

PROJECT MANUAL FOR
INTERIOR ALTERATIONS & ADDITIONS
at
BEDFORD MIDDLE SCHOOL

70-88 North Avenue
WESTPORT, CONNECTICUT

Westport Board of Education/ Town of Westport
Bid #19-022-BOE

OWNER

Westport Board of Education/ Town of Westport
110 Myrtle Avenue
Westport, Connecticut 06880
Contact: Ted Hunyadi
203-341-1271

April 24, 2019

INDEX

Index
List of Drawings
Invitation to Bid
Instructions to Bidders
Insurance Requirements

DIVISION 1 - GENERAL REQUIREMENTS

01085 Applicable Standards
01300 Submittals and Substitutions.
01400 Quality Control
01500 Temporary Facilities
01710 Cleaning
01730 Operation & Maintenance Data
01800 Project Closeout

DIVISION 2 – DEMOLITION

024119 Demolition

DIVISION 6 - CARPENTRY

061213 Subfloor & Underlayment

DIVISION 9 - PAINTING

092900 Gypsum Board Systems
095000 Suspended Ceiling System
096519 Resilient Flooring
099000 Painting

DIVISION 8

08113 Hollow Metal Frames
081400 Wood Doors
087100 Door Hardware

APPENDIX

List of Current Vendors
IT Scope of Work

LIST of DRAWINGS

Drawings dated April 23, 2019

A001	Cover Sheet
A002	Accessibility Sheet
A101	Proposed Media Center Alterations – Base Bid
A101a	Proposed Media Center Reflected Ceiling Plan – Base Bid
A102	Proposed Media Center Alterations – Alternate No. 1
A102b	Proposed Media Center Reflected Ceiling Plan – Alternate No.1
AD101	Demolition Plan – Base Bid
AD102	Demolition Plans – Alternate No. 1
E101	Existing Media Center
S100	Media Center Structural Plans
S300	Media Center Structural Details

INVITATION TO BID

1. Notice is given hereby that: **The Board of Education/ Town of Westport** will accept sealed proposals for: **Interior alterations and additions in the Library/ Media Center at Bedford Middle School, Westport, Connecticut according to the drawings and specifications.**

The Owner will be responsible for public address system wiring and terminations. The contractor must install all required conduits and junction boxes

- A. Any sizes or Estimate of Quantities as shown on the attached sheets and/or drawings are approximate and are not guaranteed in any respect. Prospective Bidders are to visit the site to verify scope of the work, measurements, quantities, etc. prior to bidding. The Board of Education reserves the right at all times to increase or decrease the amount of work if deemed in the best interest of the Westport Board of Education.
 - B. For bidder's price is to include all labor, materials, permits, etc. required to properly complete the project as illustrated and specified.
2. Contract documents may be examined at the office of:

Philip H. Cerrone III, Architect
421 Meadow Street
Fairfield, Connecticut
203/333-2066
3. Inquiries should be addressed to Mr. Ted Hunyadi, Thunyadi@westportps.org, who will be the Town Representative for the project. Tel: (203) 341-1271.
4. The Bidder must not discriminate, nor permit discrimination, against any person on the grounds of race, color, national origin, religion, sex, handicap, or veteran status, in their employment practices, in any of their contractual arrangements, in all service and accommodations they offer to the public, and in any of their other business operations.
5. It is a national policy to provide minority and women's business enterprises (M and WBEs) the maximum opportunity to participate in activities carried out under public funding and to award a fair share of contracts to M and WBEs.
6. It shall be the responsibility of potential bidders to visit the site and make their own evaluation of the work. Site review and building access may be gained by contacting Mr. Ted Hunyadi, (203) 341-1271.

7. The successful bidder MUST secure all required permits prior to commencing work on the site and MUST obtain a certificate of occupancy prior to receiving the final payment. Upon application for a building permit the Town of Westport will waive the cost of the permit, exclusive of the State of CT Education Fee.
8. Contractor must submit a Construction Schedule as part of the Bid. Note that time is of the essence.
9. Award of the project is contingent upon funding & zoning approval by the applicable boards of the Westport Board of Educations and the Town of Westport.

INSTRUCTION TO BIDDERS

1. THE WORK

Interior alterations and additions in the Library/ Media Center at Bedford Middle School, Westport, Connecticut according to the drawings and specifications. The Owner will be responsible for public address system wiring and terminations. The contractor must install all required conduits and junction boxes

- A. Prospective bidders may bid on one or all of the options as outlined in this document. It is the intent of the Board of Education to award one of the options. Said award will be based on the most cost effective proposal in conjunction with other considerations.
- B. Note that Bidder's must submit, with his bid, descriptive literature and specifications pertaining to the new Relocatable classrooms which are being proposed.

2. RIGHT TO ACCEPT / REJECT

- A. After the reserves of all factors, terms, and conditions, including price, the purchasing authority of the Town of Westport reserves the right to reject any and all bids, or any portion, or waive defects in the same, or accept any proposal deemed to be in the best interest of the Town of Westport, Connecticut

3. QUESTIONS

- A. Questions concerning conditions and specifications should be directed to Mr. Ted Hunyadi, Telephone: (203)341-1271. Inquiries must reference date of bid opening and requisition or contract number and must be received no later than five (5) business days prior to date of bid opening. Failure to comply with these conditions will result in the bidder waiving his right to dispute the bid specifications and conditions.

4. PRICES

- A. Prices quoted must be firm, for acceptance by the Town of Westport, for a period of ninety (90) days. Price shall include all applicable duties. Bidders shall be required to deliver awarded items at prices quoted in their original bid.
- B. The price(s) and amount of the bid will have been arrived at independently and without consultation, communication or agreement with any other contractor, bidder or potential bidder.
- C. All work on this project must be in conformance with the Davis-Bacon Act. All workers must be paid prevailing wages in accordance with the most current wages rate standards as determined by the U.S. Department of Labor and Section 31-53 of the CT General Statutes with annual adjustment. Consult the U.S. Department of Housing and Urban Development for additional information.

5. PAYMENT PROCEDURES

- A. No voucher, claim, or charge against the Town shall be paid without the approval of the Fiscal Officer for correctness and legality. Appropriate checks shall be drawn by the Fiscal Officer for approved claims or charges and they shall be valid without countersignature unless the Board of Selectmen otherwise prescribed.

6. **THE CONTRACTOR**

- A. The Contractor for the work described shall thoroughly familiarize himself with the requirements of all specifications, and the actual physical conditions of various job sites. The submission of a proposal shall be considered as evidence that the Contractor has examined the actual job conditions, requirements, and specifications. Any claim for labor, equipment, or materials required, of difficulties encountered which could have been foreseen had such an examination been carefully made will not be recognized.

7. **AWARD OF BIDS**

- A. Contracts and purchases will be made or entered into with the lowest responsible bidder meeting specifications, except as otherwise specified in the invitation. If more than one item is specified in the invitation, the Westport Board of Education/ Town of Westport reserves the right to determine the low bidder on an individual basis or on the basis of all items included in the Invitation for Bids, unless otherwise expressed by the Town.

8. **TERMS AND CONDITIONS OF BID**

- A. In order to receive consideration, make bids in strict accordance with the following:
- B. Make bids upon the forms provided, properly signed and with all items filled out. Do not change the wording of the bid form, and do not add words to the bid form. Unauthorized conditions, limitations, or provisions attached to the bid may be cause for rejection of the bid. If alterations by erasure or interlineations are made for any reason, explain over such erasure or interlineations with a signed statement from the bidder.

9. **OSHA**

- A. The bidder must certify all equipment must comply to all regulations and conditions stipulated under the Williams-Steiger Occupational Safety and Health Act of 1971, as amended. The successful bidder must further certify that all items furnished under the project will conform to and comply with Federal and State of Connecticut OSHA standards.

Successful bidder must agree to indemnify and hold harmless the Westport Board of Education/Town of Westport for any and all damages that may be assessed against the Town.

10. **FEDERAL, STATE, AND LOCAL LAWS**

- A. All applicable Federal, State and local laws, rules and regulations of all authorities having jurisdiction over the locality of the project shall apply to the contracted are deemed to be included herein.
- B. All work on this project must be in conformance with the Davis-Bacon Act. All workers must be paid prevailing wages in accordance with the most current wages rate standards as determined by the U.S. Department of Labor and Section 31-53 of the CT General Statutes with annual adjustment. Consult the U.S. Department of Housing and Urban Development for additional information.

11. **CONFLICT OF INTEREST**

- A. No officer or employee or member of any elective or appointive board, commission, or committee of the town, whether temporary or permanent, shall have or acquire any financial interest gained from a successful bid, direct or indirect, aggregating more than a hundred dollars (\$100), in any project, matter, contract or business within his/her jurisdiction or the jurisdiction of the board, commission or committee of which he is a member. Nor shall the officer/employee/member have any financial interest, direct or indirect, aggregating more than a hundred dollars (\$100) in any contract or proposed contract for materials or services to be furnished or used in connection with any project, jurisdiction of the board, commission or committee of which he/she is a member.

12. **SCOPE OF WORK / SITE INSPECTION**

- A. The bidder declares that the scope of the work has been thoroughly reviewed and any questions resolved (see below for name and number of individual to contact for questions).
- B. If applicable, the bidder further declares that the site has been inspected as called for in the specifications.

13. **EXCEPTION TO SPECIFICATIONS**

- A. No protest regarding the validity or appropriateness of the specifications or of the Invitation for Bids will be considered, unless the protest is filed in writing with the Director of Purchasing, prior to the closing date for the bids. All bid proposals rendered shall be considered meeting the attached specifications unless exceptions are noted on a separate page dated and signed by the bidder.

14. **UNLESS OTHERWISE NOTED**

- A. It will be assumed that all terms and conditions and specifications will be complied with and will be considered as part of the Bid Proposal.

15. **TAX EXEMPT**

- A. Federal Tax Exemption 06-75-0063-K. Exempt from State Sales Tax under State General Statutes Chapter 219-Section 12-412 Subsection A. No exemption certificates are required and none will be issued.

16. **OBLIGATION OF CONTRACTOR**

- A. The Contractor shall do all the work and furnish all the materials, tools, and appliances necessary or proper for performing and completing work required by this contract in a manner specified. All the work, labor, and materials to be done and furnished under this contract shall be done and furnished strictly pursuant to and in conformity with the specifications hereto attached and other directions of the Owner, as given from time to time during the progress of the work under the terms of the contract. The contractor shall complete all work to be done under this contract to the satisfaction of the Board of Education and in accordance with the specifications and drawings herein mentioned at the prices herein agreed upon.

17. **METHOD OF DOING WORK**

- A. The work must be started and done by the Contractor in such a manner as not to encounter delays to the traveling public owing to delays in doing the work. It must be pushed to completion with all possible speed and no inconvenience to traffic will be permitted where such inconvenience may be avoided.
- B. The Contractor shall conduct the work in such a manner so as not to interfere with or willfully annoy employees and officials of the Board of Education, employees of public utilities, residents adjacent to the work and general public.
- C. The Contractor shall employ only competent employees to do work and whenever the Owner shall notify the Contractor, in writing, that any employee on the work is, in the Owners opinion, incompetent, unfaithful, disorderly and otherwise unsatisfactory, such employee shall be discharged from the work and shall not again be employed on it.
- D. At the site of the work, the Contractor shall employ at all times while work is in progress, a construction superintendent or foreman who shall have full authority to act for the Contractor and who shall be acceptable by the Owner.

