engineer adjustments in schedule to meet completion targets.
 - b. Provide summary reports of each monitoring.
 - c. Document all changes in schedule.
 - 4. Verify that product deliveries are adequate to maintain the project schedule.
 - 5. Report conditions that will adversely affect critical items on schedule to Architect/Engineer with recommendations for corrective action.
 - 6. Monitor operations that may cause damage to in place construction or equipment.
- B. Temporary Utilities
 - 1. Verify that adequate services are provided to comply with requirements of work and climatic conditions.

2. Verify proper operation and maintenance of temporary utility extensions.
 3. Administer traffic and parking controls.
- C. Payments: Coordinate and send monthly pay request to Architect/Engineer's office.
- D. Changes Requested
1. If the need arises, and the Architect and the Owner concur, submit change requests to the Architect/ Engineer with recommendation.
 2. Enforce adherence and coordinate all modifications in Contract Documents.
 3. Assist Architect/Engineer in negotiating proposals for change by furnishing complete and accurate cost of change breakdown.
- E. Permits and Fees
1. Obtain approvals from all authorities having jurisdiction.
 2. Permits shall be obtained, however, pursuant fees shall be waived except where a service is to be furnished by the government entity.
- F. Inspections by Contractor
1. Inspect work to assure that work is performed in accord with Contract requirements.
 2. Reject or stop portions of the work that are not in accord with Contract requirements.
- G. Interpretations of the Contract
1. Consult with Architect/Engineer to obtain interpretations.
 2. Assist in resolution of questions that may arise.
- H. Administer coordination and processing of shop drawings, product data, samples and maintenance brochures.
- I. The Contractor shall monitor his work, dispose of boxes and waste and keep the premises clean and safe during the progress of work and at completion of the Contract.
- J. Substantial Completion
1. Upon completion of any group of Classrooms, a Substantial Completion letter will be issued for that portion of the work.
 2. Upon Architect/Engineer's certification of date of the substantial completion, coordinate the correction and final completion of this work.

K. Final Completion

1. When Contractor determines work is complete, submit written notice to the Architect/Engineer that work is ready for final inspection.
2. Secure and transmit to the Architect/Engineer the required closeout submittals, including, but not limited to,
 - a. Final Waiver of Lien post-dated final pay request date.
 - b. Contractor's Affidavit declaring no financial obligation for materials and labor shall fall due pursuant to the project.
 - c. Submitting of a letter from the Bonding Company stating approval of final payment by the Owner to the Contractor.

1.4. CONTRACTOR'S PAYMENT PROCEDURE

- A. Payment to the Contractor will be made bi-monthly in accordance with the progress of the work and the terms of the Contract Documents.
- B. The amount of payment to be made will be determined by progress of the work and value of materials properly stored and shall be acceptable in the Architect/Engineer's opinion.
 1. A 10% retainage on the amount earned and/or materials stored shall be standard procedure.
 2. See Section 00040/1.19 "PROGRESS PAYMENTS" for exceptions to the 10% standard retainage.
- C. Prior to commencement of the work Contractor must comply with requirements of the Contract Documents and submit the following to the Architect/Engineer for approval:
 1. The Construction Schedule in bar-graph chart, including schedule of submittals for shop drawings and samples. See Section 01340.
 2. Schedule of project values in detailed breakdown format. See Section 01370.
 3. The Construction Schedule must be updated periodically throughout the duration of the construction phase. See Section 01310.
- D. Stored Materials: Approval of existence and approved storage procedures of on-site stored materials by the Architect/Engineer must be obtained by the Contractor prior to payment requests.
 1. All material stored off site must be clearly tagged and labeled as to the Owner, Project Name and the Project Number and must be available for inspection by the Architect/Engineer and/or the Owner's representative upon reasonable notice. The Contractor shall be responsible for security of on site stored materials and equipment.

2. When material is stored off site, pay application for same must be accompanied by a certificate of insurance for the material stored off site: materials, quantity, dollar value and location being named therein.
- E. Typed Submittals for Payment: Pursuant to progress payments, the Contractor shall prepare and assemble for submittal to the Architect/Engineer, typed copies of the payment request materials which consist of the following:
1. Application and Certificate for Payment/AIA Form G702A in two (2) copies.
 2. Contractor's Waivers of Lien for current request and Waivers of Lien from Subcontractors and from Material Suppliers for previous pay request in two copies.
 3. Contractor's Affidavit and Sworn Statement (2 copies).
 4. Stored Material List (2 copies)
 5. See 00040/1.24 Schedule of Submittals
- F. Contractor's Lien Waivers
1. Partial Lien Waivers
 - a. With second payment request and each succeeding request, the Contractor shall submit to the Architect/Engineer partial lien waivers from himself, each Subcontractor and each Supplier showing that the amount paid to date to each is at least equivalent to the amount billed and paid the previous request.
 - b. Lien waivers shall accompany the first payment request, if payment amount exceeds 50% of the total Contract or subcontract sum.
 2. Final Lien Waivers - The Contractor's final pay request shall include:
 - a. The full amount of his Contract, including all change orders thereto.
 - b. Final lien waivers from all Subcontractors and all Suppliers for which final lien waivers have not previously been submitted.
 3. See also Section 01700 - PROJECT CLOSEOUT.

1.5. ARCHITECT/ENGINEER – PAY REQUEST REVIEW

- A. The Contractor shall carefully review all of the material to be transmitted to the Architect for accuracy and completeness. Failure to include all items, or errors in any item, may cause a delay in payment until all the deficiencies and errors are rectified.
- B. Upon receipt of the Contractor's application, the Architect/ Engineer shall review the submittals for completeness against the on site progress and stored materials list before forwarding payment request to the Owner.

END 01041

DIVISION 1 – GENERAL REQUIREMENTS
Section 01045 - Cutting & Patching

1. GENERAL

1.1. WORK INCLUDED

- A. Execute cutting, filling or patching of work, required to:
 - 1. Make several parts fit properly.
 - 2. Uncover work to provide for installation of ill-timed work.
 - 3. Remove and replace work not conforming to Contract requirements.
 - 4. Remove existing construction as needed.
 - a. Where cabinets are removed to install new heat pumps, the Owner will replace exposed un-tiled floor.
 - 5. Install specified work in existing construction.
 - a. Provide appropriate transition to existing material.
 - 6. Install lintels in masonry opening cut by mechanical trades including masonry work.
- B. In addition to Contract requirements, upon written instruction of Architect/Engineer:
 - 1. Uncover work to provide for observation of covered work.
 - 2. Remove samples of installed materials for testing when required.
 - 3. Remove work to provide for alteration of existing work.
- C. Do not endanger structural work by cutting or altering structural elements.
- D. Where the Contractor hauls material or drives trucks or equipment over sidewalks, pavement, streets or curbs, he shall protect same from damage and where such surfaces have been damaged, he shall neatly cut out, remove and replace same. Where the Contractor damages or defaces streets, sidewalks or curbs, he shall, as a part of his Contract, re-lay all such surfaces at the same thickness and manner as the original pavement, sidewalk or curb and in a manner that will be approved and accepted by the Owner, Architect/Engineer and governing authority.
- E. The Contractor shall provide such cutting and patching as shall be needed to complete the Contract to make the various and several parts and/or components fit together.

1.2. RELATED WORK

- A. Specified elsewhere
 - 1. Section 01120 – Remodeling Project Procedures

2. 02072 – Minor Demolition for Remodeling
3. 05400 – Cold Formed Metal Framing

1.3. SUBMITTALS

- A. Prior to cutting which affects structural safety to building submit WRITTEN NOTICE to the Architect/Engineer requesting consent to proceed with cutting, including:
 1. Project identification.
 2. Description of affected work.
 3. Necessity for cutting.
 4. Effect on other work and structural integrity of project.
 5. Description of proposed work. Designate:
 - a. Scope of cutting and patching.
 - b. Contractor and trades to execute the work.
 - c. Products proposed to be used.
 - d. Extent of refinishing.
 6. Alternatives to cutting and patching.
 7. Designation of party responsible for cost of cutting and patching.
- B. Prior to cutting and patching to implement change order work in contract scope, done on instruction of Architect/Engineer, submit cost estimate to the Architect/Engineer.
- C. Should conditions of work or schedule indicate change in materials or methods, submit recommendation to Architect/Engineer including:
 1. Condition indicating change.
 2. Recommendation for alternative materials or methods.
 3. Submittals as required for substitutions.

1.4. PAYMENT OF EXTRA EXPENSE

- A. Costs caused by ill-timed work, defective work or work not conforming to Contract Documents, including costs for additional services of the Architect/Engineer, shall be borne by the Contractor.
- B. Work done on instruction of the Architect/Engineer (by change order) other than defective or nonconforming work shall be paid for by Owner pursuant to prior written agreement via Change Order.
- C. Unforeseen conditions when exposed may be considered as an extra expense and if so will be paid by Owner.

2. PRODUCTS

- 2.1. MATERIALS: Materials for replacement of work removed shall be equal to original and to match surrounds or shall comply with specifications for the type of work being replaced, whichever is the most stringent requirement.

3. EXECUTION

3.1. PREPARATION PRIOR TO CUTTING

A. Prior to cutting

1. Provide shoring, bracing, and support as required to maintain structural integrity of project or surrounds.
2. Provide protection for other portions of the project.
3. Provide protection from elements, if applicable.

3.2. PERFORMANCE

- A. Execute fitting and adjustment of products to provide finished installation to comply with specified tolerances, finishes, etc.
- B. Execute cutting and demolition by methods that will prevent damage to other work, and will provide proper surfaces to receive installation of repairs and new work.
- C. Execute excavating and backfilling by methods that will prevent damage to other work and will prevent settlement.
- D. Restore work that has been cut or removed; install new products to provide completed work in accord with Contract Documents.
- E. Refinish entire surfaces as necessary to provide an even finish.
 - 1. Continuous surfaces: To nearest intersection(s).
 - 2. Assembly: Entire refinishing.

END 01045

DIVISION 1 – GENERAL REQUIREMENTS
Section 01051 - Grades, Lines & Levels

1. GENERAL

1.1. WORK INCLUDES

- A. The Contractor will lay out the work within the building and on the site.
- B. The Contractor will establish all working lines, levels, elevations and measurements.
- C. Each Contractor shall lay out his own work, including lines, levels, grades, slopes and shall coordinate with other trades.

1.2. RELATED WORK

- A. Specified elsewhere
 - 1. DIVISION 0 - BIDDING & CONTRACT REQUIREMENTS
 - 2. DIVISION 1 - GENERAL REQUIREMENTS

1.3. QUALITY ASSURANCE

- A. Layout Personnel
 - 1. Layout personnel shall be experienced in layout work of similar complexity.

1.4. SUBMITTALS: See Section 01340 Submittals.

1.5. CONTRACTOR RESPONSIBILITIES

- A. Each Contractor shall
 - 1. Lay out construction work for his trade area.
 - 2. Establish all working lines, levels, elevations and measurements for the work.
 - 3. Employ qualified personnel to perform the work.
- B. Each Contractor shall provide qualified personnel to perform layout work for specific system and equipment installations, as necessary.
- C. Each Contractor shall contact all utilities to spot locate all applicable utilities and verify the correctness of the locations indicated on the Drawings.
 - 1. The toll-free telephone number for the Joint Utilities Location Information for Excavators (J.U.L.I.E.) is 800/892-0123.
 - 2. Call other utilities, if information is not provided by this source, i.e., water department, street department, telecable, etc.

1.6. ARCHITECT/ENGINEER RESPONSIBILITIES

A. The Architect/Engineer shall furnish

1. General data and instruction.
 - a. Improvements as applicable.
2. Information as to available service and utility lines, both public and private.
 - a. Branch distribution on site lines are not all recorded and therefore the location and depth of some are not known.
3. General work location from fixed points not affected by the Construction.
4. Benchmark location and elevation where applicable.

END 01051

DIVISION 1 - GENERAL REQUIREMENTS
Section 01055 - Anchorage & Fastenings

1. GENERAL

1.1. DESCRIPTION

- A. Provide adequate anchorage and fastenings throughout the work commensurate with the installation conditions.
- B. Anchorage systems shown on the Drawings or specified herein shall be considered a minimum based on theoretical design conditions. The actual field conditions may require additional fastenings to properly accomplish the work.
- C. NOTICE:
 - 1. THESE DOCUMENTS DO NOT PERMIT THE INSTALLATION OF PLASTIC ANCHORS UNLESS SPECIFICALLY ASSIGNED.
 - 2. THE DOCUMENTS REQUIRE THAT IMPACT ANCHORAGE (DRIVEN NAILS AND PNEUMATICALLY DRIVEN ANCHORS) NOT BE INSTALLED ABOVE GROUND FLOOR LEVEL.

1.2. SUBMITTALS

- A. The Contractor shall identify all fastening systems he intends to employ, and provide specification sheets on the fasteners upon request.

1.3. QUALITY CONTROL

- A. All anchorage, fastenings and support systems are the Contractor's responsibility.
- B. All devices, components and associated parts shall be made secure against in-service failure. In no installation shall the fastenings, anchorage and support system be less than what is specifically called for on the Drawings or set forth in the Specifications.
- C. In no case, however, shall the fastenings, anchorage and support systems be less than the Product Manufacturer's recommendations pursuant to the stability of finished assembly or component thereof.
- D. The Contractor shall replace, rework, or reinforce or otherwise correct the fastenings that do not perform adequately.
- E. In general, fastening sizes and spaces are set forth on the Drawings. Wherein same are not, the Architect shall make a determination.

2. PRODUCTS

2.1. MATERIALS

- A. Generally, nails shall be appropriately selected for the service condition.
 - 1. Interior or protected framing: cement-coated box nails.
 - 2. Exterior framing: galvanized box nails.
 - 3. Interior finish work: finish nails.
 - 4. Exterior finish work: painted galvanized box nails for wood and aluminum nails for securing aluminum to wood such as cladding.
 - 5. Interior construction subject to corrosion: nails for exterior work.
 - 6. See Drawings for specific overriding designations materials and spacing limitations.
- B. Generally, screws shall be appropriately selected for the service condition to minimize corrosion, galvanic action or loosening. This includes wood screws, sheet metal screws and machine screws.
 - 1. Interior or exterior protected areas: cadmium plated screws.
 - 2. Exterior weathering conditions: stainless steel, aluminum, or brass screws. See specific designation on Drawings.
 - 3. Head type shall typically be flat head except as detailed, for conditions such as sheet metal or for equipment mounting.
 - 4. Stop bead washers, surface and/or countersunk, shall be provided wherever practical and as specifically called out.
 - 5. See Drawings for specific overriding designations materials and spacing limitations.
- C. Bolts shall be selected for the applicable service condition. In general, bolts shall be cadmium or galvanized A 307 NC thread, except as specified otherwise. Structural bolts shall be as specified. Provide washers for all bolts, and provide lock washers where appropriate. Embedded anchor bolts may be unplated, except where specified otherwise.
- D. Pop rivets may be employed only as specifically approved by the Architect. In general, pop rivets shall be aluminum alloy. Use the largest size pop rivets which can be adapted to the work.
- E. Pneumatic driven hardened steel anchors may be used where specifically approved. Provide washers.

2.2. ASSOCIATED MATERIAL REQUIREMENTS

- A. Washers shall be provided at all locations where practical.
- B. Washers shall be of like material to the fasteners selected.
- C. Use self-sealing neoprene washers at all applications required to be environment-proof.
- D. Use self-sealing neoprene washers wherever galvanic action is possible under normal circumstances. Isolate between unlike fastened material with minimum 20 mil PVC material or similar.
- E. Select appropriately pre-finished, plated, or use base material for the visual

exposure condition where fasteners are exposed to view.

- F. All exposed screws and bolts shall be coordinated with the hardware finish. In place field finish to achieve coordination with the hardware finish where necessary.

2.3. PRODUCT SELECTION

- A. Fastener materials shall be as specified previously. The most appropriate selection shall be made from the table below. The fasteners listed are not interchangeable, unless so approved by the Architect/Engineer.
 - 1. FASTENER RECEIVING MATERIAL: APPROPRIATE FASTENER
 - 2. Wood framing: cement coated nails, galvanized nails, screws, lag bolts, thru bolts.
 - 3. Metal framing: self-tapping flat head or pan head screws.
 - 4. Steel: thru bolts, pneumatic driven fasteners, where detailed or where prior approval is made.
 - 5. Sheet metal: sheet metal screws, thru bolts.
 - 6. Masonry: embedded anchor bolts, pneumatic driven fasteners where approved, metallic expansion anchors, metallic wedge anchors, or toggle bolts.
 - 7. Concrete: embedded anchor bolts, pneumatic driven fasteners where approved, metallic expansion anchors, or metallic wedge anchors.

2.4. SPECIAL ANCHORAGE & FASTENERS

- A. Self Tapping Cap Screw - Pre-Tap Drill. See Section 07600/2.2.
 - 1. CF #14 X required length, "B" carbon structural tap seal screws.
 - 2. Counter bore wood to receive head and washer to flush.

3. EXECUTION

3.1. INSTALLATION

- A. The anchor receiving construction material shall be substantial and have the capability to withstand the in-service stress demand placed upon it.
- B. Fastener size shall be appropriate for the intended service. Verify all conditions in the field and increase the anchorage as needed.
- C. Anchorage patterns shall be appropriate to resist wiggling or prying loose during service. Use a uniform anchorage pattern for all exposed-to-view conditions; offset from centers as needed for maximum strength. A minimum of two (2) anchors shall be provided in each segment length or piece of material.
- D. Replace any fasteners which are crooked or do not properly engage the base material.

- E. Provide isolators between adjacent materials or fasteners and materials where electrolytic action is possible.

END 01055

DIVISION 1 - GENERAL REQUIREMENTS
Section 01060 - Codes & Standards

1. GENERAL

1.1. LAWS AND ORDINANCES

- A. In the execution of the work, the Contractor shall comply with Federal Laws, State Laws, Local Ordinances and regulations, rules, and requirements of the Illinois State Board of Education.
- B. The Contractor shall make any alteration, change or addition required by the authorities having jurisdiction, as a part of his Contract and without additional cost to the Owner.

1.2. STANDARDS

- A. The fabrication and installation of all materials and all equipment furnished and installed by the Contractor shall be in accordance with standards of the industry standard technical society, organization or body.

ACI	American Concrete Institute
ADA	Americans with Disabilities Act
AGA	American Gas Association, Incorporated
AIA	American Institute of Architects
AMCA	Air Moving and Conditioning Association
ASHRAE	American Society of Heating, Refrigeration, and Air Conditioning Engineers
ASPE	American Society of Plumbing Engineers
AWWA	American Water Works Association
EPA	State of Illinois Environmental Protection Agency
FIA	Factory Insurance Association
FM	Factory Mutual
IBC	International Building Code
IBR	Institute of Boiler and Radiator Manufacturers
IMC	International Mechanical Code
MCA	Mechanical Contractors Association
NBFU	National Bureau of Fire Underwriters

NEC	National Electric Code
NEMA	National Electric Manufacturers' Association
NEPA	National Fire Protection Association
OSHA	Occupational Safety and Health Act
UL	Underwriters Laboratories, Incorporated
Illinois Rules & Regulations for Fire Prevention & Safety	
Local Utility Company Regulations	
Owner's Insurance Requirements	
State of Illinois Department of Public Safety	
State of Illinois and Local Department of Public Health	
State of Illinois and Local Plumbing Codes	
State of Illinois Sanitary Board	
State of Illinois Part 185, Part 175 and Part 180 Health Life Safety Code	
State & Federal Accessibility Regulation	

- B. Reference to standards shall mean and intend the latest edition of such specifications adopted and published at the time of invitation to submit proposals.

END 01060

1. GENERAL

1.1. REQUIREMENTS INCLUDE

A. Contractor

1. Coordinate work of all crafts including that of subcontractors and his crafts as applicable.
2. Schedule elements of demolition, remodeling and renovation work to expedite completion.
3. In addition to demolition specified in Sections 02072, and that shown on Drawings, cut, move or remove existing construction to provide access or to allow remodeling and new work to proceed. Include:
 - a. Removal of or temporarily supporting conduit and wiring.
 - b. Removal of unsuitable or extraneous materials and non-functioning components not marked for salvage, such as abandoned electrical and mechanical components.
 - c. Cleaning of surfaces. Remove surface finishes to install new work and finishes.
4. Patch, repair and refinish existing items to remain, to the specified condition for each material, with a neat transition to adjacent new construction.
 - a. Insure that remodeling work is done before painting.

1.2. RELATED REQUIREMENTS

A. Specified elsewhere

1. 01010 - Project Summary
2. 01045 - Cutting & Patching
3. 01510 - Temporary Utilities
4. 01540 - Security
5. 01561 - Construction Cleaning
6. 02072 - Minor Demolition for Remodeling
7. DIVISION 22 – Plumbing
8. DIVISION 23 – Heating, Ventilation, and Air Conditioning (HVAC)
9. DIVISION 26 – Electrical
10. DIVISION 28 – Electronic Safety and Security

1.3. SEQUENCE AND SCHEDULES: Schedule work in sequences within times specified in 00040 and 01010.

1.4. ALTERATIONS, CUTTING AND PROTECTION

- A. Assign moving, removal, cutting and patching work to crafts qualified to perform the work in a manner to cause least damage to each type of work,

and provide means of restoring surfaces to appearance of new work.

- B. Perform cutting and removal work to minimize removals, and in a manner to avoid damage to adjacent work.
 - 1. Cut finish surfaces such as masonry, blocking, soffit, fascia or metals by methods to terminate surfaces in a straight line at a natural point of division.
- C. Perform cutting and patching in accordance with Section 01045.
- D. Protect from damage existing finishes, equipment and adjacent work that is scheduled to remain.
- E. Protect existing and new work from weather and temperature extremes. Provide weather protection, waterproofing, heat and humidity control to prevent damage to remaining existing work and to new work.

1.5. EXISTING CONDITIONS

- A. Asbestos containing materials (ACM) are assumed to be limited to any 9" X 9" floor tile found in some rooms. Plaster ceilings have been tested and found to be free of ACM.

2. PRODUCTS

2.1. SALVAGED MATERIALS

- A. The Owner
 - 1. Will remove items of value to the District.
- B. The Contractor shall
 - 1. Do not use salvaged or used material in project for in-place construction except as indicated on the Drawings.

2.2. MATERIALS FOR PATCHING, EXTENDING AND MATCHING

- A. Ensure that work is complete:
 - 1. Provide same materials or types of construction as that in existing structure, to patch, extend or match existing work.
 - a. Contract Documents may not define products or standards of workmanship present in existing construction.
 - b. Consult the Drawing Details and/or consult the Architect/Engineer.
 - 2. Presence of a product, finish or type of construction requires that patching, extending or matching be performed to make work complete and consistent to identical or better quality standards.

3. All installations and reinstallations shall be operational ready and in conformance with all facets of Federal and State regulations governing Illinois schools.

3. EXECUTION

3.1. REMOVE EXISTING CONSTRUCTION

A. Temporary Removals.

1. When called for on the drawings, remove and reinstall equipment or finish material to allow the installation of the specified system or material.

B. Remove and dispose of waste and by-products of the construction project.

3.2. PERFORMANCE

A. Patch and extend existing work using skilled craftsmen capable of matching existing quality of workmanship.

B. For patched or extended work, provide quality equal to that specified for new work.

3.3. UTILITIES

A. Take all reasonable precautions against damage to utilities.

B. The Contractor shall confirm locations of all existing utilities in the work areas before commencing any of his work.

C. Verification should be made with electrical, telephone, cable, water, sewer, gas, and any other utility normally servicing the area. Before commencing any excavation call the Joint Utilities Location Information for Excavators (J.U.L.I.E.) toll free number 1-800-892-0123; call the City Sanitary Department; call the Cable Service Company; and call the City Street Department, all as applicable.

D. Whenever inadvertent damage or breaks occur in an existing gas, water, sewer, steam conduit, telephone, electrical main or service, the Contractor responsible shall immediately notify proper officials of utility interruptions.

E. The Contractor shall render all possible assistance in restoring the services cut by him and shall assume all costs, charges or claims connected with the interruptions and repair of the same.

3.4. DAMAGED SURFACES

A. Patch and replace all portions of the existing finished surfaces found to be damaged, lifted, discolored or showing rot and other imperfections, with matching material.

1. Provide adequate support prior to patching the finish.
2. Refinish patched portions of painted or coated surfaces in a manner to produce uniform color and texture over entire surface.
3. When existing surface cannot be matched, refinish entire surface to nearest intersections. Notify Architect as soon as such condition is discovered.

3.5. TRANSITION FROM EXISTING TO NEW WORK

- A. When new work abuts or finishes flush with existing work, make a smooth transition. Patched work shall match existing adjacent work in texture and appearance as closely as possible.
 1. When finished surfaces are cut in such a way that a smooth transition with new work is not possible, terminate existing surface in a neat manner along a straight line at a natural line of division, and provide trim appropriate to finished surface.
 2. Refinished cut surfaces must be weathertight comparable to the warranty period.

3.6. CLEANING

- A. Perform construction cleaning as specified in Section 01561.

END 01120

1. GENERAL

1.1. REQUIREMENTS

A. Work Includes:

1. Submittals of project construction schedules for work within seven (7) business days after Notice of Award.
2. Revision of schedules monthly. Said schedule shall accompany each Pay Request, updated to reflect current conditions.

1.2. RELATED WORK

A. Specified elsewhere

1. 01010 - Summary of Work
2. 01041 - Project Coordination
3. 01340 - Submittals
4. 01370 - Schedule of Values

1.3. JOB CONDITIONS

- A. The orderly and rapid execution of the required work is of paramount importance.**
- B. The exterior addition footings, foundation, and wall construction must begin as soon as possible. The renovation of the existing restroom, the lobby remodel, and duct removal/replacement must be started as soon as possible. The existing exterior wall will be removed closer to the completion of the project.**
- 1. The General Contractor will require his crews and Sub-Contractors' crews to work 48 hours per week from June 1 through August 14, 2020, as long as materials are available or could be available at the site.**

1.4. SUBMITTALS

A. Content of Schedules:

1. Indicate complete sequence of construction by activity.
 - a. Shop drawings, product data and samples: In accordance with Section 01340.
 - b. Decision dates for the selection of finishes.
 - c. Product procurement date, fabrication of each element of the construction work.
 - d. Dates for beginning and completion of each element of the

construction work.

2. Indicate cumulative percentage of work completed as of the day of Contractor's submittal of monthly pay request.
3. Furnish separate schedule, showing submittals, review items, procurement schedules and delivery dates, as required.
4. Define critical portions of entire schedule.

2. PRODUCTS (N/A)

3. EXECUTION

3.1. PROJECT PROGRESS

- A. Submit initial schedules within seven (7) business days after date of Notice of Award.
 1. Architect/Engineer will review schedules and return the reviewed copy within two (2) business days. Allow time for shipping and handling both ways.
 2. If required, resubmit within five (5) business days after return of the reviewed copy with corrections or a letter explaining why changes cannot be implemented.
 3. Submit number of copies required by Contractor, plus two (2) copies to be retained by Architect/Engineer. If additional copies are required, furnish same at no additional cost.
- B. Updating monthly by indicating:
 1. Progress of each activity since previous submission.
 2. Projected completion dates for all activities.
 3. Activities modified since previous submission.
- C. Adjust work and material schedules to meet time deadlines.

END 01310

1. GENERAL

1.1. DESCRIPTION

- A. Prior to commencing the work, the Contractor shall verify the submittal procedure to assure compliance with the submittal requirements.
- B. Required Submittals

- 1. Shop Drawings, Submittals, and Submittal Brochures

- a. Submit four (4) copies minimum unless notes otherwise in a particular section.
 - b. Architect and/or Owner will retain two (2) copies.
 - c. Contractor will receive remaining copies for his use.
 - d. Shop drawings and material schedules shall be accompanied by catalog cuts or fliers giving full data, description, function, and capacity of item or component thus submitted. Catalogs and fliers shall be clearly and precisely marked as to submittal content. The Architect/Engineer's office will provide no sorting to assure the submittals compliance with documents.

- 2. Samples

- a. When samples are requested submit two (2) minimum.
 - b. All samples will be retained unless otherwise noted in the Specifications.

- 3. The Contractor shall, within seven (7) days of Notice of Award, submit to the Architect the following:

- a. Name of person under Contractor employment at the job site in charge of safety.
 - b. Name of project on site Superintendent of the work.
 - c. Submit three (3) bound, indexed copies minimum.
 - d. THE SHOP DRAWINGS RETAINED BY THE OWNER AND ARCHITECT ARE NOT AVAILABLE FOR PREPARING THESE MANUALS. If additional copies are required for this, the Contractor shall make allowance and submit additional sets.

- 4. The Contractor, if requested by the owner, within thirty-one (31) business days of Notice of Award, submit in accord with 00040/1.17.

- C. IDENTIFICATION OF SUBMITTALS

- 1. The Contractor shall clearly mark each submittal of the Shop Drawings, Catalog Cuts, Pamphlet, or Specification Sheet for

identification and record, for example:

- a. DATE: As submitted
- b. BUILDING: Project Name
- c. LOCATION: City
- d. TYPE OF EQUIPMENT: (Example - Heating/Ventilating)
- e. UNIT: (Example - #1)
- f. SUBMITTED BY: Contractor's Name

2. Data shall also indicate model number selected for furnishing and indicate capacities or conditions of operation.

- a. Catalog data of general advertising nature, without specific outline or rating for equipment, will be rejected.
- b. Marked product manufacturer's catalogs and engineering data shall accompany the submittal.

D. AS-BUILT DRAWINGS AND OPERATION MANUALS

1. The Contractor shall provide the Architect/Engineer's Office with a marked set of drawings showing changes from the original drawings. Marked As-Built Drawings shall be submitted upon progress having complied with Substantial Completion progress.

2. The Contractor shall submit three (3) copies of bound equipment Operation Manuals.

- a. These manuals shall include all Shop Drawings and all Submittals, all Equipment Brochures, Operating Manuals, Operating Instructions, names, addresses, and telephone numbers for guarantee work, all bound into a good quality binder or loose-leaf notebook, clearly labeled.

E. REVIEW OF SUBMITTALS

1. Submittals will be reviewed by the Architect and/or the Owner and will be checked for Contract compliance and the basic fabrication methods.

2. The Contractor must verify all the dimensions, field conditions, field clearances, and rough-in requirements with adaptations as necessary.

- a. Architect/Engineer review of a submittal shall not relieve the Contractor of specification compliance unless same is specifically brought to the attention of the Architect and/or Owner IN A LETTER FORM attached to the submittal data and subsequently approved by the Architect/Engineer IN WRITING.
- b. An omission on the shop drawings followed by a review oversight thereof by the Architect/Engineer shall not be construed as the calling of specific attention thereto.

END 01340

DIVISION 1 – GENERAL REQUIREMENTS
Section 01370 – Schedule of Values

1. GENERAL

1.1. DESCRIPTION

- A. Related work specified elsewhere:
 - 1. 01010 - Summary of Work
 - 2. 01041 - Project Coordination
 - 3. 01310 - Construction Schedules
- B. Contractor shall provide:
 - 1. Submittals of Master Cost Breakdown to Architect/Engineer at least fifteen days prior to submitting first Application and Certificate for Payment.
 - 2. Data to substantiate Master Cost Breakdown values if requested by Architect/Engineer.
 - 3. Submittal of quantities of designated materials where applicable.
 - 4. Listing of quantities for materials specified under unit prices.
 - 5. The Master Cost Breakdown shall serve as the only basis for the applications for payment.
- C. The Master Cost Breakdown shall serve as the only basis for the applications for payment.
- D. NOTE: PAYMENT FOR MATERIALS STORED ON OR OFF SITE WILL BE LIMITED TO THOSE MATERIALS LISTED IN THE MASTER COST BREAKDOWN.
 - 1. If Contractor requests payment for materials stored off the site, such materials must be insured and the Contractor must submit a Certificate of Insurance (identifying the location of the stored material and the stated value thereof) with the pay request.
 - 2. Said certificate shall insure the Owner's investment and identify the location of stored materials.

1.2. FORMAT OF SUBMITTALS

- A. Submit Master Cost Breakdown. (Contractor may use AIA Schedule of Value Form, i.e., continuation page from AIA Application and Certificate for Payment Form G702).
- B. Use the Table of Contents in these Specifications for the order of listing costs of all work. Verify all costs of the work.
- C. Identify each line item with the same number and title listed in the Table of Contents of these Specifications.

1.3. PREPARATION

- A. Itemize separate line item cost for each of the following cost items assignable to the entire project:
 - 1. Overhead and Profit.
 - 2. Bonds.
 - 3. Insurance.
 - 4. General Conditions and Operations.
- B. Itemize separate line item cost for work required by each section of specifications. Identify work of:
 - 1. Contractor's own labor cost and material cost (separate line).
 - 2. Each Subcontractor labor and material cost (separate line).
 - 3. Each major Supplier of products or equipment.
- C. Make sum of total costs of all items listed in the Schedule of Values equal to total Contract sum.

1.4. REVIEW AND RESUBMITTAL

- A. After review by the Architect/Engineer, revise and resubmit the Master Cost Breakdown, should same be required.
- B. Resubmit revised cost breakdowns in the same manner.

1.5. UPDATE

- A. Update the Master Cost Breakdown when:
 - 1. Directed by the Architect/Engineer - monthly.
 - 2. Change of Subcontractor or Supplier occurs.
 - 3. Change of product or equipment occurs.
 - 4. List change orders by number should same become applicable to the Contract.

END 01370

1. GENERAL

1.1. DESCRIPTION

A. Related work specified elsewhere

1. All work provided under the Contract Documents shall be inspected by the Contractor for conformance with the documents prior to the Architect's inspection.
2. All in place work shall be subject to inspection by the Architect/Engineer and the Owner for conformance with the requirements and standards set forth in the Contract Documents and first quality general construction standards.

1.2. WORK BY THE CONTRACTOR INCLUDES

A. The Contractor's superintendent of the project shall inspect all work performed by the Contractor, his employees, Subcontractors and the Installing Suppliers before same is submitted to the Architect/Engineer as work performed.

1. Inspect for proper installation.
2. Inspect for proper materials.
3. Inspect for workmanship.

1.3. WORK BY THE ARCHITECT/ENGINEER INCLUDES

A. The Architect/Engineer shall have access to the work at all times and shall make inspection of work in place, construction components and allow or disallow in accordance with these Specifications and the accompanying Drawings.

1.4. PROCEDURES AND REPORTS

A. The Architect/Engineer, after making inspections, may report same to Contractor separately or jointly, verbally or in writing, as related to the Contract Documents in general and related to certain requirements specifically.

B. Notice shall be given the Contractor of unsatisfactory materials, handling, and storing of project materials, in place installation, workmanship, and documents compliance conduct on the job site property.

C. The Contractor shall correct or replace same as applicable to the inspection report.

1.5. QUALITY ASSURANCE

A. The Architect/Engineer or appointed special inspector for certain

processes:

1. Will make intermittent inspections at the job site and notify the Contractor of deficiencies as and when observed.
 - a. Notifications to the Contractor will be written (if not agreed upon and/or promptly corrected following verbal notification) wherein the deficiency shall or may become covered up by continuation of progress, wherein the deficiency does not comply with the required procedures.
2. Will be available to the Contractor upon call for inspections which may come to the attention of the Contractor at times not corresponding with intermittent inspections by the Architect/Engineer.
 - a. The Architect/Engineer will endeavor to respond to the Contractor's call with due promptness and no later than four (4) hours.
3. Will disallow payment for uncorrected work on the upcoming submittal by the Contractor for periodic progress payment.

B. The Contractor

1. Shall correct all work associated with the inspections made by the Architect/Engineer promptly or present an approved schedule for same.
2. Shall, wherein redeliveries of materials and components are involved:
 - a. Promptly respond IN WRITING to the deficiency notice.
 - b. Issue a schedule of correction, if applicable.
 - c. Make right damages effected to work of other contractors involved, as applicable.
3. Shall notify the Architect/Engineer of the schedule for the following day by day operations at the job site:
4. Contractor shall notify Architect/Engineer twenty-four (24) hours in advance of commencement of operations.

1.6. OWNER

- A. Owner Representatives shall have access to the work at all times.

END 01420

DIVISION 1 – GENERAL REQUIREMENTS

Section 01510 – Temporary Utilities

1. GENERAL

1.1. REQUIREMENTS INCLUDE

- A. Contractor shall provide and maintain specified temporary utilities.
- B. Contractor may extend services from Owner's existing sources.
 - 1. Tap on and extension of services shall be implemented and paid for by the Contractor requiring utility.
- C. Contractor shall furnish (included in his Base Bid):
 - 1. The cost of all utilities required by him which:
 - a. Are in excess of existing available at the building and are necessary for the completion of his work.
 - b. Exceed the capacity of existing or permanent systems and are necessary for the completion of his work.
 - 2. Hoses and fittings from temporary standpipes or water service connection to his work.
 - 3. Drinking water for his own forces.
 - 4. Extension cords, extension lights and lamps from approved temporary power centers to his work.
 - 5. Ventilation for his storage spaces containing volatile or hazardous materials.
 - 6. Security for materials and equipment.
 - 7. Temporary toilet facilities. Toilets in the buildings may be used by contractor's work force providing that these rooms be kept reasonably clean.

1.2. RELATED REQUIREMENTS

- A. Furnished by Owner
 - 1. Authorization of existing facilities for temporary use.
 - a. Electrical power service.
 - b. Lighting extended by drop cords from existing sources.
 - c. Water service extended from existing outlets by the Contractor.
 - 2. Owner will pay all costs of consumables used for construction purposes for utilities it furnishes.
 - 3. The Contractor requiring Owner-furnished services shall provide and pay for extension or modification of services to perform the work.

1.3. DESCRIPTION OF UTILITY SYSTEMS

A. Electrical system:

1. Power is supplied to the site by Ameren IP.
2. The Contractor is advised to contact Ameren IP to get temporary protection at electrical service entrance (over and adjacent to) the construction area. Phone 800/755-5000, as printed in the area phone book, further contact number may be provided by Owner.
3. The Contractor shall provide and maintain extensions of existing electric power system for construction needs throughout construction period.

B. Natural Gas

1. Provided by Nicor Gas Company (verify with Owner).

C. Water Service:

1. Water provided by the Town of Normal.
2. For construction purposes: The Contractor shall provide and maintain temporary water service connection throughout construction period. Continually running water during construction operations is not allowed.
 - a. For temporary fire control.
 - b. For material preparation and mixing.
 - c. For cleaning operation.
3. The Contractor provides drinking water for his own employees.

1.4. REQUIREMENTS OR REGULATORY AGENCIES

- #### A.
- Compliance with specified codes and regulations (latest editions in effect as of the date of bidding documents) is the responsibility of the Contractor. See 01060.

1.5. USE OF OWNER'S EXISTING SYSTEMS - RULES AND REGULATIONS

- #### A.
- Owner's mechanical systems shall remain in service throughout the construction except for prearranged temporary shutdowns.
- #### B.
- Make all arrangements with the Owner's Representative for use of electrical power for hand tools, temporary lighting, toilets and use of water. Temporary connections shall not interfere with or starve the ordinary use of the building or for ongoing maintenance and service activities therein.
- #### C. Limitations
1. Keep work areas enclosed to avoid energy waste.
 2. Keep away from any areas as directed by Owner/Representative.

- D. Modify temporary utility systems if requested by the Architect/ Engineer or the Owner.
- E. Upon completion of work, or when directed by Architect/Engineer, restore existing systems to original condition or specified conditions.

END 01510

DIVISION 1 – GENERAL REQUIREMENTS

Section 01530 - Barriers

1. GENERAL

1.1. WORK INCLUDES

A. The Contractor shall:

1. Provide and maintain suitable metal fabric type barrier to keep unauthorized personnel away from equipment and devices and protect the work, stored materials, existing facilities and utilities, trees and plants from construction operations.
2. Remove when no longer needed, at completion of work or as directed to facilitate the Owner's regular use of this building and site.
3. Contractor shall replace any and all damage to buildings and grounds including plantings, walks, drives, trees, sod, and utilities and lights to pre-construction or better condition.
4. The Contractor shall handle demolition and new materials in a safe manner limiting and controlling the spread of debris and dust. Removed material shall not be dropped free fall in the open air.
5. Do not leave construction aids, where accessible to passers-by or intruders in place overnight unattended.

1.2. RELATED REQUIREMENTS

A. Specified elsewhere

1. 01010 - Project Summary

2. PRODUCTS

2.1. MATERIALS

- A. Temporary barrier materials may be new or used, suitable for purpose.
- B. Do not violate specified codes.

3. EXECUTION

3.1. INSTALLATION

- A. Install to a neat and uniform appearance, structurally adequate for purposes.
- B. Maintain barriers during entire construction period.
 1. Remove when site grading is done – reinstall after.

- C. Relocate barriers as construction progresses.
 - 1. Barrier to remain in position shown on site plan when construction is finished.

3.2. TREE AND PLANT PROTECTION

- A. Preserve and protect existing trees and plants at site and those adjacent to site.
- B. Replace or repair, trees and plants which are damaged or destroyed due to construction operations.