18. **COMMENCEMENT, COMPLETION & SCHEDULE**

- A. The Contractor to whom this contract shall be awarded shall commence work on the premises as soon as possible. Work shall continue to progress on the project every normal working day after commencement. The Contractor shall submit start and completion dates as part of the bid submitted. Time is of the essence.
- B. All work must be completed and a Certificate of Occupancy obtained on or prior to August 14, 2019.

19. **EXAMINATION OF DOCUMENTS AND SITE OF WORK**

- A. Before submitting a bid, each bidder shall examine the Drawings carefully, shall read the Specifications and all other proposed Contract Documents, and shall visit the site of the Work. Each bidder shall be fully informed prior to bidding as to existing conditions and limitations under which the Work is to be performed, and shall include in the bid a sum to cover the cost of items necessary to perform the Work set forth in the proposed Contract Documents. No allowance will be made to a bidder because of lack of such examination or knowledge. The submission of a bid will be considered a conclusive evidence that the bidder has made such examination.
- B. Bidders must examine for themselves the plans, profiles, detail drawings, specifications, etc. and the location of the proposed work, and must exercise their judgment as to the nature and difficulty of the whole proposed undertaking. The Contractor must assume all risk or variance in any computation or statement by the contract, by whomsoever made and must agree to furnish all tools, machinery, material and labor to clean up, all debris and to complete fully the said work in accordance with the plans and contained either in the specifications or in any of the drawings but omitted from the other will be considered an essential part of the work. The Contractor whose bid is accepted will be responsible for every loss or error arising from ignorance concerning the requirements of the work of the difficulties to be encountered.

- C. Bidders, if requested, must be able to present satisfactory evidence that they have been regularly engaged in the business of constructing such work as they propose to execute and that they are fully prepared with the necessary capital, materials, and machinery to conduct the work to be contracted for the satisfaction of the Board of Education and to begin work promptly when ordered.
- D. The Board of Education, or its designated representative, reserves the right to reject any proposal in whole or in part offering equipment and/or materials and/or construction proposals, which in his/her opinion does not meet the quality standards desired. Such decision will be considered final and not subject to further recourse.
- E. In connection with the execution of the bid, subsequent purchase orders and/or contracts, the Contractor shall not discriminate against any employee or applicant for employment because of age, race, religion, color, sex, or natural origin.
- F. The Westport Board of Education/ Town of Westport reserves the right to require the successful bidder(s) to enter into such security arrangements and/or written contracts as deemed necessary by the Town of Westport and/or Board of Education to protect the Board of Education's property and goods and interests.
- G. The award of any contract resulting from the bid will be contingent on the acceptance and approval by State and local authorities of the final drawings to be submitted by the successful bidder.

20. **EXECUTION OF AGREEMENT**

- A. The form of Agreement that the successful bidder will be required to execute will be decided by the Owner.
- B. The bidder to whom the Contract is awarded, must sign and deliver required copies to the owner within seven (7) business after notice of award and receipt of Agreement forms from the Owner.
- C. At or prior to delivery of the signed Agreement, the bidder to whom the contract is awarded shall deliver to the Owner those Certificates of Insurance required by the Contract documents and such Labor and Materials Payment Bonds and Performance Bonds as required by the Owner.
- D. Bonds and Certificates of Insurance shall be approved by the Owner before the successful bidder may proceed with the work. Failure or refusal to provide Bonds or Certificates of Insurance in a form satisfactory to the Owner shall subject the successful bidder to loss of time from the allowable construction period equal to the time of delay in furnishing the required material.

21. **INTERPRETATION OF CONTRACT DOCUMENTS PRIOR TO BIDDING**

- A. Any person contemplating submitting a bid for the construction of the Work is in doubt as to the true meaning of any part of the proposed Contract Documents, or finds discrepancies in or omissions from any part of the proposed Contract Documents, he/she may submit to the person responsible a written request for interpretation thereof not later than seven days before bids will be opened. The person submitting the request shall be responsible for its prompt delivery.

- B. Interpretation of correction of proposed Contract Documents will be made only by Addendum and will be mailed or delivered to each general contract bidder of record. The Owner will not be responsible for any other explanations or interpretations of the proposed Contract Documents.

22. **LIABILITY OF CONTRACTOR**

- A. The Contractor shall at all times safely guard the Owner's property from injury or loss in connection with this contract. The Contractor shall at all times safely guard and protect the work and that of adjacent property (as provided by law and the contract documents) from damage. The Contractor shall take all responsibility for the work and take precautions for preventing injuries to persons and property in or about the work. The Contractor shall assume the defense of and indemnify and save harmless the Owner and its officers, agents, and employees from all claims relating to labor and materials furnished for the work, to inventions, patents, and patent rights used in doing the work, or in consequence of any improper materials, implements, or labor used therein and to any act, omission or neglect of the Contractor and his/her employees therein.
- B. The Contractor shall conduct the work in such a manner as to interfere as little as possible with travel on the highways and observe all ordinances and statutes relating to obstructing the highway. The Contractor shall provide railing or suitable barricades as good safe practice requires as outlined in the latest revised edition of the Manual of Accident Prevention in Construction published by the Associated General Contractors of America and as required by the Owner to prevent accidents or injury to persons, vehicles, or animals.
- C. Signs warning the public of construction in the near vicinity shall be maintained at a reasonable distance from either end of the location of active construction or hazardous condition arising therefrom. All barricades, machinery and other hazards or obstructions to the public use of the highway shall be brightly and properly lighted at night.

23. **ASSIGNMENTS**

- A. The Contractor shall not sublet, sell, transfer, assign or otherwise dispose of the contract or any portion thereof or of the work provided for therein, or of his/her right, title, interest therein, to any person, firm, partnership or corporation without the written consent of the Owner. If any part of the work is sublet, sold, transferred, assigned or otherwise disposed of, the Contractor will not be relieved of any responsibility in connection therewith.
- B. The Contractor may not sublet a total of work in excess of 50% of the original total contract value, without approval of the Owner.

24. **EXTRA WORK**

- A. The Owner shall notify the Contractor, in writing, of the necessity of such extra work, stipulating its character and extent. Upon receipt of such notification, the Contractor shall advise the Owner, in writing, of the compensation, whether unit price or lump sum as requested, for which he proposes to perform the extra work required. The Owner may accept

the compensation proposed by the Contractor, or if the Owner considers the prices submitted to be excessive, the Owner may order the work done on a "Cost Plus" basis. In either case, the character and extent of the extra work together with the accepted basis of compensation shall be communicated to the Contractor by means of a change order which, when signed by the Contractor and the Owner, shall become part of the contract.

- B. Unforeseen work made necessary by changes in plan or work necessary to complete the improvements for which no price is provided in the contract, shall be done in accordance with the requirements of the specifications and as directed by the Owner.

25. **RIGHT OF OWNER TO TERMINATE CONTRACT**

- A. If the work to be done under this contract shall be abandoned, or if at any time the Owner is of the opinion that the Contractor is willfully violating any of the conditions of this contract or is not executing said contract in good faith or that the work is unnecessarily delayed and will not be finished within the prescribed time, the Owner may notify the Contractor and Surety, in writing to that effect. If the Contractor does not, within five (5) business days thereafter, take such measures as will, in the judgment of the Owner, insure the satisfactory completion of the work aforesaid, the Owner shall have the power to notify the Contractor to discontinue all work or any portion thereof, under this contract. A copy of this contract shall go to the surety.
- B. Thereupon the Contractor shall cease to continue said work, on such part thereof as the Owner shall designate. The Owner shall thereupon have the power to place such and so many persons as deemed proper, by contract or otherwise, to work at and complete the work herein described and to use such materials, tools, and appliances found upon the work or to procure other materials, tools, and appliances for the completion of the same and charge the expenses of said labor, materials, tools, and appliances to the Contractor; and the expense so charged shall be deducted and paid by the Owner out of such money as may be then due, or may at any time thereafter grow due to the Contractor under and by virtue of this agreement, or any part thereof; and in case the expense so charged is less than the sum which would have been payable under this contract if the same had been completed by the Contractor, the Contractor shall be entitled to receive the difference; and in case greater, the Contractor shall pay amount of such excess so due.

26. **CHANGE ORDERS**

The maximum amount of general conditions, overhead, and profit that will be permitted on any change order is a total of 15% including sub-contractor general conditions, overhead, and profit

27. **DRAWINGS AND SPECIFICATIONS**

Drawings and Specifications: In the event of a conflict between the drawings and specifications, the more stringent description shall take precedence.

INSURANCE REQUIREMENTS

Vendors/Contractors/Users of Town of Westport Properties

The Vendor/Contractor/User of Town of Westport Property shall purchase and maintain for the life of the contract, from a company or companies with an A.M. Best rating of A- (VII) or better, insurance as required below. Such insurance will protect the Westport Board of Education and the Town of Westport from claims set forth below which may arise out of or result from the Vendor/Contractor/User of Town of Westport Property obligation under the contract, whether such obligations are those of the Vendor/Contractor/User of Town of Westport Property or those of a subcontractor or any person or entity directly or indirectly employed by said Vendor/Contractor/User of Town of Westport Property or by anyone for whose acts said Vendor/Contractor/User of Town of Westport Property may be liable.

A. Workers Compensation:

Vendor/Contractor/User of Town of Westport Property shall provide workers compensation insurance required by law with employers liability limits for at least the amounts of liability for bodily injury by accident of \$ 500,000 each accident and bodily injury by disease of \$500,000.including a waiver of subrogation. If the work is on the water, the Longshore and Harbor Workers Compensation Act coverage is required.

B. Commercial General Liability Insurance:

Vendor/Contractor/User of Town of Westport Property shall provide commercial general liability insurance policy with an edition date of 1986 or later including products and completed operations. Limits should be at least: Bodily injury & property damage with an occurrence limit of \$1,000,000: Personal & advertising injury limit of \$1,000,000 per occurrence: General aggregate limit of \$2,000,000 (other than products and completed operations): Products and completed operations aggregate limit of \$2,000,000. Coverage will continue three years after the completion of the work.

- The policy shall name Westport Board of Education and the Town of Westport as an additional insureds and include ISO Form CG 2010 (07/04) and CG 2037 (07/04).
- Such coverage will be provided on an occurrence basis and will be primary and shall not contribute in any way to any insurance or self-insured retention carried by Westport Board of Education and/or the Town of Westport.
- The policy shall contain a waiver of liability in favor of the Westport Board of Education and the Town of Westport.
- Such coverage shall contain a broad form contractual liability endorsement or wording within the policy form to comply with the hold harmless and indemnity provision of the contract
- A per project aggregate limit of liability endorsement shall apply for any construction contract.
- Deductible and self-insured retentions shall be declared and are subject to the approval of the Westport Board of Education and/or the Town of Westport.

C. Commercial Automobile Insurance:

Vendor/Contractor/User of Town of Westport Property shall provide commercial automobile insurance for any owned autos (symbol 1 or equivalent) in the amount of \$1,000,000 each accident covering bodily injury and property damage on a combined single limit basis. Such coverage shall also include hired and non-owned automobile coverage. Policy shall name Westport Board of Education and the Town of Westport as additional insureds.

D. Umbrella or Excess Liability Insurance:

Vendor/Contractor/User of Town of Westport Property shall provide an umbrella or excess liability policy in excess (without restriction or limitation) of those limits and coverages described in items (A) through (C). Such policy shall contain limits of liability in the amount of \$5,000,000 each occurrence and \$5,000,000 in the aggregate.

E. Errors & Omissions Insurance:

If the agreement is for professional services, the Vendor/Contractor/User of Town of Westport Property shall provide errors & omissions insurance for liability resulting from the negligent performance of professional duties or operations. Such policy shall contain limits of liability in the amount of \$1,000,000 each occurrence and \$3,000,000 in the aggregate. The policy shall name Westport Board of Education, the Town of Westport, and the Architect as additional insureds.

F. Educators Errors & Omissions Insurance:

If the agreement is for educational services, the Vendor/Contractor/User of Town of Westport Property shall provide educator errors & omissions for liability resulting arising out of any breach of duty, neglect, error, misstatement, or omission committed in the course of their duties. Such policy shall contain limits of liability in the amount of \$1,000,000 each occurrence and \$1,000,000 in the aggregate. The policy shall name Westport Board of Education and the Town of Westport as additional insureds.

G. Contractors Pollution Liability:

If the agreement includes work involving abatement, removal, clean-up or handling of any pollutant or hazardous material, the Vendor/Contractor/User of Town of Westport Property shall provide pollution liability insurance, including products and completed operations and contractual liability coverage of not less than \$5,000,000 each occurrence and \$5,000,000 in the aggregate for this project. The policy shall name Westport Board of Education and the Town of Westport as additional insureds and waive subrogation in favor of Westport Board of Education and the Town of Westport.

As to the insurance required, the insurer(s) and/or their authorized agents shall provide Westport Board of Education with certificates of insurance prior to execution of the contract by Westport Board of Education and the successful bidder, describing the coverage and prior to 30 days of any renewal. The certificate will include a copy of the additional insured and contractual liability endorsements.

END OF SECTION

PART ONE - GENERAL

1.1 DESCRIPTION

Work Included:

Throughout the Contract Documents, reference is made to codes and standards which establish qualities and types of workmanship and materials, and which establish methods for testing and reporting on the pertinent characteristics.

Where materials or workmanship are required by these Contract Documents to meet or Exceed the specifically named codes or standards, it is the Contractor's responsibility to provide materials and workmanship which meet or exceed the specifically named code or standard.

It is also the Contractor's responsibility, when so required by the Contract Documents or by written request from the Architect, to deliver to the Architect all required proof that the materials or workmanship, or both, meet or exceed the requirements of the specifically named code or standard. Such proof shall be in the form required to be copies of a certified report of tests conducted by a testing agency approved for that purpose by the Architect.

1.2 QUALITY ASSURANCE

Familiarity with pertinent codes and standards: In procuring all items used in this work, it is the Contractor's responsibility to verify the detailed requirements of the specifically named codes and standards and to verify that the items procured for use in this work meet or exceed the specified requirements.

Rejection of non-complying items: The Architect reserves the right to reject items incorporated into the work which fail to meet the specified minimum requirements. The Architect further reserves the right, and without prejudice to other recourse the Architect may take, to accept non-complying items subject to an adjustment in the Contract Amount as approved by the Architect and the Owner.

Applicable standards: Listed in these Specifications include, but are not necessarily limited to, standards produced by the following agencies and organizations:

1. ACI American Concrete Institute, Box 18150, Redford Station, Detroit, MI 48219.
2. AISC American Institute of Steel Construction, Inc., 1221 Avenue of the Americas, New York, NY 10020.
3. ANSI American National Standards Institute
4. ASTM American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19111.
5. NEC National Electrical Code (see NFPA).
6. NEMA National Electrical Manufacturers Association, 155 East 44th Street, New York, NY 10017.
7. NFPA National Fire Protection Association, 470 Atlantic Avenue, Boston, MA 02210.
8. SDI Steel Deck Institute, 135 Addison Avenue, Elmhurst, IL 60125.
9. TCA Tile Council of America, Inc., P.O. Box 326, Princeton, NJ 08540.
10. UL Underwriter's Laboratories, Inc., 207 East Ohio Street, Chicago, IL 60611.
11. Fed. Specs. and Fed. Standards
Specifications Sales (3FRI), Building 197 Washington Navy Yard, General Services Administration, Washington, DC 20407.
12. BC State of Connecticut, Basic Building Code.
13. CDOT State of Connecticut Department of Transportation - Standard Specification for Road, Bridges and Incidental Construction.
14. NBFU National Bureau of Fire Underwriters.
15. ASME American Society of Mechanical Engineers, United Engineering Center, 345 East 47th Street, New York, NY 10017.
16. ASHRAE American Society of Heating, Refrigerating, and Air Conditioning Engineers, 345 East 47th Street, New York, NY 10017.
17. SMACNA Sheet Metal and Air Conditioning Contractors National Association, Inc., 1611 North Kent Street, Arlington, VA 22209.

18. AMCA Air Moving and Conditioning Association, 205 West Touhy Avenue, Park Ridge, IL.
19. ADA Americans with Disabilities Act
20. NCAA National Collegiate Athletic Association
21. UFAS Uniform Federal Accessibility Standards
22. CT Connecticut
23. IBC International Building Code
24. Applicable Codes
2018 Connecticut State Building Code including the following:
Connecticut Supplement, 2018
2015 International Building Code
2015 International Existing Building Code
2015 International Energy Code
2015 International Mechanical Code
2015 International Plumbing Code
2017 NFPA 70 National Electric Code
2015 International Fire Code
2015 Connecticut State Fire Safety Code
ICC/ANSI A117.1 – 2009

END OF SECTION

PART ONE - GENERAL

1.1 DESCRIPTION

Work Included:

Wherever possible throughout the Contract Documents the minimum acceptable quality of workmanship and materials has been defined by manufacturer's name and catalogue number, reference to recognized industry and government standards, or description of required attributes and performance.

To ensure that the specified products are furnished and installed in accordance with design intent, procedures have been established for advance submittal of design data and for their review by the Architect.

Make all submittals required by the Contract Documents, and revise and resubmit as necessary to establish compliance with the specified requirements.

Related Work Described Elsewhere: Individual requirements for submittals are described in pertinent other Sections of these Specifications.

1.2 QUALITY ASSURANCE

Coordination of Submittals: Prior to each submittal, carefully review and coordinate all aspects of each item being submitted and verify that each item and the submittal for it conforms in all respects with the requirements of the Contract Documents. By affixing the Contractor's signature to each submittal, certify that this coordination has been performed.

Certificates of Compliance:

Certify that all materials used in the work comply with all specified provisions thereof, certification shall not be construed as relieving the Contractor from furnishing satisfactory materials if, after tests are performed on selected samples, the material is found to not meet specified requirements.

1.3 SUBMITTALS

Make all submittals of shop drawings, samples, requests for substitution and other items in strict accordance with this Section.

PART TWO - PRODUCTS

2.1 SUBMITTAL SCHEDULE

General: Compile a complete and comprehensive schedule of all submittals anticipated to be made during progress of the work. Include a list of each type of item for which Contractor's Drawings, Shop Drawings, Certificates of Compliance, Material Samples, Guarantees, or other types of submittals are required.

2.2 SHOP DRAWINGS AND COORDINATION DRAWINGS

Shop Drawings:

- a. Scale and Measurements: Make all shop drawings accurately to a scale sufficiently large to show all pertinent aspects of the item and its methods of connection to the work.
- b. Type of prints required: Electronic submittals with the approved stamp and signature of the contractor on them.
- c. Reproduction of reviewed shop drawings: Printing and distribution of reviewed shop drawings for the Architect's use will be by the Contractor.

2.3 MANUFACTURER'S LITERATURE

General: Where contents of submitted literature from manufacturers includes data not pertinent to the submittal, clearly indicate which portion of the contents is being submitted for review.

Number of Copies Required: All submittals are to be electronic submittals with the contractor's signature and stamp of approval on them.

2.4 SAMPLES

Accuracy of Samples: Samples shall be of the precise article proposed to be furnished.

Number of Samples Required: Unless otherwise specified, submit all samples in the quantity which is required to be returned plus one which will be retained by the Architect.

Reuse of Samples: In situations specifically so approved by the Architect, the Architect's retained sample may be used in the construction as one of the installed items.

Rejected Sample: Rejected samples will not be returned. A letter of rejection will be issued.

2.5 COLORS AND PATTERNS

Unless the precise color and pattern is specifically described in the Contract Documents, and whenever a choice of color or pattern is available in a specified product, submit accurate color and pattern charts to the Architect for review and selection.

2.6 SUBSTITUTIONS

Approval Required:

- a. The Contract is based on the standards of quality established in the Contract Documents.
- b. All products proposed for use, including those specified by required attributes and performance shall require approval by the Architect before being incorporated into the work.
- c. Do not substitute materials, equipment, or methods unless such substitution has been specifically approved for this work by the Architect.

"Or Equal":

- a. Where the phrase "or equal" or "or equal as approved by the Architect" occurs in the Contract Documents, do not assume that materials, equipment, or methods will be approved as equal unless the items has been specifically approved for this work by the Architect.
- b. The decision of the Architect shall be final.

PART THREE - EXECUTION

3.1 IDENTIFICATION OF SUBMITTALS

General: Consecutively number all submittals. Accompany each submittal with a Letter of Transmittal containing all pertinent information required for identification and checking of submittals.

Identify each sample and shop drawing with the project name. Contractors name, producer name and brand and the specification section number.

Re-submittals: When material is resubmitted for any reason, transmit under a new Letter of Transmittal.

3.2 COORDINATION OF SUBMITTALS

General: Prior to submittal for approval use all means necessary to fully coordinate all material including, but not necessarily limited to:

1. Determine and verify all interface conditions, catalog numbers, and similar data.
2. Coordinate with other trades as required.
3. Clearly indicate all deviations from requirements of the Contract Documents.

Grouping Submittals: Unless otherwise specified, make all submittals in groups containing all associated items to ensure that information is available for checking each item when it is received. Partial submittals may be rejected as not complying with the provisions of the Contract Documents and the Contractor shall be strictly liable for all delays so occasioned.

3.3 TIMING OF SUBMITTALS

General: Make all submittals far enough in advance of scheduled dates for installation to provide all time required for reviews, for securing necessary approvals, for possible revisions and re-submittals, and for placing orders and securing delivery.