3.3. UTILITIES

- A. Take all reasonable precautions against damage to utilities.
- B. The Contractor shall confirm locations of all existing utilities in the work areas before commencing any of his work.
- C. Verification should be made with electrical, telephone, cable, water, sewer, gas, and any other utility normally servicing the area. Before commencing any excavation call the Joint Utilities Location Information for Excavators (J.U.L.I.E.) toll free number 1-800-892-0123; call the City Sanitary Department; call the Telecable Service Company; and call the City Street Department, all as applicable.
- D. Whenever inadvertent damage or breaks occur in an existing gas, water, sewer, steam conduit, telephone, electrical main or service, the Contractor responsible shall immediately notify proper officials of utility interruptions.
 - 1. Apparently, the existing high pressure gas line is under the 1967 addition as shown and should not be an issue in this project. The Architect has discussed the location of the pipe with NICOR. Call J.U.L.I.E.
- E. The Contractor shall render all possible assistance in restoring the services cut by him and shall assume all costs, charges or claims connected with the interruptions and repair of the same.

3.4. REMOVAL

- A. Completely remove barriers when construction has progressed to the point that they are no longer needed, and when approved by the Architect/Engineer.
- B. Clean and repair damage caused by installation, fill and grade site areas to indicated elevations and slopes, and clean the area.

END 01530

1. GENERAL

1.1. WORK INCLUDES

- A. The Contractor shall
 - 1. Protect work, stored materials and construction equipment from theft and vandalism.
 - 2. Protect premises and project from entry by unauthorized persons.
 - 3. Cooperate with the Owner's maintenance personnel and protect the Owner's operations at the job site from theft, vandalism or damage from entry by unauthorized persons.
- B. The Contractor shall be responsible for the security of his materials and tools. The Contractor shall exercise reasonable security precautions at all times that the project is left unattended.
- C. The Contractors shall cooperate in maintaining the construction security by closing and locking all openings whenever the work is not manned and at the close of each day's work.

1.2. RELATED REQUIREMENTS

- A. Specified elsewhere
 - 1. 01010 - Project Summary
 - 2. 01530 - Barriers

1.3. MAINTENANCE OF SECURITY

- A. Initiate security program in compliance with Owner's system prior to mobilization.
- B. Maintain security program throughout construction period until substantial completion.
- C. Cooperate with the Owner to maintain security.
- D. Comply with Owner regulations for safety and security.

END 01540

DIVISION 1 – GENERAL REQUIREMENTS
Section 01550 – Access Roads & Parking Areas

1. GENERAL

1.1. REQUIREMENTS INCLUDE

A. Contractor

1. Maintain equipment and materials, vehicular delivery access to this building will be very difficult.
2. Provide access to temporary construction facilities, storage and work areas for use by persons and equipment involved in project construction and for use by emergency vehicles.
 - a. Use PROPEX woven mat high tensile strength and low elongation to reduce rutting of unpaved areas.

1.2. RELATED REQUIREMENTS

A. Specified elsewhere

1. 01010 - Project Summary

1.3. ON SITE ROADS AND PARKING AREAS

A. Contractor shall utilize existing roads, drives, walks and to provide access to construction work, storage and other areas required for execution of the Contract.

1. Location: The Contractor shall consult with the Owner's building administrator and comply with all regulations and limitations imposed thereby.
2. The Contractor arranges for parking facilities: Adequate to provide for employees and subcontractor employees.
3. The Contractor shall make his own arrangements concerning street traffic interference and barricade requirements.

B. Provide access for emergency vehicles.

C. Keep fire hydrants and water control valves free from obstruction and accessible for use.

1.4. EXISTING CONDITIONS

A. City improvements

1. Obtain city permission to operate equipment of excessive width or weight on public right-of-way.

B. Owner site improvements include paved parking areas, concrete sidewalk landscaping and play equipment.

1. Discuss with Owner planned equipment and material delivery routes to minimize damage.

2. PRODUCTS

2.1 TURF PROTECTION MAT

- A. PROPEX woven mat distributed by STETSON BUILDING PRODUCTS.
217/362-0600

3. EXECUTION

3.1. MAINTENANCE

- A. Maintain roads, walks and parking areas (where use of same has been allowed by the Owner) in a sound, safe and clean condition.
- B. Repair or replace all surfaces damaged during construction work progress.
 1. Contractor repair pavements, landscaping, or lawn areas damaged during construction.
 2. Contractor document any damage to pavement, landscaping or lawns that exist prior to construction operations.
 - a. This may be accomplished by photographs or in conference at the site with A/E and Owner.

END 01550



Site Access



Crossing Sensitive Areas



Alternative to Rock Entrance



Poor Site Conditions



Your Local Dealer of

*SPRETSON
DECATUR 800 654-1733
URBANA 800 882-3336*



*A Revolutionary
Product to Keep
You out of the Mud!*



- Easy to Deploy
- Alternative to Rock
- Protects Turf
- Allows Site Access
- Residential Construction



Unroll this amazing new product and drive on any muddy, swampy ground without getting stuck, rutting or tracking mud off site. Mud Mats consist of pocketed, double-wall, high-strength fabric with high tensile reinforcing ribs confined within each sleeve which allows for easy deployment and amazing structural stability. Mats connect together to form custom sizes. Ground pressure from vehicle tires is reduced up to 40x causing minimal ground disturbance!

Light Weight

Quick to Deploy

Washes Easily

Reusable

AGES Mud Mat Specifications

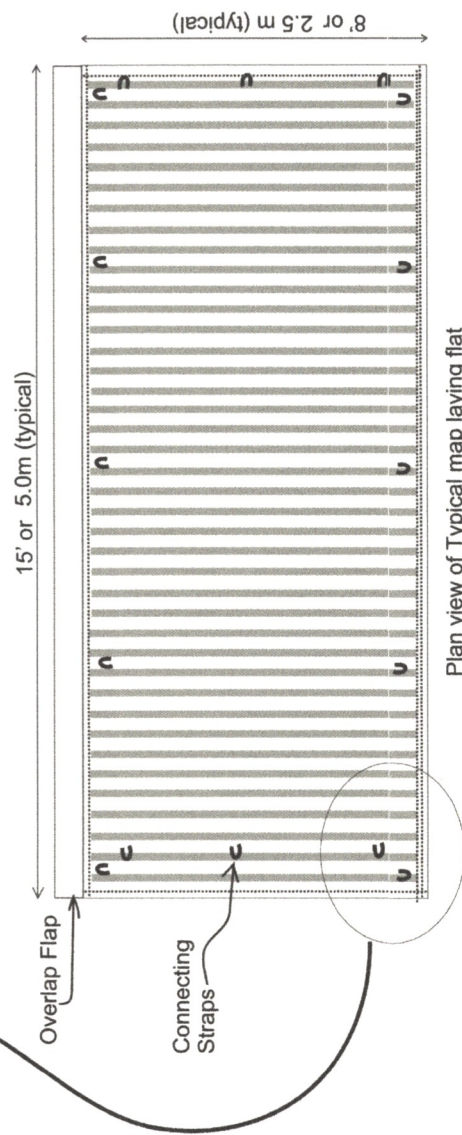
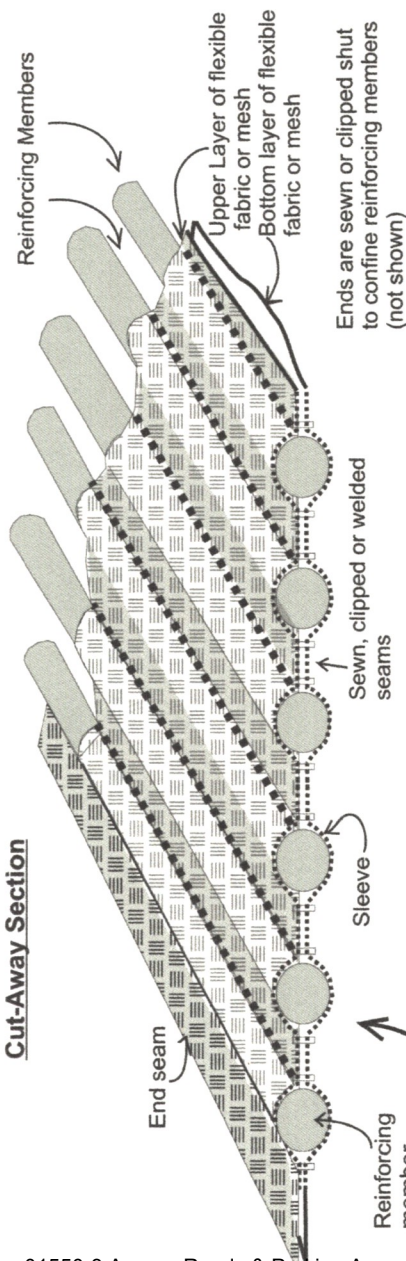
Each mat is made up of a double layer of high strength woven fabric that is stitched in such a way to encapsulate the reinforcing members that run perpendicular to the direction of traffic.

These reinforcing ribs are secured individually within each pocket. There are approx. 24-26 pockets that each holds 1 bamboo post of approx. 2" diameter.

This combination of reinforcing member and confining fabric result in a portable mat that can be rolled up for transport and ease of deployment.

AGES Mud Mats can be used in construction site access, agriculture, golf & parks, other soft or sensitive ground condition areas where vehicle access is required.

Cut-Away Section



Plan view of Typical map laying flat

PROPERTY	TEST PROCEDURE	VALUE
Grab Tensile Strength	ASTM D4632	802.6 lbs.
Apparent Breaking Elongation	ASTM D4632	25% / 18%
Trapezoid Tearing Strength	ASTM D4533	607 lbs.
Puncture Resistance	ASTM D4833	374.3 lbs.
Mullen Burst	ASTM D3786	456.88 psi
Apparent Opening Size	ASTM D4751	70 US Sieve / 0.212mm
Constant Head Permittivity	ASTM D4491	20.16 g/m/ft ²
Wide Width Tensile	ASTM D4595	685.7 lbs./in.
Material	Woven Geotextile	100% Polypropylene

APPROXIMATE DIMENSIONS PER MAT	
Size Deployed (approx.)	15' x 8' and 12' x 6'
Shipping Size (rolled)	1.5' dia. x 8.5' long and 2' dia. X 6.5'
Weight	75 - 90 lbs

5 - carabineer clips for each mat (Side connection and end connection straps)

DIVISION 1 – GENERAL REQUIREMENTS
Section 01561 – Construction Cleaning

1. GENERAL

- 1.1. WORK INCLUDES. Each Contractor shall provide cleaning and disposal of waste materials, debris and rubbish during construction.
- 1.2. RELATED REQUIREMENTS
 - A. Specified elsewhere
 - 1. All Specification Sections.

2. PRODUCTS

- 2.1. EQUIPMENT
 - A. Each Contractor shall provide covered containers for deposit of waste materials, debris and rubbish.
 - B. Use of Owner's refuse disposal containers shall not be allowed.

3. EXECUTION

- 3.1. CLEANING BY CONTRACTOR
 - A. Maintain areas under Contractor's control free of waste materials, debris and rubbish.
 - B. Remove debris and rubbish from plenums, attics, crawlspaces and other closed spaces prior to closing the space.
 - C. Periodically clean interior areas to provide suitable conditions for work.
 - 1. Daily
 - D. Broom clean interior areas prior to start of surface finishing. Continue cleaning on an as needed basis.
 - 1. Periodically
 - E. Control cleaning operations so that dust and other particulates will not adhere to wet or newly-coated surfaces.
- 3.2. DISPOSAL
 - A. Provide a container for on site debris.
 - 1. Remove promptly when full
 - 2. Each Contractor to provide his own container.
 - 3. Cooperation on shared containers is encouraged but subject to

- negotiation by the various Prime Contractors relative to cost.
4. Do not use another Contractor's container without prior arrangement.
 - a. Charges accumulated for this must be cleared prior to closeout.
 - b. Violations of this requirement must be promptly noted for consideration of charges. On documented charges presented after the container is removed cannot be honored.

3.3. FINAL CLEANING

- A. Employ experienced workmen or professional cleaners for final cleaning. Final cleaning of building surfaces shall be performed by the Contractor following 3.1.H pickup listed above.
- B. The Contractor shall remove grease, dust, dirt, stains, labels, fingerprints, protective coverings and other foreign materials from all sight-exposed interior and exterior finished surfaces; polish surfaces so designated to specified finish, as applicable to his own work.
- C. In preparation for substantial completion or occupancy, CONDUCT FINAL INSPECTION of sight-exposed surfaces, and of concealed spaces to ensure performance. See 01700.
- D. Contractor shall repair, patch, and touch up marred surfaces to specified finish to match adjacent surfaces, as applicable to his own work.
- E. Soft broom clean all exposed concrete surfaces. Other paved areas with soft or stiff broom as directed. Rake clean all other unpaved grounds. This final cleaning procedure shall be performed by the Contractor following 3.1.H pickup listed above.
- F. Sweep and mop clean all resilient, epoxy, acrylic and cementitious flooring. This final cleaning procedure shall be performed by the Contractor following 3.1.H pickup listed above.
- G. Maintain finally cleaned areas until project, or designated portion thereof, is accepted by the Owner. The Contractor shall clean up all areas where remedial work has initiated the need for cleaning.

END 01561

1. GENERAL

1.1. DESCRIPTION

A. Related requirements specified elsewhere

1. 00040 - Instructions for Bidders
2. 00300 - Proposal Form
3. 00301 – Award & Contract Form
4. 01041 - Project Coordination
5. 01340 - Submittals
6. 01370 - Schedule of Values

1.2. SPECIFIED PRODUCTS

- A. All bids shall be based on providing products exactly as specified or equal as prior approved.
- B. Products specified only by reference or performance standards, shall be met or exceeded by the standards of any manufacturer's material and subject to the Architect/Engineer's approval.
- C. Products specified by naming several products or manufacturers shall be selected from any product and manufacturer named.

1.3. SUBSTITUTIONS, BIDDER/CONTRACTOR OPTIONS

- A. PRIOR TO BID OPENING - The Architect/Engineer will consider requests to amend the bidding documents to add products not specified, provided such requests are received in adequate time prior to bid opening date.
- B. WITH BID - Substitutions will be considered with the bids.
1. Bid all Base Bid specified material; then bid Substitution Form - Document 00307.
- C. AFTER AWARD OF CONTRACT - No substitutions will be considered after Notice of Award, except under one or more of the following conditions:
1. Substitution is required for compliance with final interpretations of code requirements or insurance regulations.
 2. Unavailability of specified products, through no fault of the Contractor.
 3. Subsequent information discloses inability of specified product to perform properly or to fit in designated space.
 4. Manufacturer/fabricator refusal to certify or guarantee performance of specified product as required. This does not alter the requirement.
 5. When a substitution would be substantially to the Owner's best interest.

1.4. SUBSTITUTION REQUIREMENTS

- A. Submit one (1) copy of each request for substitution. Include in each request for substitution:
1. Complete data substantiating compliance of proposed substitution with Contract Documents.
 2. For products:
 - a. Product identification, including Manufacturer's name and address.
 - b. Manufacturer's literature.
 - 1) Product description.
 - 2) Performance and test data.
 - 3) Reference standards.
 - c. Samples, if applicable.
 - d. Name and address of similar projects on which product was used and date of installation.
 3. For construction methods substitution:
 - a. Detailed description of proposed methods.
 4. Itemized comparison of proposed substitution with product or method specified, including accurate and true cost data on proposed substitution in comparison with product or methods specified.
 5. Data relating to changes in construction schedule.
 6. Identify:
 - a. List other contracts affected, if applicable.
 - b. List changes or coordination required.
- B. In making requests for substitution, bidder/contractor represents:
1. He has personally investigated proposed product or method and determined that it is equal or superior in all respects to that specified.
 2. He will provide the same guarantee for substitutions as for product or method specified.
 3. He will coordinate installation of accepted substitutions into work, making all such changes as may be required for work to be complete in all respects.
 4. He will provide complete cost data including all related costs under his contract (and other Prime Contract's, as applicable) whose work may also be affected by the substitution in product or method.
 5. He will assume full responsibility for all additional costs and expenses to the Owner, Architect/Engineer (and other contractors employed on the same project, as applicable).

6. The Contractor agrees that it is the Contractor's sole responsibility to stand any costs, which may be attributable to an allowed substitution which may surface as construction proceeds toward finalization.

C. Substitution will not be considered if:

1. It is indicated or implied on shop drawings or product data submittals without formal request submitted in accordance with Paragraph 1.4 above.
2. Acceptance will require substantial revision of Contract Documents.

END 01630

DIVISION 1 - GENERAL REQUIREMENTS

Section 01700 - Project Closeout

1. GENERAL

1.1. WORK INCLUDES

- A. Project Closeout procedures cannot be initiated until the steps on the following checklist have been taken:

FINAL APPLICATION FOR PAYMENT CHECKLIST

- _____ 1. Letter to A/E that deficiency work is complete
- _____ 2. Final Lien Waiver from the Contractor (2 copies)
- _____ 3. Final Lien Waivers from Subcontractor/Suppliers (2 copies)
- _____ 4. Final Affidavit showing \$0.00 due to Subcontractors and \$0.00 due to Suppliers (2 copies)
- _____ 5. Bonding Company Final Payment Approval Letter (2 copies)
- _____ 6. Certification of all guarantees beyond standard 1-year (2 copies)
- _____ 7. Contractor's Final Pay Request (3 copies)
- _____ 8. Additional warranty certifications as may be requested (2 copies)
- _____ 9. Operating manuals and instructions, neatly bound (3 copies)
- _____ 10. Manufacturer's Product Warranty Certification
- _____ 11. Care and Maintenance Instructions
- _____ 12. All employee wage reports not previously submitted.

- B. All the above documents submitted must bear live signatures.
- C. Signatures on all documents submitted shall be by an official within the company's legal organization designated to represent the company in legal transactions.
- D. The Contractor's signature shall be the same signature as appears on the Owner/Contractor Agreement. See 00300 - Proposal & Agreement.

END 01700

DIVISION 1 - GENERAL REQUIREMENTS
Section 01740 - Guarantees, Warranties & Bonds

1. GENERAL

1.1. WORK INCLUDES

- A. Provide all guarantees, warranties and bonds, as specified.

1.2. RELATED WORK

- A. Specified elsewhere

- 1. All work.

- B. Submittals: The Contractor shall process, acquire and submit the Guarantees, Warranties and Bonds as specified below:

- 1. Bid Bond.
 - 2. Labor & Material Payment and Performance Bonds, following award.
 - 3. Guarantees: Submit on Contractor's letterhead a one-year material and labor guarantee for all work except for special warranties.
 - 4. Contractor shall submit a letter of certification on Contractor's letterhead that no products containing ACM or PCB's were used in the completed work.

1.3. WARRANTY

- A. The Contractor warranty that all work provided under the Contract will be in conformance with the Contract and free from defects in workmanship, materials and equipment for a period of one (1) year or such longer period as may be specified in the Contract documents. Warranty time periods shall commence with the date of Owner acceptance of the Certificate of Substantial Completion or the whole or any part of the project. The warranty time period for any incomplete or uncorrected work at the time of Substantial Completion shall commence with the date of Final Completion.

- B. The Contractor shall deliver all commercial warranties received from the manufacturer to the Architect/Engineer prior to Final Completion, but this shall not reduce the Contractor's obligations under this Article.

- C. Special Warranties

- 07530 – EPDM 90 mil roofing
Manufacturer - Roof Installation – Twenty (30) years
 - 07600 – Sheet Metal Flashing & Trim
Contractor - Two (2) years
 - 07900 – Sealants & Caulks
Manufacturer - Materials - Ten (10) years
Manufacturer or Contractor - Installation - Five (5) years

08700 – Door Hardware

Manufacturer – Extended Warranty for parts, unit replacement, rebuilding shop labor excluding field installation:

1. Latch / Lockset – five (5) years
2. Exit Devices – five (5) years
3. Closers – five (5) years

END 01740

1. GENERAL

1.1. REQUIREMENTS INCLUDE

A. Base Bid:

1. Remove existing door & frame, windows, wall surfaces, ceilings, rubber wall base and any other items as shown on the Drawings, or necessary to continue the work in Rooms 117, 117.1, and 120.
2. The exterior windows in Room 117 shall be carefully removed to be reused in Room 117 Addition.
3. The Contractor shall protect the Bard HVAC Unit in Room 117 which will remain in same room but will be modified for supply air and fresh air.

1.2. RELATED WORK

A. Specified elsewhere

1. 01010 - Project Summary

1.3. EXISTING CONDITIONS

- A. This project involves demolition of existing finishing materials. No structural demolition is required.
- B. The Owner will move existing movable furnishings away from work areas (outside classroom / office glazed walls).

2. PRODUCTS

2.1. MATERIALS

- A. All damaged material shall be repaired or replaced with new materials of the same quality as the existing materials and installation when they were new.

3. EXECUTION

3.1. PREPARATION

- A. Protect all floor, wall and ceiling finishes in work area.
 1. Corridor, Rooms 118 and 119.

3.2. PERFORMANCE OF THE WORK

- A. Immediately remove demolished and waste materials from work area and clean debris so it does not spread into adjacent areas.

- B. Remove or protect materials to be reinstalled or retained in manner to prevent damage.
- C. Do not burn or bury materials on site.

END 02072

1 GENERAL

1.1. DESCRIPTION

- A. Provide all labor and materials for all excavation, grading, fill and backfill work of every kind needed to complete the general construction work in accordance with the Contract Documents.
- B. Each Contractor shall contact J.U.L.I.E. (1-800-892-0123) and verify with non-member utilities all underground services, shall mark same and maintain marking during construction.
 - 1. Remove two (2) trees (9" dia. trunk). Remove both root balls.
 - 2. Remove two (2) sitting benches with four (4) pipe anchors.

1.2. QUALITY CONTROL

- A. Owner may schedule additional independent testing at his option.

1.3. RELATED WORK

- A. Specified elsewhere:
 - 1. 01040 Field Engineering
 - 2. 01051 Grades, Lines & Levels

2 PRODUCTS

2.1. MATERIALS

- A. Earth fill or backfill (use only to fill in ruts caused by construction traffic)
 - 1. Earth fill or backfill shall be natural earth, native to the general area of construction, free of debris, large rocks, unnatural materials of any type, and any other material that may impair long-term stability or performance of the earth.
- B. Top soil
 - 1. Topsoil shall be natural earth, native to the general area of construction, which is suitable to support vegetation without excessive use of fertilizers or other soil treatment.
 - 2. This material shall be clean friable earth, free of sand, gravel, clay, debris or any materials that might impair the workability of the soil and/or its ability to sustain vegetation.

C. Gravel and granular fill

1. Gravel fill and backfill may be pit run or crushed pit run gravel in compliance with Grade CA 4 through CA 11, Class C or D or equal, ten percent (10%) clay maximum.
 - a. No aggregate larger than one and a half inches (1 ½") will be accepted.
 - b. Several inches up to 20" of CAC white crushed rock backfill will be required under the new addition slab.
 - c. Compaction shall be to 85% Proctor.
2. Sand shall be natural bank sand in compliance with FA 1 through FA 7 or CA 16 through CA 19, Class C or equal, ten percent (10%) clay maximum.

3 EXECUTION

3.1. SITE PREPARATION

- A. Remove all the surface grass and roots to a level of 5" below surface.
 1. Remove two (2) trees and root balls. Tree root under proposed foundation to be dug out and replaced with 85% Proctor compacted white rock.
- B. Remove concrete and other site improvements from damage.
- C. Establish working grades and lay out building and site requirements such that earth stockpiles will not interfere with construction processes or proper site drainage.
- D. Strip the vegetation and six inches (6") of topsoil from all areas subject to final grade changes. This earth shall be stockpiled for use as topsoil in the final grading operations.
- E. Complete base grading necessary in the work, stacking clay separately from the topsoil. Fill and compacted fill work necessary to achieve base grading may be completed at a time during the construction work coordinate with all trades to allow timely and efficient progress.

3.2. FILL AND BACKFILL

- A. Surplus earth stripped from the south area may be used as fill in the northeast area.
 1. Do not use stripped 6-inch layer of vegetation for fill under the slab.

- B. Compact dry earth fill material before adding final four inches (4") of granular fill.
 - 1. Compact earth fill to 85% Proctor.
- C. Top soil vegetation fill may be employed in lawn and yard areas.

3.3. ENGINEERED FILL

- A. Throughout the structural slab area of the building, compacted granular fill is required.
- B. Fill shall be per these specifications and shall be compacted to 85% Standard Proctor before slab construction.
 - 1. Owner may hire engineer to verify compaction. Ramsey Geotechnical Engineering 309-821-0430.

3.4. SURPLUS EARTH AND SITE DEBRIS

- A. Surplus earth from excavation and site preparation shall be:
 - 1. Clean earth, use for grading, stockpile remainder.
 - 2. Earth with rubble or construction debris, remove from site.
 - 3. Separate topsoil and clay or fill earth.

3.5. GRADING

- A. The Contractor shall execute the finish grade, the top six inches (6") of which shall consist of topsoil. The Contractor shall grade to uniform level and slope away from building for drainage.
- B. All grading shall be as indicated on the Drawings. Existing drainage patterns to adjacent property shall be maintained. No areas shall pond or retain water unless specifically identified on the Drawings.
- C. Repair all areas which settle and erode within the first year of Owner occupancy.

3.6. SEED - BY CONTRACTOR

- A. Apply seed, fertilizer and straw as indicated in Section 02100. Be careful to avoid getting fertilizer on concrete slab.
- B. Apply seed, fertilizer and straw **either by October 1, 2020 or after April 15, 2021.**

3.7. WARRANTY

- A. During the one (1) year warranty period, re-grade any areas subject to settlement or erosion and reseed or sod as appropriate. Reseed or sod any areas of lawn which do not survive the first growing season excluding the following:
 - 1. Areas subject to excessive traffic.

END 02200

1. GENERAL

1.1. DESCRIPTION

- A. General Contractor shall furnish all of the labor and materials necessary to complete all concrete work of every description called for in the Documents, including forming, finishing, placement, preparatory work, reinforcing, stripping, rubbing, curing and sealing.
 - 1. Exterior concrete slabs will only be required where construction equipment or demolition damages existing slabs.
- B. Construction joints, score joints and slab panels shall be selected to optimize concrete strength and performance and minimize shrinkage, cracking or other undesirable performance characteristics.

1.2. QUALITY ASSURANCE

- A. All materials and mixes shall comply with applicable ASTM Specifications. All requirements of the American Concrete Institute Building Code Requirements for Reinforced Concrete (ACI 318-71); as applicable to the forming, placement and handling of concrete materials shall be followed.
- B. Admixtures shall be employed in accordance with Manufacturer recommendations. The compatibility of admixtures to achieve proper results shall be verified by the Ready-Mix Supplier. NO INCOMPATIBLE ADMIXTURES SHALL BE EMPLOYED. The Architect/Engineer shall approve any alternative mix design proposed.

C. TOLERANCES

- 1. Footings: True to top grade, 1/4" high to 1" low; true to width - 0" and + 4" maximum; true to bottom grade 0" high, 4" low.
- 2. Slabs: True to grade and plane, maximum variance 1/8" in 10', 1/4" overall; slope uniformly to drains over areas identified on the Drawings; no ponding of water shall occur at any location on slabs, unless so specified.
- 3. All Other Work: Not exposed to view, 1/2"; exposed to view work 1/16" in 2' and 1/4" overall.
- 4. Steel Placement: All work 3/8" plus or minus from specified position.
 - a. Never closer than 3" to unformed earth exposure.
 - b. Never closer than 2" to formed face earth exposure.

1.3. SUBMITTALS

- A. Identify the Concrete Supplier.
- B. Submit a description of the mix to be employed, identifying the quantities and types of all materials and admixture to be employed in the mix.

- C. Submit reinforcing steel shop drawings for all prefabricated steel work.

1.4. TESTING

- A. The Owner shall be responsible for securing and paying for all testing as requested by the inspector at the job. Tests may be requested on the average of every fifty (50) cubic yards of work and on each day of pouring, whichever is the greater frequency.
 - 1. Tests may include cylinder casts, slump test and air meter.

2. PRODUCTS

2.1. MATERIALS

- A. Cement - to comply with ASTM C-150, Type I Portland Cement.
- B. READY MIX - to comply with ASTM C-94.
- C. AGGREGATES - to comply with ASTM C-33, maximum size aggregate to pass 1-1/2" ring for footings, 1" ring for other work.
- D. WATER REDUCING ADMIXTURE - without chloride ions to comply with ASTM C-494, Type A. Use Type D retarding at temperatures exceeding 90 degrees F.
- E. AIR ENTRAINMENT ADMIXTURE - to comply with ASTM C-260, "Air Mix", MB-VR, Darex".
- F. ANTI-SPALLING COMPOUND - to be combination product, minimum 50% linseed oil, meeting ASTM D-260 and maximum 50% mineral spirits, meeting ASTM D 235.
- G. WATER - shall be clean, potable water, free of dissolved salts or detrimental substances at a minimum temperature 50 degrees F.
- H. BONDING ADMIXTURE - for rubbing and repairs shall be "Daraweld-C", "Elmers", or "Flex-Con".
- I. REINFORCING STEEL - to comply with ASTM A615, Grade 60 deformed bars.
 - 1. Epoxy coated reinforcing where noted
 - a. #4 bar 16" vertical pin bars at footing to foundation wall
- J. WELDED WIRE FABRIC - to comply with ASTM A185, Grade 60 minimum.
- K. EXPANSION JOINT MATERIAL - minimum ASTM A185, Grade 60.
 - 1. Two (2) part/top 1/2" removable to allow S-4 sealant installation.

- L. JOINT FILLERS - asphalt impregnated, 1/4" interior, 1/2" for exterior and as noted on Drawings and in Specifications.
 - 1. See sealant specification for joint sealants over fillers.
- M. VAPOR BARRIER - shall be .010" polyethylene film Visqueen or equal.
- N. CURING-SEALING COMPOUND - to comply with ASTM C-309 and to be compatible with finish treatments, adhesive and floor coverings.
- O. ANTIFREEZE ADMIXTURES WILL NOT BE ALLOWED.
- P. CONCRETE - shall be designed to conform to the following in-place minimum standards:

Seven (7) day strength	2500 psi.
Twenty-eight (28) day strength, footings	3500 psi.
Twenty-eight (28) day strength, all other work.....	4000 psi
Cement content foundations - minimum per cu. yd. .	5-1/2
bags	
Cement content per cubic yard, slabs	6-1/2
bags	
Air content by volume	5% to 8%

Concrete shall contain water reducing admixture and air entrainment admixture, as recommended.

Exterior walls and pavement to be IDOT Type X and shall include 6% - 8% air entrainment chemical.

Q. POLYPROPYLENE FIBER REINFORCING

- 1. Material shall be incorporated in the mix at 1.5 lbs. (or as recommended by manufacturer) per cu. yd. concrete, slabs only.
- 2. Manufactured by Fibermesh, Inc., or equal, 4019 Industry Dr., Chattanooga, TN 37416.

3. EXECUTION

3.1. ENVIRONMENT AND JOB CONDITIONS

- 1. Concrete shall not be poured at an air temperature below 40 degrees F. or above 100 degrees F.
- 2. The concrete, as specified, shall not be poured at temperatures below 40 degrees F. and shall be provided a means of maintaining not less than 70 degrees F. for five (5) days or 50 degrees F. for seven (7) days.
- 3. NO USE OF CHLORIDES OR ANTIFREEZE WILL BE ALLOWED.
- 4. When WRITTEN APPROVAL is issued, pouring of concrete at below 40 degrees F. may be allowed.
- 5. When so approved, and when outside temperatures are between 25 degrees F. and 40 degrees F., Type III cement shall be used or an additional one (1) sack per cubic yard of cement shall be used

and placed materials shall be maintained at 60 degrees F. for three (3) days or 45 degrees F. for four (4) days and concrete shall have a temperature of 70 degrees F. to 80 degrees F. at the time of placement. Additional requirements may apply, depending upon the applicable circumstances.

- 6. NO CONCRETE SHALL BE PLACED OVER A FROSTED BASE, ON FROSTED FORMS, OR WITH FROSTED REINFORCING, ALL SURFACES SHALL BE ABOVE FREEZING IN TEMPERATURE.
- 7. All concrete shall be protected from direct sun, direct wind and adverse weather for two (2) days after placement, regardless of air temperature.

3.2. FORMING

- A. Construct forms accurately to the shapes; and dimensions set forth and adequately brace, secure and tie forms to maintain line and level during pouring operation. Form bracing shall be of a type to allow adjustment thereof.
- B. Any failure of the forms to properly maintain position or properly perform in any manner shall be the responsibility of the Contractor.
- C. Forms shall be designed and installed in a manner which will not be injurious to the concrete when removed. Forms shall remain in place until the concrete is hardened, two (2) days minimum.
- D. Bank forming is allowed for footings only.

3.3. REINFORCING

- A. Size and locate reinforcement as called for in the Documents and accurately position and secure reinforcement to prevent shifting during pouring. Reinforcing steel shall be continuous around corners and through points of thickness variation.
- B. All reinforcing steel shall be kept covered and protected from deterioration at all times. Reinforcing steel shall be free of rust, scales, pints, form oil or bond reducing surface condition prior to pouring.
- C. Bars larger than #4 shall be shop fabricated to shape. Field heating for bending is not permitted.
- D. All splices shall be 36-bar diameters minimum. Welded wire fabric shall be lapped one (1) wire spacing (two (2) parallel cross wires).
- E. All steel shall be positioned to provide concrete clear cover as noted for the following conditions:

Earth, banked formed 3"
Earth, formed 2"
Exterior weathering 1-1/2"
Interior 1"

Interior, fire rated 1-1/2"
Slab steel 3/4"

- F. Form oils employed shall be non-staining and shall not leave a residue that will be detrimental to sealants, mastics or finished which may be applied to the surface.
- G. All slabs four inches (4"+) or greater shall be reinforced with 6" X 6"/#10 & #10 WWF.
 - 1. Bus lane shall be 7" thick and contain WWF.
- H. All elevated slabs on steel deck to be reinforced 6 X 6 10/10 mesh.
- I. All other slabs to be polypropylene fiber reinforced 1.5 lb. / cu. yd.

3.4. FOOTINGS

- A. All of the footing trenches shall be clean cut and full in measurement. Fill or backfill under footings shall not be permitted on the job. All footings shall rest on solid undisturbed earth unless specifically set forth otherwise.
- B. No loose materials (dirt knocked in during excavation or forming), debris of any type, muck or water shall be present within the footing trench at the time of concrete pour.
- C. All concrete shall be thoroughly mixed to achieve a uniform consistency of cement, fine aggregate and coarse aggregate without lumps or segregation at the point of placement. The water content shall be controlled by the Supplier to assure a workable mix at the point of placement.

3.5. PLACEMENT AND HANDLING

- A. Concrete shall be deposited in place in a manner to minimize segregation of aggregates. It shall be accurately deposited in the forms in a manner which will not allow significant horizontal flow of the concrete.
- B. Forms shall be uniformly filled the full length of the pour in approximately 3' lifts maximum.
- C. All concrete, except slabs, shall be compacted by means of a vibrator (slabs optional). The vibrator shall not be used to convey the concrete. Where a vibrator is employed in a vertical pour, it shall be used in a manner which does not disturb previous lifts and cause injury thereto.
- D. All of the interior slabs on grade shall be poured on 6 mil polyethylene vapor barrier. Lap joints and tape, or roll joints and staple.
- E. Concrete shall be placed in a continuous operation until the pour is completed. Construction joints not called for on the Drawings shall be approved by the Architect.

3.6. CONSTRUCTION JOINTS, EXPANSION, CONTRACTION, BOND BREAKERS

- A. Provide expansion joints, bond breakers and thermal breaks as detailed on the drawings.
- B. Exterior slabs shall have 1/2" asphalt impregnated expansion joints along all building walls, curbs and at approximately twenty-foot (20') center to center.
 - 1. Material shall be two (2) piece with top removable to provide for sealant S-4.
 - a. See Section 07600.
 - b. See Drawings for special locations.
- C. Exterior sidewalks shall have uniformly spaced score joints not to exceed 5'-0" o.c.
- D. Where practical, slab pours shall be made in approximately square sections. In no case, should the proportion of length to width on a slab pour exceed 3 to 1 without a joint.
 - 1. "Green" cut scores will be allowed on large pours.
 - 2. Joints and cut scores shall be planned to be unobtrusive, extend off inside corners.
 - 3. Fill joints after 90 days prior to floor installation. Select filler appropriate to floor cover.
- E. All construction joints in walls subject to weathering or earth shall have 1/2" X 1" reglet, provided with Styrofoam rope and be sealed with appropriate sealant.
- F. Joints shall occur where detailed or where approved by the Architect. Do not provide construction joints at locations other than those detailed, unless approved. Additional reinforcing may be required at non-detailed construction joints and shall be installed as directed at no additional charge to the Owner.

3.7. SLABS

- A. True to grade, full thickness.
 - 1. Checked any time prior to completion: slabs shall be within assigned level, 1/8" in 4', 1/4" in 10', 3/8" max. across entire floor.
 - 2. Ponding of water shall be limited to small areas, in compliance with above and not over 1/4" ponded depth.
 - 3. Floor drains shall always be below slab perimeter unless calls out otherwise.
 - a. Floor drains in Rooms 50A, 50B, 50C, 53 and 58 shall be level or 1/4" below floor surface.
 - b. Sump around drain, approximately 1/8" per foot in 4' X 4' area.
 - c. Slope toward drains full rooms or marked areas 1/16" per

- d.
 - foot.
 - Sump at open site drains 1/4" to 3/8" per foot 2' X 2' area.
- 4. Floors sloped to drains should not pond water.
 - a. Grind if necessary to achieve drainage.
- 5. Level areas beyond drains should not be lower than rim surrounding the sloped floor area. In some cases shaping the sump creates an artificial rim effect; this shall be avoided.

3.8. STAIRS

- A. Exterior stairs, trowel in aluminum oxide shake on non-slip aggregate.
- B. Interior stairs, cast in 4" abrasive non-slip stair nose, 4" X 1/4" X full width single piece.

3.9. FINISHING

- A. Concrete footings and foundation footings shall be given float finish unless specifically set forth otherwise on the Drawings or herein these Specifications.
- B. All slabs, stairs and horizontal surfaces shall be troweled to a very dense, hard, smooth surface.
- C. Walls subject to backfill shall have voids filled, ties removed, lattice removed and be suitable to coating with damproofing.
- D. The walls above grade, not subject to view, utility and mechanical areas, shall have forms removed, voids filled, and ties removed.
 - 1. Polish walls above grade with limestone block using 50-50 cement and sand plus 2.1.H. bonding admixture.
- E. Walls in basement areas subject to view shall be filled, shall have ties removed and shall receive a medium rubbed surface of 50/50 sand to cement plus 2.1.H. bonding admixture.
- F. Trowel in abrasive, non-slip grit on stair treads and landing surfaces.
- G. Sidewalks shall be steel troweled and light broom finished.
- H. NO MISTING OR ADDITION OF WATER TO THE SURFACE FOR FINISHING OPERATIONS WILL BE PERMITTED. All concrete shall be poured at a workable slump and at a rate that will allow proper finishing with the manpower provided.

3.10. CURING

- A. All work shall be properly cured.
- B. All slabs shall receive a coat of Curing-Sealing Compound immediately

following finishing. Sealer applied as curing does not count as seal coat to be applied at conclusion of job.

- C. Keep all freshly poured concrete protected for a period of seven (7) days with forms in place or mist frequently to prevent drying out. Maintain at 50 degrees F. during this period.
- D. Avoid loading or causing impact loading on new concrete for seven (7) days.
- E. Apply anti-spalling compound on all new exterior concrete slabs in October of the year of Owner occupancy. Apply no sooner than twenty-one (21) days following placement on all exterior slabs placed later than October when Owner occupancy is scheduled during that winter or spring season.

3.11. SEALING FLOORS

- A. All floors shall receive the following cure and seal treatment.
 - 1. All concrete
 - a. Cure and seal at time of pour ASTM C309
 - 2. Quarry tile floors
 - a. No additional cure or seal coats.
 - 3. Gym floor
 - a. One (1) liberal coat after clean up prior to application of the wood floor and at least five (5) days after pouring ASTM C309 acrylic tape.
 - 4. Tile and carpeted areas
 - a. One (1) very thin coat after clean up and prior to application of floor finishes.
 - 5. Sealed floors
 - a. Thoroughly clean up of spots, stains and repair of abrasions
 - b. Muriatic acid wash
 - c. Two (2) coats (to uniform sheen) or of a clear urethane type floor sealer suitable for wet locations
 - d. Strictly follow the Manufacturer's recommendations. If recommendations include an epoxy type prime coat, then that will eliminate one (1) coat of urethane finish as schedule above.
 - 6. Anti-spalling protection.
 - a. Apply anti-spalling compound on all new exterior concrete slabs in **October the year of Owner occupancy**. Apply no

sooner than twenty-one (21) days following placement on all exterior slabs placed later than October when Owner occupancy is scheduled during that winter or spring season.

1. W.R. Meadows Lin-Seal Anti-Spalling compound.
2. Or, approved equal.

3.12. CEMENT GROUT AT COLUMN AND BEAM BEARING

A. Material

1. Non-shrink cement and washed sand/one (1) to two (2) part mix.
 - a. Compacted in place.
 - b. Reinforced where indicated on the Drawings.

END 03300

1. GENERAL

1.1. DESCRIPTION

- A. Provide structural steel as shown on the Drawings and specified herein, including but not necessarily limited to:
 - 1. This includes one beam and two columns..