Architect's review time: In scheduling, allow at least ten calendar days for review by the Architect following his receipt of the submittal.

Delays: Delays caused by tardiness in receipt of submittals will not be an acceptable basis for extension of the contract completion date.

3.4 ARCHITECT'S REVIEW

General: Review by the Architect shall not be construed as a complete check; but only that the general method of construction and detailing is satisfactory. Review shall not relieve the Contractor from responsibility for errors which may exist.

Revisions: Make all revisions required by the Architect. If the Contractor considers any required revision to be a change, he shall so notify the Architect as provided for under "Changes" in the General Conditions. Show each drawing revision by number, date, and subject in a revision block on the drawing. Make only those revisions directed or approved by the Architect.

3.5 CONTRACTORS REVIEW

The Contractor MUST review, approve and sign the shop drawings prior to submittal to the Architect. The Contractor is responsible for quantities, dimensions and verification of field conditions.

3.6 RESUBMITTALS

When any shop drawing or sample is required to be submitted more than two times for review the Contractor shall pay the cost for the Engineer and/or architect to review the additional submittals. The Architect/Engineer will bill the Owner for the extra cost and the Owner will backcharge the contractor for this expense.

END OF SECTION

01300-4

PART 1 - GENERAL

1.1 LABORATORY TESTING

The Owner will select and pay costs of all initial tests and reports listed in the various Sections.

1.2 QUALIFICATION OF LABORATORY

The construction inspection and materials testing laboratory selected will substantially comply with the basic requirements of ASTM E329-77, "Recommended Practice for Inspection and Testing Agencies for Concrete, Steel, and Bituminous Materials as Used in Construction" and will submit to the Architect a copy of the report of inspection of their facilities made by the Materials Reference Laboratory of the National Bureau of Standards during the most recent tour of such inspection, together with a memorandum stating steps taken to remedy deficiencies reported by this inspection.

Testing machines and instrumentation employed by the laboratory shall be calibrated at intervals not exceeding 12 months by devices of accuracy traceable to the National Bureau of Standards; and the laboratory will submit to the Architect applicable documentation of calibration.

1.3 AUTHORITY AND DUTIES OF THE LABORATORY

The Laboratory will not be authorized to revoke, alter, relax, enlarge, or release any requirements of the Contract Documents or to approve or accept any portion of the work. When it appears that the material furnished or work performed by the Contractor fails to fulfill Contract Document requirements, the laboratory will promptly direct the attention of the Architect and the Contractor to such deficiencies.

Results of all testing specified will be documented in report form and 4 copies of each report will be issued promptly and directly to the Architect for review and distribution.

1.4 RESPONSIBILITIES AND DUTIES OF CONTRACTOR

The use of laboratory services shall in no way relieve the Contractor of his responsibility to furnish materials and construction in full compliance with the requirements of the Contract Documents.

To facilitate testing services, the Contractor shall cooperate with the laboratory and secure and deliver to the Architect or to the laboratory, without extra cost to the Owner,

Preliminary representative samples of the materials he proposes to use and which are required to be tested.

Furnish such casual labor and all facilities which are necessary to obtain and handle samples at the project and to facilitate the specified inspections.

Advise the laboratory sufficiently in advance of operations to allow for completion of tests and for the assignment of personnel.

Provide and maintain for the sole use of the laboratory adequate facilities for safe storage and proper curing of such test specimens which must remain on the project site prior to testing.

Pay the laboratory for such tests or inspections as are performed exclusively for the Contractor's convenience, and for such retests as may be occasioned by initial nonconformance of the materials with the Contract Documents.

END OF SECTION

PART ONE - GENERAL

1.1 DESCRIPTION

Work Included: Temporary facilities and controls required for this work include, but are not necessarily limited to:

1. Enclosures such as tarpaulins, barricades, and canopies including those required to provide a separation between the area of construction and the remaining areas.
2. All pertinent safety regulations; ladders, planks, hoists, barricades, and similar items normally furnished by the individual trades in execution of their own portions of the work.

1.2 PRODUCT HANDLING

Use all means necessary to maintain temporary facilities and controls in proper and safe condition throughout progress of the work.

PART TWO - PRODUCTS

2.1 UTILITIES

General: All temporary facilities shall be subject to the Architect's approval and shall be provided by the contractor as required.

Electricity: Electrical contractor shall furnish and install all necessary temporary wiring, as required to provide adequate power and artificial lighting at all points where required for work and safety.

2.2 ENCLOSURES

Furnish, install and maintain for the duration of construction all required scaffolds, tarpaulins, barricades, canopies, warning signs, steps, bridges, platforms, and other temporary construction necessary for proper completion of the work in compliance with all safety and other regulations.

PART THREE - EXECUTION

3.1 MAINTENANCE AND REMOVAL

Maintain all temporary facilities and controls as long as needed for the safe and proper completion of the work. Remove all facilities at the completion of the project.

END OF SECTION

PART ONE - GENERAL

1.1 DESCRIPTION

Work Included: Throughout the construction period, maintain the building and site in a standard of cleanliness as described in this Section.

Related Work Described Elsewhere: In addition to standards described in this Section, comply with all requirements for cleaning up as described in various other sections of these Specifications.

1.2 QUALITY ASSURANCE

Inspection: Conduct daily inspection, to verify that requirements of cleanliness are being met.

Codes and Standards: In addition to the standards described in this Section, comply with all pertinent requirements of governmental agencies having jurisdiction.

PART TWO - PRODUCTS

2.1 CLEANING MATERIALS AND EQUIPMENT

Provide all required personnel, equipment, and materials needed to maintain the specified standard of cleanliness.

2.2 COMPATIBILITY

Use only the cleaning materials and equipment, which are compatible with the surface being cleaned, as recommended by the manufacturer of the material.

PART THREE - EXECUTION

3.1 PROGRESS CLEANING

Retain all stored items in an orderly arrangement allowing maximum access, not impeding drainage or traffic, and providing the required protection of materials.

Do not allow the accumulation of scrap, debris, water material and other items not required for construction of this work.

Maintain the site and building in a neat and orderly condition at all times.

Daily, and more often if necessary, inspect the structures and pick up all scrap, debris, and waste material. Remove all such items to the place designated for their storage.

As required preparatory to installation of succeeding materials, clean the structures or pertinent portions thereof to the degree of cleanliness recommended by the manufacturer of the succeeding materials, using all equipment and materials required to achieve the required cleanliness.

3.2 FINAL CLEANING

General: Prior to completion of the work, remove from the job site all tools, surplus materials, equipment, scrap, debris, and waste.

Site: Unless otherwise specifically directed by the Architect, broom clean all paved areas on the site directly adjacent to the area of construction. Completely remove all resultant debris.

Interior: Visually inspect all interior surfaces and remove all traces of soil, waste material, smudges, and other foreign matter. Remove all traces of splashed materials from adjacent surfaces. Remove all paint droppings, spots, stains, and dirt from finished surfaces. Leave area "Broom Clean".

Windows: Wash and clean all windows in the area of construction. Remove all stickers on glass.

END OF SECTION

PART ONE - GENERAL

1.1 DESCRIPTION

Work Included: To aid in the continued instruction of operating and maintenance personnel, and to provide a positive source of information regarding the products incorporated in the work, furnish and deliver the data described in this Section and in pertinent Sections of these Specifications.

Related Work Described Elsewhere:

Make all submittals in strict accordance with the provisions of Sections 01300.

Required contents of submittals may also be amplified in the pertinent other Sections.

1.2 QUALITY ASSURANCE

In preparation of data required by this Section, use only personnel who are thoroughly trained and experienced in operation and maintenance of the described items, completely familiar with the requirements of this Section, and skilled in technical writing to the degree needed for communicating the essential data.

1.3 SUBMITTALS

Manual: Submit three copies of all manuals to the Architect prior to the final acceptance of the work.

PART TWO - PRODUCTS

2.1 INSTRUCTION MANUALS

General: Submit instruction and maintenance manuals in the following form: 8-1/2" X 11" paper, typewritten, with front cover that clearly identifies the manual.

Contents: Include at least the following information in all manuals:

- a. Name and model number of equipment.
- b. Complete instructions regarding operation and maintenance of all equipment involved, including lubrication, disassembly, and reassembly.
- c. Complete nomenclature and part number of all replacement parts, name, and address of nearest vendor, and all other pertinent data regarding procurement procedure.
- d. Copy of all guarantees and warranties issued.
- e. Such other data as required in pertinent other Sections of these specifications.

PART THREE - EXECUTION

3.1 INSTRUCTION MANUALS

All manuals shall be prepared to make the Owner aware of all required maintenance of equipment.

END OF SECTION

RELOCATABLE CLASSROOMS
Bedford Middle School Interior Renovations
SECTION 01800
PROJECT CLOSEOUT

Westport RFP #19-022-BOE

PART ONE - GENERAL
CLEAN-UP

Remove all temporary utilities including the construction fence from the site.

At substantial completion of the project clean all surfaces, remove all labels, clean the construction area of the site and remove all debris from the site.

GUARANTEE & WARRANTY

In addition to the warranty & guarantees stipulated in the general conditions the following shall apply;

Warrant and guaranty all work for a period of one year from the date of the certificate of occupancy obtained from the Town of Westport, CT. This shall include all work performed by subcontractors, and material supplied by subcontractors.

MAINTENANCE MANUALS

Submit three copies of maintenance and operating manuals that specify full details for care and maintenance of all new equipment and visible surfaces.

END OF SECTION

PART ONE - GENERAL

1.1 DESCRIPTION

Work Included: Provide all labor and materials required to demolish, remove from site and properly dispose of items indicated to be removed and required to properly complete the project.

Remove all other items, not specifically mentioned herein, but required to be removed to construct the space as indicated on the drawings and in the project manual and required to properly complete the project.

The Contractor shall comply with all applicable codes and ordinances of the State of Connecticut and the local authorities.

Operations during demolition procedures shall not interfere with normal traffic on adjacent roads and walks; and in all cases the Contractor shall provide for the protection of the public. The existing maintenance facility must remain functional during the course of construction until a Certificate of Occupancy is obtained for the new building.

PART TWO - PRODUCTS

2.1 No materials are specified for the work of this Section.

PART THREE - EXECUTION

3.1 PROCEDURE

Protection: Protect all existing buildings, trees, shrubs, etc. that are designated to remain.

Disposal: Dispose of all material in strict accordance with all applicable State, Local and Federal Regulations. All debris must be stored in trash containers and removed from the site when filled. Verify location of containers with the Owner.

Hazardous Material: It is the contractor's responsibility to report the discovery of any suspected hazardous, toxic, or asbestos material to the Owner and the Architect immediately upon discovery. Contractor to assume full responsibility for the proper removal and disposal of all hazardous as outlined in the attached Hazardous Materials Report.

Provide all required temporary shoring, bracing, supports, etc, as required.

The Contractor shall assume full responsibility for construction site safety, construction methods and techniques, all temporary shoring, supports, enclosures and bracing.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. Description of Work: Work of this Section includes, but is not limited to, the following:
1. Framing.
 2. Fasteners.
 3. Underlayment and floor coverings.

1.02 SYSTEM DESCRIPTION

USG Structural Panel floor system consists of steel joists and USG Structural Panel Concrete Subfloor installed with mechanical fasteners. USG Structural Panel Concrete Subfloor is a high-strength reinforced concrete panels for use in noncombustible construction, as required by the applicable building codes. Adhesives are not recommended, nor required.

1.04 REFERENCES

- A. ICC-ES AC318 – Acceptance Criteria for Structural Cementitious Floor and Roof Sheathing Panels
- B. ICC-ES AC319 – Acceptance Criteria for Horizontal Diaphragms Consisting of Structural Cementitious Floor Sheathing Panels Attached to Cold-Formed Steel Framing
- C. ASTM A588/A588M – Standard Specification for High-Strength Low-Alloy Structural Steel, up to 50 ksi [345 MPa] Minimum Yield Point, with Atmospheric Corrosion Resistance
- D. ANSI/AISI S100 – North American Specification for the Design of Cold-Formed Steel Structural Members
- E. ANSI/AISI S210 – North American Specification for Cold-Formed Steel Framing – Floor and Roof System Design
- F. ANSI/AISI S214 – North American Specification for Cold-Formed Steel Framing – Truss Design
- G. ANSI/AISI S230 – Standard for Cold-Formed Steel Framing – Prescriptive Method for One and Two Family Dwellings
- H. ASTM E84-17 – Standard Test Method for Surface Burning Characteristics of Building Materials
- I. ASTM E90-06(2016) – Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements
- J. ASTM E119-16 – Standard Test Method for Fire Tests of Building Construction and Materials
- K. ASTM E136-16 – Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750° C
- L. ASTM E492-09(2016) - Standard Test Method for Laboratory Measurement of Impact Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine

1.05 SYSTEM REQUIREMENTS

- A. Performance Requirements: Fabricate and install systems as indicated:
1. Floor Framing:
 - a. Deflection: minimum L/360
 - b. Framing Spacing: maximum of 16 in on center

2. Fasteners: Follow the selected fastener layout for screw patterns, for designed Diaphragm Loads as selected from **Progressive Engineering, Inc.'s Evaluation Report PER-13067**
3. Panel Layout: Comply with USG Structural Panel Concrete Subfloor application described in the current **Progressive Engineering, Inc.'s Evaluation Report PER-13067**
- B. Fire Resistance Ratings: Where fire resistance classifications are indicated, provide materials and application procedures identical to those listed by UL or tested according to ASTM E119 for type of construction shown.
- C. Noncombustibility: Where noncombustible assemblies are required, provide materials and application procedures identical to those tested according to ASTM E136-16,

1.06 DELIVERY, STORAGE AND HANDLING

- A. Delivery:
 1. Deliver material to site promptly without undue exposure to weather.
 2. Deliver in manufacturer's unopened containers, pallets, or panels fully identified with name, brand, type and grade.
- B. Storage:
 1. Store above ground in dry, ventilated space.
 2. Protect materials from soiling, and damage.
 3. Panels must be stored over stable soil. Soil must be able to carry the load of the pallets. Each 20 piece pallet weights 3500 lbs (1542 kg).
 4. Pallets must not be stacked over $\pm 1/2$ inch (13 mm) off the pallet edge.

1.09 PROJECT CONDITIONS

- A. Environmental Requirements:
 1. When mechanically fastened, do not install USG Structural Panel Concrete Subfloor when ambient or conditioned temperature is below 0 °F (-18 °C).
 2. Prior to the application of finished flooring, USG Structural Panel Concrete Subfloor must be conditioned at the same temperature as required for the finished flooring for at least 48 hours.
 3. Do not apply finished flooring over USG Structural Panel Concrete Subfloor when wet, frozen or containing frost.

PART 2 – PRODUCTS

2.01 PRODUCTS AND MANUFACTURERS

- A. Structural Concrete Panel: Listed products establish standard of quality and are manufactured by United States Gypsum Company (USG), Chicago, IL.

2.02 MATERIALS

- A. Structural Concrete Panel:
 1. USG Structural Panel Concrete Subfloor, A noncombustible structural subfloor panel manufactured in accordance with Acceptance Criteria AC318.

- a. Panel Dimensions:
 - i. Thickness: 3/4 inch
 - ii. Width: 47 3/4 inches
 - iii. Lengths: 96 inches
 - iv. Edges: Tongue & Groove
- b. Panel Properties:
 - i. Density: 75 lb/ft³ (1201 kg/m³) tested in accordance with ASTM C1185
 - ii. Weight: 5.3 lb/ft² (25.9 kg/m²) tested in accordance with ASTM D1037 at a thickness of 3/4 inch (19 mm)
 - iii. pH Value: 10.5 tested in accordance with ASTM D1293
 - iv. Noncombustibility: Pass tested in accordance to ASTM E136-16
 - v. Surface Burning Characteristics: when tested in accordance with ASTM E84 0 Flame Spread / 0 Smoke Developed
 - vi. Mold Resistance: 10 tested in accordance with ASTM D3273 1 tested in accordance to ASTM G21
 - vii. Termite resistance: 9.8 when tested in accordance with AWWA E1.
 - viii. VOC Emissions: Low VOC compliant; tested in accordance with California Department of Public Health (CDPH/EHLB) Standard Method Version 1.1, 2010 (Emission Testing for CA Specification 01350)
- B. USG Structural Panel Concrete Subfloor Fasteners: To select the appropriate fastener to specific type of framing, reference Table 2 of Progressive Engineering, Inc.'s Evaluation Report PER-13067
- C. Floor Coverings and Underlayment: Follow floor covering manufacturers' installation procedures

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Examine substrates, adjoining construction, and the conditions under which Work is to be installed. Do not proceed with Work until unsatisfactory conditions are corrected.
 - 1. Steel framing to receive the USG Structural Panel Concrete Subfloor shall be structurally sound, free from bows, twists or other malformations and in general compliance with local building code requirements. Damaged framing shall be replaced before installation of USG Structural Panel Concrete Subfloor.

3.02 GENERAL INSTALLATION REQUIREMENTS

- A. Framing Installation:
 - 1. The floor joists and other floor framing components must be designed to meet the strength and deflection criteria specified in the contract documents.
 - 2. Cold-formed steel shall comply with AISI-General, with a minimum 54 mils or 0.0538 inch base metal thickness (No.16 gauge) and a minimum G60 galvanized coating.
 - 3. The attachment flange or bearing edge must be a minimum 1-5/8 inch (41 mm) wide.
 - 4. The panel must bear on the supporting flange or edge at least 3/4 inch (19 mm)
 - 5. Provide a uniform and level joist bearing at wall-to-floor connections.

6. Locate joists directly over bearing studs or a header installed at the top of the load bearing wall to distribute load.
7. On steel framing, provide a web stiffener at reaction points and/or concentrated. Provide end blocking where joist ends are not otherwise restrained from rotation.
8. Provide additional joists under parallel partitions and around floor openings that interrupt one or more spanning members. Properly fasten framing to the supporting walls or structure.
9. Install blocking or bridging prior to installation of USG Structural Panel Concrete Subfloor.
10. Framing must be of good quality, free of bows, twists or other malformations.

B. USG Structural Panel Concrete Subfloor Application:

1. The panels shall be cut to size with a circular saw equipped with carbide-tipped cutting blade and a dry dust collection device or a water-dispensing device that limits the amount of airborne dust.
 - a. Wear safety glasses and a NIOSH-approved dust mask when cutting the panel.
 - b. Dispose of collected dust in a safe manner and in compliance with local, state and federal ordinances.
2. USG Structural Panel Concrete Subfloor shall be installed in a horizontal manner (long edges perpendicular to the framing) in a running bond pattern.
3. Begin panel installation by snapping a line across the joists parallel to the rim joist at a distance equal to the width of the first panel being placed.
 - a. Given that panel width is 48 inch, plan the layout so the first and last panel row width is a minimum of 24 inch wide.
 - b. In the case where the row width is less than 24 inch wide, panels shall be blocked on all edges by framing (flat stock metal strapping is not sufficient to carry uniform loads).
4. Ensure that all supporting members are free of debris before placing panels. Place the cut edge or tongue along the rim joist.
 - a. Place each panel across three or more supports (minimum two-span condition). Cut panels to length as needed to ensure that the butt end of the panel is centered on the framing member.
 - b. Install panels in a direction that ensures that the butt end falls over the open side of the joist. This will help keep adjacent ends in the same place.
5. Fasten panels following the fastening schedule listed in the contract documents. Begin fastening at one end and fan out across the panel. Do not fasten all the corners first.
 - a. After the installation of one complete row, begin the next row. Slide panels together so that the tongue of the panel being installed fits into the groove of the installed panel.
 - b. If there is construction debris lodged inside the groove, do not force the tongue into the clogged groove. Clean the plugged groove with a stiff bristle brush to dislodge the trapped debris.
 - c. Do not gap the panels.
 - d. Install the second panel and all subsequent panels in a similar manner to complete the row.
 - e. Install all rows in a running bond pattern so that end joints fall over the center of the framing members and are staggered by at least two supports from where the end joints fall in the adjacent rows.

- f. Fasten outside corner of first installed panel, progressively fan out fastener installation to adjacent panel edges in a progressive manner
 6. Make cutouts in panels before installing the panel whenever possible.
 - a. If a cutout is required after the panel is installed, set the depth of the saw blade to ensure that the framing is not scored.
 - b. Support the ends and edges of cutouts with framing if they are larger than 6 inches in diameter
 7. Ensure panel is flush with supporting member, drive fasteners so the heads are flush with the surface of the board.
 8. During Construction Traffic Protection – prior to floor finishing, place “sheathing materials” on the floor in high traffic areas with newly installed USG Structural Panel Concrete Subfloor
- C. Clean Up:
1. Leftover material shall be removed from the job site.
 2. Remove all foreign material from the floor surface with a broom and (or) vacuum.
- D. Floor Underlayments:
- a. Panel Underlayments:
Installation of USG FIBEROCK® Underlayment over USG Structural Panel Concrete Subfloor (See F103 USG FIBEROCK® Brand Tile Backer Board and Underlayment Submittal Sheet)
 - i. Begin laying panels at one corner. Lay cut of FIBEROCK® Underlayment edges against the wall; only factory edges should be joined. Maintain 1/4 inch space between panels and perimeter walls.
 - ii. Stagger joints a minimum of 16 inches so that four panel corners never meet, and offset end and edge joints of panels a minimum of 12 - 16 inches from subfloor panel joints. Adjoin panel edges and ends lightly together. A maximum 1/32 inch gap is allowed.
 - iii. The FIBEROCK® Underlayment must be bonded with modified thin set mortar
 - iv. Staples 1/4 inch (6.35 mm) crown, 18 gauge (0.0428 inch [1.09 mm], and 1 inch (25.4 mm) legs) to be installed at 4 inches (102 mm) on center in the field and 1 inch (25.4 mm) on center along the perimeter of the FIBEROCK® Underlayment. Set pneumatic tool pressure to drive fasteners flush or slightly below underlayment surface. To prevent fastener heads from telegraphing through resilient floor covering, do not countersink more than 1/16 inch (1.58 mm) below surface.
 - v. Use patching compound sparingly to fill wide joints, repair any surface voids and correct joint lippage (panel edge sitting above or below the floor plane). Carefully fill joints wider than 1/32 inch (0.76 mm) and any surface imperfections with only enough material to infill void - do not feather. Correct joint lip-page by applying patching compound to low side only and feathering to level. Allow compound to dry completely (90 min. minimum), then lightly sand or scrape, taking care not to scuff panel surface; use a flat blade to scrape away any excess material. Remove dust, dirt and debris from underlayment surface before application of floor covering. Floor Covering:
 1. Before the application of floor finish materials, ensure that all panels are properly fastened, with the fastener head driven flush or slightly below the surface of the panels. If required butt joints and T&G joints shall be filled with an elastomeric patching compound [*cement based compounds, can crack*].