1.2. RELATED WORK

- A. Specified elsewhere:
 - 1. DIVISION 0 - BIDDING & CONTRACT REQUIREMENTS
 - 2. DIVISION 1 - GENERAL REQUIREMENTS
 - 3. 01055 - Anchorage & Fastenings

1.3. QUALITY ASSURANCE

- A. Manual of AISC, Ninth Edition 1989
 - 1. ASIC "Code of Standard Practice for Steel Buildings and Bridges"
 - 2. AISC "Specifications for the Design, Fabrication and Erection of Structural Steel of Buildings" including Supplement No. 3
- B. ASTM A6-72 "General Requirements for Delivery of Rolled Steel Plates, Shapes and Bars for Structural Use"
- C. AWS - "Standard Code of Arc and Gas Welding in Building Construction"
- D. "Specifications for Assembly of Structural Joints Using High Strength Steel Bolts" as approved by the Research Council on Riveted and Bolted Structural Joints of the Engineering Foundation
- E. Prime coat, whether factory or field applied, shall have nicks and skins touched up, wherein the primer coat is the final coat or the primer coat is base for the pursuing coatings.
 - 1. Steel members (lintels) exposed to exterior shall be hot dipped galvanized after fabrication.

1.4. PROOF TESTING SERVICES

- A. Testing shall be applicable only whereupon the Architect/Engineer has rejected the Contractor's work and so notified the Contractor thereof.
- B. The Contractor may employ, at his own expense, a Testing Laboratory (or laboratories) selected by the Architect/Engineer to perform all tests and

submit reports of all tests specified.

- C. The Testing Laboratory shall be responsible for conducting and interpreting the tests and shall state in each report whether or not the test results conform to the Contract Documents.
- D. The Owner may employ an independent inspector.

1.5. SUBMITTALS

- A. Submit shop drawings with complete fabrication and erection details and schedules in accord with 01340.
 - 1. Shop drawings shall have been thoroughly checked by the Fabricator before being submitted to the Architect/Engineer for review. Review is a precautionary measure only and shall not relieve the Fabricator of full responsibility of correctness of all materials, sizes, dimensions and details.
 - 2. In case structural sections or details indicated on Drawings cannot be readily obtained, substitution of sections or details of equal strength which conform to the requirements of design may be made only if approved.
 - 3. Fabrication shall not proceed until shop drawings have been reviewed. Fabrication, assembly and erection shall conform to reviewed and approved shop drawings.

2. PRODUCTS

2.1. MATERIALS

- A. Structural Steel: ASTM A 36-70a.
- B. Welding Electrodes: AWS Specifications, Designation A233 (E-60 or E-70)
- C. High Strength Bolts: ASTM A325-71a – beam to beam / beam to column
 - 1. Always provide washers.
 - 2. Beveled washers where needed.
- D. Standard Bolts: ASTM A 307-76b – anchor bolts
- E. Rivet Steel: ASTM A 502-76
- F. Galvanizing: ASTM A 123 two (2) oz. per square foot for all steel embedded in exterior walls supporting the exterior wythe (brick).
- G. Priming: All steel shall be given one (1) shop coat (two coats for members, embedded in exterior walls) of Red Oxide Alkyd primer, lead free.

2.2. FABRICATION

- A. Material shall be properly marked and match-marked where field assembly so requires. The sequence of shipments shall be such as to expedite and minimize the field handling of material.
- B. Beams and girders shall be cambered as required for loading conditions.
- C. Built up sections assembly by welding shall be free of warpage and all axes shall have true alignment.
- D. Welds not specified shall be continuous fillet welds, using not less than the minimum fillet as specified by AWS.
 - 1. 1/16" less than thinnest material up to 1/4" weld, then as specified.
- E. Take field measurements as required to verify and supplement dimensions shown on the Drawings.
- F. Provide anchor bolts and embedded plates for anchoring structural steel to the supporting concrete and masonry. Furnish, as soon as possible, detailed plans showing exact locations of all bolts to be built into concrete or masonry. Furnish templates as required.
- G. Connections:
 - 1. Field connections shall be bolted, unless otherwise noted on the Drawings. Field welded connections shall be used only where they are specifically shown on the Drawings or with A/E's approval.
 - 2. Shop connections may be riveted, welded or bolted with high strength bolts at Contractor's option. All shear connections shall be welded or bolted with high strength bolts.
 - 3. If high strength bolts are used, they shall be installed in strict compliance with AISC Specifications and ASTM A325 requirements for installation of A325 bolts.
 - 4. All structural critical field and shop welds shall be by certified welder only. The Certificates should be available for inspection by the Architect/Engineer.
 - 5. All connections not specifically shown shall fully develop critical load for member being connected.
 - 6. Bolts, where used, shall have cut washers under nuts and no threads allowed to bear on parts being connected.
 - 7. Bearing ends of columns shall be milled or sawed for true bearing on base plates. Rough bearing ends shall not be used.
- H. At brick plates and supporting flanges, provide No. 9 wire full length three inches (3") inside exposed edge – one-inch (1") tack weld at sixteen inches (16") spacing.
 - 1. See Drawings for specific exceptions and designations.
- I. All columns adjacent to unit masonry shall have adjustable anchors at

twenty-four inches (24") o.c.

1. See Drawings for specific exceptions and designations.

2.3. CLEANING - SHOP PAINTING

- A. All steel furnished shall be cleaned of rust, mill scale, dirt and foreign matter before applications to shop coat of paint.
- B. Paint structural steel with one (1) coat of red oxide alkyd paint. Apply additional coats as needed on surfaces skinned, nicked, burnt or peeled after assembly and erection. Horizontal steel embedded in exterior masonry wall such lintels and beams shall receive one (1) coat of epoxy primer.
- C. All steel under this heading, unless specifically noted otherwise shall be given one (1) smooth, shop coat of 2 mil dry film thickness.
- D. Hand clean and solvent-clean all unpainted and damaged shop coat areas and touch up with a compatible shop coat primer.

- 2.4. GALVANIZING - all lintels embedded in and supporting exterior face brick shall be hot dip galvanized. Only the portion effecting brick work is required to be galvanized.

3. EXECUTION

3.1. INSTALLATION

- A. Material stored at the job site shall not exceed design loads on structures so the members will not be distorted or otherwise damaged and all materials shall be protected against corrosion or deterioration.
- B. Confer with other contractors and procure necessary templates and other information required to establish number, size and location of holes or other details necessary for attachment of blocking, windows, purlins.
- C. Burning shall not be used to form holes, enlarging of holes or matching of unfair holes. No member shall be altered in field unless approved IN WRITING by the Architect/Engineer.
- D. Throughout all phases of erection and construction temporary bracing shall be introduced wherever necessary to take care of all loads to which structure may be subjected including equipment and operation of same. Wherever piles of material, erection equipment, or other loads are carried during erection, proper provisions shall be made to safely support these abnormal loads.
- E. All members shall be cut neat, square and should be erected true and flush without twists and open joints. Light drifting to draw holds together may be used. Reference should be made to codes and specifications listed in this Section under Quality Assurance which governs all phases of fabrication,

details, erection and workmanship. Responsibility for all errors of fabrication and for proper fitting of various members shall be assumed by the Contractor.

- F. Column bases shall be set on steel shims. Grouting of column bases shall be with a non-shrink, non-metallic grout.
- G. All steel exposed to view shall be free of surface imperfections and ground off to true surfaces. Exposed welds shall be ground smooth.
- H. Provide steel lintels at all locations of mechanical work passage through walls.
 - 1. Locate in conjunction with mechanical installers.

3.2. CONSTRUCTION BRACING

- A. A/E design and detailing is for finished product only. Erection rigging, bracing and handling practices are the Contractor's responsibility.
 - 1. A/E neither directs nor schedules installation.
 - 2. A/E inspects only for installation conditions related to finished product.
- B. Provide all necessary additional bracing, clips, anchors and reinforcement as needed.
 - 1. Remove after erection when exposed to view or when design load shifts will result.

3.3. ANCHORAGE

- A. All structural steel shall be mechanically anchored.
 - 1. As detailed.
 - 2. Similar to detailed work for items not specifically detailed.
- B. Masonry lintels may be an exception.
 - 1. Loose set except where noted.
 - 2. Weld back to back lintel angles 2" weld at 12" spacing top to bottom.
- C. Fully embed steel in masonry unless detailed otherwise directed by A/E in field.

3.4. PROOF INSPECTIONS

- A. Welded connections shall be inspected by the Architect/Engineer in accordance with the following:
 - 1. All welds will be visually inspected for minimum size, length and for defects.

B. Bolted connections will be inspected in accordance with the following:

1. High strength bolted connections shall be checked and approved by the "inspecting wrench" method outlined in the "Specifications for Assembly of Structural Joints Using High Strength Steel Bolts" hereinbefore specified.
2. Proof test as requested by the Architect.

END 05120

1. GENERAL

1.1. BASE BID WORK INCLUDES

- A. Roof deck

2. PRODUCTS

2.1. MATERIALS - ROOF

- A. Metal Decking - Roof

- 1. 24 gauge galvanized decking, Type B
 - 2. Mechanical anchors as needed for I-90 uplift to supporting structural system. 12-6-12 attachment pattern, 6-6-6 along edges.

- B. Reinforcing Flat Metal

- 1. 16 gauge galvanized

3. EXECUTION

3.1. INSTALLATION

- A. Areas subject to reinforcement are to be laid out in conference on site with the A/E representative.

- B. Provide anchorage to structure.

- 1. Anchorage is directly to main structurals. 12-6-12 field, 6-6-6 ends.
 - 2. Anchorage to be mechanical, power driven deck anchors (such as Hilti ENPH2 Series) or puddle welds with washers less than 20-gauge deck.
 - 3. Pull over / pull off rating shall be 400 lbs. per anchor.

- C. Provide flat stock strip metal sixteen inches (16") wide.

- 1. Where deck changes direction.
 - 2. Where deck requires cutting top of deck to fit or bend to slope change.
 - 3. Any odd closures that become necessary such as over cut openings, wall closures, etc.
 - 4. Fasten at each high rib of intersecting deck or 6" o. c. at parallel ribs.

- D. Seal below flutes to walls as needed for sound or infiltration protection.

- 1. Mineral wool stuffed for sound.
 - 2. Fire seal at firewalls (determined by rated openings into space).
 - 3. At all walls extended to deck above.

END 05300

1. GENERAL

1.1. WORK INCLUDES

A. Base Bid:

1. General Contractor shall provide:

- a. Loadbearing metal stud wall framing, with anchorage and bracing.
- b. Loadbearing metal roof framing, with anchorage and bridging.
- c. Formed steel shaped sections, 14-gauge thickness and lighter for load bearing and non-load-bearing interior framing with floor and ceiling track, bracing, furring, bridging, for assembly generally using mechanical fastenings.
- d. Metal framing for the wall overhangs.
- e. As detailed.

1.1. RELATED WORK

A. Specified elsewhere:

1. 07 24 00 - EIFS System
2. 09 21 16 - Gypsum Wallboard

1.2. SYSTEM DESCRIPTION

A. Performance Requirements

1. Specification for the Design of Cold-Formed Steel Structural Members, 1968, with Addendum No. 1 and 2, American Iron and Steel Institute.
2. Cold-Formed Steel Design Manual, 1977 Edition, American Iron and Steel Institute.

1.3. QUALITY ASSURANCE

A. Qualifications of Erector:

1. Minimum of three (3) years successful experience on comparable cold-formed metal framing projects.
2. Welders qualified in accordance with AWS D.1.

B. Regulatory Requirements: Erect cold-formed metal framing to meet requirements of IBC 2016.

1.4. REFERENCES

A. ASTM A446, Grade D, minimum yield 50,000 psi - Structural Steel.

- B. AWS D1.1 - Structural Welding Code.
- C. SDI Standard #1 - Steel Deck Institute.
- D. ASTM A1003 G-40 – Non Structural products protective coating.
- E. ASTM A1103 G-60 – Structural products protective coating.

1.5. DELIVERY, STORAGE & HANDLING

- A. Deliver products to site in accord with Standard Documents for Construction.
- B. Store products on site in accord with Standard Documents for Construction.

2. PRODUCTS

2.1. ACCEPTABLE MANUFACTURERS

- A. Clark Cincinnati-Inc., Cincinnati, OH 45246 513/874-9631, 800/543-7140
- B. Dale Industries Inc., Dearborn, MI 48128 313/846-9400, 800/882-7883
- C. Unimast Inc., Franklin Park, IL 60131 708/451-1410, 800/323-0746
- D. Dietrich Industries Inc., Pittsburgh, PA 15219 412/281-2805, 800/873-2443
- E. Or equal
- F. Steel Stud Manufacturer's Association Members without prior approval.

2.2. MATERIALS

- A. Steel Framing
 - 1. Studs, Formed galvanized sheet steel, typical:
 - a. See Details or Plan Notes for appropriate selection.
 - b. 250S162-33 (2½" X 1-5/8" X 20-gauge
 - c. 362S162-33 (3½" X 1-5/8" X 20-gauge
 - d. 400S162-33 (4" X 1-5/8" X 20-gauge
 - e. Other sizes and gauges may be detailed but never less than 33 (20-gauge).
 - f. Clips and accessories as associated.
 - g. Lobby Rm 120 walls
 - 1) Studs: STX 3625125-33 3-5/8" @ 16" O.C.
 - 2) Track head and sill (Not above glazing) TRXA 362T100-33
 - 2. Studs, Interior Wall: typical 362S162-33, depth to provide total wall thickness shown in conjunction with finish surfaces or cladding indicated.
 - a. Other sizes may be noted on the Plans and Details.

3. Track: Formed galvanized steel; channel shaped; same width as studs, for tight fit; 20-gauge solid web.

- a. Some Details note deep track such as the window head replacement at the exterior window replacement work.

4. Furring (hat) channel – 24-gauge X size as appropriate to allow space for electrical boxes at furred walls.

ii. Accessories

1. Bracing, Furring, Bridging: Formed galvanized sheet steel; channel and strip shaped as indicated or as appropriate to conditions.
2. Plates, Gussets, Clips: Galvanized formed steel, thickness determined for conditions encountered as detailed, use manufacturer's standard shapes when available.

C. Fastenings

1. Self-drilling, self-tapping screws, bolts, nuts and washers: hot-dipped galvanized: ASTM A90-69.
2. Anchorage Devices: Power driven or powder actuated, drilled expansion bolts; screws with sleeves or tapcons.
3. Welding: AWS D1.1.

D. Finishes

1. Galvanizing: ASTM A90-69, 1.25 oz./sq. ft.
2. Primer: Zinc chromate touch-up for galvanized surfaces.

2.3. FABRICATION

- A. Form members to manufacturer's standard shapes meeting design criteria.
- B. Cut right angle connections of framing components to fit squarely against abutting members. There shall be no gaps in structural walls.
- C. Connect members together by self-drilling #8 pan head screws--four (4) screws per connection in structural walls.
- D. Galva-Prime non-galvanized steel to 1.5 mil minimum dry film thickness.
- E. Field fabrication of complex parts.
 1. Box beams – make up (2) track (2) c studs 20 gauge unless noted otherwise.

3. EXECUTION

3.1. ERECTION

- A. Align floor and ceiling tracks, locating to wall layout. Secure in place with screws or welding at maximum 16 inches o.c.

1. Sixteen inches (16") o.c. maximum non-structural
- B. Place studs at sixteen inches (16") o.c. and not more than two inches (2") from abutting walls and at each side of openings. Connect studs to tracks using clips and ties, screws, or welding, in accordance with manufacturer's recommendations. Check manufacturer's recommendations for structural stud for mezzanine and follow.
- C. Construct corners using minimum three (3) studs. Double studs at door, window and sidelight jambs. Install intermediate studs above and below openings to match wall stud spacing.
- D. Provide deflection allowance below supported horizontal building framing in ceiling or head track for non-load bearing framing.
- E. Attach cross studs or furring channels to studs for attachment of fixtures behind lavatory basins, toilet and bathroom accessories, grab bars and other items anchored to partitions or walls.
- F. Install additional framing between studs for attachment of:
 1. Electrical boxes and other mechanical and electrical items
 2. Door bumper stops
 3. Hardware
 4. Wall supported equipment and accessories
- G. Erect load bearing studs one piece full length. Splicing and wire tying of framing components is not permitted. Join members forming trusses by welding.
- H. Erect load bearing studs, brace, and reinforce to develop full strength to meet design requirements.
- I. Set floor or ceiling joists parallel and level, with end bearing, lateral bracing, and bridging in accordance with manufacturer's recommendations.
- J. Extend stud framing to ceiling only. Attach ceiling channel to ceiling framing securely.
- K. Make provision for erection stresses. Provide temporary alignment and bracing. Touch-up field welds and scratched or damaged galvanizing.
- L. Ensure framing provides true and flat surfaces, ready to receive gypsum board finish.

END 05 4000

1. GENERAL

1.1. WORK INCLUDES

A. Base Bid

1. Contractor shall provide incidental metal work required and shown on the Drawings – grab bars.
2. Contractor shall:
 - a. Remove existing 24" long grab bar, repair wall, install new 42" grab bar on east wall and a 36" grab bar on south wall.
 - b. Consult the drawing for incidental, ornamental and safety fabricated metal work.
 - c. Take field measurements and submit Shop Drawings.
 - d. Hangers.
 - e. Drain line and 2 ½" hydronic pipe supports.

1.2. RELATED WORK

A. Specified elsewhere

1. 01055 - Anchorage & Fastenings
2. 03300 - Concrete
3. 04200 - Unit Masonry
4. 07900 - Sealants & Caulks
5. 09900 - Painting

1.3. QUALITY ASSURANCE. Regulatory Requirements: Illinois Steel Products Procurement Act, as amended (Illinois Revised Statutes, ch. 48, par. 1801 et. seq.).

1.4. SUBMITTALS

A. Submit Shop Drawings in accordance with 01340.

1. Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories.
2. Include erection drawings, elevations, details as applicable.
3. Indicate welded connections using standard AWS welding symbols. Indicate net weld lengths.

2. PRODUCTS

2.1. MATERIALS

A. Steel Sections: ASTM A36-77a.

B. Steel Tubing: ASTM A53, Grade B.

1. Handrail tube to be nominal 1¼" diameter O.D. 1.66" standard

weight.

2. Provide appropriate steel brackets for welding to post or bolting to wall.

- C. Bolts, Nuts, and Washers: ASTM A36-77a minimum.
- D. Welding Materials: AWS D1.1; use correct type for materials being welded.
- E. Primer: Red for shop application and field touch-up. See Section 09900.

2.2. FABRICATION

- A. Verify dimensions on site prior to shop fabrication.
- B. Fabricate items with joints tightly fitted and secured.
- C. Fit and shop assemble in largest practical sections for delivery to site.
- D. Grind exposed welds flush and smooth with adjacent finished surface finished surface. Ease exposed edges to a 1/8" uniform radius.
- E. Exposed Mechanical Fastenings: Flush countersink screws or bolts, unobtrusively located, consistent with design of structure, except where specifically noted otherwise.
- F. Supply all components for anchorage of metal fabrications. Fabricate anchorage and related components of same material and finish as metal fabrication, except where specifically noted otherwise.

2.3. PRIMING PROTECTIVE COATINGS

- A. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.
- B. Clean all ferrous metal in accordance with applicable requirements of SSPC-SP1 (Solvent Cleaning) followed by cleaning with applicable requirements of SSPC-SP2 (Hand Tool Cleaning).
- C. Apply specified primer to all ferrous metal surfaces by brush or spray to a dry film thickness of 2 mils. (100% cover)
- D. Primer paint applied on ferrous materials shall be in accordance with Section 09900.

2.4. MANUFACTURERS

- A. R.B. Wagner, Milwaukee, WI, phone 888/243-6914
- B. Or equal

3. EXECUTION

3.1. PREPARATION

- A. Obtain Architect/Engineer's WRITTEN APPROVAL prior to site cutting or making adjustments not scheduled.
- B. Clean and strip site primed steel items to bare metal where site welding is scheduled.
- C. Make provision for erection loads with temporary bracing. Keep work in alignment.

3.2. INSTALLATION

- A. Install items plumb and level, accurately fitted, free from distortion or defects.

3.3. ADA SUPPORT RAILINGS

- A. Install per manufacturer's instructions for manufactured items.
- B. Wall - bracket mounted handrails shall be 1.66" O.D. at 34" above floor.
 - 1. Railings to meet OSHA regulations, BOCA and Illinois Accessibility Code.

END 05500

1. GENERAL

1.1. WORK INCLUDES

A. Base Bid:

1. Contractor provide custom metal side panels at HVAC units, or modify existing side panels.
 - a. There is an 8" space between heat pumps and wall on the drawing.
2. Remove existing 12" metal fascia at exterior wall. Cut down and install this over new duct on south wall.

1.2. RELATED WORK

A. Specified elsewhere:

1. 07600 – Sheet Metal Flashing & Trim
2. 07900 – Sealants & Caulk

2. PRODUCTS

2.1. METAL MATERIAL

- A. Ceiling Trim: 24-gauge galvanized pre-finished white
- B. HVAC unit closure panel: .050 mil finish aluminum
- C. Duct Modifications: Galvanized sheet metal with G90 finish

2.2. METAL FABRICATION

- A. Metal trim – provide hemmed edges on all exposed edges.
 1. Fabricate as shown on Drawings.
 2. Provide material with fewest joints as **possible.**
 3. **Coordinate trim layout with ceiling and wall work.**

3. EXECUTION

3.1. INSTALLATION

- A. Secure all sheet metal trim to firm solid material.
 1. Any screw connections, which are visible must be smooth pan head of same material and finish of metal.

- B. Duct modifications shall be installed according to SMACNA standards and comply with leakage classification 12.

END 05580

1. GENERAL

1.1. WORK INCLUDES

- A. The Contractor shall provide rough carpentry as shown on the Drawings and specified herein.
 - 1. Framing and forming for concrete work.
 - 2. Provide spacers and braces where required to secure the finished wall surface in continuous plane surface.
 - 3. Incidental alteration required to allow for specified work.
 - 4. Provide blocking pursuant to existing and new roof work.
 - 5. Provide solid 2" X 6" crippled blocking between studs at anchorage points for grab bar brackets, accessory fixtures, etc., as applicable.

1.2. RELATED WORK

- A. Specified elsewhere
 - 1. Section 03300 – Concrete
 - 2. Section 07530 – EPDM Elastomeric Membrane Roofing
 - 3. DIVISION 8 - DOORS & WINDOWS

1.3. PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Immediately upon delivery to site, place materials in area protected from weather.
- B. Store materials a minimum of six inches (6") (150 mm) above ground on frame work or blocking and cover with protective waterproof covering, providing adequate air circulation or ventilation.
- C. Seasoned materials shall not be stored in wet or damp areas.

1.4. QUALITY ASSURANCE

- A. Grading Rules:
 - 1. Lumber grading rules and wood species shall conform with Voluntary Product Standard PS 20-75.
 - 2. Grading rules of the following associations shall also apply to materials produced under their supervision:
 - a. Northeastern Lumber Manufacturer's Association, Inc. (NELMA).
 - b. Southern Pine Inspection Bureau (SPIB).
 - c. West Coast Lumber Inspection Bureau (WCLIB).
 - d. Western Wood Products Association (WWPA).
 - e. Redwood Inspection Service (RIS).

3. Plywood shall conform to the following:
 - a. Softwood Plywood - Construction and Industrial: Product Standard PS 1-74.
 - b. Hardwood Plywood: Product Standard PS 51-71.

2. PRODUCTS

2.1. MATERIALS

A. Lumber:

1. Dimensions:
 - a. Specified lumber dimensions are nominal: verify actual dimension required to accomplish the details shown.
 - b. Actual dimensions shall conform to industry standards established by the American Lumber Standards Committee and the rule writing agencies.
2. Moisture content: nineteen percent (19%) maximum at time of permanent close in of building or structure, for lumber 2" or less nominal thickness.
3. Surfacing: surface four sides (S4S), unless otherwise shown, or specified.
4. Framing lumber: 2" (51 mm) to 4" (102 mm) thick, 2" (51 mm) to 4" (102 mm) wide, any commercial softwood species, unless otherwise shown or specified.
 - a. Light Framing:
 - 1) General Framing: Standard and Better Grade.
 - 2) Plates, Blocking, Bracing & Nailers: Utility grade.
5. Boards: 1 in. (25 mm) to 2 in. (51 mm) thick; any commercial softwood species, unless otherwise shown or specified. Furring and grounds shall be minimum No. 1 Common Grade.

B. Plywood: CC EXT-APA.

1. 5 ply minimum.
2. Preservative treated when used as sheathing, decking or anchorage under roofing, under metal facing and facing clips, underlayment, and in back of brick veneer.
 - a. Minimum treatment .25 lbs. pcf in accord with 2.1.C.1.a. herefollowing.

C. Pressure Treated Wood:

1. Preservative pressure treated wood and all roof related blocking and sheathing: Waterborne salt preservatives for painted, stained, encapsulated or exposed natural wood products:
 - a. ACQ
- D. Rough Hardware:
 1. Bolts: FS FF-B-575C.
 2. Nuts: FS FF-N-836C.
 3. Expansion Shields: FS FF-B-561C.
 4. Lag Screws and Bolts: FS FF-B-561C.
 5. Toggle Bolts: FS FF-B-588C.
 6. Wood Screws: FS FF-S-111C.
 7. Nails and Staples: FS FF-N-105B.
 8. FABCO/H-3, or equal, stainless steel top seal fasteners.
 9. Top Seals/H-3 stainless steel, carbon steel and cadmium plated as applicable with Weath-R-Seal washers.
 10. Tuff Tites #305 stainless steel and cadmium plated as applicable.
 11. Top Seal/H-3 stainless steel, cadmium plated and carbon steel (as applicable) structural screws.
 12. RED HEAD stud anchors.
 13. Rawl - Studs.
 14. Rawl - Double.
 15. Rawl - Single.
 16. Wood framing nails not exposed to weather shall be coated box nails.
 17. Nails exposed to weather shall be dip galvanized nails.
- E. Rough hardware and fasteners at treated wood
 1. Similar to above, but stainless steel for certified treated wood exposure.

3. EXECUTION

3.1. PREPARATION

- A. Examine all surfaces to receive the parts of the work specified.
- B. Verify all dimensions of in place and subsequent construction.
- C. Application or installation of materials constitutes acceptance of existing conditions.
- D. See Drawing Details.

3.2. INSTALLATION

- A. Frame wood members to be close fit, set accurately to required lines and levels and secured rigidly in place in accordance with the Drawings.

- B. Cut and fit framing, blocking etc. to accommodate the other work.
- C. Interlock curbing corners.

END 06100

1. GENERAL

1.1. WORK INCLUDES – BASE BID

- A. The Contractor shall remove oak trim around existing windows in Room 117.
 - 1. The same trim may be reused around windows in Room 117 new wall.
 - a. If existing trim is damaged when removed then new trim will need to be made to match the existing removed trim – bid this.

1.2. QUALITY ASSURANCE

- A. All custom woodwork shall comply with the applicable requirements of the AWI Quality Standards established by the Architectural Woodwork Institute.

1.3. RELATED REQUIREMENTS

- A. Specified elsewhere
 - 1. 09900 - Painting

2. PRODUCTS

2.1. MATERIALS

- A. Exposed wood trim shall be one-inch (1”) clear select oak.
 - 1. Shape as shown on the Drawings.
- B. Be sure to field measure after field framing is installed to get proper wood depth.

3. EXECUTION

3.1. INSTALLATION

- A. Examine all surfaces to insure that wood trim may be properly installed.
- B. Ends mitered – edges eased.
- C. Secure as shown on the Drawings.

3.2. FINISH

Stain with color to darken a little to match existing.

A. Finish with two (2) coats clear polyurethane.

END 06200

DIVISION 6 – WOOD PLASTICS COMPOSITES
Section 06416 – Plastic Laminate Clad Cabinets

1. GENERAL

1.1. DESCRIPTION

- A. Provide all laminate clad cabinetwork shown
 - 1. Base bid case work
 - a. Base cabinet and overhead cabinets on east wall.
- B. Provide all accessory items needed to complete the cabinetwork including coat rods, coat hooks, locks, shelf brackets, drawer guides, handles, hinges, catches and general hardware.
 - 1. Raised back assemblies behind ranges.
 - 2. Counter tops to 1 ½" laminated:
- C. Associated work
 - 1. Base bid Solid surface (Corian or similar) counter top.
 - a. All new windows in new Additions.
 - b. All Alternate windows in existing areas.

1.2. RELATED WORK

- A. Specified elsewhere
 - 1. 06 1000 – Rough Carpentry

1.3. QUALITY STANDARDS

- A. All work is to be in compliance with Architectural Woodwork Institute (AWI) Quality Standards
 - 1. Custom Grade for assembly, fit, finish, performance, laminate selection and construction methods.

2. PRODUCTS

2.1. CASEWORK - LAMINATE CLAD

- A. AWI quality grade: custom grade.
- B. Construction: Details shall conform to design. Flush overlay or exposed face frame.
- C. Casework doors to be 3/4" plywood, plastic laminated both sides and edged. Interiors may be liner material

- D. All shelves shall be laminated over 3/4" thick, 7 ply fir plywood

2.2. PLASTIC LAMINATE

- A. Exposed surfaces: to be high pressure Laminate, Formica, Nevamar, Wilson Art or approved equal submitted prior to bidding.
 - 1. Colors to be selected in each room.
 - 2. Tops will be acrylic solid surface.
- B. General Purpose 50 (.050") horizontal work surfaces and edges subject to high use, color and pattern to be selected.
- C. General Purpose 28 (.028") for vertical and medium use surfaces, color and pattern to be selected.
- D. Cabinet liner 20 (.020") for interior surfaces.
 - 1. Includes backs and shelves in open shelving condition.
 - 2. White, off white, gray or white on white patterned.
- E. Backer 20 (.020") for backs of doors and any surface not rigidly supported and anchored to resist warp, wind or curling.
- F. All surfaces not otherwise anchored against warping shall be backed whether in view or not.

2.3. CASEWORK HARDWARE

- A. All cabinet hardware shall be furnished and installed by the casework manufacturer. Hardware to be as follows:
 - 1. Drawer guides: manufacturer's standard roller guide.
 - 2. Shelf standards and brackets: type optional with manufacturer, adjustable as shown on drawings.
 - 3. Hinges: 2-1/2" .083 (3" on 1" or heavier doors). Chrome finish.
 - 4. Catches: Nylon roller type.
 - 5. Pulls: Epcos MC427 or equal, 1/2" diameter aluminum X 3" long.
 - 6. Clothes poles: optional with manufacturer, chrome.
 - 7. Clothes hooks: Ives #572 or equal.
 - 8. Locks: Five (5) disc tumbler casework locks.

2.4. TOPS

- A. Solid surface with four inch (4") backsplash and sidesplash at walls, solid surface material.
 - 1. Shall be able to support 300 lbs. at any location, framed or backed as necessary.
 - 2. Solid surface material
 - a. Corian
 - b. Wilson Art

- c. Maganite
- d. Formica
- e. Or equal submit prior to bidding for approval.

2.5. SHELVES

- A. All shelves shall be 3/4" plywood.
- B. All shelves shall be designed for not more than length divided by 180 (48" = 1/4") deflection when solidly loaded with paper or books.
 - 1. Provide stiffeners when needed.
- C. Shelf and shelving brackets or clips shall be adequate to hold without failure four (4) times the actual load of the shelf fully loaded with books or papers.

2.6. CABINET BOX

- A. AWI Custom Grade, 3/4" plywood basic construction.
 - 1. Provide bracing and corner hardware as required for rigid sturdy construction.
 - 2. Backs against walls may be less than 3/4", select for service, backed or supported to not present a flimsy or unstable performance.
 - 3. Cabinets to be fully plastic laminate lined.
 - 4. Coordinate adjacent cabinets for alignment and fit.

2.7. DRAWERS

- A. Drawers by definition shall have **full height** sides and backs.
 - 1. Full height means drawer face height less 1/2" side clearance below horizontal box frame drawer fits into.
- B. Drawers to be backer laminate lined.
- C. Drawer guides
 - 1. BHMA A156.9 type B05091
 - 2. Full extension, side mount, zinc plated steel
 - 3. Heavy duty

2.8. WINDOW SILL/STOOL

- A. 3/8" or heavier solid surface (Corian or similar)
 - 1. Approximately 1" overhang to actual masonry face
 - 2. Rounded corners.

3. Set with silicone adhesive-sealant

3. EXECUTION

3.1. INSTALLATION

- A. Cabinetwork shall be set level and square with surrounds. Provide filler strips and sealant as needed to finish installation.
- B. Provide mechanical counter anchors for counter top joints. Joint shall be tight and uniform. Install with sealant in joint before tightening and clean off immediately.
- C. Coordinate with mechanical and electrical trades for installation services.
- D. All tops shall be mechanically anchored to base cabinets.
- E. All cabinetwork shall be mechanically anchored to floors and walls.
- F. Apply resilient base to all cabinets with flooring work.

3.2. Shelving and coat hook and coat rod accessories

- A. See drawings sheet A-5.4 for shelving hardware and coat rack and coat hooks. Coordinate with hardware provider for who is providing and installing.

END 064116

DIVISION 07 – THERMAL & MOISTURE PROTECTION
Section 07190 – Water Repellent Coatings

1. GENERAL

1.1. WORK INCLUDES

A. Base Bid

1. Contractor shall provide power wash cleaning and repellent coatings for exterior masonry wall surfaces on walls to the south and southwest of new addition.
2. No brick work needed.

1.2. RELATED WORK

A. Specified elsewhere:

1. 01010 - Project Summary
2. 07900 - Sealants & Caulks
3. 04200 – Unit Masonry

1.3. QUALITY ASSURANCE.

- A. Qualifications of Installers: Employ only experienced craftsmen, skilled in the installation of the specified products.

1.4. REFERENCES

- A. Manufacturer's catalogs: The acceptable manufacturer's current catalog at date of bidding documents is incorporated by reference to the same force and effect as if repeated herein at length.

1.5. SUBMITTALS

- A. Make all submittals in accord with 01340.

B. Product data:

1. Materials description - three (3) copies.
2. Manufacturer's current printed installation instruction for each product - three (3) copies.
3. ASTM-C-642 Test Record - three (3) copies.

1.6. DELIVERY, STORAGE & HANDLING

- A. Deliver all materials in manufacturer's original containers, with seals unbroken, labels, and product's and manufacturer's names intact and legible.

1. No mixing of water repellent coatings on site.
2. Material to arrive to job site ready to be installed.

- B. Store all products in a manner to prevent damage, in a secure place, out of way of construction operations. Provide protection until ready for use.
- C. Handle in accordance with manufacturer's recommendations.

1.7. SEQUENCING/SCHEDULING

- A. Install prior to the installation of the new roofing.

1.8. WARRANTY

- A. Contractor's Warranty
 - 1. Two (2) years in accordance with General Conditions.

2. PRODUCTS

2.1. ACCEPTABLE MANUFACTURERS. Use only the specified product of the following manufacturers:

- A. Evonik Industries (630) 393-1919, ext. 21
- B. ProSoCo (800) 255-4255
- C. Chemprobe Technology, Brookfield, IL (708) 387-0305
- D. Products must be delivered ready to use – no mixing on site.

2.2. EXTERIOR MASONRY SEAL - ACCEPTABLE PRODUCTS

- A. Alkyltriloxysilanes with activator. Do not use site mix products.
 - 1. Protectosil Chem-Trete PBVOC
 - 2. ProSoCo Sure-Klean Silozane
 - 3. Chemprobe Dur-A-Pel 100

3. EXECUTION

3.1. PROJECT/SITE CONDITIONS

- A. Masonry shall be clean of foreign deposits and shall be dry. The determination of percent of dry shall be in accordance with the project manufacturer's recommendation.
- B. Environmental conditions:
 - 1. Weather: Do not install products during adverse weather conditions.
 - 2. Temperature: Ensure that surface and ambient temperatures are within the range recommended by the manufacturer.

3.2. INSPECTION

- A. Thoroughly inspect all new construction and the conditions under which the work will be performed.
- B. Report to the Architect/Engineer IN WRITING all conditions that would adversely affect installation of the work.
- C. Verify that all pre-application conditions are reasonably in accord with manufacturer's recommendations.
- D. Start of work constitutes acceptance of the construction and conditions.

3.3. PREPARATION

- A. Clean and prepare in accordance with Manufacturer's instructions. Remove all loose materials and other foreign matter which might impair penetration.
 - 1. Use less than 1,000 psi for cleaning of masonry surfaces.
- B. Protect plants, wood trim, glazing, etc. that may be adversely impacted by the water repellent.

3.4. INSTALLATION

- A. Comply with the Product Manufacturer's printed instructions.
 - 1. Installation shall follow the Manufacturer's recommended procedures corresponding to the installation procedure for a ten (10) year application guarantee.
 - 2. See paragraph 1.7 of this section.
 - 3. Application shall follow sealant and caulking application at wall penetrations.
- B. SPILLAGE
 - 1. Do not allow compounds to overflow or spill onto adjacent building material which may be subject to damage.
 - 2. Use catch sheets or other precautionary devices to prevent staining of adjoining surfaces as shall become necessary.

3.5. CURING

- A. Cure applied compounds in compliance with manufacturer's instructions.
- B. Comply with required environmental conditions pursuant to post application as recommended by the Product Manufacturer.

3.6. INSPECT & CLEAN UP

- A. Carefully examine all work to confirm installation compliance and adequacy of application.
- B. Clean up. Remove all surplus products, containers and rubbish and dispose of off site.

END 07190

DIVISION 7 – THERMAL & MOISTURE PROTECTION
Section 07200 - Insulation

1. GENERAL

1.1. DESCRIPTION

- A. The Contractor shall provide insulation as shown on the Drawing and as specified herein, for roof and walls.
 - 1. Roof insulation is two (2) 2.5" layers of ISO.
 - 2. Ceiling and wall insulation will include 6" fiberglass with vapor barrier.
 - 3. Wall insulation is two inch (2") ISO with the EIFS product.

1.2. RELATED WORK

- A. Specified elsewhere:
 - 1. 05400 – Cold-Formed Metal Framing
 - 2. 06100 - Rough Carpentry
 - 3. 07530 - EPDM Elastomeric Membrane Roofing

1.3. SUBMITTALS. Submit Manufacturer's Literature in accordance with 01340 (materials description and installation instruction for each type insulation).

1.4. PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Handle and store in such a manner as to prevent damage. Store under cover and above ground. All damaged or otherwise unsuitable material, when so ascertained, shall be immediately removed from the job site.
- B. Store all materials supported by blocking runners 4" above bearing surface.
- C. Maintain stored insulation weather free. Provide and maintain repellent poly protection cover secured against blowing rain.
- D. Tie down and secure against wind damage.

1.5. WARRANTY

- A. Insulation system shall be included in the roofing membrane manufacturer's full system warranty paragraph for roof insulation.
 - 1. See Section 07530 for warranty requirements.
- B. Other insulation applications, one (1) year.

2. PRODUCTS

2.1. MATERIALS - ROOF

A. Constant thickness insulation - polyisocyanurate core board.

1. Description

- a. Two (2) lyers of 1.5" ISO.
- b. Fiber reinforced facers, sheet size, 4' X 4' preferable.

2. Specification

- a. Federal specification HH-I-1972/1.
- b. Factory Mutual Class 1 per FM 4450.
- c. Condition R value 5.88 minimum per ASTM C 518 Test Methods and PIMA Conditioning Procedure 101 or RICTIMA Bulletin 281-1.

3. Compliance: insulation system must comply with roofing manufacturer's standards for uplift, delamination, warranty and general compatibility.

- a. Comply with warranty requirements for full system warranty.
- b. Coordinate material selections for full system warranty.
- c. System aged R value = 5.5 per inch.

B. Tapered insulation - polyisocyanurate core - Use only as necessary to accomplish drainage, see also Roof Plan for limited use. The joists for the Addition are flat so tapered insulation will be required.

1. Description – No tapered on this project.

- a. Three inch (3") constant thickness baseboard is required.
- b. 1/2" minimum starter thickness for taper board.
- c. Facer required.
- d. Taper 1/8" per foot.

2. Specifications

- a. Same as 07200/2.1.A.2. above.

3. Compliance

- a. Same as 07200/2/1.A.3. above.

C. Loose laid 8" fiberglass in ceiling. 24" rolls and attached 6" fiberglass in stud walls 16" rolls all product with vapor barrier liner.

D. Top layer 5/8" DensDeck board adhered per roofing membrane manufacturer recommendation.

E. Fasteners (for base insulation only)

1. Fasteners as required for guarantee, also for roofing system unballasted alternate mechanical anchorage.
 - a. Provide rust resistant mechanical fasteners to achieve FM I-90 anchorage.
 - b. Optional, FM approved adhesives that will achieve FM I-90 anchorage and that are compatible with the roofing membrane and maintenance system warranty requirements.

2.2. MATERIALS - CONCRETE FOUNDATIONS

- A. Constant thickness two inches (2") unless noted otherwise, extruded polystyrene, closed cell.
 1. Poly ISO foil faced
 2. Firestone Building Products LLC
- B. Provide mortar block mesh at flashings and weeps.

2.3. MATERIAL – METAL STUD WALLS

- A. Mineral wool, sound and fire safing as detailed.
 1. Johns-Manville
 2. Or equal.

3. EXECUTION

3.1. PREPARATION

- A. Examine all conditions for compliance with Product Manufacturer's requirements.
- B. Application or installation of materials constitutes an acceptance of the existing conditions.
- C. Verify all dimensions of in place and subsequent construction.

3.2. INSTALLATION - ROOF

- A. Base insulation shall be mechanically anchored in accord with I-90 standards as coordinated with selected roofing system (no anchors for ballasted).
- B. Install tapered and fill systems when needed as bottom course of insulation; install fiber faced constant thickness insulation on top surface to receive roofing system.