2. Carpet – For residential carpet & pad, apply tackless strips (designed for concrete application) for the installation of stretched carpet. Residential carpet and pad can be installed directly to USG Structural Panel Concrete Subfloor or to an underlayment. For all Carpet Tile, it is recommended to use an underlayment as described in *Section 3.02.D.2* of this specification.
3. For vinyl or linoleum flooring, an appropriate underlayment should be used as described in *Section 3.02.D.2* of this specification.
4. If USG Structural Panel Concrete Subfloor is left bare in extremely-light traffic areas, it is recommended that you seal the panels with a concrete sealer to seal the porous surface.

END OF SECTION

GENERAL

1.1 SECTION INCLUDES

- A. Steel frames.

1.2 RELATED SECTIONS

- A. Section 081416 - Wood Doors.
- B. Section 087000 - Door Hardware.
- C. Section 099000 – Painting.

1.3 REFERENCES

- A. ANSI/NFPA 80 - Standard for Fire Doors and Windows.
- B. ANSI/DHI A 115.IG - Installation Guide for Doors and Hardware.
- C. ANSI/BHMA A 156 - Specifications for Hardware Preparations in Standard Steel Doors and Frames.
- D. ANSI/BHMA A156.7 - Hinge Template Dimensions.
- E. ANSI A 250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors and Hardware Reinforcing.
- F. ANSI/SDI A 250.8 - SDI-100 Recommended Specifications for Standard Steel Doors and Frames.
- G. ANSI A 250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames.
- H. ANSI A 250.11 - Recommended Erection Instructions for Steel Frames.
- I. ANSI/UL 10C - Standard for Safety for Positive Pressure Fire Tests of Door Assemblies.
- J. ICC 500 Standard for the Design and Construction of Storm Shelters.
- K. ASTM - American Society for Testing and Materials
- L. ASTM A 366/A 366M - Standard Specification for Steel, Sheet, Carbon, Cold-Rolled, Commercial Quality.
- M. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- N. ASTM A 924 - Specification for General Requirements for Steel Sheet, Metallic Coated by the Hot Dip Process.
- O. ASTM A 1008/1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable.
- P. ASTM E 90 - Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions.

- Q. ASTM E 152 - Standard Methods of Fire Tests of Door Assemblies.
- R. ASTM E 413 - Classification for Rating Sound Insulation.
- S. SDI - Steel Door Institute
- T. SDI-111 - Recommended Standard Details for Steel Doors & Frames.
- U. NAAMM/HHMA-820 TN01 - Grouting Hollow Metal Frames
- V. NAAMM/HHMA - Hollow Metal Manufacturers Association
- W. NAAMM/HHMA-820 TN03 - Guidelines for Glazing of Hollow Metal Transom, Sidelight and Windows
- X. NAAMM/HHMA-840 - Guide Specification for Installation and Storage of Hollow Metal Doors and Frames.
- Y. NFPA 252 - Standard Method of Fire Tests of Door Assemblies.
- Z. Federal Emergency Management Agency (FEMA) 361 Guidelines.
- AA. UL - Building Materials Directory; Underwriters Laboratories Inc.
- BB. WH - Certification Listings; Warnock Hersey International Inc.

1.4 SUBMITTALS

- A. Submit under provisions of Section 013000.
- B. Product Data: Manufacturer's standard details and catalog data indicating compliance with referenced standards, and manufacturer's installation instructions.
- C. Certificates:
 - 1. Manufacturer's certification that products comply with referenced standards.
 - 2. Evidence of manufacturer's membership in the Steel Door Institute.
- D. Shop Drawings: Door, frame, and hardware schedule in accordance with SDI 111D. Show types, quantities, dimensions, specified performance, and design criteria, materials and similar data for each opening required.
 - 1. Indicate frame configuration, anchor types and spacing, location of cutouts for hardware, reinforcement, to ensure doors and frames are properly prepared and coordinated to receive hardware.
 - 2. Indicate door elevations, internal reinforcement, closure method, and cutouts for glass lights and louvers.
- E. Samples: 18 by 24 inches cut away sample door with provisions for lockset, hinge and corner section of frame.

1.5 QUALITY ASSURANCE

- A. Supplier: A direct account of the manufacturer who has on permanent staff, an Architectural Hardware Consultant (AHC), a Certified Door Consultant (CDC) or an Architectural Openings Consultant (AOC), who will be available to consult with the Architect and Contractor regarding matters affecting the door and frame openings.
- B. Fire Rated Doors and Frames: Underwriters' Laboratories and Warnock Hersey, labeled fire doors and frames:

1. Label fire doors and frames in accordance with Underwriters Laboratories standard UL10C Positive Pressure Fire Tests of Door Assemblies.
 2. Construct and install doors and frames to comply with current issue of NFPA 80.
 3. Manufacture Underwriters' Laboratories labeled doors and frames under the UL Follow Up Service (FUS) and in strict compliance to UL procedures, and provide the degree of fire protection, heat transmission and panic loading capability indicated by the opening class.
 4. Manufacture Intertek Testing Services / Warnock Hersey labeled doors and frames under the ITS/WH factory inspection program and in strict compliance to ITS/WH procedures, and provide the degree of fire protection capability indicated by the opening class.
 5. Manufacture FM labeled doors and frames under the FM factory inspection program and in strict compliance to FM procedures, and provide the degree of fire protection, heat transmission and panic loading capability indicated by the opening class.
 6. Affix a physical label or approved marking to each fire door or fire door frame, at an authorized facility as evidence of compliance with procedures of the labeling agency. Label embossment is not permitted.
 7. Conform to applicable codes for fire ratings. It is the intent of this specification that hardware and its application comply or exceed the standards for labeled openings. In case of conflict between types required for fire protection, furnish type required by NFPA and UL.
 8. Fire door assemblies in exit enclosures and exit passageways; maximum transmitted temperature end point rating of not more than 250 degrees F (121 degrees C) above ambient at the end of 30 minutes of the standard fire test exposure.
- C. Manufacturer Qualifications: Member of the Steel Door Institute.
- D. Installer: Minimum five years documented experience installing products specified this Section.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Handle, store and protect products in accordance with the manufacturers printed instructions and ANSI/SDI A250.10 and NAAMM/HMMA 840.
- B. Store doors vertically in a dry area, under a proper vented cover. Place on 4 inch (102 mm) high wood sills to prevent rust or damage. Provide 1/4-inch (6 mm) space between doors to promote air circulation.
- C. Store frames in an upright position with heads uppermost under cover. Place on 4 inch (102 mm) high wood sills to prevent rust and damage. Store assembled frames five units maximum in a stack with 2 inch (51 mm) space between frames to promote air circulation.
- D. Do not use non-vented plastic or canvas shelters to prevent rust or damage.
- E. Should wrappers become wet, remove immediately.

1.7 COORDINATION

- A. Coordinate Work with other directly affected sections involving manufacture or fabrication of internal cutouts and reinforcement for door hardware, electric devices and recessed items.
- B. Coordinate Work with frame opening construction, door and hardware installation.
- C. Sequence installation to accommodate required door hardware.
- D. Verify field dimensions for factory assembled frames prior to fabrication.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Steelcraft an Allegion Brand, which is located at: 11819 N. Pennsylvania St.; Carmel, IN 46032; Toll Free Tel: 888-868- 8943;
Email:contactus@allegion.com; Web:us.allegion.com/brands/steelcraft/Pages/default.aspx
- B. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00.
- C. Provide all steel doors and frames from a single manufacturer.

2.2 DOOR FRAMES

- A. General: Construct exterior/interior metal door frames to the following designs and gages;
 - 1. Exterior Frames: Zinc-Iron Alloy-Coated galvanized steel, ASTM A 653, Class A60:
 - a. Thickness:
 - 1) 16 gage (1.3 mm).
 - 2. Interior Frames in Masonry: Zinc-Iron Alloy-Coated galvanized steel, ASTM A 653, Class A60, galvanized steel.
 - a. Thickness:
 - 1) 16 gage (1.3 mm).
 - 3. Interior KD Drywall Frames (Slip-On construction): cold rolled steel, ASTM A 1008/A 1008M.
 - a. Thickness:
 - 1) 16 gage (1.3 mm).
 - 4. Include galvanized components and internal reinforcements with galvanized frames.
- B. Flush Steel Frames:
 - 1. Acceptable Product: Steelcraft MU-Series.
 - a. Performance:
 - 1) Physical performance: 5 million cycles per ANSI A250.4
 - 2. Construction: Factory-welded three sided frames.
 - a. Full profile welded:
 - 1) Weld miter joints between head and jamb faces completely along their length either internally or externally.
 - 2) Internally weld perimeter profile joints full length of soffit and rabbets with hairline seams on external meeting surfaces. Grind and finish face joints smooth.
 - 3. Profile:
 - a. 2 inches (51 mm) face dimension with 5/8 inch (16 mm) high stop, and types and throat dimensions indicated on the Door Schedule.
 - 4. Provide following reinforcement and accessories:
 - a. Preparation for 4-1/2 inches (114 mm) high, standard weight, or heavy weight, full mortise hinges; with plaster guard. Minimum 7 gauge (4.7 mm) steel.
 - b. Hinge Preparation for 5 inch (127 mm) high, universal standard weight, or heavy weight, full mortise hinges; with plaster guard. Minimum 7 gauge (4.7 mm) steel.
 - c. Provide high frequency hinge reinforcement for top hinge on all exterior, cross corridor, and stairwell frames in accordance with SDI 111-H, Example A Application where full mortise hinges are specified.
 - d. Preparation for continuous hinge reinforcement. Minimum 7 gauge (4.7 mm) steel.
 - e. Strike preparation (single doors) for 4-7/8 inch (123 mm) universal strike; with plaster guard. Minimum 16 gauge (1.3 mm) steel.