- C. Inspect for proper installation:
 - 1. Tight side and edge.
 - 2. Offset joints in layered application.
 - 3. Do not use broken boards.
 - 4. Fill in chipped or damaged spots in insulation.
- D. Protect properly to prevent crushing, delamination or abuse to insulation systems during subsequent operations.
- E. Taper systems shall be installed as true 1/8" taper systems, both ways from drains (i.e., do not taper one way and install cricket or saddle between drains). See plans for roof layout.

3.3. INSTALLATION - CONCRETE FOUNDATION

- A. Install to assure snug tight fit. Repair or replace damaged materials.
- B. Coordinate with flashings where occur such that flashing through insulation space will not pocket moisture.
 - 1. Mortar blocks to be provided at flashings.
 - 2. Lintels and weep lines to allow water flow.

3.4. INSTALLATION – METAL STUD WALLS

- A. Secure batt insulation to studs.
 - 1. Insure no gaps exist between insulation and studs.
 - 2. Vapor barrier will be primed on inside surface of walls.

END 07200

1. GENERAL

1.1. WORK INCLUDES

- A. Exterior walls of all Classrooms

1.2. SYSTEM DESCRIPTION

- A. The EIFS will be Class PB with cavity wall for moisture drainage, secondary weather resistive barrier, adhesive, 2" grooved expanded polystyrene insulation board, internal vinyl tracks, vent system, starter strip, base coat, reinforcing mesh and final finish.

- 1. In addition to the standard reinforcing mesh, this system shall provide for ultimate impact resistance by using PANZAR 20 Reinforcing Mesh.

- B. Provide exterior insulation and finish system assemblies complying with the following requirements for system performances:

- 1. Bond Integrity: Free from bond failure within or between any component.
 - 2. Weathertightness: Resistant to water penetration from exterior into assembly, through it or degradation of assembly components including substrate, joint sealers and supporting wall construction.

- a. Air Leakage: Installation classified Type III air barrier.
 - b. System shall be provided with components to allow drainage of internal cavities.

- 3. System to be field assembled and finish system field applied.
 - 4. The two-inch (2") insulation board shall be completely encapsulated by the substrate.
 - 5. The base sheathing shall be Dens-gold or equal.

- C. Fire Performance Characteristics: Provide materials and construction which are identical to those whose fire performance characteristics as listed below have been determined by testing, per methods indicated, by UL or other testing and inspecting agency acceptable to authorities having jurisdiction.

- 1. Surface Burning Characteristics: Flame spread rating of 25 or less per ASTM E 84 for installed system.

1.3. RELATED REQUIREMENTS

- A. Specified elsewhere

- 1. 05400 – Cold-Formed Metal Framing
 - 2. 07200 – Insulation
 - 3. 07600 – Sheet Metal Flashing & Trim
 - 4. 07900 – Sealants & Caulks

1.4. QUALITY ASSURANCE

- A. Single Source Responsibility: To ensure consistent quality of appearance and performance, obtain materials for exterior insulation and finish systems from either a single manufacturer or from manufacturers approved by the system manufacturer as compatible with other system components.
- B. Installer Qualifications: Engage an Installer/Applicator that is certified IN WRITING by system Manufacturer as qualified for installation of systems indicated.
 - 1. Minimum three (3) years experience.

1.5. SUBMITTALS

- A. Product Data: Submit manufacturer's product data for each component of exterior insulation and finish system.
- B. Submit Shop Drawing showing layout of exterior wall for typical Classroom and each non-typical room.

1.6. DELIVERY, STORAGE & HANDLING

- A. Deliver products in original, unopened packages with manufacturer's labels identifying products legible and intact.
- B. Store materials inside, under cover and in a manner to keep them dry, protected from the weather, direct sunlight, surface contamination, aging, corrosion, damaging temperature, damage from construction traffic and other causes.
- C. Stack insulation board flat, off the ground, and protected from the sun.

1.7. PROJECT CONDITIONS

- A. System will be installed on new steel stud structural system, with new light gauge cold formed steel framing.
- B. Protect contiguous work from moisture deterioration and soiling, which might result from application of exterior insulation and finish systems. Provide temporary covering and whatever other provisions may be necessary to prevent harmful spattering of exterior finish coatings on other work.
- C. Protect exterior insulation and finish system from effects of inclement weather during and until installation is completed, including flashing, joint sealers and other related work required to prevent infiltration of moisture behind system or deterioration of substrates over which system is applied.
- D. Do not install exterior insulation and finish system when ambient outdoor temperatures are 40 degrees F. (4 deg. C.) and below, during and for twenty-four (24) hours after, installation of wet materials.

1.8. SEQUENCING/SCHEDULING

- A. Sequence installation of exterior insulation and finish system with related

work specified in other sections to ensure that wall assemblies, including flashing, trim and joint sealers, are protected against damage from effects of weather, aging, corrosion or other causes.

1.9. WARRANTY

- A. Provide Standard Product Manufacturer's Warranty for seven (7) years for moisture drainage and limited materials warranty.

2. PRODUCTS

2.1. ACCEPTABLE MANUFACTURERS

- A. Subject to compliance with requirements, provide products of one (1) of the following:

- 1. Manufacturers of EIFS

- a. Dryvit Outsulation PLUS
 - b. USG equal to a. above
 - c. Synergy equal to a. above

2.2. MATERIAL FOR POLYMER-BASED PROTECTIVE COATING, EXTERNALLY REINFORCED SYSTEM

- A. Sheathing Board

- 1. Gold sheathing meeting ASTM C1177
 - 2. 5/8" thick
 - 3. Flame spread and smoke developed ASTM E84: 0 maximum

- B. Adhesive

- 1. 100% acrylic based.
 - 2. Base coat materials: System Manufacturer's standard, job-mixed formulation of Portland Cement complying with ASTM C150, Type I, white or natural color; and System Manufacturer's standard 100% polymer-based adhesive designed for use indicated.

- C. Insulation Board (OMD Board)

- 1. Two-inch (2") molded expanded polystyrene and approved for EIFS drainage system installation.
 - 2. Molded Polystyrene Board Insulation: Rigid, cellular polystyrene thermal insulation formed by the expansion of polystyrene resin beads or granules in a closed mold to comply with ASTM C 578 for Type I; aged in block form prior to cutting and shipping by air drying for not less than six (6) weeks or by another method producing equivalent results; 2' X 4' thickness indicated, but not less than the minimum thickness allowed by System Manufacturer, complying with requirements of System Manufacturer for corner squareness and other dimensional tolerances.
 - a. R = 3.85 per inch

D. Reinforcing Mesh

1. Material employed shall be compatible with EIFS Manufacturer's drainage system installation.
 - a. Open weave glass fiber type.
2. Reinforcing Fabric: System Manufacturer's standard, balanced alkali-resistant, open weave glass fiber fabric made from multi-end strands with tensile strength of not less than 120 lbs. and 140 lbs. in warp and fill directions, respectively, per ASTM D1682; and complying with the following requirements for weight of fabric per square yard:
 - a. Weight of Standard Reinforcing Fabric: Not less than 4.3 oz.
 - b. Weight of Impact-Resistant Reinforcing Fabric: Not less than 20.5 oz.
 - c. Weight of Strip Reinforcing Fabric: Not less than 4.3 oz.

E. System to include drainage channel or space between the backboard and the OMD. This can be achieved by using ribbed building wrap paper or using a grooved trowel to install the backstop.

F. Finish

1. Shall be 100% pure acrylic finish with sandblast type finish.
2. Groove design shown on Drawing.
3. Color and finish using Dryvit: #108 Manor White with Sand Pebble finish.

G. Water: Clean and potable.

2.3. MIXING

- A. General: Comply with system manufacturer's requirements for combining and mixing materials. Do not introduce admixtures, water or other materials except as approved by system manufacturer. Mix materials in clean containers. Use materials within time period specified by system manufacturer or discard.

3. EXECUTION

3.1. INSPECTION

- A. Installer shall examine the substrate and determine and/or provide that a factory condition exists to receive exterior insulation and finish system. Do not proceed with installation of system until unsatisfactory conditions have been corrected.

3.2. PREPARATION

- A. Substrate Preparation: Perform preparation and cleaning procedures in compliance with system manufacturer's requirements to obtain optimum

bond between substrate and adhesive used to attach insulation.

1. Apply surface-sealer over substrates where required by system manufacturer for improving adhesion.

3.3. INSTALLATION - GENERAL

- A. Comply with system manufacturer's current published instructions for installation of exterior insulation and finish system as applicable to each type of substrate indicated.
- B. Provide surface reinforcing fabric over full area of fascia and soffit.
 1. Reinforcing to be fully embedded and covered.
- C. Provide expansion control at approximately 20' spacing.
 1. Sonneborn NP-1, or similar, non-sag urethane sealant, color to blend.
 2. Use this material around all windows and door frames.
- D. Anchorage of installation board.
 1. Glue and mechanical (with nylon oversize washer).
 2. Mechanical anchorage, one (1) per 6 sq. ft. (6 per 4' X 8' sheet minimum) and two (2) per piece minimum.
 3. Mechanical anchorage specified is redundant anchorage and does not replace adhesive.
- E. Provide decorative grooves as shown on plans.

3.4. CLEANING AND PROTECTION

- A. Remove temporary covering and protection of other work. Promptly remove protective coatings from window and door frames, and any other surfaces outside areas indicated to receive protective coating.
- B. Provide final protection and maintain conditions, in a manner suitable to installer and system manufacturer, which insures exterior insulation and finish system being without damage or deterioration at time of substantial completion. If, despite these precautions, damage occurs, restore to a condition indistinguishable in appearance from and equivalent in performance to, undamaged areas by replacing or repairing in compliance with system manufacturer's recommendations.

END 07240

DIVISION 7 - THERMAL & MOISTURE PROTECTION
Section 07530 – EPDM Elastomeric Membrane Roofing

1. GENERAL

1.1. WORK INCLUDES

- A. The Contractor shall provide single ply 90 mil EPDM synthetic rubber fully adhered roofing with flashing system(s) as shown on the Drawings and specified herein, and related work for perimeter edge and flashing of equipment onto new roof. Included in total system NDL Manufacturer's warranty – FM, I-90 min. uplift, 70 mph wind speed and ANSI / SPRIES-1. Six-inch (6") or seven-inch (7") double sided seam tape in addition to minimum manufacturer's required field and flashing seam throughout entire roof project / areas.
1. Remove the existing construction as needed to tie into existing system.
 - a. Provide appropriate tie in or flashing and repairs to keep tie in water tight and serviceable.
 2. Provide new materials as needed and as shown on the detail drawing sheets.
 - a. Insulation (Section 07200)
 - b. Roofing membrane
 - c. Resilient flashings
 - d. Metal cap flashings
 - e. Expansion and construction joints
 - f. Counterflashing and termination bars
 - g. Roof protection flashings
 - h. Wood blocking: addition extension and reconstruction at edge and curbs.
 - i. Raised curbs, vents, roof edges as detailed or as needed for warranty.
 - j. New downspouts and scupper boxes. See drawings.
 - k. Three inch (3") splice tape or six inch (6") double sided seam, or seven inch (7") double sided seam tape.
 - l. Adhesives and accessories, top quality butyl adhesive and accessories required for Manufacturer's total system warranty.
- B. Adhered: Areas, 90-mil EPDM adhesive system, perimeter detail and counter flashing as detailed. Perimeter paver ballast and paver walkways. FM, I-90 uplift and 70 mph wind speed. Double-seaming and Manufacturer's 30-year NDL Warranty.

1.2. RELATED REQUIREMENTS

- A. Specified elsewhere

1. DIVISION 0 - BIDDING & CONTRACT REQUIREMENTS

2. DIVISION 1 - GENERAL REQUIREMENTS
3. 06100 - Rough Carpentry
4. 07600 - Sheet Metal Flashing & Trim
5. 07900 - Sealants & Caulks
6. 07200 - Insulation

1.3. MECHANICAL WORK AND ELECTRICAL WORK

- A. Mechanical work on existing roof will include a new Exhaust Fan stack and will need support curb plus electrical power.

1.4. DEFINITION ROOFING SYSTEM MANUFACTURER. Any of the manufacturers whose systems are specified under "Acceptable Systems" in this Section, and herein called "Manufacturer".

1.5. QUALITY ASSURANCE

A. Qualifications

1. Installers shall be experienced craftsmen, skilled in the installation of the specified products set forth in these and related documents.
2. Contractor shall:
 - a. Have a minimum of five (5) years experience as certified applicator for this or for like roofing systems specified in this document and shall be certified by the Product Manufacturer whose product is to be installed.
 - b. Be certified by the State of Illinois in accord with the Illinois Roofing Industry Licensing Act, as amended. (Illinois Revised Statutes ch. 111, Par. 7501 et seq.)

B. Requirements of regulatory agencies

1. Permits:
 - a. No charge for permits.
 - b. Architect will file forms for Regional Office of Education permit – no charge to Contractor. Note: To meet legal requirements in the State of Illinois including any municipalities, the Regional Office of Education permit is all that is required.
2. Tests or standards by independent agencies whose classifications and requirements have general acceptance as regulatory:
 - a. American Society for Testing and Materials (ASTM).
 - b. Factory Mutual Laboratories (FM).
 - c. National Fire Protection Association (NFPA).
 - d. Underwriter's Laboratories, Inc. (UL).

- C. Source Quality Control - The Roofing System Manufacturers shall assume full responsibility for certifying that:

1. Prior to the start of work and material acquisition, the Contractor shall submit a letter to certify that the manufacturer has reviewed the project and:
 - a. They have examined project drawings, specifications, on site conditions and warranty requirements.
 - b. Their products herein specified are acceptable for and compatible with the roofing and flashing system design.
 - c. If their system is used, they certify that all products delivered to the site will meet or exceed project specification requirements.
 - d. They will issue the specified warranty for the roofing and flashing system is installed in accordance with the documents. See 1.8 of this Section.

D. Referenced catalogs: The catalogs, current as of date of bidding documents, of the manufacturers specified are incorporated herein by reference.

1.6. SUBMITTALS. Make all submittal in accordance with 01340.

A. Roofing firm endorsements: At least fifteen (15) business days prior to starting the work submit roofing firm's name, address, telephone number and Manufacturer's endorsement of roofing firm to Architect/Engineer.

B. Shop drawings – check with Architect prior to submitting.

1. Submit shop drawings of Roofing System Manufacturer for approval.
2. Submit only system manufacturer approved shop drawings to Architect/Engineer.
3. Minimum scale: 1-1/2" = 1'-0" for details except where otherwise specified.
4. Submittal shall incorporate the Architect/Engineer prepared documents that is Drawings and these specifications, wherein said documents exceed the Manufacturer's recommendations.
5. Include wherein applicable:
 - a. Resilient flashing, cap and counterflashing details.
 - b. Gutters/scuppers/perimeter curb related sheet metal.
 - c. Fasteners.
 - d. Expansion and control joints.
 - e. Mechanical/electrical equipment curbs.
 - f. Copings.
 - g. Flashing of extended roof curbs.
 - h. Flashing of through roof pipes and columns.

C. Product data

1. Insulation
2. Joint seal or tape. (Self-adhering battens, etc.)

3. Manufacturer's specification and instruction manual for all components of roofing system.

1.7. PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver all materials in Manufacturer's original, unopened containers and rolls with all labels intact and legible.
- B. Deliver materials requiring fire resistance classification packaged with labels attached as required by labeling service.
- C. Deliver materials in sufficient time and quantity to allow continuity of work and compliance with approved construction schedule.
- D. Handle rolled goods in manner to prevent damages to edges or ends.
- E. Store all materials on clean raised platforms with weather protective covering when stored outdoors.
- F. Store rolled goods in accordance with Manufacturer's instructions.
- G. Provide continuous protection of materials against damage or deterioration.
- H. Remove damaged or defective materials from site.
- I. Comply with fire and safety regulations.
- J. Follow Manufacturer recommendations as minimum except where contract documents exceed Manufacturer recommendations. Where Contract Documents are in excess of the Manufacturer recommendations, the contract documents supersede.

1.8. JOB CONDITIONS

- A. Contractor to avoid concentrated material loads. **DISTRIBUTE LOADS AND ALWAYS ACROSS JOISTS -- NEVER PARALLEL WITH FRAMING MEMBERS.**
 1. Max. load 30 lbs. per sq. ft.
- B. Environmental requirements: Except as otherwise authorized by Architect/Engineer, follow Manufacturer's written request for variance:
 1. Apply roofing in dry weather.
 2. Apply roofing only when dry substrata and substructures prevail.
 3. Provide all required Removal work in a dust free manner using closed chutes and water mist.
 4. Provide water tight tie-off at the end of each day.
- C. **PROTECTION**
 1. **AVOID HEAVY TRAFFIC ON COMPLETED WORK.**

- a. TRAFFIC CORRIDORS, THOSE AREAS FROM HOISTS TO WORK APPLICATION AREAS, SHALL BE TEMPORARILY COVERED WITH 3/4" X 4' WIDE PLYWOOD BEGINNING WHEN INSULATION IS FIRST INSTALLED.
 - b. TRAFFIC CORRIDORS SHALL BE CONTINUALLY PROTECTED UNTIL FINAL INSTALLATION OF MEMBRANE AND BALLAST, WHEN APPLICABLE. SEE DETAIL DRAWINGS.
 - 2. Restore to original condition or replace all work or materials damaged by roofing operations whether a part of the work of this Contract or adjacent thereto.
 - 3. Protect paving and building surface(s) adjacent to hoists and other roofing equipment. (See 1.7.C.1 above.)
 - 4. Remove protection upon completion of roofing work.
- D. Sequencing and scheduling prior to commencement of work.
- 1. Contractor: Provide detailed schedule of all reroofing operations. Scheduling shall be subject to approval of the Owner as same relates to the Owner's occupation of the building.
 - 2. Designate an on site foreman in charge of operations.
 - a. Provide experience record for the roofing foreman upon request by the Architect/Engineer.
 - b. The Contractor's roofing foreman shall be subject to the approval of the Architect/Engineer on behalf of the Owner. Said approval shall be based upon previous experience record.
 - c. The Contractor's on site foremen shall be the Contractor's assigned Safety Manager for the project unless the Contractor makes a specific assignment in writing otherwise.
 - d. The assigned foreman in charge of site operations and safety shall be on the job at all times during construction.
 - 3. The Roofing Contractor's Project and On Site Foreman shall assign and coordinate all operations of the Roofing Contractor, his Subcontractors and his Suppliers for the work in the Contract Documents.

1.9. WARRANTY

- A. Contractor shall provide the following minimum warranties:
 - 1. Contractor: 1-Year Warranty
 - 2. Manufacturer: On the new roof system, provide a thirty (30) year comprehensive Manufacturer's Warranty meeting the specific warranty requirements of these documents. See Paragraph 1.1.C.4 of Section 01740.

B. Coverage shall be pursuant to the following inclusions:

1. Materials and workmanship – thirty (30) year total system warranty.
 - a. Inclusive of EPDM roofing membrane.
 - b. Inclusive of resilient flashing cured and uncured.
 - c. Inclusive of attachment systems.
 - d. Inclusive of insulation system.
 - e. The warranty period shall commence upon total completion of all roofing and flashing, both resilient and sheet metal work.
 - f. The basic meaning of the Warranty shall be to maintain the building interior free of water or moisture penetration from the exterior through the membrane or flashing system.
2. Terms, conditions and limitations.
 - a. Installation of roofing system must be by a contractor approved by the Manufacturer.
 - b. During thirty (30) year term of this maintenance free Warranty, Manufacturer shall have access to the roof for inspections during normal business hours. Manufacturer shall furnish his own ladders where applicable.
 - c. Owner shall furnish the Manufacturer a written notice of any defect or leak in the roof and of any claim under this Warranty within thirty (30) days of the discovery of the defect or leak in the roof. Such notice shall be given by registered mail to the Manufacturer. The Manufacturer shall provide the Owner with the applicable addresses, telephone numbers and technical personnel to be so notified and keep the Owner updated on such information throughout the thirty (30) year period.
 - d. If there is a failure of materials or workmanship within the scope of this Warranty, the Manufacturer shall repair the defect.
 - 1) The remedy stated herein is the SOLE AND EXCLUSIVE REMEDY for defects or failure of the materials supplied by the Product Manufacturer and workmanship supplied by the Contractor.
 - 2) Manufacturer shall under no circumstances be liable for incidental or consequential damages including, but not limited to, damages to building or building contents, except wherein notice has been given to the Manufacturer and Manufacturer does not respond and commence repair within twenty (20) business days following notification and continue said repair in uninterrupted sequence.
 - 3) Wherein Manufacturer does not respond within fifteen (15) business days to notice of defect, the Manufacturer shall become liable for incidental and

consequential damages including building and building contents.

- e. This Warranty shall not be applicable to damage or loss caused in whole or in part by:
 - 1) Natural disasters, including but not limited to lightning, gales, hail and/or hurricanes in apparent excess of I-90 standards or similar natural disasters.
 - 2) 70 mph maximum wind speed, vandalism, acts of war, or civil disobedience.
 - 3) Alteration of roof or installation of structures, fixtures, or utilities on or through the roof without prior written approval of the Manufacturer.
 - 4) Non-typical or unusual environmental fallout or manufacture in building of commercial/industrial solvents, acids, caustic fluids, oils, waxes, greases, absorbent clays, bleaches or plasticizers.
 - 5) Failure by the Owner or lessee to use reasonable care in roof maintenance (as provided by the Manufacturer which carefully, thoroughly describes proper and improper maintenance procedures).
 - 6) Traffic or storage of materials on the roof which inflicts physical damage.
 - 7) Infiltration or condensation of moisture in, through, around or above the walls of the building.
 - 8) Acts of parties other than personnel of the manufacturer or the authorized Contractor.
- f. Manufacturer shall have the right to suspend its obligations under this Warranty if all bills for installation, supplies and services have not been paid in full to Contractor following materials in installation acceptable to Architect/Engineer per Contract Documents.

1.10. WARRANTED TIE-INS

- A. East of this addition there is a tie-in to an adhered 60 mil EPDM roof about twenty-two (22) years old.

2. PRODUCTS

- 2.1. MATERIALS. For the entire system, use materials either manufactured by or certified as compatible by one of the acceptable system manufacturers. All EPDM shall be 60-mil thickness (not inclusive of felt back where applicable).
- 2.2. Roofing Membrane System
 - A. Rubber Membrane 090-mil EPDM rubber system fully adhered.
 - 1. Carlisle Syn Tec Systems, Carlisle, PA

2. Firestone Building Products, Co., Carmel, IN - Firestone Rubbergard
 3. Johns Manville, Denver, CO
- B. Resilient Flashing; 060 mil uncured formable EPDM shall be of same source by name as the membrane system.
1. Use only where required for manufacturer's warranty.
- C. Adhesives
1. Adhesives for adhering membrane shall be the manufacturer recommended contact type adhesive for the substrate condition.
 2. Seam adhesive shall be the membrane manufacturer's top-grade butyl base type contact seam adhesive or manufacturer self vulcanizing seam tape.
 3. Insulation adhesives: as required for warranty.
 4. Insure that adhesive application complies with I-90 standards.
- D. Seam sealant and seam tape shall be manufacturer's recommended seam sealant or tape.
1. Provide necessary seam work or seam primers as recommended.
- E. Anchor bars
1. Manufacturer's recommended type as a minimum standard unless detailed otherwise.
 2. See drawings for heavier or stiffer bar anchors at detailed conditions.
 3. Conditions not detailed but similar to detailed conditions shall be handled with similar bar anchor materials.
 4. Finishing termination bars (where exposed to view) and as noted on the Drawings:
 - a. Metal Era, Inc. - Model CB-175 with .040" CF 175 Snap On Cover.
 - b. Carlisle - Design Accessories per drawing details with .040" Snap On Cover.
 - c. J.P. Stevens Accessories Elastormerics Corp. - High-Tuff with .040" Snap On Cover.
 - d. Firestone, Johns-Manville approved material.
 - e. First and last anchor hole in any bar segment shall be 1" from ends.
- F. Walkway pads will not be required for this project.
1. Select dark color to enhance snow melt.
 2. Provide puncture mat below and four inches (4") from blocks.
 3. Layout to space one inch (1") - two inches (2") apart.

- G. Insulation - see 07200
- H. Ballast - not required at this project

3. EXECUTION

3.1. NIGHT CUT OFF (See 1.1. of this Section).

- A. Provide tie-off per EPDM Manufacturer's recommendations between new/old roof or deck system each day, watertight and wind resistant.
 - 1. Cut back cut off for proper extensions of each days' work. Inspect resulting deck following tear-off for structural condition.

3.2. BLOCKING AND ANCHORAGE. Where Drawings Sectional Details do not account for surface of the insulation and surface of the wood blocking lying in same plane and wherein same is a Manufacturer's requirement, the Contractor shall so provide by tapering wood blocking so the concealed base EPDM anchor shall be screwed into the wood blocking as detailed. This requirement applies to perimeters, curbs, parapets, equipment rails, saddles and crickets as shown on the drawings specifically or reasonably inferred by similarity.

3.3. INSPECTION

- A. Verify that all work of other subcontractors that penetrates roof deck or requires men and equipment to traverse roof deck has been completed. Protect all reroof work from traffic damage. See Paragraph 1.7.C of this Section and Paragraph 3.3.A.3 of Section 07600.
- B. Examine all surfaces for inadequate anchorage, foreign material, moisture, unevenness or other conditions that would prevent execution and quality of installation of specified roofing and flashing system and accessory items.
- C. Do not issue a proceed order to a subcontractor or proceed with work until all defects are corrected to the satisfaction of and with the written approval of the roof system manufacturer.

3.4. PREPARATION. Thoroughly clean all surfaces against or into which work will be installed. Ensure that all surfaces are clean and dry before starting and during performance of work. Follow roofing system manufacturer's recommendations.

3.5. INSTALLATION

- A. Install roofing and flashing system(s) and all accessory items in strict accordance with system Manufacturer's printed instructions current at date of bidding documents.
 - 1. Except wherein the Documents designate in excess of Manufacturer's requirements; in such case proceed per Documents.
- B. Contractor may employ membrane manufacturer's standard details in lieu

of details shown on Drawings, **ONLY** upon confirmation IN WRITING to the A/E that the Manufacturer's system exceeds the quality, longevity and future ease of replacement of the system detailed on the Drawings, otherwise these specifications and accompanying drawing shall control materials and installations.

- C. Double lap all field seams with second cross-lap or provide six inch (6") or seven inch (7") double sided seam tape.
 - 1. Use minimum three inch (3") lap tape or six inch (6") or seven inch (7") double sided seam tape.
 - 2. All laps to be included in warranty.
- D. **Sealhead stainless steel screws** shall be secured in all pre-punched (or drilled) holes in 07530/2.2.E finishing anchor bars.

3.6. EXISTING ROOFS

- A. Existing roof to the west.
 - 1. Existing roof to east adhered 60 mil EPDM twenty-two (22) years old. Warranty is expired.
- B. Protect all existing roof surfaces, repair damage as occurs.
- C. **DO NOT CONCENTRATE STORAGE OF ANY MATERIALS ON EXISTING ROOFS (NOT IN SCOPE OF WORK) OR ON ANY AREA OF NEW ROOF.**

SPREAD OUT LOADS OF STORED MATERIAL.

3.7. FIELD QUALITY CONTROL

- A. Roofing System Manufacturer will provide on site observation and instruction as the Manufacturer deems necessary.
 - 1. Adjustments in the system design necessary to meet manufacturer's requirements for guarantee are subject to Architect's approval and shall be included at no additional charge.
- B. Carefully clean surfaces prior to applying adhesives.
- C. Proper fit and lay out membranes.
 - 1. Avoid wrinkles.
 - 2. Avoid bubbles.
 - 3. Install without stretching or applying under stress.
 - 4. Handle carefully to minimize patching.
 - 5. Keep seam adhesives in proper alignment to avoid seam sealant over adhesive.
 - 6. Carefully apply contact adhesive in a thin uniform manner.

3.8. ADJUST & CLEAN

- A. Carefully inspect all completed work. Correct all defects.
- B. Clean up spill, debris and remove surplus materials at the end of each day.
- C. Provide adequate protection of completed work until substantial completion. Prevent traffic, storage of materials or equipment on completed roofing. Finally, remove 3/4" thick X 4' wide plywood from traffic lanes over complete membrane installation. See 1.7.C of this Section.
- D. Do not store materials or equipment on the completed roof.
- E. Finally clean up all rubbish, debris, surplus materials, tools and equipment and remove from the site.
- F. Provide manufacturer inspection and warranty paper work.

END 07530

sDIVISION 7 – THERMAL & MOISTURE PROTECTION
Section 07600 – Sheet Metal Flashing & Trim

1. GENERAL

1.1. REQUIREMENTS INCLUDE

Contractor shall provide metal flashing inclusive of trim, associated with the reroof work as shown on the Drawings and specified herein. Aluminum gauge as noted on Details; color – dark brown.

- A. Contractor shall verify on site flashing and trim dimensions to accomplish the design intent of the drawing details.
 - 1. New 4"x4" gutter and downspout connected to existing downspout. Four new Scupper Boxes and Downspouts are to be installed. .050 for Downspouts.
- B. New edge flashing (trim) to be provided to be compatible with 30-year warranty by Roofing Material Supplier.
 - 1. New edge flashing to look similar to existing.
- C. See Alternate for underground drainage system.

1.2. RELATED WORK

- A. Specified elsewhere
 - 1. 01010 - Project Summary
 - 2. 06100 - Rough Carpentry
 - 3. 07530 - EPDM Elastomeric Membrane Roofing
 - 4. 07900 - Sealant & Caulks
 - 5. 01030 - Alternates

1.3. QUALITY ASSURANCE

- A. Sheet metal flashing and trim shall conform with the following:
 - 1. Specified requirements of the manufacturer of the metal.
 - 2. Recommended practices contained in "Aluminum Construction", from the Aluminum Association, 750 Third Avenue, New York, NY 10017, latest edition.
 - 3. Anodized quality ASTM B-136, ASTM-B-137 or ASTM-B-244.

1.4. REFERENCE STANDARDS

- A. ASTM B209-79, Alloy 3003-H14: Aluminum
 - 1. H-24 temper where required for spring action. See details on the Drawings.
 - 2. See Drawings for thickness.

- B. ASTM A617-77, Type 304: Stainless Steel.
 - 1. 2D finish, dull, cold-rolled, annealed.
 - 2. See Drawings for location, configuration and thickness.
 - C. ASTM A446 zinc coated (galvanized) sheet steel.
 - 1. Box annealed steel
 - 2. Zinc coating, G-90 (1.25 oz.).
 - 3. See drawing for thickness.
 - 4. Top coating in accord with AAMA 621-96 Standards.
- 1.5. SUBMITTALS. Make all submittals in accord with 01340. Submittals are not returnable. Call Architect before sending submittals.
- A. Product data:
 - 1. Manufacturer's Literature: Materials description and current printed installation instructions for manufactured items.
 - 2. Shop Drawings: Typical details of fabricated and formed configurations.
- 1.6. DELIVERY, STORAGE & HANDLING
- A. Deliver products to site in accordance with Section 01600. Store all products in a manner to prevent damage, in a secure place, out of way of construction operations. Provide protection until ready for use.
 - B. Handle in accord with manufacturer's recommendations.
- 1.7. WARRANTY
- A. The Contractor shall warrant metal flashing and trim to be free of faults and defects for two (2) years from date of Substantial Completion.
 - B. Manufacturer shall warrant "Kynar 500" finish surfaces for 20 years.

2. PRODUCTS

2.1. MATERIALS

- A. Aluminum: Comply with reference standards.
- B. Stainless Steel: Comply with reference standards.
- C. Galvanized steel - comply with reference standards, G90 prior to finish coating on any preformed metal panels, noted as galvanized prior to finish.

- D. Finishes - see Drawings.
1. Aluminum: Kynar finish on gutters, downspouts, fascia, counterflashing and on pipe / conduit screen.
 2. Stainless Steel: Dull finish.
 3. Paint Lock: Paintable finish.
 4. Galvanized, pre-finished "Kynar" fluorocarbon finish.
- E. Screws, Bolts and Nuts: Stainless steel with sealhead washers where exposed to weather.
- F. Pop rivets must be aluminum for aluminum base metal. In all other locations, pop rivets to be stainless steel.
- G. Washers
1. Same alloy as screw or bolt minimum .04 in. thick.
 2. Material same as adjacent screw head.
 3. All exposed washers shall be seal type: See Paragraph H, herefollowing.
- H. Reinforced Membrane Insulator: Apply as an isolator between dissimilar metals.
- I. Resilient Washers: Neoprene, minimum .062 in. thick. Must be factory adhered to washers (Item 2.1.E).
- J. Exposed galvanized steel: Shall be hot dip galvanized on box annealed steel. (H.D.G.)
- K. Scuppers to be .050 aluminum.
- L. Downspouts to be .050 aluminum with seam at corner, 4" x 4"
1. Metal Era, Inc. ~ 5" x 5" or 6" x 6" industrial style downspout with Style 2 wall strap anchors may be used. Kynar 500 finish.
 2. Sheet metal as designated on Drawings only.
- M. Edge / fascia / counter flashing to be .040 aluminum ~50'± between expansion joints. Kynar 500 finish.
1. Metal Era or shop formed. Metal Era or a manufactured edge may be used if the lay down for gutters in fascia can be integrated into the flat face.

3. EXECUTION

3.1. INSPECTION

- A. Thoroughly inspect all existing construction and the conditions under which the work will be performed. Report to the Architect/ Engineer IN WRITING

all conditions that would adversely affect installation of the work.

- B. Start of work constitutes acceptance of the construction and conditions.

3.2. FABRICATION

- A. Metals: Comply with drawing reference.
- B. Verify dimensions at site prior to shop production fabrications.
- C. Form, fabricate and assemble all work in the shop to extent feasible and, if necessary, mark to ensure proper installation at the project site. Disassemble only to the extent necessary for shipment. ASSEMBLY MARKS SHALL BE APPLIED TO BLIND SIDE of the finished installation.
- D. Use the proper thickness of metal, adequate stiffeners, supports and proven details of assembly so that the finished product will conform to the highest standards of the industry. All clips shown on the Drawing are to be continuous. Segment cover caps are five inches (5") wide as detailed.
- E. Fabricate items with the minimum number of joints, using concealed fasteners wherever possible. Lap or lock joints but do not rivet or otherwise restrict relative movement of sections. SEE DETAIL NOTES FOR EXPANSION PROVISIONS. Gutters require covered expansion joints noted on plans.
- F. Limit all segments to fifty feet (50') in length. Minimum length ten feet (10'). Allow for minimum ½" expansion per segment length, unless otherwise specified. Assemblies require 5" cover at ½" expansion joint. Miter and lap two inches (2") min. and seal, or weld all internal or exterior corners and end caps. Some assemblies are required to be (lapped) installations, see Details.
- G. See the Drawings flashing details and configuration. Running flashing and trim metal splices shall be separated ½" for expansion and covered with .040 X 5" wide cap flashing set in double bead of sealant. Anchor screws shall pass in the ½" no-contact expansions space. Lock-splice caps in place securely. Finish sealant is to match metal finish color.
- H. All open ends of running flashing or counter flashing shall be neatly closed by fabrication of end cap running two inches (2") back under the running flashing, sealant with sealant and appropriately mechanically secured in place. Flashing shall extend four inches (4") beyond perpendicular membrane and/or counter flashing. This includes extending around corners where encountered.
- I. Should cap lengths require more screws than shown on the Drawing to hold the splice cap close to the flashing, the same shall be furnished and installed by the Contractor in a uniform pattern throughout the job.

3.3. INSTALLATION

- A. Examine all surfaces to receive the metal flashing and trim.
 - 1. Verify all dimensions of existing and subsequent constructions.
 - 2. Installation of metal flashing and trim shall constitute acceptance of existing conditions.
 - 3. Coordinate work with Plumbing and Electrical Work.
- B. Erect all the members plumb, level and in line securely anchored and properly related to other parts of the work.
- C. Protect metal surfaces that are to be in contact with dissimilar metals. See 2.1.F.
- D. Coordinate flashing installation with work under Section 07900.
- E. All holes in sheet metal flashing anchored by screws exposed to temperature change and which is applied in segments in excess of 4'0" lengths shall be 3/16" diameter over size to accommodate expansion and contraction.
- F. Anchor holes in material segments shall commence and end on maximum of three inches (3") from the ends of the segment.

3.4. MECHANICAL FASTENERS - ACCESSORIES

- A. Stainless Steel Screw Manufacturers
 - 1. Fastenal Co., 2001 Theurer Blvd., Winona, MN 55987
 - 2. Dynamic Fastener Services, P.O. Box 231, 13902 Century Lane, Grandview, MO 64030.
 - 3. Guardian Fastener & Closure Systems, Telephone 800-633-GFCS.
 - 4. Sierra Fasteners, Inc., 1710 East Guthrie, Unit C, Des Moines, IA 50316.
 - 5. Fabco Fastening Systems, Townsend Div. of Textreon, Inc., West Newton, PA 15089.
 - 6. All screws shall be of alloy which will field test zero magnetic attraction.
 - 7. Install sealant in joint to be secured by screws prior to tightening.
- B. See Section 07530 for seal head screws.
- C. Pop rivets
 - 1. Install sealant in lap joints to be secured by pop rivets prior to installing rivets.
 - 2. Lap joints to be pop riveted shall not be visible where possible.

3.5. ADJUST & CLEAN

- A. Upon completion of installations, carefully examine all work to confirm installation compliance and adequacy and correct all defective work.
- B. Clean up all rubbish, debris, surplus materials, packaging and tools and dispose of same off site in accordance with Federal, State and local regulations.

END 07600

DIVISION 7 - THERMAL & MOISTURE PROTECTION
Section 07900 - Sealants & Caulks

1. GENERAL

1.1. WORK INCLUDED

- A. Contractor shall provide caulking and sealing of joints as shown on Drawings and specified herein, including backup fillers where required.

1.2. RELATED WORK

- A. Specified elsewhere
1. 04200 – Masonry
 2. 08100 – Hollow Metal Work
 3. 08400 – Aluminum Doors & Frames
 4. 08500 – Aluminum Windows

1.3. HANDLING & STORAGE

- A. When the Contractor chooses a product for a particular use for a sealant or caulk specified, that same product shall be used throughout the project for that specific assignment.

1.4. WARRANTY

- A. Sealant Manufacturer
1. Material performance - twenty (20) years against shrinkage and hardening - implied and advertised.
 2. Loss of bond to substrate - five (5) years - Contractor or Manufacturer's Warranty.

2. PRODUCTS

2.1. MATERIALS

- A. Exterior for metal-to-metal, metal-to-glass and for glass-to-glass installations (S-1).
1. Sealants shall be one (1) part type.
 2. Serviceable life expectancy shall be twenty (20) year minimum in Manufacturer's printed material for applications proposed.
 3. Approved products area as follows:
 - a. General Electric Silicone Series 1200.
 - b. Dow Chemical 780 Silicone Rubber Sealant.
 - c. Products Research & Chemical Corp. (PRC) 4588 Polyisobutylene.
 - d. Sonneborn NP-1
 4. Use a. or b. above for windows.

- B. Exterior grade for masonry-to-masonry, metal-to-masonry, wood-to-masonry, and glass-to-masonry (S-2).
1. Material's serviceable life expectancy shall be twenty (20) year minimum in Manufacturer's printed material for the applications proposed.
 2. Approved products are as follows:
 - a. Sonneborn NP-1
 - b. Silaflex 1A
 - c. Vulkem 116
 3. Make sure sealant used with E.I.F.S. is approved by E.I.F.S. Manufacturer.
- C. Interior grade caulk shall be one (1) part, paintable (S-3).
1. Chemical make-up shall permit 5% joint movement from 20 deg. F to 110 degrees F and shall be skinning type.
 2. Approved products are as follows:
 - a. DAP Latex Caulk
 - b. Pecora BC 158
 - c. Tremco Butyl Sealant
- D. Grade on horizontal joints, exterior/interior grade sealant shall be one (1) part, self-leveling for concrete contraction/expansion joints (S-4).
1. Approved products are as follows:
 - a. Sonneborn Sonolastic S.L.1
 - b. Vulkem 45
 - c. Dow Chemical 880
- E. **Insure that various products specified above meet various Manufacturer's requirements; change products if so recommended.**

2.2. JOINT FILLER

- A. Joint Filler F-3, closed-cell polyethylene approved products shall be as follows:
1. Ethafoam by Dow Chemical.
 2. Expand-O-Foam by Williams Products, Inc.
 3. Filler Foam FF-4 by Progress Unlimited, Inc.
 4. Safe-T-Grip Filler Gasket by Structural Specialties Corp.

- 2.3. JOINT CLEANER. Joint cleaner shall be that cleaner recommended by Sealant Manufacturer for specific joint surface and conditions.

- 2.4. JOINT PRIMER AND SEALER. Joint primer and sealer shall be those compounds recommended by Sealant Manufacturer for the specific joint surface and conditions.

3. EXECUTION

3.1. PREPARATION

- A. Examine all surfaces to receive the parts of the work specified herein. The application or installation of materials constitutes acceptance of the substrate.
- B. Clean surfaces and remove protective coatings, which may fail in adhesion or interfere with bond of compound so surfaces are free of deleterious substances, which might impair the work.
- C. Prime surfaces per the Sealant Manufacturer's instructions.
- D. Install bond breakers in locations and of type recommended by the Sealant Manufacturer to prevent bond or sealant to surfaces where such bond might impair the performance of the sealant.

3.2. INSTALLATION

- A. Install all materials in accordance with Manufacturer's printed instructions. Unless otherwise directed, conform as follows:
 - 1. Compounds shall not be installed at temperatures below 40 deg. F unless the Manufacturer specifically permits the application of his materials at a lower temperature.
 - 2. If job conditions require installation of compounds below the minimum installation temperatures recommended by the Manufacturer, consult the Manufacturer's Representative and establish the minimum provisions required to ensure the satisfactory work.
 - 3. Confine compounds to joint areas shown. Use masking tape to prevent staining of adjoining surfaces, spillage and/or migration of the compound out of joints. Tool surfaces to shape shown or, if none is shown, to a flush or slightly concave surface. Remove excess compound and clean adjoining surfaces as may be required to eliminate any indication of soiling or migration.
 - 4. In joints which are not subject to traffic, apply sealants to a minimum depth of 50% of the normal joint width but not less than 3/8" or more than 1/2" deep.
 - 5. Apply non-elastomeric compounds in exposed joints with the depth of compound not less than the joint width.
 - 6. Sealant shall be poured over a bond breaker tape or zip strip Joint Filler. The joint shall be masked off adequately to assure a clean, flush and finished installation.
 - 7. Sealants and caulks shall be a color selected to blend with adjacent material color.

- B. Installations shall be neatly executed, smooth and regular in appearance, no lumps or globs or smears onto adjacent surfaces. Tool when appropriate.

3.3. SEALANT COLOR SELECTION

- A. Sealant shall match surrounds for color.
 - 1. Coordinate with Architect/Engineer regarding colors to insure approval.
 - 2. Once a Manufacturer's product has been established for a use, that same product shall be used throughout the project for the particular situation and background.

3.4. SEALANT APPLICATION

- A. Appearance conditions: Throughout the interior of the construction provide sealants as needed to visually finish all installations.
 - 1. Construction joints
 - 2. Abutting dissimilar materials
 - 3. Wall, floor and ceiling penetrations
 - 4. Joints subject to water penetration
 - 5. Irregular joints
 - 6. Unintended gaps, cracks or openings such as at poorly executed electrical device cover plates
- B. For exterior/building envelope conditions: Select the proper sealant to provide resistance to air or water infiltration at all exterior envelope joints, connections of dissimilar materials:
 - 1. Wall expansion joints
 - 2. Doors & windows
 - a. Bed all thresholds in urethane sealant.
 - 3. Wall penetration
 - 4. Abutting dissimilar materials
 - 5. As needed to control infiltration
 - a. Water
 - b. Air
 - c. Vermin and insects
- C. Appearance conditions: Throughout the interior of the construction provide sealants as needed to visually finish all installations.
 - 1. Wall expansion joints
 - 2. Construction joints

3. Abutting dissimilar materials
4. Wall, floor and ceiling penetrations
5. Joints subject to water penetration
6. Irregular joints
7. Unintended gaps, cracks or openings, such as at poorly executed electrical device cover plates.

END 07900.

1. GENERAL

1.1. WORK INCLUDED

- A. The General Contractor shall provide hollow metal doors, frames, sidelights and vision panel frames as shown on the Drawings and specified herein.
 - 1. New steel doors and frames for Rooms 117 and 117.1, and the Restroom.
 - 2. New aluminum door for Lobby 120.
 - 3. New aluminum FRP door for 117 exit.

1.2. RELATED WORK

- A. Specified elsewhere:
 - 1. DIVISION 0 - BIDDING & CONTRACT REQUIREMENTS
 - 2. DIVISION 1 - GENERAL REQUIREMENTS
 - 3. 01055 - Anchorage & Fasteners
 - 4. 07900 - Sealants & Caulks
 - 5. 08700 - Door Hardware
 - 6. 09900 - Painting
- B. See Door Schedule shown on the Drawings.

1.3. SUBMITTALS

- A. Submit shop drawings in accord with 01340. Show type of door and frame for each opening, full scale sections of all typical members, dimensioned elevations, anchors, reinforcements, and other required components.

1.4. HANDLING AND STORAGE

- A. Handle and store doors and frames at the job site in such a manner as to prevent damage. Wrappings or coverings shall be removed upon arrival of doors at the job site.
- B. Doors shall be stored in a vertical position of blocking, clear of floor with blocking between the doors to permit air circulation between the doors. All damaged or otherwise unsuitable doors and frames, when so ascertained, shall be replaced.

2. PRODUCTS

2.1. MATERIALS

- A. Structural Steel Shapes: ASTM A36-70a.
- B. Sheet Steel: ASTM A 366-72, commercial quality, cold rolled, stretcher leveled.

- C. Galvanized Steel ASTM A 366-72 .5 oz/square foot per side.
- D. Primer: Phosphate treated, gray zinc chromate baked on inside and outside of all sections.

2.2. MANUFACTURERS

- A. Acceptable manufacturers of standard 16-gauge doors and frames:
 - 1. Steelcraft - Cincinnati, Ohio
 - 2. The Ceco Corporation - Chicago, Illinois
 - 3. Mesker Door Co., Inc., Huntsville, AL
 - 4. Fenestra Corporation - Erie, Pennsylvania
 - 5. Curries Co., Mason City, IA
 - 6. Amweld Building Products, Garrettsville, OH

2.3. FABRICATION

- A. Fabricate hollow metal doors and frames as shown on the Drawings and in accordance with best shop practices. Frames shall be welded rigid, neat in appearance, and free from defects. Field measurements shall be taken as required for coordination with adjoining work.
- B. Form exposed surfaces free from warp, wave and buckle, with all corners square, unless otherwise shown. Set each member in proper alignment and relationship to other members with all surfaces straight and in a true plane.
- C. Reinforce members and joints with steel plates, bars, rods or angles for rigidity and strength.
- D. Conceal all fastenings unless otherwise shown or specified.
- E. Provide combination type hollow metal door frames to be used as both door buck and trim, formed to profiles.
- F. Unless otherwise shown, fabricate all interior frames of 14 gauge steel primed steel.
- G. All corners shall be welded and ground smooth exhibiting a neat smooth flush finish.
 - 1. Provide proper returns at all edges.
- H. Doors and frames shall be mortised and reinforced for hardware in accordance with the Hardware Manufacturer's instructions and templates. Reinforcing shall be drilled and tapped to receive hinges, locks, strikes, and closers. Cover boxes shall be provided for hardware cutouts. The hinge reinforcements shall be 7-gauge. Angle floor clips have two holes each for 3/8" anchor.

- I. Make provisions for installing rubber door mutes on interior door frames. Three (3) for single frames.
- J. Provide internal reinforcement for surface mounted hardware in frames to match locations shown or specified for doors.
- K. Furnish at least three (3) adjustable metal anchors in each jamb of shapes, sizes and spacing shown or required for anchorage into adjoining wall construction. Fabricate joint anchor of steel no lighter than gauge used for the frame, unless otherwise shown.
- L. Floor anchor clips for each jamb shall be not less than 14-gauge steel with two anchor holes and welded to frame. Terminate bottom of frames at the indicated finished concrete floor level.
- M. Miter, fit, weld, and grind smooth corners of panel moldings for glass panels to form continuous frames around panels. Furnish removable moldings of minimum 18-gauge steel. Secure removable moldings with not less than No. 6 x 32 Phillips, oval-head countersunk machine screws at 12" o.c.
- N. Doors shall be as follows:
 - 1. 1-3/4" thick.
 - 2. 14-gauge face sheets.
 - 3. 14-gauge edge channels.
 - 4. 1/8" beveled lock side.
 - 5. S.D.I. Type III extra heavy-duty seamless full flush.
 - 6. Foam filled core on exterior doors.
 - 7. Cut out mortise and reinforce for hardware mounting.
 - 8. 7-gauge drilled and tapped hardware.
 - 9. Fully galvanized and primed back and face side.
- O. Frames shall be as follows:
 - 1. Section shall be PR-15 with 1/2" X 5/16" return adjacent to wall anchorage, welded construction.
 - 2. Stops 5/8" deep X 1-15/16" door pocket X 2" casing face at side jambs and 4" casing face at door head jambs.
 - 3. Loose stops for glazed frames shall be 1/2" thick X 1-1/4" wide - screw anchored to frames.
 - 4. Frames shall be 14 gauge.
- P. Top and bottom edges all doors shall be closed with a continuous recessed channel not less than 16-gauge, extending full width of door and spot welded to both faces. Both vertical edges of doors shall be leveled 1/8" in 2".
- Q. Provide clearances for hollow metal doors of 3/32" at jambs and heads, 1/8" at meeting stiles for pairs of doors and 3/8" at bottom where no threshold is required. 3/8" to increase 1/4" where door swings over carpet. Where a threshold is shown, provide 1/8" in 2".

- R. In addition to other requirements for hollow metal doors and frames specified herein, comply with the label requirements of the National Fire Protection Association and applicable local codes. Fabricate doors and frames in accordance with the requirements of the NFPA Standard No. 30 and UL Standard for Safety No. 60 for the class of door opening shown or scheduled.
- S. Provide accessories for doors per the Drawings and per Section 08700.

2.4. SHOP PAINTING

- A. Thoroughly clean all metal surfaces of loose scale, shavings, filings, dirt and other deleterious materials by using wire brushes or other effective means. Remove grease and oil by solvent cleaning.
- B. Chemically treat all surfaces with phosphate compound to assure maximum paint adherence. Apply one coat of primer, baked on. Cover all surfaces without runs, smears or bare spots. THOROUGHLY PRIME JAMBS INSIDE AND OUTSIDE.
- C. Prime coat inside surfaces of frames.
- D. Prime coat inside surface of all removable stops, as well as the frame area covered by such stops.

3. EXECUTION

3.1. PREPARATION

- A. Examine job site conditions to receive the work. Installation shall confirm acceptance of job site conditions and preparation.
- B. Verify all dimensions of in place and subsequent construction.

3.2. INSTALLATION

- A. All items shall be set in their correct locations as shown on details and shall be level, square, plumb and at the proper elevations and in alignment with other work.
- B. All interior and exterior joints between glass, framing and mullion members shall be tightly sealed with elastomeric sealant in order to assure a vibration free and watertight installation.
- C. All materials shall be screwed in place using backing, masonry plugs or anchor straps as applicable.
- D. Where moldings are joined, they shall be accurately cut and fitted to result in a tightly closed joint.

- E. After erection, protect exposed portions of framing from damage by grinding and polishing machines, plaster, lime, acid, cement or other harmful compounds.
- F. All doors and frames to be factory primed and receive two (2) coats satin DTM latex paint in field.

END 08100

DIVISION 8 – DOORS & WINDOWS

Section 08400 – Aluminum Frames, Aluminum Door, FRP Door, & Hardware

1. GENERAL

1.1. WORK INCLUDED

- A. General Contractor shall provide one exterior grade aluminum frame with hybrid aluminum & FRP door as shown on the Drawings and specified herein.
 - 1. Perimeter single FRP doors as indicated on Plans.
 - 2. Insulated panels
 - 3. All weather-stripping, cushion felts, and thresholds to be new.
 - 4. ADA Compliant hardware by hardware supplier
 - 5. Latchsets and locks to be new. Panic hardware to be installed.
- B. General Contractor shall provide one aluminum door and frame for interior.
 - 1. ADA compliant hardware.
 - 2. Push/Pull with still lock.

1.2. RELATED WORK

- A. Specified in other Sections:
 - 1. DIVISION 1 - GENERAL REQUIREMENTS
 - 2. 01055 - Anchorage & Fasteners
 - 3. 07900 - Sealants & Caulks

1.3. QUALITY ASSURANCE

- A. Provide aluminum reinforced FRP doors and aluminum frames made of components of standard construction furnished by one manufacturer as coordinated assemblies.
- B. Exterior-to-Interior Doors, Frames: Anodic Finish ASTM-B-136, ASTM-B-137 or ASTM-B-224 Test Methods.
 - 1. Natural anodized finish, AA-M12C22A (.7 mils)
- C. Reinforce the doors and frames to receive hardware components. In particular, reinforce the door and frame for closers and stops. Show reinforcing on the shop drawings.

1.4. SUBMITTALS

- A. Provide Data: For each type of door and frame indicated, include door designation, type, level and model, material description, core description, construction details and finishes.
- B. Submit the following in accordance with Section 01340:

1. Manufacturer's Literature: Materials description and installation instructions for system used.
2. Shop Drawings: Complete layout of frame and door elevations, framing details, reinforcing peripheral conditions, and anchorage.
3. Complete description of hardware and parts list for future maintenance.

1.5. WARRANTY

- C. Warrant FRP doors, Aluminum frames, and factory hardware against failure in materials and workmanship, including excessive deflection, faulty operation, defects in hardware installation, and deterioration of finish or construction in excess of normal weathering.
- D. Warranty period: Ten years starting on date of shipment. In addition, a limited lifetime (while the door is in its specified application in its original installation) warranty covering: failure of corner joinery, core deterioration, delamination or bubbling of door skin.

2. PRODUCTS

2.1. MANUFACTURERS. Use all one manufacturer.

- A. Special-Lite, Inc., Decatur, MI, 800-821-6530
- B. Kawneer Flush line, Franklin, IN, 317/738-2600
- C. Or approved equal – obtain approval before bidding.
 1. Or provide price increase or deduct on Substitution / Voluntary Alternate Form.

2.2. FINISH

- A. Natural anodized
- B. ADA hardware to match

2.3. APPLICABLE DOOR TYPES

- A. Door locations are shown on drawings.
 1. FLUSH FACE SINGLE Door is Special-Lite SL-17 for the exit door out of Room 117. (Verify all door dimensions and quantity).
 2. Coordinate door, stile, framing and reinforcement with selected hardware. All FRP doors have 24" x 24" vision panel sill at 51" AFF.
 3. Fully weatherstripped.
 4. Exterior doors shall have minimum isocyanurate insulation of 1".
 5. 0.120" FRP both sides, color to be selected.
- B. Flush face single FRP door is Special-Lite SL-17 for Room 117 door that is

36" x 86". Verify all dimensions.

- C. Single aluminum door is Kawneer 350 medium stile entrance 36" x 86". Verify all dimensions. Door is for Lobby 120.
 - 1. Infill – ¼ glazing meet Federal standards.
 - 2. No weather stripping required.
- D. Clearances: Not more than 1/8 inch (3.2 mm) at jambs and heads, except not more than ¼ inch (6.4 mm) between pairs of doors. Not more than ¾ inch (19 mm) at bottom, with standard being 5/8 inch (15.9 mm) at bottom.
- E. Door Edges: Lock stile to be factory beveled 1/8" in 2" for rub free operation. Square lock-edge will not be accepted.
- F. Tolerances: Maximum diagonal distortion – 1/16 inch (1.6 mm) measured with straight edge, corner-to-corner.
- G. Hardware Reinforcement: Fabricate all hardware reinforcements utilizing premium high density polyethylene (HDPE) and fiberglass blocking. Any form of wood or metal reinforcements will not be accepted.
- H. Exposed Fasteners: Unless otherwise indicated, provide stainless steel, countersunk flat or oval heads for exposed screws and bolts.
- I. Thermal-Rated (insulating) Assemblies: At exterior locations and elsewhere shown or scheduled, provide doors fabricated as thermal-insulating door and frame assemblies, with an "R" value of 11-12.
- J. Hardware Preparations: Prepare doors and frames to receive mortised and concealed hardware according to final door hardware schedule and templates provided by hardware supplier. Doors and frames must be factory pre-drilled for all mortised hardware preps. Pilot and through-bolt holes for all surface mounted hardware to be drilled at the project site during installation.

2.4. FRAMING SYSTEMS

- A. Special-Lite 450T 2" X 4 ½" or Kawneer 451.
 - 1. .125" Thick mill finish extruded aluminum for three doors.
 - 2. Necessary clips, stops and framing components to complete the framing system.
 - 3. Sealants and closure pieces.
- B. Accessory trim pieces: Provide necessary closure pieces on extruded aluminum to properly finish jambs and head.
- C. Basic Systems - 4-1/2" X 2" X 3/16" wall thickness aluminum.

D. All designated openings to receive new aluminum frame.

1. Tri-Fab 450 or equal
2. 2" X 4 ½" X 3/16" (0.187")

a. With all closure trim pieces, clips, stops, framing and anchoring components to complete the door frames.

2.5. FRP PANEL DOORS

A. Special-Lite SL-17 or Kawneer Flush Line FRP

B. 0.120" thick FRP panel on EPS polyurethane insulated core and aluminum frame.

1. One (1) single door 36" x 88"
2. One (1) double door 72" x 88"

2.6. HARDWARE (PROVIDED BY HARDWARE SUPPLIER **NOT** DOOR MANUFACTURER)

A. Keying:

1. Exterior doors equipped with Von Duprin Panic Device and Primus Lock to match Unit 5 master.

B. Product Application:

1. One (1) single door Room 119: Door 7' – 2" h. for Room 117
 - a. Latchsets/Locksets: 2-3/4" backseat, dead locking spring bolts where keyed. Use vandal resistant breakaway lever handle in all exterior applications.
 - a) Extra heavy-duty commercial grade, ANSI A156.2, Series 4000, Grade 1.
 - b) Schlage D Series D53PD x US32D or US26D.
 - (1) 5-3/4" lever radius x Rhodes trim with 2-9/16" diameter rose.
 - (2) Keying – Schlage Primus. Always locked outside.
 - (3) Closer with no hold open
2. One single door Room 120 (Lobby) door 7'-2" high.
 - a. 350 medium stile.
 - b. Kawneer push/pull with key outside and thumb turn inside. Keying Schlage Primus.
 - c. Closer with hold open.
 - d. No threshold.

- C. Continuous geared hinges – on new door for 117 to exterior FRP door.
 - 1. Select Products, Ltd. SL-11 Full Mortise
 - 2. Pemko Hinge V
 - 3. Hagar Roton
- D. Threshold - manufacturer recommended for application, ADA compliant, resistant to blowing rain – door to 117 exterior only.
 - 1. On door to receive new aluminum threshold.
- E. Closer – FRP door and aluminum door
 - 1. LCN Smoothie, 4116 AVB aluminum finish, S-CNS arm
 - 2. **No** Hold-open
- F. Jamb / head weatherstrip – all exterior doors (FRP door room 117).
 - 1. Pemko 588D
 - 2. Or equal.
- G. Sill drip/sweep – only on FRP door to 117/exterior
 - 1. National Guard Products 101VA
 - 2. Pemko 3452A
 - 3. Reece 353A
 - 4. Or equal.
- H. Door stop wall, none existing – none new.
- I. Louvers – No louvers in any FRP door or all aluminum entrance doors.

2.7. VISION LITES

- A. Factory Glazing: 1-inch glass insulating units.
- B. Lites in Exterior Doors: Allow for thermal expansion. Provide laminate or tempered glazing.
- C. Rectangular Lites:
 - 1. Size: 24" by 24: (As indicated on Drawings – sill 51" above floor)..
 - 2. Factory glazed with screw-applied aluminum stops anodized to match perimeter door rails.
- D. Factory glazing ¼" glass 3 ½" stiles; 3 ½" head; 10 ½" bottom.

3. EXECUTION

3.1. INSTALLATION

- A. Examine all surfaces to receive parts of the work specified herein. Verify all dimensions of in-place and subsequent construction. Installation of

frames constitutes acceptance of the existing conditions.

1. Doors with new Primus locks and lever latch set installed.
- B. All items shall be set as shown and shall be level, square, plumb, at proper elevations, and in alignment with other work.
- C. All joints shall be tightly sealed with elastomeric sealant in order to secure a watertight job and eliminate air leakage as much as possible. All materials shall be screwed in place using backing, masonry plugs or anchor straps as required.
1. Plastic anchors in masonry shall not be used. See Section 01055.
 2. Jamb and heads (for glazing frames or door frames) shall be anchored as follows:
 - a. 1/4" diameter cap screws at maximum 1'-4" o.c.
 - b. 5/16" diameter cap screws at maximum 2'-0" o.c.
 - c. 3/8" diameter cap screws at maximum 2'-0" o.c.
 - d. Minimum three (3) anchors per jamb segment.
 - e. First and last segment anchors shall not exceed 8" spacing from the end.
 - f. Anchor for 15 psf wind load, leeward/windward.
- D. Where moldings are joined, they shall be accurately cut and fitted to result in a tightly closed watertight joint.
- E. New door sills and thresholds shall be set in a bed of exterior grade sealant, full length and full width, watertight. See 07900, sealants.
- F. Frames anchored to masonry shall be spaced therefrom and finished.
1. Provide continuous Styrofoam rope backer. After backer insertion, depth of recess shall be equal to joint width.
 2. Provide exterior sealant in color to match frame materials. Strike sealant to a smooth uniform fillet.
- G. Thresholds shall be anchored with stainless steel flat head threaded cap screws into metal expansion anchors, set into full bed of exterior grade sealant.
- H. General: Install doors, frame and accessories according to Shop Drawings, manufacturer's data and as specified.
- I. Placing Frames: Set frames accurately in position, plumbed, aligned and braced securely until permanent anchors are set. After wall construction is completed remove temporary braces and spreaders, leaving surfaces smooth and undamaged.
1. New masonry construction, provide at least four (4) frame anchors per strike jamb and hinge jamb. Install mortise strike at BHMA/ANSI standard heights. Set frames and secure to adjacent

construction with stainless steel expansion bolts and masonry anchor devices.

3.2. ADJUSTING AND CLEANING

- A. Protection Removal: Immediately before final inspection, remove protective wrappings from doors and frames.
- B. Cleaning: Clean fiberglass door and frame assemblies in accordance with manufacturer's recommended procedure.

END 08400

1. GENERAL

1.1. WORK INCLUDED

- A. Remove one (1) 3' 8"h x 3'-0"w and one (1) 3' 8"h x 6'-0"w double GERKIN Window from Existing Room 117. Install the single window in the new wall for Workroom 117 and install two (2) new 3'-8" h x 3'-0"w windows also in the new west wall for Room 117.
 - 1. These windows are heavy duty commercial windows installed in 2009 by McLean County Glass Co., 309/827-1600. Turn over double window to owner.

1.2. RELATED WORK

- A. Specified elsewhere:
 - 1. 07600 – Sheet Metal Flashing & Trim

1.3. TESTING

- A. Test Units
 - 1. Air, water and structural test unit sizes and configuration shall conform to requirements set forth in ANSI/AAMA 302.9-1977.
 - 2. Thermal and infiltration test unit sizes shall be 4'-0" X 6'-0". Test unit shall consist of a single typical vent.
- B. Test Procedures and Performance
 - 1. Windows conform to all ANSI/AAMA AP-C60 / HC55 performance tests.

1.4. QUALITY ASSURANCE

- A. The window manufacturer's letter of certification stating that the tested window meets or exceeds the referenced criteria for the appropriate ANSI/AAMA 101-88 window type was received in 2010.

1.5. DELIVERY, STORAGE AND HANDLING

- A. All materials shall be carefully handled upon removal at the project site. Do not stack directly on floor, provide cardboard shims, stack or store in a manner to avoid abrasion, warping or winding of the assembly. Keep covered.

2. PRODUCTS

2.1. MATERIALS

- A. Aluminum window systems shall be minimum 2-3/8" deep, X approximately 1½ " face width system. Nominal 0.1" primary wall thickness thermal break window system for 1" glazing, weep to exterior, 6063-T5 alloy and temper, AAMA P.HC 60 minimum rating. All windows to be equipped with operable awning or hopper sash. All operable windows to be equipped with screens. Listing in this schedule does not supersede primary wall thickness or jamb depth requirements. Verify for each and adjust model selection if necessary.
1. Gerkin 5200 Series, C-60 / HC55, Sioux City, IA, phone 402/494-6000
- B. Hardware: Description of existing windows:
1. Locking handles shall be cam type and manufactured from a white bronze alloy with a US25D brushed finish.
 2. Operating Arms:
 - a. Projected Vents: Anderberg Series 301 4-bar stainless steel arms or equal.
 - b. Pivots: Pivot mechanism shall be extruded aluminum housing with a stainless steel pin.
 3. Weatherstripping shall be Schlegel Q-Lon or equal.
 4. Glass and Glazing shall be one inch (1") insulated glazing.
 5. Thermal Barrier
 - a. Barrier material shall be poured-in-place two (2) part polyurethane. A non-structural thermal barrier is unacceptable.
 6. Sealants, interior and exterior, shall be a one (1) part polyurethane color to be selected. Use rope where appropriate to conditions.
 7. These eight (8) windows are presently installed in metal stud walls with EIFS on exterior side and gypsum board on inside. To install in new 14" masonry walls, provide GERKIN 2 3/8" subframe system for head and jambs – all windows. For sill provide the GERKIN subframe sill and install the extended sill flashing.

2.2. FABRICATION

- A. General Description of existing windows:
1. Mechanical fasteners, welded components and hardware items shall not bridge thermal barriers. Thermal barriers shall align at all frame and sash corners.
 2. Depth of frame and sash shall not be less than 2-3/8".

B. Frame

1. Frame components shall be mortised and tendoned. Other means of mechanical fastening, i.e., screws shall not be permitted.
2. Frame/sash design shall include integral drip, self-flashing operation, or surface applied extruded rain drip over each operable sash section.
3. At each location, provide an extruded sill flashing full frame depth with turn up plus drip out over brick.

C. Sash

1. All sash extrusions shall be tubular.
2. Each corner shall be mitered, reinforced with an extruded aluminum corner key, hydraulically crimped, and "cold welded" with epoxy adhesive.
3. Each sash shall have two (2) rows of weatherstripping installed in dovetail grooves in the sash extrusion.

D. Screens

1. Screen frames shall be extruded aluminum - mill finish.
2. Screen mounting holes in the window frame shall be factory drilled.
3. Screen mesh shall be stainless steel 18 X 14 mesh .011 wire diameter; available from McNichols Company, 1-800-237-3820 or equal.

E. Glazing

1. All shop glazed units shall be wet glazed with a silicone backbed compound (to be BE SCS-2511 or equal) and an extruded aluminum glazing bead with vinyl gasket, insulated low E and tinted.

3. EXECUTION

3.1. INSPECTION

A. Job Conditions

1. Verify dimensions clean tolerances, plumb and level. Provide a solid anchoring surface in accord with Manufacturer's recommendations.

3.2. INSTALLATION

- A. Use only skilled tradesmen with work done in accord with approved shop drawings and specifications.
- B. Plumb and align window faces in a single plane for each wall plane and erect windows and materials square and true adequately anchored to maintain position permanently when subjected to normal thermal and building movement and specified window loads.

- C. Adjust windows for proper operation after installation.
 - 1. Check for open adequate weeps.
 - 2. Check for points that might allow water into framing or wall below window.
 - 3. Provide necessary flashing around windows to be compatible with EIFS wall system.

- D. Furnish and apply sealants with backer rope to provide a weathertight installation at all joints and intersections and at opening perimeters. Carefully follow sealant requirements in Section 07900 regarding type, applications, preparation and rope. Wipe off excess material and leave all exposed surfaces and joints clean and smooth.
 - 1. Use exterior grade, for inside and outside joints, color to match window system.
 - 2. Properly seal at sill and sill ends.
 - 3. Installation and window assembly to be infiltration tight.

3.3. ADJUSTING AND CLEANING

- A. After completion of window installation, windows shall be inspected, adjusted, put into working order and left clean, free of labels, dirt, etc. Protection from this point shall be responsibility of General Contractor.

END 08500

DIVISION 8 – DOORS & WINDOWS
Section 08700 – Door Hardware

1. GENERAL

1.1. WORK INCLUDED

- A. General Contractor shall provide adequate and suitable hardware and accessories at all doors shown on the Drawings.
 - 1. Hardware for steel doors, Workroom 117 to Corridor 118 and Workroom 117 to Restroom 117.1.

1.2. PRODUCTS FURNISHED IN THIS CONTRACT BUT NOT SPECIFIED UNDER THIS SECTION

- A. Hollow Metal Work - 08100: Hardware Supplier shall furnish steel door, frame templates for frame preparation to Door Fabricators.
- B. Aluminum Doors & Frames -- Doors and hardware specified in Section 08400.

1.3. RELATED WORK

- A. Specified in other Sections:
 - 1. DIVISION 1 - GENERAL REQUIREMENTS
 - 2. 08100 - Hollow Metal Work
 - 3. 08400 - FRP Doors & Frames

1.4. REFERENCES

- A. ANSI A117.1 - Specifications for Making Buildings and Facilities Accessible to and Usable by Physically Handicapped People
- B. NFPA 80 - Fire Doors and Windows
- C. AWI - Architectural Woodwork Institute - Quality Standards
- D. NFPA 101 - Code for Safety to Life from Fire in Buildings and Structures
- E. NFPA 252 - Fire Tests of Door Assemblies.
- F. UL 10B - Fire Tests of Door Assemblies
- G. UL 305 - Panic Hardware
- H. Illinois School Code 175/185/180

1.5. SUBMITTALS

- A. Submit the following in accordance with 01340:
 - 08700 - 1 Door Hardware

1. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.
2. Shop Drawings: Indicate locations and mounting heights of each type of hardware.

B. Submit manufacturer's parts lists and templates to Door Frames Fabricator.

1.6. OPERATION AND MAINTENANCE DATA

- A. Submit under provisions of 01700 maintenance manuals showing parts and service procedures for all items of operable hardware.
- B. Maintenance Data: Included data on operating hardware lubrication requirements, and inspection procedures related to preventative maintenance.

1.7. QUALITY ASSURANCE

- A. Perform work in accordance with the following requirements:
1. Installer shall be experienced in the installation and adjustment of selected hardware.
 2. Follow manufacturer's instructions.
 3. Adjust to operate smoothly, quietly and without binding.
 4. Damaged, scratched or incomplete hardware devices shall not be used.
- B. Certification: Proof of hardware inspection shall be provided to the Owner and Architect/Engineer. See 3.3 of this section.

1.8. QUALIFICATIONS

- A. Manufacturers: Company specializing in manufacturing the products specified in this section.
- B. Hardware Supplier: Firm specializing in supplying institutional door hardware at least three (3) years and approved by the manufacturer.

1.9. REGULATORY REQUIREMENTS

- A. Conform to Illinois Code #175, 185m 180, and NFPA as applicable for requirements applicable to fire rated doors and frames.

1.10. DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect and handle products per provisions of 01600. Package hardware items individually; label and identify each package with door opening code to match hardware schedule.
- B. The Supplier shall deliver the keys directly to the Owner. The General Contractor and the Architect/Engineer shall be furnished an acknowledgment receipt bearing the Owner signature.

1.11. WARRANTY

- A. 100% Labor and Materials - one (1) year warranty to Owner under provisions of 01740. Warranty shall cover latch sets and door closures.
- B. Extended Warranty: Parts, replacement, rebuilding, shop labor - excludes field labor to install.
 - 1. Latch/locksets - five (5) years
 - 2. Exit devices - five (5) years
 - 3. Closers - five (5) years

1.12. MAINTENANCE MATERIALS

- A. Provide maintenance materials under provisions of 01730.
- B. Provide and deliver to Owner two (2) sets of special wrenches and tools applicable to each different or special hardware component.

2. PRODUCTS

2.1. ACCEPTABLE MANUFACTURERS

- A. Hinges:
 - 1. Interior Application:
 - a. Hager BB1279, 4-1/2" x 4-1/2" US32D or US26D.
 - b. Lawrence BB4101, 4-1/2" x 4-1/2" US32D or US26D.
 - c. Stanley FB179, 4-1/2" x 4-1/2" US32D or US26D.
 - 2. Exterior Application: Full height geared hinges with Teflon load carrying bearings, heavy duty, finish to match door system. Non-removable in closed position.
 - a. Pemko Hinge
 - b. Hager Roton
 - c. Or equal
- B. Latchsets/Locksets: 2-3/4" backset, dead-locking spring bolts where keyed. Use vandal resistant breakaway lever handle in all exterior applications.
 - 1. Extra heavy-duty commercial grade, ANSI A156.2, Series 4000, Grade 1.
 - 2. Schlage D Series D53PD x US32D or US26D.
 - a. 5-3/4" lever radius x Rhodes trim with 2-9/16" diameter rose.

C. Push-Pulls: N.I.C.

1. Hiawatha Pull #535A 8", or equal, US32D or US26D. Mount pull in 3-1/2" x 16" x .1" thick push plates x US32D or US26D.
2. Redstone Pull #178A (1" x 2-1/2" x 10") x US32D or US26D. Mount pull in 3-1/2" x 16" x .1" thick push plate x US32D or US26D.
3. Hiawatha, or equal, push plates (kick plate stock) 10" x 24" x 18 gauge US32D.
4. Russwin Pull #481, 9-1/4" x US32D or US26D.

D. Cylinder Locks: Exterior areas to be keyed to Owner's Primus Schlage system to provide building keying coordinated with existing, master keying, match existing, grand master keying and individual keying as directed in conference with Owner prior to delivery, see 2.2.A.

1. Interior locks shall be "C" Core.

E. Closers:

1. Normal closers, fully adjustable and applicable accessories with no hold open where specifically noted in Schedule, thumb (hand) turn operated hold-open all other locations. Adjustable delay action at all closers.

- a. LCN 4100 Series

F. Door Stops (Use wall stops wherever possible.):

1. Wall Stops (mounted to mate pull, handle or knob device):

- a. Hiawatha: R1326 1/2 BL x US28D or US26D.
- b. Ives: #401 x US 28D or US26D.
- c. Glynn Johnson: #WB50MX x US28D or US26D.
- d. Rockwood 400/403.

2. Floor Stops (add spaces as applicable to door undercut)

- a. Hiawatha: #1330A and #1330AE x AL or US32D finish.
- b. Yale: #846RP and 847RP x US26D or US28D finish.
- c. Russwin: #207, #207 1/2 and #209 x AL or US26D.
- d. Ives: #436 or #438 x AL or US26D.

G. Thresholds:

1. Aluminum Entrance Doors

- a. Use door manufacturer's standard - accessible style.

2.2. KEYING

- A. Door Locks: New cylinders keyed differently, keyed alike, master keyed, and grand master keyed. Match existing building keying and master keying

as directed by Owner.

- a. Match Primus system for exterior
 - b. Schalage "C" cores for interior
- B. All cylinders shall be keyed and master keyed compatible with the existing building hardware system. Supply keys in the following quantities:
 - 1. Four (4) sets of individual cylinder keys.
 - 2. Four (4) master keys.
 - 3. Four (4) grand master keys.
 - 4. For keying questions call Kaine Hilt: 309/275-7418

2.3. FINISHES. Finishes are brushed steel/pewter color.

3. EXECUTION

3.1. EXAMINATION

- A. Verify site conditions under provisions of 00800.
- B. Verify that doors and frames are ready to receive work and dimensions are in accord with documents, shop drawings and manufacturer's instructions, as applicable.
- C. The Specifications and Drawings indicate hardware intent.
 - 1. Door hardware omitted from the Schedule shall be fitted with hardware in accord with a similar door installation at no additional cost to the Owner.

3.2. INSTALLATION

- A. Install hardware in accordance with manufacturer's instructions.
- B. Use templates provided by hardware item manufacturer.
- C. Mounting heights for hardware from finished floor to center line of hardware item:
 - 1. Locksets: 40"
 - 2. Push/Pull: 40"
 - 3. Dead Locks: 40"
 - 4. Exit Devices: 40"

3.3. FIELD QUALITY CONTROL. Hardware Consultant shall inspect installation and certify that hardware and installation has been furnished and installed in accordance with manufacturer's instructions and as specified.

3.4. ADJUSTING

- A. Adjust hardware for smooth operation.

3.5. PROTECTION OF FINISHED WORK

- A. Protect finished work under provisions of 01600.

3.6. SCHEDULE OF HARDWARE SETS

- A. Set A – this applies to entrance door to 117. Door 2 on plan.

- 1. 1½ pair hinges
- 2. Corridor latch set (F109)
- 3. Closer with no hold-open
- 4. Wall stop
- 5. Doors:
 - a. 3'-0" x 7'-0" 14 ga.
 - b. Vision Glass 7" x 24"
 - c. Heavy Duty Louver 8"h x 24" w

- B. Set B – this applies to Door to Restroom 117.1. Door 3 on plan.

- 1. 1½ pair hinges
- 2. Privacy latch (F76) ND 105
- 3. Closer with no holds pen
- 4. Door:
 - a. 3'-0" x 7'-0" 14 ga.
 - b. No Vision Glass
 - c. Push button lock
 - d. Heavy Duty Louvers 8"h x 18" w

- C. Set C applies to Door 1 on plan – see Section 08400 Aluminum Frames, FRP Doors, & Hardware.

- 1. Continuous Hinges
- 2. 24" x 24" glazing panel
- 3. Latch set F109.
- 4. Closer no hold open
- 5. Aluminum

- D. See Section 08400 for Aluminum and FRP doors.

END 08700

1. GENERAL

1.1. DESCRIPTION

A. Work Included:

1. Contractor shall provide glass and glazing as shown on the Drawings and specified herein.
 - a. Move existing wire glazing to new position to provide new corridor/lobby 120 glazing.
 - b. Provide tempered glass in Lobby 120 door as required.

1.2. RELATED WORK

A. Specified elsewhere

1. DIVISION 0 - BIDDING & CONTRACT REQUIREMENTS
2. DIVISION 1 - GENERAL REQUIREMENTS
3. 07900 - Sealants & Caulks
4. 08100 Hollow Metal Work
5. 08400 - Aluminum Doors & Frames
6. 08700 - Door Hardware

1.3. QUALITY ASSURANCE

- A. Glass shall conform to Federal Specifications DD-G-451-C.
- B. Unless otherwise shown, conform to details and procedures of the "Glazing Manual" (Flat Glass Marketing Association).
- C. All glazing materials shall comply with State and Federal recommendations and the Illinois School Building Code.
 1. School CODE requires some interior building glazing to be wire glass unless otherwise designated specifically. Where wireglass is required in Code 175 and 185, we are specifying Firelite glazing.
- D. Comply with glass manufacturer's recommendations for annealed, heat treated or tempered depending on exposure conditions, edge shading, sun, etc.

2. PRODUCTS

2.1. MATERIALS

- A. Float or Plate Glass: PPG Industries, Libby-Owens-Ford Company, or ASG Industries, Inc.), Mid-American Glass, Inc., Davenport, IA. Thickness as shown on the drawings; tempered or laminated in doors and adjacent lights and where shown. Annealed heat strengthened or tempered as

recommended by manufacturer solar/shade/thermal conditions.

- B. Recycle existing wire glazing in corridor/office to form new Lobby 120 walls. Use Kawneer Inframe material to support glazing. See page after Section 3.3.
- C. Glazing compound, glazing tape, sealant, primary seal, secondary seal, spacers, etc.: All elements used in the factory and in the field shall be approved by the glazing Manufacturer as compatible.
- D. Laminated glass to meet ASTM C 1036-85 and ANSI 297.1-1984 and Consumer Product Safety Commission 16 CFR 1201, 1/4" minimum total thickness, .015" interlayer up to nine (9) square feet, .030" interlayer over 9 square feet.
- E. Insulated glass: Where called for shall be assembled of the required or noted glazing materials and thicknesses, ten (10) year manufacturer's guarantee against loss of seal and/or clouding.
 - 1. For all windows, use two (2) 1/4" grey low 'e' third surface units separated by 1/2" sealed air space.
 - 2. Use this product with tempered glass as required in north, east and west corridors.
 - 3. Use annealed, heat strengthened, or tempered as recommended by the insulated glass manufacturer for applications as occur for solar/shade/thermal stress irregularities.
 - 4. Always assume irregular shading pattern glazing due to seasonal sun incidence variation and possible future landscaping shadows.

3. EXECUTION

3.1. PREPARATION

- A. Examine all surfaces to receive the parts of the work specified herein. Verify all dimensions of in-place and subsequent construction. Application or installation of materials shall constitute acceptance of the related construction.

3.2. INSTALLATION

- A. Employ only experienced glazers who have had previous experience with the materials and systems being applied. Use the tools and equipment recommended by the Glass Manufacturer.
- B. Measure all openings and cut glass accurately to fit each opening. Provide a minimum edge clearance and bite on the glass as specified by FGMA. Tempered glass and wire glass shall not be seamed, nipped or abraded at the job site.
- C. Maintain a minimum temperature of 40 degrees F during glazing unless the Manufacturer of glazing materials specifically agrees to application of his materials at lower temperatures.

- D. Clean glazing stops and rabbets to receive glazing materials of all obstructions and deleterious substances that might impair the work. Remove protective coatings that might fail in adhesion or interfere with bond of sealants. Comply with the Manufacturer's instructions for final wiping of surfaces immediately before application of primer and glazing compounds or tapes. Wipe metal surfaces with approved cleaning solvent.
- E. Prime surfaces to receive glazing compounds in accordance with the Manufacturer's recommendations, using recommended primers.
- F. Inspect each piece of glass immediately before installation. Do not install pieces with significant impact damage at edges, scratches, or abrasion of faces, or any other evidence of damage.
- G. Locate setting blocks at the quarter points of sill but no closer than 6" to corner of glass. Use blocks of proper size to support the glass in accordance with Manufacturer's recommendations.
- H. Provide spacers for all glass to separate glass from stops, except where continuous gaskets or tape are required. Locate spacers 36" o.c. maximum inside and out, with a minimum of two (2) spacers per edge of glass. Provide thickness equal to the sealant or compound thickness shown. Provide width, as required for minimum of 3/8" bite on glass, at all four edges.
- I. Set glass in a manner that produces greatest possible degree of uniformity in appearance. Face all glass, which has dissimilar faces, with matching faces in the same direction. Set all glass with bow (if any) to exterior.
- J. Glazing materials from different sources shall not be used in the same joint system unless the Manufacturer of each material has stated IN WRITING that his material is fully compatible with the other material.
- K. Use masking tape or other suitable protection to limit coverage of glazing materials to the surfaces intended for sealants.
- L. Butt or lap ends of sealant tape in accordance with Manufacturer's recommendations.
- M. Tool exposed surfaces of glazing materials to provide a slight wash away from the glass. Install exposed tapes and gaskets with a slight protrusion above stops in the final compressed condition.
- N. Clean excess sealant or compound from glass and framing members immediately after application, using solvents or cleaners recommended by Manufacturers.
- O. Provide glass as follows:
 - 1. All interior glazing, comply with Safety Glazing Act, except as noted on plans, 1/4" diamond pattern wire glass in fire doors.