- f. Closer preparation minimum 14 gauge (1.7 mm) steel.
 - g. Silencers. Prepare frames to receive inserted type door silencers, 3 per strike jamb on single doors, and 2 per head for pair of doors. Stick-on silencers are not permitted.
 - 5. Fire Rating: Supply frame units bearing Labels for fire ratings indicated in Door Schedule for the locations indicated.
 - 6. Finish: Factory prime finish in accordance with ANSI A 250.10.
- C. Steel Frames for Drywall:
 - 1. Acceptable Product: Steelcraft-DW Series.
 - 2. Performance:
 - a. Physical performance: 2 million cycles per ANSI A250.4
 - 3. Construction: Three-piece knock-down frames; mitered joints, with locking tab at each head and jamb intersection.
 - 4. Profile:
 - a. Profile: 2 inches (51 mm) face dimension, 1/2 inch (13 mm) backbend with 5/16 inch (8 mm) return, 5/8 inch (16 mm) high stop, types and throat dimensions indicated.
 - 5. Provide following reinforcement and accessories:
 - a. Hinge preparation for 4-1/2 inches (114 mm) high, full mortise hinges, 0.134 inch (3.4 mm) or 0.180 inch (4.6 mm) leaf thickness.
 - b. Hinge preparation for 5 inches (127 mm) high full mortise hinges, 0.134 inch (3.4 mm) or 0.180 inch (4.6 mm) leaf thickness.
 - c. Strike preparation (single doors) for 4-7/8 inch (125 mm) universal strike; with plaster guard.
 - d. Closer reinforcement: minimum 14 gage (1.7 mm) steel.
 - e. Projection weld hinge and strike reinforcements to the door frame.
 - f. Provide metal plaster guards for all mortised cutouts.
 - g. Include galvanized hardware reinforcements in all galvanized frames.
 - h. Silencers. Prepare frames to receive inserted type door silencers, 3 per strike jamb on single doors, and 2 per head for pair of doors. Stick-on silencers are not permitted.
 - 6. Anchors: Locate adjustable anchors in each jamb 4 inches (102 mm) from the top of the door opening to hold frame in rigid alignment.
 - a. Provide security anchor at strike jambs on all frames 7 foot 6 inches (2286 mm) high and over.
 - b. Base Anchors for DW Series: Lock-in type; adjustable for stud depth.
 - 7. Fire Rating: Supply frame units bearing Labels for fire ratings indicated in Door Schedule for the locations indicated.
 - 8. Finish: Factory prime finish.

2.3 ACCESSORIES

- A. Anchors: Manufacturer's standard framing anchors, specified in manufacturer's printed installation instructions for project conditions.
- B. Astragals for pairs of doors: Manufacturer's standard for labeled and non-labeled openings.
- C. Door Bottom:
 - 1. Acceptable Product: Steelcraft Fas-Seal Door Bottom.
 - 2. Characteristics: Electrometric, continuous strip, screw-attached to recessed bottom door channel for concealed installation; double-sealing; acceptable for fire-rated doors up to 3 hour rating.
- D. Plaster Guards: Same material as door frame, minimum 24 gage (0.5 mm) minimum; provide for all strike boxes.

- E. Silencers: Resilient rubber, Inserted type, three per strike jamb for single openings and two per head for paired openings. Stick-on silencers shall not be permitted except on hollow metal framing systems.
- F. Glazing: Specified in Section 08 83 13.

2.4 FABRICATION

- A. Steel Frames:
 - 1. Factory-welded frames: Head and jamb intersecting corners mitered at 45 degrees, with back welded joints ground smooth.
 - a. Continuous face weld the joint between the head and jamb faces along their length either internally or externally. Grind, prime paint, and finish smooth face joints with no visible face seams.
 - b. Externally weld, grind, prime paint, and finish smooth face joints at meeting mullions or between mullions and other frame members per a current copy of ANSI/SDI A250.8.
 - c. Provide temporary steel spreaders (welded to the jambs at each rabbet of door openings) on welded frames during shipment. Remove temporary steel spreaders prior to installation of the frame.

2.5 FINISHES

- A. Chemical Treatment: Treat steel surfaces to promote paint adhesion.
- B. Factory Prime Finish: Meet requirements of ANSI A 250.10.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that project conditions are acceptable before beginning installation of frames.
 - 1. Verify that completed openings to receive knock-down wrap-around frames are of correct size and thickness.
 - 2. Verify that completed concrete or masonry openings to receive butt type frames are of correct size.
- B. Do not begin installation until conditions have been properly prepared.
- C. Correct unacceptable conditions before proceeding with installation.

3.2 INSTALLATION

- A. Install doors and frames in accordance with manufacturer's printed installation instructions and with Steel Door Institute's recommended erection instructions for steel frames ANSI A250.11 and NAAMM/HMMA 840.
- B. Fire Doors and Frames: Install in accordance with ANSI/NFPA 80.
- C. Remove temporary steel spreaders prior to installation of frames.
- D. Set frames accurately in position; plumb, align and brace until permanent anchors are set. After wall construction is complete, remove temporary wood spreaders.
 - 1. Field splice only at approved locations indicated on the shop drawings.
 - 2. Weld, grind, and finish as required to conceal evidence of splicing on exposed faces.
- E. Provide full height 3/8 inch (9.5 mm) to 1-1/2 inch (38 mm) thick strip of polystyrene foam blocking at frames requiring grouting where continuous hinges are specified. Apply the strip

to the back of the frame, where the hinge is to be installed, to facilitate field drilling or tapping.

- F. Glaze and seal exterior transom, sidelight and window frames in accordance with HMMA-820 TN03.
- G. Apply hardware in accordance with hardware manufacturers' instructions and Section 08 71 53 - Security Door Hardware.

3.3 FIELD QUALITY CONTROL

- A. Fire-Rated Door Assembly Testing:
 - 1. Upon completion of the installation, test each fire door assembly to confirm proper operation of its closing device and verify that it meets all criteria of a fire door assembly per NFPA 80 2007.
 - 2. Perform inspections by individuals with documented knowledge and understanding of the operation components of the type of door being tested.
 - 3. Provide a written record to the Owner with copies available to the Authorities Having Jurisdiction (AHJ).
 - 4. Record shall list the fire door assembly and include the door number with an itemized list of hardware set components for each door opening and location in the facility.

3.4 ADJUST AND CLEAN

- A. Adjust doors for proper operation, free from binding or other defects.
- B. Clean and restore soiled surfaces. Remove scraps and debris and leave site in a clean condition.
- C. Prime Coat Touch-Up: Immediately after erection, sand smooth rusted or damaged areas of prime coat, and apply touch-up of compatible air-drying primer.

3.5 PROTECTION

- A. Protect installed products and finished surfaces from damage during construction.

3.6 SCHEDULES

- A. Provide schedule for Architect's review.

END OF SECTION

PART ONE - GENERAL

1.1 DESCRIPTION

Work Included:

All doors and frames as indicated on the drawings.

Related Work Described Elsewhere:

Finish Hardware Section 08700

Painting Section 09900

1.2 QUALITY ASSURANCE

Qualifications of Workmen:

Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and methods needed for proper performance of the work of this Section.

1.3 SUBMITTALS

General:

Comply with the provisions of Section 01300.

Product Data:

Prior to proceeding with the work of this Section, submit the following to the Architect for his review:

- a. Shop drawings of the entire installation.
- b. Samples of available colors for the Architect's selection.

1.4 PRODUCT HANDLING

Protection:

Use all means necessary to protect the materials of this Section before and during the construction of the project.

Replacements:

In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

PART TWO - PRODUCTS

2.1 WOOD DOOR – TYPE ‘A’

- a. Mohawk Architectural Series, 5 ply Agri-fiber (PC-5) with stile and rail securely bonded to core as manufactured by Mohawk Flush Doors, Inc.

- b. Doors to be premium grade plain sliced white oak.
- c. All wood doors shall be 1-3/4" thick unless noted otherwise.
- d. Finish to be stained with satin, factory applied finish; AWI Finish Sytem TR-4, conversion varnish or AWI Finish System TR-6 catalyzed polyurethane, except as noted below
Seal top, bottom and all sides.
- e. Doors to be polybagged.
- f. All doors to meet or exceed the specifications of the Door & Hardware Institute and the AWI Premium Grade Standards for clear finish.
- g. Doors shall be reinforce, drill, tap and otherwise prepared to receive finish hardware and other items specified in Section 08710.
- h. Doors may not contain added urea formaldehyde.
- i. Core to be rapidly renewable, LD-1 Agri-fiber produced from wheat or rice straw.
- j. Doors cannot contain any Urea Formaldehyde.
- k. Door to have 5" x 20" clear glass vision panel.

2.2 WOOD DOOR – TYPE ‘A’
Same as Door Type ‘A’ but without the glass

2.3 FINISHES
All wood doors to receive factory applied stain finish.

PART THREE - EXECUTION

3.1 FABRICATION
General:
Fabricate all frames into complete units, verifying all measurements at the job site prior to fabrication.

Workmanship:
a. Accurately fit all members to hairline joints.
b. Install all hardware required for the proper operation of doors.

3.2 SURFACE CONDITIONS

Inspection:
a. Prior to installation of the work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
b. Verify that doors and frames may be installed in complete accordance with the original design and the approved shop drawings.

Discrepancies:
a. In the event of discrepancy, immediately notify the Architect.
b. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

3.3 INSTALLATION

General:

Install all members with adequate provision for settling, expanding, and contracting to occur.

Anchoring:

Firmly anchor all members, using all anchoring devices required to ensure positive attachment of the members for long life under hard use.

Protection:

Protect all finished surfaces as necessary to prevent damage during progress of the work.

3.4 CLEANING UP

General:

Immediately prior to acceptance of the work, remove all protective materials from frames and doors and clean all exposed members.

Abrasives:

Do not use abrasives or harmful cleaning agents.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes:
 - 1. Mechanical door hardware for the following:
 - a. Swinging doors.
 - 2. Cylinders for door hardware specified in other Sections.
 - 3. Electrified door hardware.
- B. Related Sections:
 - 1. Section 081400 Wood Doors
 - 2. Section 081113 Hollow Frames

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction and installation details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Shop Drawings: Details of electrified door hardware, indicating the following:
 - 1. Wiring Diagrams: For power, signal, and control wiring and including the following:
 - a. Details of interface of electrified door hardware and building safety and security systems.
 - b. Schematic diagram of systems that interface with electrified door hardware.
 - c. Point-to-point wiring.
 - d. Risers.
 - e. Elevations doors controlled by electrified door hardware.
 - 2. Operation Narrative: Describe the operation of doors controlled by electrified door hardware.
- C. Samples for Initial Selection: For plastic protective trim units in each finish, color, and texture required for each type of trim unit indicated.
- D. Samples for Verification: For exposed door hardware of each type required, in each finish specified, prepared on Samples of size indicated below. Tag Samples with full description for coordination with the door hardware schedule. Submit Samples before, or concurrent with, submission of door hardware schedule.