2. Fire rated interior glazing sidelights and borrowed lights greater than 100 square inches to be ninety (90) minute fire rated glass.
3. Exterior doors, laminated, insulated gray glass.

3.3. CURING, PROTECTION & CLEANING

- A. Cure sealants in accordance with the Manufacturer's instructions to attain maximum durability and adhesions to glass and framing as soon as possible.
- B. Protect glass from breakage immediately upon installation. Use streamers or ribbons suitably attached to framing and held free of the glass. Warning markings shall not be applied directly to the glass.
- C. Remove and replace glass which is broken, cracked, chipped or damaged in any way and from any source, including weather, vandalism and accidents during the construction period.
- D. Maintain glass in a reasonably clean condition during construction so that it will not become stained and will not contribute to deterioration of glazing materials.
- E. Clean glass surfaces when done.
- F. Wash and polish glass on both faces, not more than four days prior to date of substantial completion. Comply with instructions and recommendations of the Glass Manufacturer and Glazing Materials Manufacturer for cleaning in each case.

END 08800

INTRODUCING
InFrame™ Interior
Framing
FROM KAWNEER

Don't let
a wall
stand in
your way.

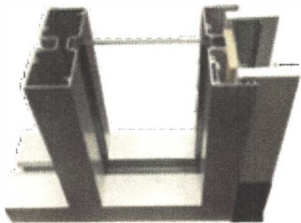
It'll change the way you look at walls.

Break through. Break in. Kawneer is bringing its expertise inside with the new InFrame™ Interior Framing, which allows more light to fill the interior of a space. With Kawneer as a single source for both exterior and interior framing, walls are no longer barriers but a break through in design, performance and beauty.



design
**BREAK THROUGH
DESIGN**

Wrap-around perimeter profiles deliver clean lines and eliminate the need to finish drywall terminations. Features full-perimeter bulb gasket designed to capture drywall and accommodate variations in drywall thickness, allowing for common inconsistencies, including screw heads and uneven mudding.



performance
**STURDY AND
ADAPTABLE**

Meets the design needs of a range of building applications – both new and retrofit construction. Engineered to integrate easily with Kawneer entrances. Transitions seamlessly from fixed framing to operable doors, providing enhanced design flexibility.



aesthetics
**DESIGN
FLEXIBILITY**

Accommodates 1/8", 1/4" or 3/8" infill within 2" x 6" sightlines.

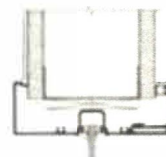
- Optional 4" tall sill member is available for a greater range of design possibilities for specific project requirements and architectural styles.
- Available in multiple color options with anodized finishes and fluoropolymer painted finishes in a variety of colors.
- Solvent-free powder coatings provide a green option.



installation
**FAMILIAR AND
INTUITIVE**

Configurations of InFrame™ Interior Framing are easy to fabricate and contractors can leverage existing installation experience and knowledge.

- Available as screw-spline construction and flush-glazed, center-aligned glass.
- Two-piece perimeter profiles that capture the drywall simplify and speed the installation process.



08800 - 5 Glazing

A/E #24422319

1. GENERAL

1.1. WORK INCLUDES

A. Base Bid:

1. General Contractor:

- a. All new gypsum wallboard and any accessories as needed to complete the work as shown on the drawings and specified herein.

1.2. RELATED WORK

A. Specified elsewhere:

1. 05400 - Cold Formed Metal Framing
2. 07900 – Sealants & Caulks

1.3. QUALITY ASSURANCE

- A. Gypsum wallboard construction shall comply with all laws, ordinances, rules, regulations and orders of public authorities having jurisdiction over this part of the work.
- B. All materials shall be from a single manufacturer unless others are approved by the Architect/Engineer, to insure total unit responsibility. Installer shall be acceptable to the Manufacturer of the wallboard materials. All gypsum board installed shall be 5/8" fire rated (Type X.) and impact resistant for all walls. Regular gypboard for ceilings.

1.4. PRODUCT DELIVERY, STORAGE & HANDLING

A. Acceptance at site:

1. All materials shall be delivered to the job in their original, unopened containers or bundles; stored in a place providing protection from damage and exposure to the elements.
2. Damaged or otherwise unsuitable material, when so ascertained, shall be immediately removed from the job site.

B. Protection prior to installation:

1. Since the Owner will be occupying the building, storage of materials will be difficult. Coordinate deliveries to match use.
2. Protection must be provided by General Contractor against moisture, impact, etc.

1.5. SUBMITTALS. Submit product data in accordance with 01340.

2. PRODUCTS

2.1. ACCEPTABLE MANUFACTURERS

- A. Gypsum wallboard, joint compound, etc.
 - 1. U.S. Gypsum
 - 2. Gold Bond – National Gypsum Corp.
 - 3. G-P Gypsum Corp.
 - 4. Lafarge North America
- B. Adhesive
 - 1. Contech PL200
 - 2. DAP 4000
 - 3. Miracle Adhesives Corp. DSA-20
 - 4. Ohio Sealants Inc., Formula 38

2.2. MATERIALS

- A. Gypsum Drywall: All material to be 4' X 8' (or larger) X 5/8" thick UL rated.
 - 1. All wall applications of gypsum board to be "Fiberbond" or abuse (impact) resistant, hard faced gypsum board, compressed facing.
 - 2. This product to be used in all interior locations.
 - 3. All "outside" 90° Edges such as corner and door jambs shall have 3/4" radius edge.
- B. Paperless glass mat gypsum board 5/8" thick,.
 - 1. DensGlass
 - 2. This product to be used as exterior wall sheathing.
- C. Tape, Joint Compounds, Screws, Corner Edge Guards, etc.: Shall be manufactured by the manufacturer of the gypsum wall board or shall be manufactured to be compatible with all other system components.
 - 1. Paint ready. - DensGlass
 - 2. Mesh type at locations.
- D. Trim items
 - 1. Corner beads flush taping style, galvanized.
 - 2. Expansion joints, flush taping style, galvanized or PVC.
 - 3. Edge beads, taping style, galvanized, selected for condition.
 - 4. 3/4" round 90° corner.

2.3. ACCESSORY MATERIALS

- A. Screws: Type W and GWB; sized to suit thickness.
 - 1. Custom self-tapping screws along existing exterior wall.

- B. Corner Reinforcements, Casing Beads and Metal Trim: fabricated from 26-gauge galvanized sheet steel with perforated flanges, designed to receive joint compound.
- C. Joint Treatment Materials: ASTM C475-64 (1975).

3. EXECUTION

3.1. PREPARATION. Insure that studs are aligned and adequately braced so that resulting installation will be smooth and straight. Attachment shall be by screws ONLY, with spacing of screws per manufacturer's recommendations or these specifications whichever is more demanding.

3.2. INSTALLATION

A. Single or Double Layer Systems; Gypsum Panel Erection-Direct Attachment to metal studs and metal furring channels:

1. Place panels horizontally at right angles to framing, offset joints.
 - a. Position all ends centered on vertical framing members.
 - b. Use maximum practical lengths to minimize end joints.
 - c. Fit ends and edges closely, but not forced together. Stagger end joints in successive courses.
 - d. Place end joints on opposite sides of partitions on different studs.
 - e. When necessary, cut ends, edges and cutouts within the field of the panel in a workmanlike manner.
2. Screw fasteners in panel field first, work toward ends and edges.
 - a. Hold panel in place with firm contact and install screw fasteners at least 3/8" in from ends and edges.
 - b. Apply panels with power driven screws.
 - c. Attach gypsum panels to framing supports with 1-1/4" Type W screws at 8" o.c.

B. Wall systems shall employ 5/8" thick, impact resistant board unless noted otherwise.

1. Expansion joints neatly spaced at about 50" centers on long walls, select location for most efficient use.
2. Add expansion joints at site or during warranty where drywall cracking is anticipated or occurs due to installation conditions, structural framing, etc.

C. Accessories:

1. Round edge corner beads shall be installed on all exterior corners and at dissimilar materials, attached with suitable fasteners spaced 9" o.c. on both sides up to 60" above floor and shall be in single lengths unless corner exceeds standard stock lengths. Dimple set allowed only above 60".

2. Square edge metal trim shall be installed at all extruded edges and corners of wallboard, attached with suitable fasteners, spaced 9" o.c. and shall be in single full lengths unless application length exceeds standard stock lengths.
 3. Wallboard screws shall be applied with an electric driver. Screws shall be secured not less than 3/8" from ends and edges of wallboard for a uniform dimple not over 1/32" deep.
- D. Joint treatment compounds shall be mixed according to the Manufacturer's directions and applied as follows:
1. All "V" grooves formed by abutting eased radial edges of wallboard shall be filled flush with plane of taper with pre-fill compound. Excess compound beyond the "V" groove shall be wiped clean leaving a flat joint for taping.
 - a. Reinforcing tape shall be applied immediately, centered over joint, seated into compound.
 - b. A skim coat shall follow immediately, but shall not function as a fill or second coat.
 - c. Tape shall be properly folded and embedded in all angles to provide a true angle.
 - d. Tape all corner and edge beads with tape fully embedded into compound.
 2. After taping compound has hardened, topping compound shall be applied, filling board taper flush with surface.
 - a. Fill coat shall cover tape and feather out slightly beyond taper.
 - b. On joints with no taper, fill coat shall cover tape and feather out at least 6" on either side of tape.
 - c. Sanding or wet wiping shall be done after material has hardened.
 3. A finishing coat of taping compound shall be spread evenly over and extending slightly beyond fill coat on all joints and feathered to a smooth, uniform finish.
 - a. Over tapered edges, finished joint shall not protrude beyond plane or surface.
 - b. All taped angles shall receive a finish coat to cover tape and taping compound, and provide a true angle.
 - c. Sanding or wet wiping shall be done after final application of compound to provide a smooth surface, ready for decoration. Use wet wiping in all occupied areas.
 4. Fastener depressions shall have at least two (2) coats of taping compound, leaving all depressions level with surface plane. Sand or wet wipe fastener depressions after each application hardens.
 5. Taping compound shall be applied to all bead and trim and shall be feathered out from ground to plane of surface.

- a. When hardened, this shall be followed by two (2) coats of taping compound applied separately and allowed to dry between coats.
 - b. Each coat shall extend slightly beyond previous coat.
6. Joints concealed from sight shall be fire taped - smoothing shall not be required.
 7. Apply joint sealants as appropriate at edge beads to dissimilar materials and expansion beads.
 8. Walls in Rooms 50A, 50B, and 50C may have Finish Level 3. Prime wall. Ceiling in Room 50A, 50B, and 50C have Finish Level 4. Where gypsum board is installed on both sides of the removed windows in Rooms 48, 49, 50C and 52 shall have Finish Level 4.

3.3. **FINISHING.** All exposed gypsum board installation shall receive finish coating per finish schedule.

A. See Section 09900 - Finish Coatings.

FINISH LEVEL MATRIX

Finishing Level	Final Appearance	How to Achieve Result		
		Joints & Interior Angles	Accessories & Fasteners	Surface
5	Entire surface covered with a) SHEETROCK Brand Primer Surfacer (Tuff-Hide) or b) Skim coat of compound and ready to prime before decorating with gloss, semigloss or enamels or enamel paint.	As on Level 4	As in Level 4	SHEETROCK Brand Primer Surfacer (Tuff-Hide) or skin coat and prime with CGC First Coat, Synko Brand Pre-Coat before painting or texturing
4	No marks or ridges. Ready for priming, followed by wallcoverings, flat paints or light textures.	Two separate coats of compound over Level 2	Three separate coats of compound	Joints filled and smoothed again. Shall be primed with CGC First Coat before painting or texturing.
3	No marks or ridges. Ready for priming, to be followed by heavy textures.	One separate coat of compound over Level 2	Two separate coats of compound	Joints filled and smooth. Shall be prime with CGC First Coat before painting or texturing
2	Tool marks and ridges okay. Thin coating of compound covers tape; one coat compound over fastener heads.	Tape embedded in compound and immediately wiped to leave a thin coating of compound over tape	One coat of compound	Free of excess compound
1	Tool marks and ridges acceptable.	Tape embedded in compound.	Optional – One coat of compound	Free of excess compound
0	Unfinished	None		

3.4. **CLEAN UP.** Remove all sanding dust and any excess or spilled material from all surfaces.

END 09250

1. GENERAL

1.1. WORK INCLUDES

- A. Base Bid: Provide acoustical ceiling work as shown on the Drawings and specified herein.
 - 1. Install new grid and 2 X 2 panels in Room 117 Addition;
 - 2. Existing ceiling will remain and be repaired at existing pipe chase, and modified to cover new duct on south wall.

1.2. RELATED WORK

- A. Specified elsewhere
 - 1. 01055 – Anchorage & Fastenings
 - 2. 05580 – Sheet Metal Fabrications
 - 3. 09250 – Gypsum Wallboard
 - 4. 16511 - Lighting

1.3. QUALITY ASSURANCE

- A. Acoustical material shall conform with the following minimum requirements:
 - 1. Sound Absorption: ASTM CA23-66, NRC .50-.60.
 - 2. Sound Attenuation: AIMA, Test I-II, 35-39 range.
 - 3. Light Reflectance: ASTM C 523-68, .70-.74. (LR-1).
 - 4. Flame Spread:
 - a. Materials shall neither ignite nor flame when inserted into a furnace heated to and maintained at 1200 degrees F. for a period of five (5) minutes.
 - b. Additionally, interior finish or decorative materials applied to ceiling surfaces and ceiling materials shall not be permitted if they give off smoke or gases more dense or more toxic than given off by untreated wood or untreated paper under comparable exposure to heat or flame.
 - 5. Fire rated materials: Underwriter's Laboratories, Inc. Design P-202 RC13-1 Hour except spring clips are not required.
 - 6. **Humidity resistance and mold resistance.**

1.4. DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to the project site in Manufacturer's unopened containers clearly indicating Manufacturer's name, brand, type, style, size, color, texture and other identifying information.
- B. Store materials in a dry location, off the ground and in a manner to prevent damage, deterioration, and intrusion of foreign matter. Replace materials,

which have been damaged or are otherwise unsuitable promptly.

2. PRODUCTS

2.1. MATERIALS

- A. Acoustical Tile: Fissured surface, mineral fiber tile, fire code rated, 24" X 24" X 5/8", square edged, one (1) hour UL rated in assembly also meeting ASTM E-84 and ASTM E-119 of material certified to contain no asbestos.
 - 1. USG
 - 2. Conwed Corp.
 - 3. Celotex Corp. – Fine Fissured
 - 4. Armstrong
 - a. Humidity rated non-sag 100 deg. F./90% R.H.
 - b. Fine fissured, match existing building for directional or non-directional style.
 - c. STC Range 4-44
 - d. LR1 (75% minimum)
 - e. R thermal value = 1.36
 - f. 1 hour UL rated
 - g. Physically compatible with one (1) hour rated suspension system.
- B. Suspended Grillage
 - 1. Hangers: Minimum 12-gauge, soft annealed, steel wire, galvanized. See paragraph F. below.
 - 2. Provide support at 48" on center along main runners.
 - a. Provide necessary sub-framing where needed to achieve 48" support spacing under ducts, openings, etc.
- C. Snap Grid System
 - 1. One (1) hour rated type grid, hold-down clips are not required.
 - 2. Main Runners: 3/4" high, minimum 0.020" thick steel sheet formed runner with outstanding leg at top and tee shape at bottom.
 - 3. Splines: Flat, steel minimum 11/16" wide, 0.020" thick.
 - 4. Clips: Steel wire clips to hold main runner to carrying channels.
 - 5. White face finish
- D. Metal Wall Moldings: Galvanized sheet steel, angles or channels, minimum 0.020" thick, chemically cleaned, bonderized and finished with snap on white aluminum face finish, ASTM C 636-76.
- E. #12 Eyelet Head Screws: Length as needed for wire hanger anchors.
- F. Hanging wire #10 gauge galvanized soft annealed wire.

3. EXECUTION

3.1. PREPARATION

- A. Examine all surfaces to receive the parts of work specified herein.
- B. Verify all dimensions of in-place and subsequent construction. Application or; installation of materials constitutes acceptance of the supporting construction.

3.2. INSTALLATION OF MECHANICAL SUSPENSION SYSTEMS

- A. Install suspension system in accord with ASTM C636-76 and current AIMA recommended procedures.
- B. Unless otherwise shown or recommended closer by the system's manufacturer, install hangers to construction above a maximum four feet (4') o.c. in rows four feet (4') apart.
 - 1. All hangers shall hang in plumb position.
 - 2. Supporting runners typically shall run perpendicular to the structural members.
- C. Extend wire hangers downward.
 - 1. At proper elevation wrap hangers around carrying channels and secure each hanger with at least three (3) turns.
 - 2. Hanger wires shall be vertical. Wires installed at a diagonal to reach a structural member shall be balanced with diagonal ties in the opposite direction to brace the grid against side loading.
- D. Coordinate spacing of hangers, carrying channels, runners and moldings with the location of electrical fixtures and other items occurring in or on the ceiling.
 - 1. The ceiling lighting fixture locations shall determine the ceiling grid pattern, (see Drawings).
 - 2. Provide hanger wires to structure for cross runners around light fixtures. Each fixture shall have a minimum of four (4) tie wires within eight inches (8") of each fixture corner.
- E. New addition: Install new 2' x 2' grid up to existing geothermal loop pipe. Form a "dropped soffit" of grid and panels and blend into existing Room 117 ceiling after 12" soffit panel is recovered.

3.3. INSTALLATION OF TILE

- A. Construct aluminum panel (made from existing 12" panel covering loop pipe) over new 8" duct along existing south wall.
- B. Installation of acoustical materials shall be done under temperature and relative humidity conditions that will exist when the building is occupied.

Building shall be closed in and operating on permanent equipment such that temperature and humidity will be maintained at a constant and normal level.

- C. The entire installation shall be free of damage of any sort at the completion of the Contract. All system sections deflecting in excess of 1/240th of the span or length shall be replaced.
- D. At a time and following installation the building shall be kept at a constant temperature and DOOR TO EXTERIOR KEPT CLOSED, ventilating system functional, filters in place.

3.4. CLEANING AND PROTECTION

- A. Upon completion of the work remove all unused materials, debris, containers and equipment from the project site. Clean and repair floors, walls and other surfaces that have been stained, marred or otherwise damaged by work under this section.
- B. Protect acoustical ceilings during the construction period so that they will be without any indication or deterioration or damage at the time of acceptance by the Owner.

END 09500

1. GENERAL

1.1. DESCRIPTION

- A. General Contractor shall furnish all labor and materials necessary to complete composite applied flooring in areas noted.
 - A. Floors in Room 117 only (both existing floor to be removed) and new addition floor.
 - B. Install 4" core base on all painted and repainted walls.

1.2. PRODUCT HANDLING

- A. Transport all materials to job site in Manufacturer's labeled containers.

1.3. WARRANTY

- A. The Product Manufacturer shall exercise power of approval of installers.
 - A. Installers shall have applied similar flooring products on at least five (5) prior projects.
- B. The Product Manufacturer shall warrant the finished installation for a period of three (3) years following Substantial Completion of the project.
 - A. Abuse to the installation counter to use and maintenance recommendations (1.3.A.3 above) excepted.
- C. The Contractor shall warrant the installation for a period of two (2) years following Substantial Completion date.
 - A. Abuse of the installation counter to use and maintenance recommendations (1.3.A.3. above) excepted.

2. PRODUCTS

2.1. MATERIALS

- A. Floor system
 - 1. COREtec - COREtec Plus Tile
 - 2. Quartz Epoxy Tnemec, Series 222 with Deco Clear.
 - 3. Epoxy Quartz BC by Flrock.
 - 4. Or equal, approved prior to bidding.
- B. LVT floating Glue
 - 1. Engineered vinyl floating floor system.
 - 2. Glue less locking
 - 3. 20 mil wear layer

4. Owner may select from:
 - a. 'plank' nominal 7"~9" x 48"
 - b. 'tile' nominal 12" x 24"
 - c. Wood grain or stone or pattern styles as available.
 5. Multiple colors, borders and patterns may be used
 - a. To the extent compatible with the selected size and interlocking use of application.
 6. Products
 - a. Armstrong Natural Creations
 - b. COREtec – COREtec Plus Tile
 - c. Metroflor
- C. Adhesives: Adhesives shall be water and alkali resistant, complying with recommendations of resilient flooring manufacturer as applicable to substrate. Adhesive shall contain no asbestos.
1. Manufacturer's recommended adhesive, not less than:
 - a. Rated to 8 lbs. moisture vapor and 12-pH.
 - b. Or neutralize and seal floor for other selected adhesive system such that combined installed result can accommodate 8 lbs. vapor.
 - c. Products such as Henry 430 Clear Pro.
 - d. Use heavy duty adhesives for transition pieces, we have had these come loose due to inadequate bonding capacity.
- D. Skim coat: Rapid set, skim coat material as appropriate for conditions encountered following carpet removal, adhesive residue and general clean up.
1. Product Manufacturers
 - a. Ardex
 - b. Mapei
 - c. DryTek
 - d. Select product suitable to discovered conditions, to glue manufacturer and to tile manufacturer.
 2. Quick set, fast dry, feather edge or up to 1/8" no shrink, latex or similar modified for adhesion.
 3. Installation to be level and without trowel marks, delimitation or surface defect.
 4. Material to provide good bonding surface and alkali protection for new adhesives.
- E. Rubber Base: 1/8" gauge, coved, preformed corners,

1. Four inches (4") high in new areas, 4 ¼" high in all areas where old base is removed, (4" under lockers). Unless otherwise shown; color shall be selected from the full range of available standard colors.
 2. Afco
 3. Johnsonite
 4. Roppe
 5. Or equal
- F. Vinyl Edge/transition Strips: 1½ " wide for tile
1. Afco
 2. Johnsonite
 3. Roppe
 4. Or equal
- G. Carpet edge strips, dissimilar floor transitions and system transitions. Select as appropriate to the floor conditions, suggested styles are for discussion. Always verify a snug and appropriate profile with good adhesive surface lapping under at least one side if possible.
1. Afco JV #212 or JV #213 as appropriate
 2. Johnsonite EG-XX-G or EG-XX-H as appropriate
 3. Roppe #156 or #160 as appropriate
 4. Or equal
- H. See details on the drawings for a continuous ¼" x 5" nominal dark bronze extruded aluminum threshold used as an edge along the gym sage side,

3. EXECUTION

3.1. PREPARATION

- A. Existing conditions
1. Surfaces, always verify surface conditions in all locations for needed fillers or repair or deficiencies.
 2. Prepare and clean all surfaces as appropriately to receive the new flooring.
 - a. Strip wax where new floors are glued over existing.
- B. Fixed equipment
1. Lockers and casework, cut to fit, cut removals to the edge line for accurate fit.
- C. Before installing resilient flooring, fill all cracks and holes and level depressions and skim coat with cement base surface preparation system.
1. Check for flush fit at drain and cleanout rims, grind if necessary or raise or bevel surfaces as appropriate.
 2. It is intended that any or all surfaces be skim leveled

3.2. INSTALLATION

- A. Typically tile selections are to split under doors unless there are extenuating conditions.
- B. Generally the transition to adjacent surfaces may take a leveling filler.
- C. Where flooring types vary such as resilient to carpet or floating to carpet a transition strip will be required.
- D. Transition strips should always be beveled with feather edges selected appropriately for the conditions.
- E. Install tile and apply resilient base to floor or walls and cabinet bases respectively.
 - a. Inspect surfaces prior to installation of floors and base. Do not apply to rough, dirty or unprepared surfaces.
 - b. Corners shall be preformed.
 - c. Cope inside base corners. Scribe bases accurately to abutting surfaces.
 - d. Apply adhesive uniformly on the back surface of the base with a notched trowel, single or double ribbon of adhesive not acceptable.
- F. Remove excessive adhesive in accord with the Flooring Manufacturer's instructions.
- G. Install floating flooring per manufacturer's instructions, offset joints, generally perpendicular to the primary entrance,
 - a. Carefully install and secure transition strips from floating to adhered or carpeted flooring
 - b. Carefully install the threshold strip as detailed on the drawings along the stage edge.

3.3. CLEANING & SEALING

- A. Floors to be turned over mopped clean.

END 09670

1. GENERAL

1.1. WORK INCLUDES – BASE BID

- A. Contractor shall provide all painting work as set forth on the Drawings, in these Specifications and as necessary for the completion of the work. All new equipment and surfaces not receiving a specified finish shall be painted. See Drawings and drawing notes.
- B. Paint walls in Room 117 (new and existing) and Room 117.1. Paint gypboard walls in Room 120 Lobby. Prime new gypboard and paint 2 coats.
- C. Stain wood window trim and apply two (2) coats of polyurethane.
 - 1. See Detail on Drawings
 - a. Existing window trim may be reinstalled if feasible.
- D. Paint metal doors and frames as indicated 2 coats.
 - 1. Aluminum FRP doors and aluminum door do not paint.

1.2. RELATED REQUIREMENTS

- A. Specified elsewhere
 - 1. DIVISION 0 - Bidding & Contract Requirements
 - 2. DIVISION 1 - General Requirements
 - 3. DIVISION 6 - Wood
 - 4. DIVISION 7 - Thermal & Moisture Protection
 - 5. DIVISION 8 - Doors & Windows
 - 6. Section 09250 - Gypsum Wallboard

1.3. QUALITY ASSURANCE

- A. Supplier shall verify appropriateness of paint systems/surface preparation and modify as approved by Architect to properly achieve finished result.
- B. Materials shall be as specified and shall be delivered to the job in unopened, labeled containers.
- C. Applicators shall be skilled in the application system employed.
- D. Application: No thinning of materials will be allowed, except as specifically recommended by the Paint Manufacturer's written data to facilitate application.
- E. Special Requirements: The written instructions of the Paint Manufacturer shall be carefully adhered to for all surface preparation, priming, application techniques, environmental conditions and drying conditions.

- F. The surface temperature shall be 50 degrees F. minimum, dry, free of dust, dirt or any bond-breaking substance prior to the paint application.
- G. Protect all surrounding surfaces from paint and the painting operations. CLEAN UP ALL PAINT SPATTER OR OVERSPRAY.
- H. Factory-primed surfaces shall be properly prepared to receive field coatings. Repair chips and nicks in factory primer before proceeding.
- I. Provide all surface preparation, treatments, and all primers needed to comply with the Paint Manufacturer's recommendations. The Contractor shall seek the Paint Manufacturer recommendations and shall be responsible for compatibility of the specified coatings and receiving surface preparation.
- J. Wherein these Specifications require successive coats of finishing materials, the A/E shall be notified of completion of each coating application prior to application of a successive coating. Failure to notify the Architect for on site observation of each coating prior to a successive coating application shall disallow acceptance of the successive coating.

2. PRODUCTS

2.1. MATERIAL

- A. Flame Spread - All paint finishes shall meet the following flame spread requirements:
 - 1. Flame Resistance: Materials shall neither ignite nor flame when inserted into a furnace heated to and maintained at 1200 degrees F. for a period of five minutes.
 - 2. Submit Paint Manufacturer's WRITTEN certification that products used on this project meet or exceed requirements 1.1.D.1. above. Certification shall include submittal or current test data proving product is noncombustible, as defined per 1.1.D.1 above.
- B. It is the intent to use each Manufacturer's premium grade commercial finishes. Adjust selections accordingly.
- C. Galvanized or Aluminum
 - 1. Select appropriate zinc chromate or zinc dust primer.
- D. Latex Primers (Interior – on new gypsum board walls and CMU Walls)
 - 1. Sherwin Williams ProMar 200/B23W200
 - 2. Glidden Spred Primer Sealer Y3416 Series.
 - 3. MAB Fresh Kote 037 Line.
 - 4. Benjamin Moore Latex O.D. Prime Seal 201-00.
 - 5. Tnemec Series 51-792 Sealer.
 - 6. Pittsburgh Speedhide Primer Sealer #6-2.

7. Or as specifically recommended by the Manufacturer for the proposed finish coat.
- E. Latex Semi
1. MAB Rich Lux 023
 2. Porter H-Hide 109
 3. Benjamin Moore Regal Aquaglo 333
 4. Pittsburgh Wallhide
 5. DeVoe WonderTone 37
- F. Latex Eggshell (interior Workroom 117 wall) Owner will choose both 'G' or 'H')
1. MAB Rich Lux 028
 2. Porter Hi-Hide 389
 3. Benjamin Moore Moorecraft 186
 4. Pittsburg Wall Hide
 5. DeVoe WonderTone 34
- G. Epoxy Egg Shell
1. Sherwin Williams pre catalyzed Epoxy #B73 – 2 coats. This product used in Restroom 117.1.
- H. Latex Semi-Gloss Finish (Interior metal)
1. Sherwin Williams DTM Acrylic CTG
 2. MAB DTM M29
 3. Benjamin Moore DTM M29
 4. Pittsburgh 7-374
- I. Gloss Latex (60% @ 60 degrees F.):
1. DTM Products, similar to semi-gloss specification.
- J. Sanding Sealer for natural finishes - use Manufacturer's recommended sanding sealer or thin urethane varnish as appropriate.
- K. Varnish - Polyurethane satin or "hand rubbed" finish for wood window trim.
1. Sherwin Williams A67 Series
 2. Glidden Satin Polyurethane.
 3. MAB Rich Lux Satin Polyester.
 4. Benjamin Moore Impervo Satin 414.
 5. Pittsburgh REZ Polyurethane #77-9.

3. EXECUTION

3.1. SURFACE CONDITIONS

- A. Inspect all surfaces for defects prior to starting finishing operations and

notify the appropriate persons to make suitable repair and corrections. Be responsible for all rework of finish systems made necessary by application to improperly prepared surfaces.

- B. As painting operations proceed inspect for chips, abrasions, mortar slobbers, pitch strikes, cracks and hot spots. All defects that are evident shall be repaired and repainted.
- C. Touch up marred or worn factory primers before painting. Wash down metal with mineral spirits or approved cleaner to assure bond.
- D. PROVIDE PRIMERS IN ALL LOCATIONS APPROPRIATE FOR MATERIAL BASE AND MATERIAL EXPOSURE.
- E. Protect all surrounding work from damage.
- F. Sand surfaces that are not smooth prior to applying succeeding coats.

3.2. WORKMANSHIP

- A. Quality workmanship is required. Only skilled mechanics shall be employed to ensure the very best workmanship. Materials to be applied by craftsmen shall be applied only by those familiar with the specific products involved.
- B. Each coat called for shall be applied to achieve 100% coverage of the surface and materials shall be applied as recommended by the Paint Manufacturer.
- C. One coat shall be considered to completely cover the material being finished such that the surface, including all voids and indentations such as in wood or concrete block, no longer retains the color of the surface material but only that of the finish applied. The cover achieved will be subject to the approval of the Architect/Engineer in all cases.
 - 1. Every applied coat shall be allowed to dry before subsequent coats are applied.
- D. For finishes similar in color to the material or for finishes with little or no pigments, such as varnish, the coats shall be of adequate thickness to meet the approved requirements assuming that the surface and finish were of complementary colors. The cover achieved will be subject to the approval of the Architect/Engineer in all cases.
- E. In the process of painting surfaces, caution shall be used to avoid discontinuity in the finish surface texture or appearance such as at lap joints, corners, etc.
- F. All materials shall be applied under 100 F.C. illumination. Materials shall be uniformly spread without runs or sags.
- G. All coating called for shall be applied in back of all fixtures, cabinets and

tackboards before said items are secure in place.

3.3. STORAGE

- A. Flammable materials storage should be kept to a minimum of currently-in-use materials only. Overnight storage shall not be allowed in the building.

3.4. APPLICATION

- A. Application rates that are specified in these Specifications shall be considered as minimum rates but shall not supersede the coverage requirements specified herein or the recommendations of the Paint Manufacturer.
- B. It is the intent that all finish coating systems specified (excluding primer only) present a finished uniform appearance, free of lap marks, color variation, sheen variation and irregularities. Provide additional coats as needed to accomplish this finish intent.
- C. Application shall be per the following schedule except that, in no case, shall materials be applied over a base preparation not in accordance with the Paint Manufacturer's specifications. See Drawing Notes and Room Finish Schedule for finishing directions.
- D. Interior masonry and gypsum board walls
 - 1. Apply block filler to masonry
 - 2. Clean all dust off gypboard walls and prime one (1) coat.
 - 3. Masonry and gypboard wall – apply two (2) coats.
 - 4. Steel doors and frames – clean and check factory primer – apply two (2) coats DTM.
 - 5. Wood trim – clean and apply two (2) coats polyurethane.

END 09900

DIVISION 15 - MECHANICAL
Section 15010 – Basic Mechanical Requirements

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this and the other sections of Division 15.

1.2 SUMMARY

- A. This Section includes general administrative and procedural requirements for mechanical installations.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 ROUGH-IN

- A. Verify final locations for rough-ins with field measurements and with the requirements of the actual equipment to be connected.
- B. Refer to equipment specifications in Divisions 2 through 16 for rough-in requirements.

3.2 MECHANICAL INSTALLATIONS

- A. General: Sequence, coordinate, and integrate the various elements of mechanic materials, and equipment. Comply with the following requirements:
 - 1. Coordinate mechanical systems, equipment, and materials installation with other building components.
 - 2. Verify all dimensions by field measurements.
 - 3. Arrange for chases, slots, and openings in other building components during progress of construction, to allow for mechanical installations.
 - 4. Coordinate the installation of required supporting devices and sleeves to be set in poured-in-place concrete and other structural components, as they are constructed.
 - 5. Sequence, coordinate, and integrate installations of mechanical materials and equipment for efficient flow of the Work. Give particular attention to large equipment requiring positioning prior to closing in the building.

6. Where mounting heights are not detailed or dimensioned, install systems, materials, and equipment to provide the maximum headroom possible.
7. Coordinate connection of mechanical systems with exterior underground and overhead utilities and services. Comply with requirements of governing regulations, franchised service companies, and controlling agencies. Provide required connection for each service.
8. Install systems, materials, and equipment level and plumb, parallel and perpendicular to other building systems and components, where installed exposed in finished spaces.
10. Install mechanical equipment to facilitate servicing, maintenance, and repair or replacement of equipment components. As much as practical, connect equipment for ease of disconnecting, with minimum of interference with other installations. Extend grease fittings to an accessible location.

3.3 CUTTING AND PATCHING

- A. General: Perform cutting and patching in accordance with Division 1 Section "CUTTING AND PATCHING." In addition to the requirements specified in Division 1, the following requirements apply:
 1. Protection of Installed Work: During cutting and patching operations, protect adjacent installations.
- B. Perform cutting, fitting, and patching of mechanical equipment and materials required to:
 1. Uncover Work to provide for installation of ill-timed Work.
 2. Remove and replace defective Work.
 3. Remove and replace Work not conforming to requirements of the Contract Documents.
 4. Upon written instructions from the Architect, uncover and restore Work to provide for Architect/Engineer observation of concealed Work.

3.4 MECHANICAL DEMOLITION

- A. General: It is the intent of this project to modify the existing HVAC system within the subject building:
 1. Glenn Elementary School:
 - a. Disconnect, move, and reconnect existing BARD Heat Pump.
 - b. Remove existing lavatory in Restroom 117.1.
 - c. Selectively demolish and reconfigure existing ductwork as shown on plan.
 - d. Provide new fresh air intake damper box, CO2 sensor, and exterior intake grill.

END 15010

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following basic mechanical materials and methods to complement other Division 15 Sections.
 - 1. Piping materials and installation instructions common to most piping systems.
 - 2. Nonshrink grout for equipment installations.
 - 3. Field-fabricated metal and wood equipment supports.
 - 4. Installation requirements common to equipment specification Sections.
 - 5. Cutting and patching.
 - 6. Touchup painting and finishing.
 - 7. Antifreeze.
- B. Pipe and pipe fitting materials are specified in piping system Sections.

1.3 DEFINITIONS

- A. Pipe, pipe fittings, and piping include tube, tube fittings, and tubing.
- B. Finished Spaces: Spaces other than mechanical and electrical equipment rooms, furred spaces, pipe and duct shafts, unheated spaces immediately below the roof, spaces above ceilings, unexcavated spaces, crawl spaces, and tunnels.
- C. Exposed Interior Installations: Exposed to view indoors. Examples include finished occupied spaces and mechanical equipment rooms.
- D. Exposed Exterior Installations: Exposed to view outdoors, or subject to outdoor ambient temperatures and weather conditions. Examples include rooftop locations.
- E. Concealed Interior Installations: Concealed from view and protected from physical contact by building occupants. Examples include above ceilings and in duct shafts.
- F. Concealed Exterior Installations: Concealed from view and protected from weather conditions and physical contact by building occupants, but subject to outdoor ambient temperatures. Examples include installations within unheated shelters.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver pipes and tubes with factory-applied end-caps. Maintain end-caps through shipping, storage, and handling to prevent pipe-end damage and prevent entrance of dirt, debris, and moisture.
- B. Protect stored pipes and tubes from moisture and dirt. Elevate above grade. When

stored inside, do not exceed structural capacity of the floor.

- C. Protect flanges, fittings, and piping specialties from moisture and dirt.
- D. Protect stored plastic pipes from direct sunlight. Support to prevent sagging and bending.

1.5 SEQUENCING AND SCHEDULING

- A. Coordinate mechanical equipment installation with other building components.
- B. Arrange for chases, slots, and openings in building structure during progress of construction to allow for mechanical installations.
- C. Coordinate the installation of required supporting devices and set sleeves in poured-in-place concrete and other structural components as they are constructed.
- D. Sequence, coordinate, and integrate installations of mechanical materials and equipment for efficient flow of the Work. Coordinate installation of large equipment requiring positioning prior to closing in the building.
- E. Coordinate connection of electrical services.

PART 2 - PRODUCTS

2.1 PIPE AND PIPE FITTINGS

- A. Refer to individual piping system specification Sections for pipe and fitting materials and joining methods.
- B. Pipe Threads: ASME B1.20.1 for factory-threaded pipe and pipe fittings.

2.2 JOINING MATERIALS

- A. Solder Filler Metal: ASTM B 32.
 - 1. Alloy Sn95 or Alloy Sn94: Tin (approximately 95 percent) and silver (approximately 5 percent), having 0.10 percent lead content.

PART 3 - EXECUTION

3.1 PIPING SYSTEMS--COMMON REQUIREMENTS

- A. General: Install piping as described below, except where system Sections specify otherwise.
 - 1. Domestic water piping shall be ½" rigid copper.
 - 2. Waste piping may be minimum 3" schedule 40 PVC.
- B. General Locations and Arrangements: Drawings (plans, schematics, and diagrams) indicate general location and arrangement of piping systems. Indicated locations and

arrangements were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated, except where deviations to layout are approved on coordination drawings.

- C. Install piping at indicated slope.
- D. Install components having pressure rating equal to or greater than system operating pressure.
- E. Install piping in concealed interior and exterior locations, except in equipment rooms and service areas.
- F. Install piping free of sags and bends.
- G. Install exposed interior and exterior piping at right angles or parallel to building walls. Diagonal runs are prohibited, except where indicated.
- H. Install piping tight to slabs, beams, joists, columns, walls, and other building elements. Allow sufficient space above removable ceiling panels to allow for ceiling panel removal.
- I. Install piping to allow application of insulation plus 1-inch (25mm) clearance around insulation.
- J. Locate groups of pipes parallel to each other, spaced to permit valve servicing.
- K. Install fittings for changes in direction and branch connections.
- L. Install couplings according to manufacturer's printed instructions.
- M. Verify final equipment locations for roughing in.
- N. Refer to equipment specifications in other Sections for roughing-in requirements.
- O. Piping Joint Construction: Join pipe and fittings as follows and as specifically required in individual piping system Sections.
 - 1. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.
 - 2. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.
 - 3. Soldered Joints: Construct joints according to AWS "Soldering Manual," Chapter 22 "The Soldering of Pipe and Tube."
 - 4. Heat Fused Joints: Weld joints in HDPE piping using heat fusing method as indicated by the manufacturer.
- P. Piping Connections: Except as otherwise indicated, make piping connections as specified below.
 - 1. Install unions in piping 2 inches (50 mm) and smaller adjacent to each valve and at final connection to each piece of equipment having a 2-inch (50mm) or smaller threaded pipe connection.
 - 2. Install flanges in piping 2 1/2 inches (63 mm) and larger adjacent to each valve and at final connection to each piece of equipment having a 2 1/2 -inch (63mm) or larger

threaded pipe connection.

3. Install flanged connections from plastic to metal material.

3.2 EQUIPMENT INSTALLATION--COMMON REQUIREMENTS

- A. Install equipment to provide the maximum possible headroom where mounting heights are not indicated.
- B. Install equipment according to approved submittal data. Portions of the Work are shown only in diagrammatic form.
- C. Install equipment level and plumb, parallel and perpendicular to other building systems and components in exposed interior spaces, except where otherwise indicated.
- D. Install mechanical equipment to facilitate servicing, maintenance, and repair or replacement of equipment components. Connect equipment for ease of disconnecting, with minimum of interference with other installations.
- E. Install equipment giving right-of-way to piping systems installed at a required slope.

3.3 PAINTING AND FINISHING

- A. Refer to Division 9 Section "Painting" for field painting requirements.
- B. Damage and Touch Up: Repair marred and damaged factory-painted finishes with materials and procedures to match original factory finish.

3.4 ERECTION OF METAL SUPPORTS AND ANCHORAGE

- A. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor mechanical materials and equipment.
- B. Field Welding: Comply with AWS D1.1 "Structural Welding Code--Steel."

END 15050

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes general duty valves common to several mechanical piping systems.
 - 1. Provide valve at each fixture or heat pump to isolate for repairs.

1.3 QUALITY ASSURANCE

- A. Single-Source Responsibility: Comply with the requirements specified in Division 1 Section "Materials and Equipment," under "Source Limitations" Paragraph.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

- 1. Butterfly Valves

- a. Victaulic of America
 - b. Crane
 - c. Nibco

- 2. Ball Valves:

- a. Conbraco Industries, Inc.; Apollo Division.
 - b. Hammond Valve Corporation.
 - c. Milwaukee Valve Company, Inc.
 - d. NIBCO Inc.
 - e. Stockham Valves & Fittings, Inc.
 - f. Tyler Pipe.
 - g. Victaulic Company of America.

- Swing Check Valves:

- a. Crane Company; Valves and Fitting Division.
 - b. Hammond Valve Corporation.
 - c. Lunkenheimer/Cincinnati Valve Co.
 - d. Milwaukee Valve Company, Inc.
 - e. NIBCO Inc.

f. Stockham Valves & Fittings, Inc.

2.2 BASIC, COMMON FEATURES

- A. Pressure and Temperature Ratings: As indicated in the "Application Schedule" of Part 3 of this Section and as required to suit system pressures and temperatures.
- B. Sizes: Same size as upstream pipe, unless otherwise indicated.
- C. Operators: Lever Handles: For quarter-turn valves 6 inches (DN150) and smaller, except for plug valves, which shall have square heads. Furnish Owner with 1 wrench for every 10 plug valves.
- D. Extended Stems: Where insulation is indicated or specified, provide extended stems arranged to receive insulation.
- E. Bypass and Drain Connections: Comply with MSS SP-45 bypass and drain connections.
- F. Threads: ASME B1.20.1.

2.3 BUTTERFLY VALVES

- A. Butterfly Valves: MSS SP-67, 200-psi (1380-kPa) CWP, 150-psi (1035- kPa) maximum pressure differential, ASTM A 126 cast-iron body and bonnet, extended neck, stainless-steel stem, field-replaceable EPDM or Buna N sleeve and stem seals, wafer, lug, or grooved style:
 - 1. Disc Type: Nickel-plated ductile iron.
 - 2. Operator for Sizes 2 Inches (DN50) to 6 Inches (DN150): Standard lever handle with memory stop.

2.4 BALL VALVES

- A. Ball Valves located in conjunction with the HDPE well Field
 - 1. Operator Square top for operation by extended tee handle
 - 2. Valve to be a one piece HDPE valve with full port opening
 - 3. Valve to be Fusion welded in well lines
 - 4. Duty to be suitable for underground well field isolation.
- B. Ball Valves, 2 1/2 Inches (DN100) and Smaller: MSS SP-110, Class 150, 600-psi (4140-kPa) CWP, ASTM B 584 bronze body and bonnet, 2-piece construction; chrome-plated brass ball, standard port for 1/2-inch (DN15) valves and smaller and conventional port for 3/4-inch (DN20) valves and larger; blowout proof; bronze or brass stem; Teflon seats and seals; threaded or soldered end connections:
 - 1. Operator: Vinyl-covered steel lever handle.
 - 2. Stem Extension: For valves installed in insulated piping.
 - 3. Memory Stop: For operator handles.

2.5 CHECK VALVES

- A. Swing Check Valves, 2-1/2 Inches (DN65) and Smaller: MSS SP-80; Class 125, 200-psi (1380-kPa) CWP, or Class 150, 300-psi (2070-kPa) CWP; horizontal swing, Y-pattern, ASTM B 62 cast-bronze body and cap, rotating bronze disc with rubber seat or composition seat, threaded or soldered end connections:

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Do not attempt to repair defective valves; replace with new valves.

3.2 INSTALLATION

- A. Install valves as indicated, according to manufacturer's written instructions.
- B. Piping installation requirements are specified in other Division 15 Sections. Drawings indicate the general arrangement of piping, fittings, and specialties.
- C. Install valves with unions or flanges at each piece of equipment arranged to allow servicing, maintenance, and equipment removal without system shutdown.
- D. Locate valves for easy access and provide separate support where necessary.
- E. Install valves in horizontal piping with stem at or above the center of the pipe.
- F. Install valves in a position to allow full stem movement.
- G. Installation of Check Valves: Install for proper direction of flow as follows:
 - 1. Swing Check Valves: Horizontal position with hinge pin level.

3.3 VALVE END SELECTION

- A. Select valves with the following ends or types of pipe/tube connections:
 - 1. Copper Tube Size, 2-1/2 Inches (DN65) and Smaller: Solder ends, except provide threaded ends for heating hot water and low-pressure steam service.

3.4 APPLICATION SCHEDULE

- A. General Application: Use gate, ball, and butterfly valves for shutoff duty; globe, ball, and butterfly for throttling duty. Refer to piping system Specification Sections for specific valve applications and arrangements.
- B. Condenser Water Systems: Use the following valve types:
 - 1. Ball Valves: Class 150, 600-psi (4140-kPa) CWP, with memory stop.
 - 2. Butterfly Valves: Aluminum bronze, epoxy-coated ductile iron disc; EPDM sleeve and stem seals.
 - 3. Check Valves: Class 125, bronze body swing check with rubber seat; Class 125, cast-iron body swing check; Class 125, cast-iron body wafer check; or Class 125, cast-iron body lift check.

3.5 ADJUSTING

- A. Adjust or replace packing after piping systems have been tested and put into service, but before final adjusting and balancing. Replace valves if leak persists.

END 15100

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes hangers and supports for mechanical systems piping and equipment.

PART 2 - PRODUCTS

2.1 MANUFACTURED UNITS

- A. Hangers, Supports, and Components: Factory-fabricated according to MSS SP-58.
 - 1. Components include galvanized coatings where installed for piping and equipment that will not have a field-applied finish.
 - 2. Pipe attachments include nonmetallic coating for electrolytic protection where attachments are in direct contact with copper tubing.
- B. Thermal-Hanger Shield Inserts: 100-psi (690kPa) average compressive strength, waterproofed calcium silicate, encased with sheet metal shield. Insert and shield cover entire circumference of pipe and are of length indicated by manufacturer for pipe size and thickness of insulation.
- C. Powder-Actuated Drive-Pin Fasteners: Powder-actuated-type, drive-pin attachments with pull-out and shear capacities appropriate for supported loads and building materials where used. Fasteners for fire protection systems include UL listing and FM approval.
- D. Mechanical-Anchor Fasteners: Insert-type attachments with pull-out and shear capacities appropriate for supported loads and building materials where used. Fasteners for fire protection systems include UL listing and FM approval.

2.2 MISCELLANEOUS MATERIALS

- A. Structural Steel: ASTM A 36/A 36M, steel plates, shapes, and bars, black and galvanized.
- B. Bolts and Nuts: ASME B18.10 or ASTM A 183, steel, hex-head, track bolts and nuts.
- C. Washers: ASTM F 844, steel, plain, flat washers.
- D. Grout: ASTM C 1107, Grade B, nonshrink, nonmetallic.

1. Characteristics include post-hardening, volume-adjusting, dry, hydraulic-cement-type grout that is nonstaining, noncorrosive, nongaseous and is recommended for both interior and exterior applications.
2. Design Mix: 5000-psi (34.5MPa), 28-day compressive strength.
3. Water: Potable.
4. Packaging: Premixed and factory-packaged.

PART 3 - EXECUTION

3.1 HANGER AND SUPPORT APPLICATIONS

- A. Specific hanger requirements are specified in the Section specifying the equipment and systems.
- B. Comply with MSS SP-69 for pipe hanger selections and applications that are not specified in piping specification Sections.

3.2 HANGER AND SUPPORT INSTALLATION

- A. General: Comply with MSS SP-69 and SP-89. Install hangers, supports, clamps, and attachments as required to properly support piping from building structure.
- B. Load Distribution: Install hangers and supports so that piping live and dead loading and stresses from movement will not be transmitted to connected equipment.
- C. Pipe Slopes: Install hangers and supports to provide indicated pipe slopes and so that maximum pipe deflections allowed by ASME B31.9 "Building Services Piping" is not exceeded.
- D. Insulated Piping: Comply with the following installation requirements.
 1. Clamps: Attach clamps, including spacers (if any), to piping with clamps projecting through insulation; do not exceed pipe stresses allowed by ASME B31.9.
 2. Saddles: Install protection saddles MSS Type 39 where insulation without vapor barrier is indicated. Fill interior voids with segments of insulation that match adjoining pipe insulation.
 3. Shields: Install MSS Type 40, protective shields on cold piping with vapor barrier. Shields span an arc of 180 degrees (3.1 rad) and have dimensions in inches (mm) not less than the following:

NPS (Inches)	LENGTH (Inches)	THICKNESS (Inches)
1/4 to 3-1/2	12	0.048
4	12	0.060
5 and 6	18	0.060
8 to 14	24	0.075

4. Pipes 8 Inches (200 mm) and Larger: Include wood inserts.
5. Insert Material: Length at least as long as the protective shield.
6. Thermal-Hanger Shields: Install with insulation of same thickness as piping.

3.3 EQUIPMENT SUPPORTS

- A. Fabricate structural steel stands to suspend equipment from structure above or support equipment above floor.
- B. Grouting: Place grout under supports for equipment, and make a smooth bearing surface.

3.4 METAL FABRICATION

- A. Cut, drill, and fit miscellaneous metal fabrications for pipe and equipment supports.
- B. Fit exposed connections together to form hairline joints. Field-weld connections that cannot be shop-welded because of shipping size limitations.
- C. Field Welding: Comply with AWS D1.1 procedures for manual shielded metal-arc welding, appearance and quality of welds, methods used in correcting welding work, and the following:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove welding flux immediately.
 - 4. Finish welds at exposed connections so that no roughness shows after finishing, and so that contours of welded surfaces match adjacent contours.

3.5 ADJUSTING

- A. Hanger Adjustment: Adjust hangers to distribute loads equally on attachments and to achieve indicated slope of pipe.

3.6 PAINTING

- A. Touching Up: Clean field welds and abraded areas of shop paint and paint exposed areas immediately after erection of hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.
 - 1. Apply by brush or spray to provide a minimum dry film thickness of 2.0 mils (0.05 mm).
- B. Touching Up: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint on miscellaneous metal is specified in Division 9 Section "Painting."
- C. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

END 15145

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes pipe insulation.

1.3 QUALITY ASSURANCE

- A. Fire Performance Characteristics: Conform to the following characteristics for insulation including facings, cements, and adhesives, when tested according to ASTM E 84, by UL or other testing or inspecting organization acceptable to the authority having jurisdiction. Label insulation with appropriate markings of testing laboratory.
 - 1. Interior Insulation: Flame spread rating of 25 or less and a smoke developed rating of 50 or less.

1.4 SEQUENCING AND SCHEDULING

- A. Schedule insulation application after testing of piping systems.
- B. Schedule insulation application after installation and testing of heat trace tape.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Elastomeric Foam Insulation:
 - a. Armstrong World Industries (Armaflex)
 - b. Rubatex
 - c. Imcoa
 - d. Halstead Industries
 - e. Approved equal
 - 2. Glass Fiber:
 - a. CertainTeed Corporation.
 - b. Knauf Fiberglass GmbH.
 - c. Manville.
 - d. Owens-Corning Fiberglas Corporation.
 - e. USG Interiors, Inc. - Thermafiber Division.

2.2 ELASTOMERIC FOAM

- A. Material: flexible closed cell foam structure with smooth skin on both sides
- B. Form: Tubular materials conforming with ASTM C534 Type I
- C. Thermal Conductivity: 0.3 average maximum at 73 deg F
- D. Coating: Water based latex enamel coating recommended by insulation manufacturer.

2.3 GLASS FIBER

- A. Material: Inorganic glass fibers, bonded with a thermosetting resin.
- B. Jacket: All-purpose, factory-applied, laminated glass-fiber-reinforced, flame-retardant kraft paper and aluminum foil having self-sealing lap.
- C. Preformed Pipe Insulation: ASTM C 547, Class 1, rigid pipe insulation, jacketed.
 - 1. Thermal Conductivity: 0.26 average maximum at 75 deg F mean temperature.
 - 2. Density: 10 average maximum.
- D. Adhesive: Produced under the UL Classification and Follow-up service.
 - 1. Type: Non-flammable, solvent-based.
 - 2. Service Temperature Range: Minus 20 to 180 deg F.
- E. Vapor Barrier Coating: Waterproof coating recommended by insulation manufacturer for outside service.

2.4 ADHESIVES

- A. Flexible Elastomeric Cellular Insulation Adhesive: Solvent-based contact adhesive recommended by insulation manufacturer.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Surface Preparation: Clean, dry, and remove foreign materials such as rust, scale, and dirt.
- B. Mix insulating cements with clean potable water.
 - 1. Follow cement manufacturer's printed instructions for mixing and portions.

3.2 INSTALLATION, GENERAL

- A. Refer to schedules at the end of this Section for materials, forms, jackets, and thicknesses required for each piping systems.

- B. Install vapor barriers on insulated pipes having surface operating temperatures below 60 deg F.
- C. Seal penetrations for hangers, supports, anchors, and other projections in insulation requiring a vapor barrier.
- D. Seal Ends: Except for flexible elastomeric insulation, taper ends at 45 degree angle and seal with lagging adhesive. Cut ends of flexible elastomeric cellular insulation square and seal with adhesive.
- E. Keep insulation materials dry during application and finishing.
- F. Items Not Insulated: Unless otherwise indicated do not apply insulation to the following systems, materials, and equipment:
 - 1. Flexible connectors.
 - 2. Vibration control devices.
 - 3. Fire protection piping systems.
 - 4. Sanitary drainage and vent piping.
 - 5. Drainage piping located in crawl spaces, unless indicated otherwise.
 - 6. Below grade piping.
 - 7. Chrome-plated pipes and fittings, except for plumbing fixtures for the disabled.
 - 8. Piping specialties including air chambers, unions, strainers, check valves, plug valves, and flow regulators.
- G. Interior Walls and Partitions Penetrations: Apply insulation continuously through walls and partitions, except fire-rated walls and partitions. Apply an aluminum jacket with factory-applied moisture barrier over insulation. Extend 2 inches from both surfaces of wall or partition. Secure aluminum jacket with metal bands at both ends. Seal ends of jacket with vapor barrier coating. Seal around penetration with joint sealer. Refer to Division 7 Section "Joint Sealants."
- H. Hangers and Anchors: Apply insulation continuously through hangers and around anchor attachments. Install saddles, shields, and inserts as specified in Division 15 Section "Supports and Anchors." For cold surface piping, extend insulation on anchor legs a minimum of 12 inches and taper and seal insulation ends.

3.3 APPLICATIONS

- A. General: Materials and thicknesses are specified in schedules at the end of this Section.
- B. Interior, Concealed or Exposed Piping Systems: Unless otherwise indicated, insulate the following piping systems:
 - 1. Hydronic piping closed loop heatpump

3.4 PIPE INSULATION SCHEDULES

- A. General: Abbreviations used in the following schedules include:
 - 1. Field-Applied Jackets: P - PVC, K - Foil and Paper, A - Aluminum, SS - Stainless Steel.

2. Pipe Sizes: NPS - Nominal Pipe Size.

B. INTERIOR HYDRONIC (closed loop Heatpump System) (30-100 F) EXPOSED AND CONCEALED

PIPE SIZES (NPS)	MATERIALS	THICKNESS IN INCHES	VAPOR BARRIER REQ'D	FIELD- APPLIED JACKET
1/2 TO 4	Fiberglas with asj	1	ASJ	NONE

END 15260

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes duct and plenum insulation.

1.3 DEFINITIONS

- A. Hot Surfaces: Normal operating temperatures of 100 deg F or higher.
- B. Dual-Temperature Surfaces: Normal operating temperatures that vary from hot to cold.
- C. Cold Surfaces: Normal operating temperatures less than 75 deg F.

1.4 QUALITY ASSURANCE

- A. Fire Performance Characteristics: Conform to the following characteristics for insulation including facings, cements, and adhesives, when tested according to ASTM E 84, by UL or other testing or inspecting organization acceptable to the authority having jurisdiction. Label insulation with appropriate markings of testing laboratory.
 - 1. Interior Insulation: Flame spread rating of 25 or less and a smoke developed rating of 50 or less.

1.5 SEQUENCING AND SCHEDULING

- A. Schedule insulation application after testing of duct systems.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Glass Fiber:
 - a. CertainTeed Corporation.
 - b. Knauf Fiberglass GmbH.
 - c. Manville.
 - d. Owens-Corning Fiberglas Corporation.
 - e. USG Interiors, Inc. - Thermafiber Division.
 - f. Alternate material without glass fiber will be considered such as Resistex

2.2 GLASS FIBER

- A. Material: Inorganic glass fibers, bonded with a thermosetting resin.
- B. Jacket: All-purpose, factory-applied, laminated glass-fiber-reinforced, flame-retardant kraft paper and aluminum foil having self-sealing lap.
- C. Adhesive: Produced under the UL Classification and Follow-up service.
 - 1. Type: Non-flammable, solvent-based.
 - 2. Service Temperature Range: Minus 20 to 180 deg F.
- D. Vapor Barrier Coating: Waterproof coating recommended by insulation manufacturer for outside service.

2.3 ACCESSORIES AND ATTACHMENTS

- A. Foil Backed Tape: Foil backed tape with Fiberglas reinforcement
 - 1. Tape Width: 4 inches.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Surface Preparation: Clean, dry, and remove foreign materials such as rust, scale, and dirt.

3.2 INSTALLATION

- A. Refer to schedules at the end of this Section for materials, forms, jackets, and thicknesses required for each duct system.
- B. Select accessories compatible with materials suitable for the service. Select accessories that do not corrode, soften, or otherwise attack the insulation or jacket in either the wet or dry state.
- C. Install vapor barriers on insulated ducts and plenums having surface operating temperatures below 60 deg F.
- D. Apply insulation material, accessories, and finishes according to the manufacturer's printed instructions.
- E. Install insulation with smooth, straight, and even surfaces.
- F. Seal joints and seams to maintain vapor barrier on insulation requiring a vapor barrier.
- G. Seal penetrations for hangers, supports, anchors, and other projections in insulation requiring a vapor barrier.

- H. Seal Ends: Except for flexible elastomeric insulation, taper ends at 45 degree angle and seal with lagging adhesive. Cut ends of flexible elastomeric cellular insulation square and seal with adhesive.
- I. Apply adhesives and coatings at the manufacturer's recommended coverage-per-gallon rate.
- J. Keep insulation materials dry during application and finishing.
- K. Items Not Insulated: Unless otherwise indicated do not apply insulation to the following systems, materials, and equipment:
 - 1. Flexible connectors.
 - 2. Vibration control devices.
 - 3. Testing laboratory labels and stamps.
 - 4. Nameplates and data plates.
 - 5. Access panels and doors in air distribution systems.
- L. Blanket Insulation: Install tight and smooth. Secure to ducts having long sides or diameters as follows:
 - 1. Smaller Than 24 Inches: Bonding adhesive applied in 6-inch-wide transverse strips on 12-inch centers.
 - 2. 24 Inches and Larger: Anchor pins spaced 12 inches apart each way. Apply bonding adhesive to prevent sagging of the insulation.
 - 3. Overlap joints 3 inches.
 - 4. Seal joints, breaks, and punctures with vapor barrier compound.

3.3 APPLICATIONS

- A. General: Materials and thicknesses are specified in schedules at the end of this Section.
- B. Duct Systems: Unless otherwise indicated, insulate the following duct systems:
 - 1. Interior concealed and exposed exhaust from Energy recovery unit and outside air ductwork to energy recovery unit.
 - 2. Supply duct from heatpumps to diffusers.

3.4 DUCT SYSTEMS INSULATION SCHEDULE

INTERIOR CONCEALED AND EXPOSED SUPPLY AND EXHAUST DUCTS AND PLENUMS TO AND FROM ERU

MATERIAL	FORM	THICKNESS IN INCHES	VAPOR BARRIER REQ'D	FIELD- APPLIED JACKET
GLASS FIBER	BLANKET	1 1/2	YES	NONE

INTERIOR SUPPLY DUCTS FROM HEATPUMPS TO ROOMS

MATERIAL	FORM	THICKNESS IN INCHES	VAPOR BARRIER REQ'D	FIELD- APPLIED JACKET
REFLECT-TEX	BLANKET	1/2	YES	NONE
GLASS FIBER	BLANKET	1	YES	NONE

END 15290

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Pipe, pipe fittings, specialties, and connections for piping systems to comply with Illinois Plumbing Code.
 - 1. Domestic water.
 - 2. Pipe hangers and supports.

1.02 REFERENCE STANDARDS

- A. MSS SP-58 - Pipe Hangers and Supports - Materials, Design, Manufacture, Selection, Application, and Installation; 2009.
- B. NSF 61 - Drinking Water System Components - Health Effects; 2014 (Errata 2015).
- C. NSF 372 - Drinking Water System Components - Lead Content; 2011.

1.03 QUALITY ASSURANCE

- A. Perform work in accordance with applicable codes.
- B. Valves: Manufacturer's name and pressure rating marked on valve body.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. Potable Water Supply Systems: Provide piping, pipe fittings, and solder and flux (if used), that comply with NSF 61 and NSF 372 for maximum lead content; label pipe and fittings.

2.02 DOMESTIC WATER PIPING, ABOVE GRADE

- A. All domestic water piping to be ¾" copper.

2.03 PIPE HANGERS AND SUPPORTS

- A. Provide hangers and supports that comply with MSS SP-58.
 - 1. If type of hanger or support for a particular situation is not indicated, select appropriate type using MSS SP-58 recommendations.
 - 2. Overhead Supports: Individual steel rod hangers attached to structure or to trapeze hangers.
 - 3. Trapeze Hangers: Welded steel channel frames attached to structure.
 - 4. Vertical Pipe Support: Steel riser clamp.

PART 3 EXECUTION

3.01 PREPARATION

- A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.
- B. Remove scale and dirt, on inside and outside, before assembly.
- C. Prepare piping connections to equipment with flanges or unions.

3.02 INSTALLATION

- A. Install in accordance with manufacturer's instructions.

- B. Route piping in orderly manner and maintain gradient. Route parallel and perpendicular to walls.
- C. Install piping to maintain headroom, conserve space, and not interfere with use of space.
- D. Group piping whenever practical at common elevations.
- E. Provide clearance in hangers and from structure and other equipment for installation of
insulation and access to valves and fittings.

3.03 DISINFECTION OF DOMESTIC WATER PIPING SYSTEM

- A. Prior to starting work, verify system is complete, flushed and clean.

3.04 SCHEDULES

- A. See Drawings

END 15300

1. GENERAL

1.1. WORK INCLUDES

A. Base Bid Demolition

1. Glenn – disconnect one (1) existing sink.
2. Cut concrete floor to locate existing 4" sanitary.

B. Base Bid

1. Install one (1) new free standing hand sink in Room 117.1.
2. Install one (1) new sink with faucet after casework is installed.
3. At each exterior wall with heat pump extend copper condensate drain with 90 degree elbow and install 45 degree elbow 5" above concrete.

1.2. RELATED WORK

A. Specified elsewhere

1. 02072 – Minor Demolition for Remodeling

1.3. QUALITY ASSURANCE

A. All work to be in accord with the Illinois Plumbing Code.

2. PRODUCTS

2.1. SINK

A. Hand wash: Kohler Pinoir #K2035-4 3 Faucet holes

B. Utility Sink: Sterling #11719, 22-gauge stainless steel, 17" X 19" X 5 ½" self-rimming, 2-hole, faucet punch-out with 2" drain opening and fitted strainer.

C. Or equal.

2.2. FAUCET SET

A. Utility: Delta #2133, 2-hole installation, 4" center set, blade handles, spout 5-5/8" long X 6½" high with stream straightener.

B. Hand Wash: Delta Trinsic Model 3559-MPU-DST

2.3. MISCELLANEOUS

- A. Provide new ½" NPS copper supply piping – new brass stops and new PVC or brass 1½" waste.

3. EXECUTION

3.1. DEMOLITION

- A. Remove existing hand sink in Room 117.1 so that supply and waste may be reconnected.
 - 1. The 2" sanitary waste is available from custodian closet adjacent to Restroom.

3.2. INSTALLATION

- A. Provide template for counter cut-out on utility sink..
 - 1. Cut back of casework to allow for supply and waste.
 - 2. Cutout to be arranged by General Contractor or Plumbing Subcontractor.
- B. Assemble fixtures, trim, fittings, and all components to make fixture workable.
 - 1. Use ball valves if stops are not provided with fixtures.
- C. Install counter-mounted fixtures as directed by Manufacturer's instructions and rough-in Drawings.
- D. Install trap and new waste piping connected to existing drain system in wall.
- E. Use PVC to extend condensate drain. Install 45 deg. elbow. Drain shall extend out two inches (2") including elbow.
- F. Follow IL Plumbing Code for no hub connection into cast iron soil pipe.
- G. Compact gravel into the excavation and pour new 4" concrete slab over excavated area.

3.3. ADJUSTMENT

- A. Operate all plumbing fixtures and adjust for proper flow.
- B. Clean all fixtures following completion of work.

END 15410

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to this section.
- B. The following Division-15 Sections apply to this Section:
 - 1. Basic Mechanical Requirements.
 - 2. Basic Mechanical Materials and Methods.
 - 3. General Duty Valves.
 - 4. Supports and Anchors.

1.2 SUMMARY

- A. This Section includes piping systems for hot water heating, condenser water, make-up water for these systems, blow-down drain lines, and condensate drain piping. Piping materials and equipment specified in this Section include:
 - 1. Pipes, fittings, and specialties;
 - 2. Special duty valves;
 - 3. Hydronic specialties.
 - 4. Match existing size and material of hydronic piping from existing loop pipe to new location of heat pump.
- B. Related Sections: The following sections contain requirements that relate to this Section:
 - 1. Division 15 Section "Valves" for gate, globe, ball, butterfly, and check valves.

1.3 DEFINITIONS

- A. Pipe sizes used in this Specification are Nominal Pipe Size (NPS).

1.4 SYSTEM DESCRIPTION

- A. The heat pump supply and return piping loop system includes central heat rejection equipment. Circulation to and from the heat pump units and the central equipment is accomplished by constant volume pumps. Design flow rates and water temperatures are specified in the various equipment specifications and schedules. Control sequences are specified in the HVAC-Sequence of Operation specification section.

1.5 SUBMITTALS

- A. Product Data, including rated capacities of selected models, weights (shipping, installed, and operating), furnished specialties and accessories, and installation instructions for each hydronic specialty and special duty valve specified.

1. Furnish flow and pressure drop curves for diverting fittings and calibrated plug valves, based on manufacturer's testing.
 - B. Maintenance Data for hydronic specialties and special duty valves, for inclusion in operating and maintenance manual specified in Division 1 and Division-15 Section "Basic Mechanical Requirements."
 - C. Certification of compliance with ASTM and ANSI manufacturing requirements for pipe, fittings, and specialties.
 - D. Reports specified in Part 3 of this Section.
- 1.6 QUALITY ASSURANCE
- A. Regulatory Requirements: comply with the provisions of the following:
 1. ASME B 31.9 "Building Services Piping" for materials, products, and installation. Safety valves and pressure vessels shall bear the appropriate ASME label.
 2. International Mechanical Code (IMC).
- 1.7 SEQUENCING AND SCHEDULING
- A. Coordinate the installation of pipe sleeves for foundation wall penetrations.
- 1.8 EXTRA STOCK
- A. Maintenance Stock: Furnish a sufficient quantity of chemical for initial system start-up and for preventative maintenance for one year from Substantial Completion. Chemical should be suited for the municipal water supply and include Ph Adjustment, Corrosion Inhibitors and Propylene Glycol solution.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturer: Subject to compliance with requirements, provide hydronic piping system products from one of the following:
 1. Grooved Mechanical Joint Pipe, Fittings, and Couplings:
 - a. Victaulic Company of America.
 - b. Approved equal
 2. HDPE Pipe and Fittings
 - a. Phillips Driscopex
 - b. Approved Equal
 3. Pump Discharge Valves:
 - a. Amtrol, Inc.
 - b. Armstrong Pumps, Inc.
 - c. Bell & Gossett ITT; Fluid Handling Div.
 - d. Taco, Inc.

2.2 PIPE AND TUBING MATERIALS

- A. General: Refer to Part 3 Article "PIPE APPLICATIONS" for identification of where the below materials are used.

- 1. Drawn Temper Copper Tubing: ASTM B 88, Type L.

2.3 JOINING MATERIALS

- A. Gasket Material: thickness, material, and type suitable for fluid to be handled, and design temperatures and pressures.

2.4 GENERAL DUTY VALVES

- A. General duty valves (i.e., gate, globe, check, ball, and butterfly valves) are specified in Division 15 Section "Valves." Special duty valves are specified below by their generic name; refer to Part 3 Article "VALVE APPLICATION" for specific uses and applications for each valve specified.

2.5 SPECIAL DUTY VALVES

- A. Calibrated Plug Valves: 125 psig water working pressure, 250 deg F maximum operating temperature, bronze body, plug valve with calibrated orifice. Provide with connections for portable differential pressure meter with integral check valves and seals. Valve shall have integral pointer and calibrated scale to register degree of valve opening. Valves 2 inch and smaller shall have threaded connections and 2-1/2 inch valves shall have flanged connections.
- B. Pump Discharge Valves: 175 psig working pressure, 300 deg F maximum operating temperature, cast-iron body, bronze disc and seat, stainless steel stem and spring, and "Teflon" packing. Valves shall have flanged connections and straight or angle pattern as indicated. Features shall include non-slam check valve with spring-loaded weighted disc, and calibrated adjustment feature to permit regulation of pump discharge flow and shutoff.
- C. Calibrated Circuit setting valves: Class 150, cast iron housing, steel operating parts; threaded connections for 2 inch and smaller, flanged connections for 2-1/2 inch and larger. Field adjustable control flow rates within plus or minus 5 percent design through a valve calibration curve. Provide quick disconnect valves for flow measuring equipment. Provide a metal identification tag with chain for each valve, factory marked with the zone identification, valve model number, and rate flow in GPM.

PART 3 - EXECUTION

3.1 PIPE APPLICATIONS (CONDENSER WATER PIPING)

- A. Closed loop system throughout the building: install Schedule 10 roll grooved steel piping throughout the building for the condenser water loop. Taps shall be made with Ford type Mechanical Saddles. Run outs to the individual heatpumps shall be accomplished with HDPE SDR 11 piping, Schedule 40 steel screwed piping, schedule 10 pressfit, or type K copper sweat joined (silver solder) socket joined piping.

3.2 PIPING INSTALLATIONS

- A. Locations and Arrangements: Drawings (plans, schematics, and diagrams) indicate the general location and arrangement of piping systems. Locations and arrangements of piping take into consideration pipe sizing and friction loss, expansion, pump sizing, and other design considerations. So far as practical, install piping as indicated.
- B. Use fittings for all changes in direction and all branch connections.
- C. Install exposed piping at right angles or parallel to building walls. Diagonal runs are not permitted, unless expressly indicated.
- D. Conceal all pipe installations in walls, pipe chases, utility spaces, above ceilings, below grade or floors, unless indicated to be exposed to view.
- E. Install piping tight to slabs, beams, joists, columns, walls, and other permanent elements of the building. Provide space to permit insulation applications, with 1" clearance outside the insulation. Allow sufficient space above removable ceiling panels to allow for panel removal.
- F. Locate groups of pipes parallel to each other, spaced to permit applying insulation and servicing of valves.
- G. Install piping at a uniform grade of 1 inch in 40 feet upward in the direction of flow.
- H. Make reductions in pipe sizes using eccentric reducer fitting installed with the level side up.

3.3 HANGERS AND SUPPORTS

- A. General: Hanger, supports, and anchors devices are specified in Division 15 Section "HANGERS AND ANCHORS."

3.4 PIPE JOINT CONSTRUCTION

- A. Heat Fusion Joints in accordance with manufacturer's recommendations and processes.
- B. Grooved Joints: Assemble joints in accordance with fitting manufacturers written instructions.

3.5 VALVE APPLICATIONS

- A. General Duty Valve Applications:
 - 1. Shut-off duty: use ball, and butterfly valves. Use this for isolation valves to separate the loop pipe from heat pump.
 - 2. Throttling duty: use ball, butterfly valves, and Circuit setting valves with shutoff option
 - 3. Install shut-off duty valves at each branch connection to supply mains, at supply connection to each piece of equipment, and elsewhere as indicated.

3.6 FIELD QUALITY CONTROL

- A. Preparation for testing: Prepare hydronic piping in accordance with ASME B 31.9 and as follows:
1. Leave joints including welds uninsulated and exposed for examination during the test.
 2. Provide temporary restraints for expansion joints which cannot sustain the reactions due to test pressure. If temporary restraints are not practical, isolate expansion joints from testing.
 3. Flush system with clean water. Clean strainers.
 4. Isolate equipment that is not to be subjected to the test pressure from the piping. If a valve is used to isolate the equipment, its closure shall be capable of sealing against the test pressure without damage to the valve. Flanged joints at which blinds are inserted to isolate equipment need not be tested.
 5. Install relief valve set at a pressure no more than $1/3$ higher than the test pressure, to protect against damage by expansion of liquid or other source of overpressure during the test.
- B. Testing: Test hydronic piping as follows:
1. Use ambient temperature water as the testing medium, except where there is a risk of damage due to freezing. Another liquid may be used if it is safe for workmen and compatible with the piping system components.
 2. Use vents installed at high points in the system to release trapped air while filling the system. Use drains installed at low points for complete removal of the that liquid.
 3. Examine system to see that equipment and parts that cannot withstand test pressures are properly isolated. Examine test equipment to ensure that it is tight and that low pressure filling lines are disconnected.
 4. Subject piping system to a hydrostatic test pressure which at every point in the system is not less than 1.5 times the design pressure. The test pressure shall not exceed the maximum pressure for any vessel, pump, valve, or other component in the system under test. Make a check to verify that the stress due to pressure at the bottom of vertical runs does not exceed either 90 percent of specified minimum yield strength, or 1.7 times the "SE" value in Appendix A of ASME B31.9, Code For Pressure Piping, Building Services Piping.
 5. After the hydrostatic test pressure has been applied for at least 10 minutes, examine piping, joints, and connections for leakage. Eliminate leaks by tightening, repairing, or replacing components as appropriate, and repeat hydrostatic test until there are no leaks.

3.7 ADJUSTING AND CLEANING

- A. Clean and flush hydronic piping systems. Remove, clean, and replace strainer screens. After cleaning and flushing hydronic piping system, but before balancing, remove disposable fine mesh strainers in pump suction diffusers.
- B. Mark calibrated name plates of pump discharge valves after hydronic system balancing has been completed, to permanently indicate final balanced position.

- C. Chemical Treatment: Provide a water analysis prepared by the chemical treatment supplier to determine the type and level of chemicals required for prevention of scale and corrosion. Perform initial treatment after completion of system testing.

3.8 COMMISSIONING

- A. Verify correct charging pressure on diaphragm (bladder) type expansion/compression tanks.
- B. Before operating the system perform these steps:
 - 1. Open manual valves to full open position. Through heat pump coils bypass valves.
 - 2. Remove and clean strainers.
 - 3. Check pump for proper direction of correct improper wiring.
 - 4. Set automatic fill valves for required system pressure.
 - 5. Check air vents at high points of systems and determine if all are installed and operating freely (automatic type) or to bleed air completely (manual type).
 - 6. Set temperature controls so all coils are calling for full flow.
 - 7. Verify operation of all automatic control valves.
 - 8. Lubricate motors and bearings.
 - 9. Trim impeller to achieve final design flow rate.

END 15510

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.
- B. Division-15 Basic Mechanical Materials and Methods sections apply to work of this section.

1.2 DESCRIPTION OF WORK:

- A. Extent of water-source heat pump work required by this section is indicated on drawings and schedules, and by requirements of this section.
 - 1. The existing heat pump in Room 119 will be disconnected at existing location and moved to new location as shown.
 - 2. The existing heat pump unit is a BARD QW361-AOZDOXDO84 (3 ton) 230/208 V amp 10.6 Blower motor ½ hp variable speed. Rated CFM 1200 continuous CFM 1000 cooling BTU/hr. @ 54° = 37,000 EER 22.5 Heating BTU/hr @ 50°=31,500. Contractor add outside air install, BARD damper box, and BARD approved CO2 sensor.
- B. Refer to other Division-15 sections for piping, pumps, valves, and ductwork which are required external to water-source heat pumps for installation; not work of this section.
- C. Electrical Work: Provide the following wiring as work of this section, in accordance with requirements of Division 16:
 - 1. Low voltage control wiring between heat pump units and remote mounted thermostats and controls.
- D. Refer to Division-16 sections for other electrical wiring including motor starters, disconnects, wires/cables, raceways, and other required electrical devices; not work of this section.

1.3 QUALITY ASSURANCE:

- A. Manufacturer's Qualifications: Firms regularly engaged in manufacture of water-source heat pumps, of types and capacities required, whose products have been in satisfactory use in similar service for not less than 5 years.
- B. Codes and Standards:
 - 1. ARI Compliance: Test and rate water-source heat pumps in accordance with ARI Standard 310 "Water-Source Heat Pumps". Provide ARI Certification.
 - 2. ASHRAE Compliance: Provide water-source heat pumps with not less than minimum COP/Efficiency levels as prescribed in ASHRAE 90.1-1999 "Energy Standard for Buildings Except Low-Rise Residential Buildings".

3. UL Compliance: Design, construct, and assemble water-source heat pumps for use with duct systems so as to meet the safety requirements of UL Standard 559 "Heat Pumps".
4. UL Compliance: Design, construct, and assemble free-delivery water-source heat pumps so as to meet the safety requirements of UL Standard 484 "Room Air Conditioners".
5. UL Labels: Provide water-source heat pumps that are UL listed and labeled.
6. NEC Compliance: Install water-source heat pumps in accordance with NFPA 70 "National Electrical Code".

1.4 DELIVERY, STORAGE, AND HANDLING:

- A. Handle water-source heat pumps and components carefully to prevent damage, breaking, denting and scoring. Do not install damaged water-source heat pumps or components; replace with new.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS:

- A. Manufacturers: Subject to compliance with requirements, provide water-source heat pumps of one of the following:
 1. FHP Mfg.
 2. Climate-Master Corporation
 3. Water Furnace
 4. Conservation Energy Systems.; Mammoth Div.
 5. Trane (The) Co.
 6. Bard

2.2 WATER-SOURCE HEAT PUMPS:

- A. General: Provide factory-assembled and tested packaged water- source heat pumps as indicated, consisting of cabinet; sealed refrigerant circuit including compressor, refrigerant to water heat exchanger, compensating thermal expansion valve, refrigerant to air heat exchanger (coil), and reversing valve; evaporator fans; refrigeration and temperature controls; filters; and dampers. Provide capacities and electrical characteristics as scheduled.
- B. Cabinet: Provide manufacturer's standard galvanized steel or aluminum casing for ducted models, galvanized steel with baked enamel finish for free delivery models. Provide cabinet type as scheduled.
 1. Provide access panels for inspection and access to internal parts. Insulate cabinet with minimum 1/2" thick, 1.5 pcf density fiberglass insulation. Provide knockouts for electrical and piping connections. Provide condensate drain connection.
 2. Construct cabinet with compartments, so compressor, reversing valve, and water coil are out of air stream.
- C. Evaporator Fans: Provide centrifugal type, direct drive fans with ECM (Electronically commutated motors) permanently lubricated motors.

- D. Heat Exchangers: Provide refrigerant to water heat exchangers of coaxial type, with inner copper water tube and outer steel refrigerant tube. Test and rate heat exchanger for 450 psi refrigerant working pressure.
 - 1. Provide refrigerant to air heat exchangers of copper tube and aluminum fins. Test and rate heat exchanger for 425 psi working pressure.
- E. Reversing Valve: Provide 4-way solenoid activated refrigerant reversing valve designed for fail-safe in heating position.
- F. Compressor: Provide scroll type compressor, installed on spring vibration isolators and enclosed in acoustically treated enclosure. Provide high and low temperature cutouts and compressor motor overload protection. Provide capability to reset compressor lockout circuit at either remote thermostat or circuit breaker.
- G. Internal Refrigerant Piping: Provide hard-drawn temper Type ACR copper tube with wrought-copper fittings and brazed joints.
- H. Controls: Provide factory-mounted and factory-wired controls. Where indicated, provide local control panel. Include fan control, reversing valve control, compressor relays, random-start control relay, and 24-v control transformer. Provide the following control options:
 - 1. Robert Shaw series 300 Thermostat Suitable for remote occupancy indication
- I. Filters: All heat pumps, except console units, will be provided with 2" thick electronically augmented filters. (This may require custom built filters for cabinet units.) Console units shall be provided with standard wire mesh filters. Filters are by Respicaire or previously approved equal. In console type units filters to be 1" thick.
- J. Unit shall be capable of operation at temperatures of 20F to 120F.
- K. Unit configuration shall be field convertible from side discharge to front discharge without additional parts and assemblies.
- L. Connection to the units shall be accomplished with a male to female brass fitting adapter (swivel nut union).
- M. Flow through the heatpump is to be managed through a calibrated Manually Adjustable Circuit Setting valve provided by the mechanical contractor.
- N. Unit to be equipped with solid state condensate overflow switch which is to be connected to the thermostat for water overflow indication.

PART 3 - EXECUTION

3.1 INSPECTION:

- A. General: Examine areas and conditions under which water-source heat pumps are to be installed. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.

3.2 INSTALLATION OF WATER-SOURCE HEAT PUMPS:

- A. General: Install water-source heat pumps in accordance with manufacturers' installation instructions. Install units plumb and level, firmly anchored in locations indicated and maintain manufacturer's recommended clearances.
- B. Electrical Wiring: Install electrical devices furnished by manufacturer but not specified to be factory-mounted. Furnish copy of manufacturer's wiring diagram submittal to Electrical Installer.
 - 1. Verify that electrical wiring installation is in accordance with manufacturer's submittal and installation requirements of Division-16 sections. Do not proceed with equipment start-up until wiring installation is acceptable to equipment Installer.
- C. Ductwork: Refer to Division-15 section "Ductwork". Connect supply and return ducts to heat pumps with flexible duct connections. Provide transitions to exactly match unit duct connection size.
- D. Water-Cooled Condenser Piping: Refer to Division-15 section "hydronic piping". Connect supply and return piping to heat pump as indicated, with unions and shutoff valves.
- E. Drain Piping: Connect heat pump drain pan to nearest indirect waste connection, or as indicated.

3.3 FIELD QUALITY CONTROL:

- A. General: Start-up water-source heat pumps, in accordance with manufacturer's start-up instructions. Test controls and demonstrate compliance with requirements. Replace damaged or malfunctioning controls and equipment.

END 15786

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Requirements of the following Division 15 Sections apply to this section:
 - 1. "Basic Mechanical Requirements."
 - 2. "Basic Mechanical Materials and Methods."

1.2 SUMMARY

- A. This Section includes rectangular metal ducts for heating, ventilating, and air conditioning systems in pressure classes from minus 2 inches to plus 10 inches water gage.
 - 1. This project is modifying an existing duct system. The new ductwork is changing the location of ducts and adding one new outlet. The heat pump providing the tempered air is not changing capacity.
- B. Related Sections: The following sections contain requirements that relate to this Section:
 - 1. Division 7 Section "Joint Sealers" for fire-resistant sealants for use around duct penetrations and fire damper installations in fire rated floors, partitions, and walls.
 - 2. Division 15 Section "Duct Accessories" for flexible duct materials, dampers, duct-mounted access panels and doors, and turning vanes.
 - 3. Division 15 Section "Air Inlets and Outlets."
 - 4. Division 15 Section "Testing, Adjusting, and Balancing."
 - 5. Division 15 Section "Duct Insulation."

1.3 DEFINITIONS

- A. Sealing Requirements Definitions: For the purposes of duct systems sealing requirements specified in this Section, the following definitions apply:
 - 1. Seams: A seam is defined as joining of two longitudinally (in the direction of airflow) oriented edges of duct surface material occurring between two joints. All other duct surface connections made on the perimeter are deemed to be joints.
 - 2. Joints: Joints include girth joints; branch and sub-branch intersections; so-called duct collar tap-ins; fitting subsections; louver and air terminal connections to ducts; access door and access panel frames and jambs; duct, plenum, and casing abutments to building structures.

1.4 SYSTEM PERFORMANCE REQUIREMENTS

- A. The duct system design, as indicated, has been used to select and size air moving and distribution equipment and other components of the air system.

PART 2 - PRODUCTS

2.1 SHEET METAL MATERIALS

- A. Sheet Metal, General: Provide sheet metal in thicknesses indicated, packaged and marked as specified in ASTM A 700.
- B. Galvanized Sheet Steel: Lock-forming quality, ASTM A 527, Coating Designation G 90. Provide mill phosphatized finish for exposed surfaces of ducts exposed to view.
- C. Reinforcement Shapes and Plates: Unless otherwise indicated, provide galvanized steel reinforcing where installed on galvanized sheet metal ducts. For aluminum and stainless steel ducts provide reinforcing of compatible materials.
- D. Tie Rods: Galvanized steel, 1/4-inch minimum diameter for 36-inch length or less; 3/8-inch minimum diameter for lengths longer than 36 inches.

2.2 HANGERS AND SUPPORTS

- A. Building Attachments: Concrete inserts, powder actuated fasteners, or structural steel fasteners appropriate for building materials. Do not use powder actuated concrete fasteners for lightweight aggregate concretes or for slabs less than 4 inches thick.
- B. Hangers: Galvanized sheet steel, or round, uncoated steel, threaded rod.
 - 1. Hangers Installed In Corrosive Atmospheres: Electro-galvanized, all-thread rod or hot-dipped-galvanized rods with threads painted after installation.
 - 2. Straps and Rod Sizes: Conform with Table 4-1 in SMACNA HVAC Duct Construction Standards, 1985 Edition, for sheet steel width and gage and steel rod diameters.
- C. Duct Attachments: Sheet metal screws, blind rivets, or self-tapping metal screws; compatible with duct materials.

2.3 RECTANGULAR DUCT FABRICATION

- A. General: Except as otherwise indicated, fabricate rectangular ducts with galvanized sheet steel, in accordance with SMACNA "HVAC Duct Construction Standards," Tables 1-3 through 1-19, including their associated details. Conform to the requirements in the referenced standard for metal thickness, reinforcing types and intervals, tie rod applications, and joint types and intervals.
 - 1. Fabricate rectangular ducts in lengths appropriate to reinforcement and rigidity class required for pressure classification.
 - 2. Provide materials that are free from visual imperfections such as pitting, seam marks, roller marks, stains, and discolorations.
- B. Static Pressure Classifications: Except where otherwise indicated, construct duct systems to the following pressure classifications:
 - 1. Supply and Fresh Air Ducts: 3 inches water gage.
 - 2. Return Ducts: 2 inches water gage, negative pressure.
 - 3. Exhaust Ducts: 2 inches water gage, negative pressure.

- C. Crossbreaking or Cross Beading: Crossbreak or bead duct sides that are 19 inches and larger and are 20 gage or less, with more than 10 sq. ft. of unbraced panel area, as indicated in SMACNA "HVAC Duct Construction Standard," Figure 1-4, unless they are lined or are externally insulated.

2.4 RECTANGULAR DUCT FITTINGS

- A. Fabricate elbows, transitions, offsets, branch connections, and other duct construction in accordance with SMACNA "HVAC Metal Duct Construction Standard," 1985 Edition, Figures 2-1 through 2-10.

2.5 SEALING MATERIALS

- A. Joint and Seam Sealants, General: The term sealant used here is not limited to materials of adhesive or mastic nature, but also includes tapes and combinations of open weave fabric strips and mastics.
- B. Tape Sealing System: Woven-fiber tape impregnated with a gypsum mineral compound and a modified acrylic/silicone activator to react exothermically with the tape to form a hard, durable, airtight seal.
- C. Joint and Seam Sealant: One-part, nonsag, solvent-release-curing, polymerized butyl sealant complying with FS TT-S-001657, Type I; formulated with a minimum of 75 percent solids.
- D. Flanged Joint Mastics: One-part, acid-curing, silicone elastomeric joint sealants, complying with ASTM C 920, Type S, Grade NS, Class 25, Use O.

PART 3 - EXECUTION

3.1 DUCT INSTALLATION, GENERAL

- A.. Install ducts with the fewest possible joints.
- B. Use fabricated fittings for all changes in directions, changes in size and shape, and connections.
- C. Install couplings tight to duct wall surface with projections into duct at connections kept to a minimum.
- D. Locate ducts, except as otherwise indicated, vertically and horizontally, parallel and perpendicular to building lines; avoid diagonal runs. Install duct systems in shortest route that does not obstruct useable space or block access for servicing building and its equipment.
- E. Install ducts close to walls, overhead construction, columns, and other structural and permanent enclosure elements of building.
- F. Provide clearance of 1 inch where furring is shown for enclosure or concealment of ducts, plus allowance for insulation thickness, if any.
- G. Install insulated ducts with 1-inch clearance outside of insulation.

- H. Conceal ducts from view in finished and occupied spaces by locating in mechanical shafts, hollow wall construction, or above suspended ceilings. Do not encase horizontal runs in solid partitions, except as specifically shown.
- I. Coordinate layout with suspended ceiling and lighting layouts and similar finished work.
- J. Non-Fire-Rated Partition Penetrations: Where ducts pass interior partitions and exterior walls, and are exposed to view, conceal space between construction opening and duct or duct insulation with sheet metal flanges of same gage as duct. Overlap opening on 4 sides by at least 1-1/2 inches.

3.2 SEAM AND JOINT SEALING

- A. General: Seal duct seams and joints as follows:
- B. Pressure Classification 2 and 3 Inches Water Gage: All transverse joints, longitudinal seams and duct penetrations.
- C. Seal externally insulated ducts prior to insulation installation.

3.3 HANGING AND SUPPORTING

- A. Install rectangular metal duct with support systems indicated in SMACNA "HVAC Duct Construction Standards," Tables 4-1 through 4-3 and Figures 4-1 through 4-8.
- B. Support horizontal ducts within 2 feet of each elbow and within 4 feet of each branch intersection.

3.4 CONNECTIONS

- A. Branch Connections: Comply with SMACNA "HVAC Duct Construction Standards," Figures 2-7 and 2-8.
- B. Outlet and Inlet Connections: Comply with SMACNA "HVAC Duct Construction Standards," Figures 2-16 through 2-18.

3.5 FIELD QUALITY CONTROL

- A. Disassemble, reassemble, and seal segments of the systems as required to accommodate leakage testing, and as required for compliance with test requirements.
- B. Determine leakage from entire system or section of the system by relating leakage to the surface area of the test section.

3.6 ADJUSTING AND CLEANING

- A. Adjust volume control devices as required by the testing and balancing procedures to achieve required air flow. Refer to Division 15 Section "TESTING, ADJUSTING, AND BALANCING" for requirements and procedures for adjusting and balancing air systems.

END 15891

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

1.2 DESCRIPTION OF WORK

- A. Extent of air outlets and inlets work is indicated by drawings and schedules, and by requirements of this section.
- B. Types of outlets and inlets required for project include the following:
 - 1. Duct grills.
- C. Refer to other Division-15 sections for ductwork and duct accessories required in conjunction with air outlets and inlets; not work of this section.
- D. Refer to other Division-15 sections for balancing of air outlets and inlets; not work of this section.

1.3 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Firms regularly engaged in manufacture of air outlets and inlets of types and capacities required, whose products have been in satisfactory use in similar service for not less than 5 years.
- B. Codes and Standards:
 - 1. ARI Compliance: Test and rate air outlets and inlets in accordance with ARI 650 "Standard for Air Outlets and Inlets".
 - 2. ASHRAE Compliance: Test and rate air outlets and inlets in accordance with ASHRAE 70 "Method of Testing for Rating the Air Flow Performance of Outlets and Inlets".
 - 3. ADC Compliance: Test and rate air outlets and inlets in certified laboratories under requirements of ADC 1062 "Certification, Rating and Test Manual".
 - 4. ADC Seal: Provide air outlets and inlets bearing ADC Certified Rating Seal.
 - 5. AMCA Compliance: Test and rate louvers in accordance with AMCA 500 "Test Method for Louvers, Dampers and Shutters".
 - 6. AMCA Seal: Provide louvers bearing AMCA Certified Rating Seal.
 - 7. NFPA Compliance: Install air outlets and inlets in accordance with NFPA 90A "Standard for the Installation of Air Conditioning and Ventilating Systems".

END 15932

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work of this section.
- B. Related Sections:
 - 1. General requirements for testing agencies are specified in the Division-1 Section Quality Control Services.
 - 2. Other Division-15 Sections specify balancing devices and their installation, and materials and installations of mechanical systems.
 - 3. Individual Division-15 system sections specify leak testing requirements and procedures.

1.2 SUMMARY

- A. This Section specifies the requirements and procedures total mechanical systems testing, adjusting, and balancing. Requirements include measurement and establishment of the fluid quantities of the mechanical systems as required to meet design specifications, and recording and reporting the results.
- B. Test, adjust, and balance the following mechanical systems:
 - 1. Supply air systems
 - 2. Exhaust air systems
 - 3. Hydronic systems
 - 4. Verify temperature control system operation.
- C. This Section does not include:
 - 1. Specifications for materials and installation of adjusting and balancing devices. If devices must be added to achieve proper adjusting and balancing, refer to the respective system sections for materials and installation requirements.

1.3 DEFINITIONS

- A. Systems testing, adjusting, and balancing is the process of checking and adjusting all the building environmental systems to produce the design objectives. It includes:
 - 1. The balance of air and water distribution;
 - 2. Adjustment of total system to provide design quantities;
 - 3. Electrical measurement;
 - 4. Verification of performance of all equipment and automatic controls;
- B. Test: To determine quantitative performance of equipment.
- C. Branch: Duct or pipe serving a single terminal.

END 15990

DIVISION 23 - HEATING, VENTILATING, AND AIR-CONDITIONING (HVAC)

Section 23 0501 - MINOR HVAC DEMOLITION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. HVAC demolition.
 - 1. Exhaust Fans
 - 2. Equipment
 - 3. Ductwork
 - 4. Piping

1.02 RELATED REQUIREMENTS

- A. Additional requirements for alterations work.

PART 2 PRODUCTS

2.01 MATERIALS AND EQUIPMENT

- A. Materials and equipment for patching and extending work: As specified in individual sections.
 - 1. Remove ductwork and install new as shown on plans.
 - 2. Provide new wall openings for ductwork in plaster wall Room 117 to 118. Modify the wall opening from Room 118 to Room 119 (server). Provide new opening through new metal stud wall between Room 120 (Lobby) and Room 115 (Office). Modify the duct passages through the wall separating Room 115 and 119.
 - 3. Install new grills on walls or on ductwork as indicated.
 - 4. Move Heat Pump in Room 117 approximately 11' south.
 - 5. Extend 2 ½ hydronic piping to new location of existing.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify field measurements and duct arrangements are as shown on Drawings.
- B. Verify that abandoned ductwork and equipment is removed.
- C. Demolition drawings are based on field observation .
- D. Report discrepancies to Architect before disturbing existing installation.
- E. Beginning of demolition means installer accepts existing conditions.

3.02 PREPARATION

- A. Disconnect HVAC systems in walls, floors, and ceilings to be removed.

- B. Existing HVAC System: Maintain existing system in service until coordinated with Owner for length of out of service. Disable system only to make switchovers and connections. Minimize outage duration.
 - 1. Obtain permission from Owner at least 24 hours before partially or completely disabling system.

3.03 DEMOLITION AND EXTENSION OF EXISTING HVAC WORK

- A. Remove, relocate, and extend existing installations to accommodate new construction.
- B. Remove abandoned ductwork to source of supply.
- C. Remove exposed abandoned ductwork, including abandoned ductwork above accessible ceiling finishes. Cut ductwork flush with walls and floors, and patch surfaces.
- D. Disconnect abandoned air outlets and inlets and remove. Remove abandoned air outlets and inlets if ductwork servicing them is abandoned and removed. Provide blank covers for abandoned air outlets and inlets that are not removed.
- E. Add exhaust fans as noted.
- F. Remove piping as noted.
- G. Repair adjacent construction and finishes damaged during demolition and extension work.
- H. Maintain access to existing HVAC installations that remain active. Modify installation or provide access panel as appropriate.
- I. Extend existing installations using materials and methods as specified.

3.04 CLEANING AND REPAIR

- A. Clean and repair existing materials and equipment that remain or that are to be reused.

END 23 0501

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Electrical demolition.

1.02 RELATED REQUIREMENTS

PART 2 PRODUCTS

2.01 MATERIALS AND EQUIPMENT

- A. Materials and equipment for patching and extending work: As specified in individual sections.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify field measurements and circuiting arrangements are as shown on Drawings.
- B. Demolition drawings are based on field observation.
- C. Report discrepancies to Architect before disturbing existing installation.
- D. Beginning of demolition means installer accepts existing conditions.

3.02 PREPARATION

- A. Disconnect electrical systems in walls, floors, and ceilings to be removed.
- B. Coordinate utility service outages with utility company.
- C. Provide temporary wiring and connections to maintain existing systems in service during construction. When work must be performed on energized equipment or circuits, use personnel experienced in such operations.
- D. Existing Electrical Service: Maintain existing system in service until new system is complete and ready for service. Disable system only to make switchovers and connections. Minimize outage duration.
 - 1. Obtain permission from Owner at least 24 hours before partially or completely disabling system.
- E. Existing Fire Alarm System: Maintain existing system in service. Disable system only to make switchovers and connections. Minimize outage duration.
 - 1. Notify Owner before partially or completely disabling system.
 - 2. Notify local fire service.
 - 3. Make notifications at least 24 hours in advance.
 - 4. Make temporary connections to maintain service in areas adjacent to work area.
- F. Existing Telephone System: Maintain existing system in service. Disable system only to make switchovers and connections. Minimize outage duration.
 - 1. Notify Owner at least 24 hours before partially or completely disabling system.
 - 2. Notify telephone utility company at least 24 hours before partially or completely disabling system.
 - 3. Make temporary connections to maintain service in areas adjacent to work area.

3.03 DEMOLITION AND EXTENSION OF EXISTING ELECTRICAL WORK

- A. Perform work for removal and disposal of equipment and materials containing toxic substances regulated under the Federal Toxic Substances Control Act (TSCA) in accordance with applicable federal, state, and local regulations. Applicable equipment and materials include, but are not limited to:
 - 1. PCB-containing electrical equipment, including transformers, capacitors, and switches.
 - 2. PCB- and DEHP-containing lighting ballasts.
 - 3. Mercury-containing lamps and tubes, including fluorescent lamps, high intensity discharge (HID), arc lamps, ultra-violet, high pressure sodium, mercury vapor, ignitron tubes, neon, and incandescent.

- B. Remove, relocate, and extend existing installations to accommodate new construction.
- C. Remove abandoned wiring to source of supply.
- D. Remove exposed abandoned conduit, including abandoned conduit above accessible ceiling finishes. Cut conduit flush with walls and floors, and patch surfaces.
- E. Disconnect abandoned outlets and remove devices. Remove abandoned outlets if conduit servicing them is abandoned and removed. Provide blank cover for abandoned outlets that are not removed.
- F. Repair adjacent construction and finishes damaged during demolition and extension work.
- G. Maintain access to existing electrical installations that remain active. Modify installation or provide access panel as appropriate.

3.04 CLEANING AND REPAIR

- A. See Section 01 7419 - Construction Waste Management and Disposal for additional requirements.
- B. Clean and repair existing materials and equipment that remain or that are to be reused.
- C. Panelboards: Clean exposed surfaces and check tightness of electrical connections. Replace damaged circuit breakers and provide closure plates for vacant positions. Provide typed circuit directory showing revised circuiting arrangement.

END 26 0501

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Single conductor building wire.
- B. Wiring connectors.
- C. Electrical tape.
- D. Wire pulling lubricant.
- E. Cable ties.

1.02 RELATED REQUIREMENTS

- A. Provide low voltage as required for BARD Heat Pump CO2 sensor, or collaborate with HVAC contractor to get the CO2 sensor operational.
- B. Section 26 0526 - Grounding and Bonding for Electrical Systems: Additional requirements for grounding conductors and grounding connectors.

1.03 REFERENCE STANDARDS

- A. ASTM B3 - Standard Specification for Soft or Annealed Copper Wire; 2013.
- B. ASTM B8 - Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft; 2011.
- C. ASTM B33 - Standard Specification for Tin-Coated Soft or Annealed Copper Wire for Electrical Purposes; 2010 (Reapproved 2014).
- D. ASTM B787/B787M - Standard Specification for 19 Wire Combination Unilay-Stranded Copper Conductors for Subsequent Insulation; 2004 (Reapproved 2014).
- E. ASTM D3005 - Standard Specification for Low-Temperature Resistant Vinyl Chloride Plastic Pressure-Sensitive Electrical Insulating Tape; 2010.
- F. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2015.
- G. NEMA WC 70 - Nonshielded Power Cable 2000 V or Less for the Distribution of Electrical Energy; 2009.
- H. NETA ATS - Acceptance Testing Specifications for Electrical Power Equipment and Systems; 2013.
- I. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- J. UL 44 - Thermoset-Insulated Wires and Cables; Current Edition, Including All Revisions.
- K. UL 83 - Thermoplastic-Insulated Wires and Cables; Current Edition, Including All Revisions.
- L. UL 486A-486B - Wire Connectors; Current Edition, Including All Revisions.
- M. UL 486C - Splicing Wire Connectors; Current Edition, Including All Revisions.
- N. UL 510 - Polyvinyl Chloride, Polyethylene, and Rubber Insulating Tape; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate sizes of raceways, boxes, and equipment enclosures installed under other sections with the actual conductors to be installed, including adjustments for conductor sizes increased for voltage drop.
 - 2. Coordinate with electrical equipment installed under other sections to provide terminations suitable for use with the conductors to be installed.
 - 3. Notify Architect of any conflicts with or deviations from the contract documents. Obtain direction before proceeding with work.

1.05 QUALITY ASSURANCE

- A. Conform to requirements of NFPA 70.

END 26 0519

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Support and attachment components for equipment, conduit, cable, boxes, and other electrical work.

1.02 RELATED REQUIREMENTS

- A. Section 26 0534 - Conduit: Additional support and attachment requirements for conduits.
- B. Section 26 5100 - Interior Lighting: Additional support and attachment requirements for interior luminaires.

1.03 REFERENCE STANDARDS

- A. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2015.
- B. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate sizes and arrangement of supports and bases with the actual equipment and components to be installed.
 - 2. Coordinate the work with other trades to provide additional framing and materials required for installation.
 - 3. Coordinate compatibility of support and attachment components with mounting surfaces at the installed locations.
 - 4. Coordinate the arrangement of supports with ductwork, piping, equipment and other potential conflicts installed under other sections or by others.
 - 5. Notify Architect of any conflicts with or deviations from the contract documents. Obtain direction before proceeding with work.
- B. Sequencing:
 - 1. Do not install products on or provide attachment to concrete surfaces until concrete has fully cured in accordance with Section 03 3000.

PART 2 PRODUCTS

2.01 SUPPORT AND ATTACHMENT COMPONENTS

- A. General Requirements:
 - 1. Provide all required hangers, supports, anchors, fasteners, fittings, accessories, and hardware as necessary for the complete installation of electrical work.
 - 2. Where support and attachment component types and sizes are not indicated, select in accordance with manufacturer's application criteria as required for the load to be supported with a minimum safety factor of 2. Include consideration for vibration, equipment operation, and shock loads where applicable.
 - 3. Do not use products for applications other than as permitted by NFPA 70 and product listing.
 - 4. Steel Components: Use corrosion resistant materials suitable for the environment where installed.
 - a. Zinc-Plated Steel: Electroplated in accordance with ASTM B633.
 - b. Galvanized Steel: Hot-dip galvanized after fabrication in accordance with ASTM A123/A123M or ASTM A153/A153M.

DIVISION 26 - ELECTRICAL

Section 26 0529 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

- B. Conduit and Cable Supports: Straps, clamps, etc. suitable for the conduit or cable to be supported.
 - 1. Conduit Straps: One-hole or two-hole type; steel or malleable iron.
 - 2. Conduit Clamps: Bolted type unless otherwise indicated.
- C. Outlet Box Supports: Hangers, brackets, etc. suitable for the boxes to be supported.
- D. Metal Channel (Strut) Framing Systems: Factory-fabricated continuous-slot metal channel (strut) and associated fittings, accessories, and hardware required for field-assembly of supports.
 - 1. Comply with MFMA-4.
- E. Hanger Rods: Threaded zinc-plated steel unless otherwise indicated.
- F. Anchors and Fasteners:
 - 1. Unless otherwise indicated and where not otherwise restricted, use the anchor and fastener types indicated for the specified applications.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that mounting surfaces are ready to receive support and attachment components.
- B. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Install support and attachment components in a neat and workmanlike manner in accordance with NECA 1.
- C. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.

END 26 0529

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Electrical metallic tubing (EMT).
- B. Conduit fittings.
- C. Accessories.

1.02 RELATED REQUIREMENTS

- A. Section 26 0529 - Hangers and Supports for Electrical Systems.

1.03 REFERENCE STANDARDS

- A. ANSI C80.3 - American National Standard for Steel Electrical Metallic Tubing (EMT); 2005.
- B. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- C. UL 1 - Flexible Metal Conduit; Current Edition, Including All Revisions.
- D. UL 797 - Electrical Metallic Tubing-Steel; Current Edition, Including All Revisions.

1.04 QUALITY ASSURANCE

- A. Conform to requirements of NFPA 70.

PART 2 PRODUCTS

2.01 CONDUIT APPLICATIONS

- A. Do not use conduit and associated fittings for applications other than as permitted by NFPA 70 and product listing.
- B. Unless otherwise indicated and where not otherwise restricted, use the conduit types indicated for the specified applications. Where more than one listed application applies, comply with the most restrictive requirements. Where conduit type for a particular application is not specified, use galvanized steel rigid metal conduit.
- C. Concealed Within Hollow Stud Walls: Use galvanized steel rigid metal conduit.
- D. Concealed Above Accessible Ceilings: Use galvanized steel rigid metal conduit or electrical metallic tubing (EMT).
- E. Interior, Damp or Wet Locations: Use galvanized steel rigid metal conduit.
- F. Exposed, Interior, Subject to Physical Damage: Use galvanized steel rigid metal conduit.
 - 1. Locations subject to physical damage include, but are not limited to:
 - a. Where exposed below 8 feet, except within electrical and communication rooms or closets.
 - b. Where exposed below 20 feet in gym.
- G. Connections to Luminaires Above Accessible Ceilings: Use flexible metal conduit.
- H. Connections to Vibrating Equipment:
 - 1. Dry Locations: Use flexible metal conduit.
 - 2. Maximum Length: 6 feet unless otherwise indicated.

2.02 CONDUIT REQUIREMENTS

- A. Existing Work: Where existing conduits are indicated to be reused, they may be reused only where they comply with specified requirements, are free from corrosion, and integrity is verified by pulling a mandrel through them.
- B. Provide all conduit, fittings, supports, and accessories required for a complete raceway system.
- C. Provide products listed, classified, and labeled as suitable for the purpose intended.
- D. Where conduit size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.

2.03 FLEXIBLE METAL CONDUIT (FMC)

- A. Description: NFPA 70, Type FMC standard wall steel flexible metal conduit listed and labeled as complying with UL 1, and listed for use in classified firestop systems to be used.
- B. Fittings:
 - 1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
 - 2. Material: Use steel or malleable iron.

2.04 ELECTRICAL METALLIC TUBING (EMT)

- A. Description: NFPA 70, Type EMT steel electrical metallic tubing complying with ANSI C80.3 and listed and labeled as complying with UL 797.
- B. Fittings:
 - 1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
 - 2. Material: Use steel or malleable iron.
 - 3. Connectors and Couplings: Use compression (gland) or set-screw type.
 - a. Do not use indenter type connectors and couplings.

2.05 ACCESSORIES

- A. Pull Strings: Use nylon cord with average breaking strength of not less than 200 pound-force.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Install conduit in a neat and workmanlike manner in accordance with NECA 1.
- C. Conduit Routing:
 - 1. Conceal all conduits unless specifically indicated to be exposed.
- D. Conduit Support:
 - 1. Secure and support conduits in accordance with NFPA 70 and Section 26 0529 using suitable supports and methods approved by the authority having jurisdiction.
 - 2. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.
 - 3. Installation Above Suspended Ceilings: Do not provide support from ceiling support system. Do not provide support from ceiling grid or allow conduits to lay on ceiling tiles.
- E. Connections and Terminations:
 - 1. Use suitable adapters where required to transition from one type of conduit to another.
 - 2. Provide insulating bushings or insulated throats at all conduit terminations to protect conductors.
 - 3. Secure joints and connections to provide maximum mechanical strength and electrical continuity.
- F. Penetrations:
 - 1. Do not penetrate or otherwise notch or cut structural members, including footings and grade beams, without approval of Structural Engineer.
 - 2. Make penetrations perpendicular to surfaces unless otherwise indicated.
 - 3. Provide sleeves for penetrations as indicated or as required to facilitate installation. Set sleeves flush with exposed surfaces unless otherwise indicated or required.
 - 4. Where conduits penetrate waterproof membrane, seal as required to maintain integrity of membrane.
 - 5. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 07 8400.

- G. Condensation Prevention: Where conduits cross barriers between areas of potential substantial temperature differential, provide sealing fitting or approved sealing compound at an accessible point near the penetration to prevent condensation. This includes, but is not limited to:
1. Where conduits pass from outdoors into conditioned interior spaces.
 2. Where conduits pass from unconditioned interior spaces into conditioned interior spaces.

3.02 PROTECTION

- A. Immediately after installation of conduit, use suitable manufactured plugs to provide protection from entry of moisture and foreign material and do not remove until ready for installation of conductors.

END 26 0534

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Outlet and device boxes up to 100 cubic inches, including those used as junction and pull boxes.
- B. Cabinets and enclosures, including junction and pull boxes larger than 100 cubic inches.

1.02 REFERENCE STANDARDS

- A. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.03 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate the work with other trades to avoid placement of ductwork, piping, equipment, or other potential obstructions within the dedicated equipment spaces and working clearances for electrical equipment required by NFPA 70.
 - 2. Coordinate the work with other trades to preserve insulation integrity.
 - 3. Coordinate the work with other trades to provide walls suitable for installation of flush-mounted boxes where indicated.
 - 4. Notify Architect of any conflicts with or deviations from the contract documents. Obtain direction before proceeding with work.

1.04 QUALITY ASSURANCE

- A. Conform to requirements of NFPA 70.

PART 2 PRODUCTS

2.01 BOXES

- A. General Requirements:
 - 1. Do not use boxes and associated accessories for applications other than as permitted by NFPA 70 and product listing.
 - 2. Provide all boxes, fittings, supports, and accessories required for a complete raceway system and to accommodate devices and equipment to be installed.
- B. Outlet and Device Boxes Up to 100 cubic inches, Including Those Used as Junction and Pull Boxes:
 - 1. Use sheet-steel boxes for dry locations unless otherwise indicated or required.
 - 2. Use shallow boxes where required by the type of wall construction.
 - 3. Boxes for Supporting Luminaires and Ceiling Fans: Listed as suitable for the type and weight of load to be supported; furnished with fixture stud to accommodate mounting of luminaire where required.
- C. Cabinets and Enclosures, Including Junction and Pull Boxes Larger Than 100 cubic inches:
 - 1. Comply with NEMA 250, and list and label as complying with UL 50 and UL 50E, or UL 508A.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Perform work in a neat and workmanlike manner in accordance with NECA 1 and, where applicable, NECA 130, including mounting heights specified in those standards where mounting heights are not indicated.

- C. Arrange equipment to provide minimum clearances in accordance with manufacturer's instructions and NFPA 70.
- D. Box Locations:
 - 1. Locate boxes to be accessible. Provide access panels in accordance with Section 08 3100 as required where approved by the Architect.
- E. Flush-Mounted Boxes:
 - 1. Install boxes in noncombustible materials such as concrete, tile, gypsum, plaster, etc. so that front edge of box or associated raised cover is not set back from finished surface more than 1/4 inch or does not project beyond finished surface.
 - 2. Install boxes in combustible materials such as wood so that front edge of box or associated raised cover is flush with finished surface.
 - 3. Repair rough openings around boxes in noncombustible materials such as concrete, tile, gypsum, plaster, etc. so that there are no gaps or open spaces greater than 1/8 inch at the edge of the box.
- F. Install boxes as required to preserve insulation integrity.

END 26 0537

PART 1 PRODUCTS

1.01 FIXTURES

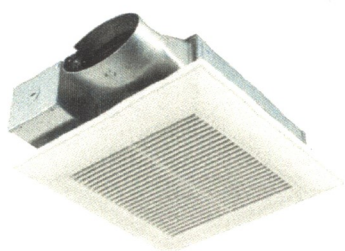
- A. See Plan Sheet MEP 1
- B. Provide light fixtures shown on Plan
- C. Provide new receptacles as shown
- D. Provide 100 CFM Ventilation Fan and connect to light fixture. See cut sheet next page.

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WhisperValue DC 50/80/100 CFM Ventilation Fan

PanasonicSKU
FV-0510VS1Brand
PanasonicRating
(14)

\$85.00 each

In Stock

Get 146 Fri. Mar 20

FV-0510VS1 - Panasonic FV-0510VS1 - WhisperValue DC 50/80/100 CFM Ventilation Fan

Specs

Application:	Bathroom	Duct Size:	4"
Motor:	Condenser	Voltage:	120v
Motor Bearing:	Ball	Hertz:	60
Blower Wheel Type:	Sirocco	Sone:	0.6
Mount:	Wall Ceiling Recessed	Air Flow Capacity (CFM):	80 50 100
Mounting Opening:	10-1/4"	Features:	Energy Star Qualified
Grille Size:	13"	Thermal Fuse Protection:	Yes
Material:	Galvanized Steel	Warranty:	3 Year Parts

Description

Ventilating fan shall be Low Noise ceiling or wall mount type rated for continuous run. Fan shall be ENERGY STAR® rated and certified by the Home Ventilation Institute (HVI). Evaluated by Underwriters Laboratories and conform to both UL and cUL safety standards.

Features:

- Revolutionary DC motor with SmartFlow™ technology for optimum CFM output
- Pick-A-Flow™ Speed Selector – one fan, you choose the CFM (50, 80 or 100 CFM)

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PART 1 PRODUCTS

1.01 LIGHTING CONTROL DEVICES - GENERAL REQUIREMENTS

- A. Provide products listed, classified, and labeled as suitable for the purpose intended.
- B. Unless specifically indicated to be excluded, provide all required conduit, wiring, connectors, hardware, components, accessories, etc. as required for a complete operating system.
- C. Products for Switching of Electronic Ballasts/Drivers: Tested and rated to be suitable for peak inrush currents specified in NEMA 410.

1.02 OCCUPANCY SENSORS

- A. Manufacturers:
 - 1. Basis of design: Wattstopper (see plans for models)
 - 2. Acuity
 - 3. Hubbell
 - 4. Lutron
- B. All Occupancy Sensors:
 - 1. Description: Factory-assembled commercial specification grade devices for indoor use capable of sensing both major motion, such as walking, and minor motion, such as small desktop level movements, according to published coverage areas, for automatic control of load indicated.
 - 2. Provide LED to visually indicate motion detection with separate color LEDs for each sensor type in dual technology units.
 - 3. Operation: Unless otherwise indicated, occupancy sensor to turn load on when occupant presence is detected and to turn load off when no occupant presence is detected during an adjustable turn-off delay time interval.
- C. Ceiling Mounted Occupancy Sensors:
 - 1. All Ceiling Mounted Occupancy Sensors:
 - a. Description: Low profile occupancy sensors designed for ceiling installation.
 - 2. Passive Infrared (PIR) Ceiling Mounted Occupancy Sensors:
 - a. Extended Range Sensors: Capable of detecting motion within an area of 1,200 square feet at a mounting height of 9 feet, with a field of view of 360 degrees.

END 26 0923

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Power distribution panelboards.
- B. Lighting and appliance panelboards.
- C. Overcurrent protective devices for panelboards.

PART 2 PRODUCTS

2.01 PANELBOARDS - GENERAL REQUIREMENTS

- A. Provide products listed, classified, and labeled as suitable for the purpose intended.
- B. Unless otherwise indicated, provide products suitable for continuous operation under the following service conditions:
 - 1. Altitude: Less than 6,600 feet.
 - 2. Ambient Temperature:
 - a. Panelboards Containing Circuit Breakers: Between 23 degrees F and 104 degrees F.
- C. Short Circuit Current Rating:
 - 1. Provide panelboards with listed short circuit current rating not less than the available fault current at the installed location as determined by short circuit study performed in accordance with Section 26 0573.
- D. Mains: Configure for top or bottom incoming feed as indicated or as required for the installation.
- E. Branch Overcurrent Protective Devices: Replaceable without disturbing adjacent devices.
- F. Bussing: Sized in accordance with UL 67 temperature rise requirements.
 - 1. Provide fully rated neutral bus unless otherwise indicated, with a suitable lug for each feeder or branch circuit requiring a neutral connection.
 - 2. Provide solidly bonded equipment ground bus in each panelboard, with a suitable lug for each feeder and branch circuit equipment grounding conductor.
- G. Conductor Terminations: Suitable for use with the conductors to be installed.
- H. Enclosures: Comply with NEMA 250, and list and label as complying with UL 50 and UL 50E.
 - 1. Environment Type per NEMA 250: Unless otherwise indicated, as specified for the following installation locations:
 - a. Indoor Clean, Dry Locations: Type 1.
 - b. Outdoor Locations: Type 3R.
 - 2. Boxes: Galvanized steel unless otherwise indicated.
 - a. Provide wiring gutters sized to accommodate the conductors to be installed.
 - b. Increase gutter space as required where sub-feed lugs, feed-through lugs, gutter taps, or oversized lugs are provided.
 - 3. Fronts:
 - a. Fronts for Surface-Mounted Enclosures: Same dimensions as boxes.
 - b. Fronts for Flush-Mounted Enclosures: Overlap boxes on all sides to conceal rough opening.
 - 4. Lockable Doors: All locks keyed alike unless otherwise indicated.
- I. Future Provisions: Prepare all unused spaces for future installation of devices including bussing, connectors, mounting hardware and all other required provisions.
- J. Multi-Section Panelboards: Provide enclosures of the same height, with feed-through lugs or sub-feed lugs and feeders as indicated or as required to interconnect sections.

2.02 LIGHTING AND APPLIANCE PANELBOARDS

- A. Description: Panelboards complying with NEMA PB 1, lighting and appliance branch circuit type, circuit breaker type, and listed and labeled as complying with UL 67; ratings, configurations and features as indicated on the drawings.
 - 1. Use Panel C in Room 119 for all new power for the project. Where possible, use existing circuits for power as needed.
- B. Conductor Terminations:
 - 1. Main and Neutral Lug Material: Copper, suitable for terminating copper conductors only.
 - 2. Main and Neutral Lug Type: Mechanical.
- C. Bussing:
 - 1. Phase Bus Connections: Arranged for sequential phasing of overcurrent protective devices.
 - 2. Phase and Neutral Bus Material: Copper.
 - 3. Ground Bus Material: Copper.
- D. Circuit Breakers: Thermal magnetic bolt-on or plug-in type.

END 26 2416

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Electrical connections to equipment.

1.02 RELATED REQUIREMENTS

- A. Section 26 0519 - Low-Voltage Electrical Power Conductors and Cables.
- B. Section 26 0534 - Conduit.
- C. Section 26 0537 - Boxes.

1.03 REFERENCE STANDARDS

- A. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Obtain and review shop drawings, product data, manufacturer's wiring diagrams, and manufacturer's instructions for equipment furnished under other sections.
 - 2. Determine connection locations and requirements.
- B. Sequencing:
 - 1. Install rough-in of electrical connections before installation of equipment is required.
 - 2. Make electrical connections before required start-up of equipment.

1.05 QUALITY ASSURANCE

- A. Conform to requirements of NFPA 70.
- B. Products: Listed, classified, and labeled as suitable for the purpose intended.
- C. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Flexible Conduit: As specified in Section 26 0534.
- B. Wire and Cable: As specified in Section 26 0519.
- C. Boxes: As specified in Section 26 0537.

2.02 EQUIPMENT CONNECTIONS

- A. HVAC Equipment:
 - 1. Electrical Connection: Flexible conduit.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that equipment is ready for electrical connection, wiring, and energization.

3.02 ELECTRICAL CONNECTIONS

- A. Make electrical connections in accordance with equipment manufacturer's instructions.
- B. Make conduit connections to equipment using flexible conduit. Use liquidtight flexible conduit with watertight connectors in damp or wet locations.
- C. Connect heat producing equipment using wire and cable with insulation suitable for temperatures encountered.
- D. Provide receptacle outlet to accommodate connection with attachment plug.
- E. Provide cord and cap where field-supplied attachment plug is required.

- F. Install suitable strain-relief clamps and fittings for cord connections at outlet boxes and equipment connection boxes.
- G. Install disconnect switches, controllers, control stations, and control devices to complete equipment wiring requirements.
- H. Install terminal block jumpers to complete equipment wiring requirements.
- I. Install interconnecting conduit and wiring between devices and equipment to complete equipment wiring requirements.

END 26 2717

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Fire alarm system design and installation, including all components, wiring, and conduit.
- B. Replacement and removal of existing fire alarm system components, wiring, and conduit indicated.
 - 1. As required for modifications to HVAC systems.
- C. New devices and or modifications required due to renovations and additions.
- D. Existing system in this building is SIMPLEX.

END 28 3100