1. Sample Size: minimum 2-by-4-inch Samples for sheet and 4-inch long Samples for other products.

E. Other Action Submittals:

1. Door Hardware Schedule: Prepared by or under the supervision of Installer, detailing fabrication and assembly of door hardware, as well as installation procedures and diagrams. Coordinate final door hardware schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
 - a. Submittal Sequence: Submit door hardware schedule concurrent with submissions of Product Data, Samples, and Shop Drawings. Coordinate submission of door hardware schedule with scheduling requirements of other work to facilitate the fabrication of other work that is critical in Project construction schedule.
 - b. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule." Double space entries, and number and date each page.
 - c. Format: Use same scheduling sequence and format and use same door numbers as in the Contract Documents.
 - d. Content: Include the following information:
 - 1) Identification number, location, hand, fire rating, size, and material of each door and frame.
 - 2) Locations of each door hardware set, cross-referenced to Drawings on floor plans and to door and frame schedule.
 - 3) Complete designations, including name and manufacturer, type, style, function, size, quantity, function, and finish of each door hardware product.
 - 4) Description of electrified door hardware sequences of operation and interfaces with other building control systems.
 - 5) Fastenings and other pertinent information.
 - 6) Explanation of abbreviations, symbols, and codes contained in schedule.
 - 7) Mounting locations for door hardware.
 - 8) List of related door devices specified in other Sections for each door and frame.
2. Keying Schedule: Prepared by or under the supervision of Installer, detailing Owner's final keying instructions for locks. Include schematic keying diagram and index each key set to unique door designations that are coordinated with the Contract Documents.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer and Architectural Hardware Consultant.
- B. Product Certificates: For electrified door hardware, from the manufacturer.
 1. Certify that door hardware approved for use on types and sizes of labeled fire-rated doors complies with listed fire-rated door assemblies.
- C. Product Test Reports: For compliance with accessibility requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for door hardware on doors located in accessible routes.

- D. Warranty: Special warranty specified in this Section.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For each type of door hardware to include in maintenance manuals. Include final hardware and keying schedule.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: Supplier of products and an employer of workers trained and approved by product manufacturers and an Architectural Hardware Consultant who is available during the course of the Work to consult with Contractor, Architect, and Owner about door hardware and keying.
 - 1. Warehousing Facilities: In Project's vicinity.
 - 2. Scheduling Responsibility: Preparation of door hardware and keying schedules.
 - 3. Engineering Responsibility: Preparation of data for electrified door hardware, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project.
- B. Architectural Hardware Consultant Qualifications: A person who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project and who is currently certified by DHI as follows:
 - 1. For door hardware, an Architectural Hardware Consultant (AHC) who is also an Electrified Hardware Consultant (EHC).
- C. Source Limitations: Obtain each type of door hardware from a single manufacturer.
 - 1. Provide electrified door hardware from same manufacturer as mechanical door hardware, unless otherwise indicated. Manufacturers that perform electrical modifications and that are listed by a testing and inspecting agency acceptable to authorities having jurisdiction are acceptable.
- D. Fire-Rated Door Assemblies: Where fire-rated door assemblies are indicated, provide door hardware rated for use in assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C, unless otherwise indicated.
- E. Smoke- and Draft-Control Door Assemblies: Where smoke- and draft-control door assemblies are required, provide door hardware that meet requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105.
 - 1. Air Leakage Rate: Maximum air leakage of 0.3 cfm/sq. ft. at the tested pressure differential of 0.3-inch of water.
- F. Electrified Door Hardware: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction.
- G. Means of Egress Doors: Latches do not require more than 15 lb/ft to release the latch. Locks do not require use of a key, tool, or special knowledge for operation.

Bedford Middle School, Westport, CT

- H. Accessibility Requirements: Comply with applicable provisions in the **DOJ's 2010 ADA Standards for Accessible Design** and **The State of CT Building Code** for door hardware on doors in an accessible route.

1. Provide operating devices that do not require tight grasping, pinching, or twisting of the wrist and that operate with a force of not more than 5 lbf (22.2 N).
2. Comply with the following maximum opening-force requirements:
 - a. Interior, Non-Fire-Rated Hinged Doors: 5 lbf (22.2 N) applied perpendicular to door.
 - b. Sliding or Folding Doors: 5 lbf (22.2 N) applied parallel to door at latch.
 - c. Fire Doors: Minimum opening force allowable by authorities having jurisdiction.
3. Bevel raised thresholds with a slope of not more than 1:2. Provide thresholds not more than 1/2 inch (13 mm) high.
4. Closers: Adjust door and gate closer sweep periods so that, from an open position of 90 degrees, the time required to move the door to a position of 12 degrees from the latch is 5 seconds minimum.
5. Spring Hinges: Adjust door and gate spring hinges so that, from an open position of 70 degrees, the time required to move the door to the closed position is 1.5 seconds minimum.

- I. Keying Conference: Conduct conference at Project site. In addition to Owner, Construction Manager, Contractor, and Architect, conference participants shall also include Installer's Architectural Hardware Consultant. Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system including, but not limited to, the following:

1. Function of building, flow of traffic, purpose of each area, degree of security required, and plans for future expansion.
2. Preliminary key system schematic diagram.
3. Requirements for key control system.
4. Requirements for access control.
5. Address for delivery of keys.

- J. Preinstallation Conference: Conduct conference at project site.

1. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
2. Inspect and discuss preparatory work performed by other trades.
3. Inspect and discuss electrical roughing-in for electrified door hardware.
4. Review sequence of operation for each type of electrified door hardware.
5. Review required testing, inspecting, and certifying procedures.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up for door hardware delivered to Project site.
- B. Tag each item or package separately with identification coordinated with the final door hardware schedule, and include installation instructions, templates, and necessary fasteners with each item or package.

- C. Deliver keys to manufacturer of key control system for subsequent delivery to Owner.
- D. Deliver keys and permanent cores to Owner by registered mail or overnight package service.

1.8 COORDINATION

- A. Coordinate layout and installation of floor-recessed door hardware with floor construction. Cast anchoring inserts into concrete.
- B. Installation Templates: Distribute for doors, frames, and other work specified to be factory prepared. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.
- C. Security: Coordinate installation of door hardware, keying, and access control with Owner's security consultant.
- D. Electrical System Roughing-In: Coordinate layout and installation of electrified door hardware with connections to power supplies and building safety and security systems.
- E. Existing Openings: Where hardware components are scheduled for application to existing construction or where modifications to existing door hardware are required, field verify existing conditions and coordinate installation of door hardware to suit opening conditions and to provide proper door operation.

1.9 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Structural failures including excessive deflection, cracking, or breakage.
 - b. Faulty operation of doors and door hardware.
 - c. Deterioration of metals, metal finishes, and other materials beyond normal weathering and use.
 - 2. Warranty Period: Three (3) years from date of Substantial Completion, unless otherwise indicated.
 - a. Exit Devices: Two (2) years from date of Substantial Completion.
 - b. Manual Closers: Ten (10) years from date of Substantial Completion.

1.10 MAINTENANCE SERVICE

- A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.
- B. Maintenance Service: Beginning at Substantial Completion, provide **[six]** **<Insert number>** months' full maintenance by skilled employees of door hardware Installer. Include quarterly preventive maintenance, repair or replacement of worn or defective components, lubrication,

Bedford Middle School, Westport, CT

cleaning, and adjusting as required for proper door and door hardware operation. Provide parts and supplies that are the same as those used in the manufacture and installation of original products.

PART 2 - PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

A. Provide door hardware for each door as required to comply with requirements in this Section.

1. Door Hardware Sets: Provide quantity, item, size, finish or color indicated, and named manufacturers' products.
2. Sequence of Operation: Provide electrified door hardware function, sequence of operation, and interface with other building control systems indicated.

B. Designations: Requirements for design, grade, function, finish, size, and other distinctive qualities of each type of door hardware are indicated in Part 3 "Door Hardware Schedule" Article. Products are identified by using door hardware designations, as follows:

1. Named Manufacturers' Products: Manufacturer and product designation are listed for each door hardware type required for the purpose of establishing minimum requirements. Manufacturers' names are abbreviated in Part 3 "Door Hardware Schedule" Article.
2. References to BHMA Designations: Provide products complying with these designations and requirements for description, quality, and function.

2.2 MANUFACTURERS

The following manufacturer's products have been specified herein:

1. Latch/Locksets – Allegion-Schlage
2. Exit Devices - Von Duprin
3. Threshold & Weather-stripping - Pemko
4. Closers - LCN Closers
5. Butts - Stanley Hardware
6. Cylinders - Schlage
7. Door stops - Ives
8. Kickplates – Rockwood
9. Silencers – Ives
10. Proximity Access System – Not applicable

2.3 MATERIALS

Screws and Fasteners:

Hardware shall be packed with necessary machine screws. Sheet metal screws and sex bolts
bolts as required for proper and secure application.

Cylinders:

Schlage Interchangeable Core (6 Pin)

Hinges:

1. Unless otherwise noted hinges shall be fully mortised Stanley 1900/CB1900

series, of the types as listed in the hardware sets, and sized according to the manufacturers recommended standards. Hinges shall be guaranteed for the life of the building. The width of hinges shall be sufficient to clear all trim. Hinges for locked exterior out-swing doors shall have non-removable pins (NRP).

- a. Furnish 2 hinges for doors up to 5-feet high. Furnish 1 additional hinge for every additional 2-1/2 feet or fraction thereof.
- b. Unless otherwise specified, furnish hinges in the following heights on 1-3/4 inch thick doors:

Doors to 36 inches wide:	4-1/2 inch
Doors over 36 to 48 inches wide:	5 inch
Doors over 48 inches wide:	6 inch

2. Equivalent products by the following manufacturers will be accepted:
 - a. Hager

Exit Devices, Removable Mullions

1. Exit devices shall be Von Duprin 99 Series, types as indicated in the Hardware sets.
 - a. Exit devices for fire labeled doors shall be UL listed. Furnish sex bolts for installing exit devices on mineral core wood labeled fire doors where appropriate blocking is not provided.
 - b. Exit devices specified with lever trim shall be furnished with Von Duprin 994L vandal-resistant "breakaway" levers.
2. Removable mullions, where indicated for use with rim devices on pairs of doors, shall be Von Duprin as indicated in the Hardware Sets.
3. Lever trim: 992L/#07
4. No substitution.
5. Rim exit devices with electric retraction to be EL99L with power supply and transfer.

Door Pulls, Push Plates

1. Door pulls shall be Ives #8102-0 10" ht x 3/4" dia, 1 1/2" clear. Push plates shall be Hager #30S, 4" x 16" x 0.05" stainless steel. The Contractor shall dimple hollow metal doors and countersink wood doors to accomplish a flush application of door pull thru-bolt heads.
2. Equivalent products by the following manufacturers will be accepted:
 - a. Rockwood

Mop/Kick Plates

1. Provide Rockwood door protection plates, .050" stainless steel, or brass, where indicated in the Hardware Sets, in heights as follows:

Kick plates:	16 inches, unless noted otherwise
--------------	-----------------------------------
2. Widths shall be 2 inches less than door width for single doors and 1 inch less than door width for pairs of doors.
3. Plates shall be beveled 3 sides and have countersunk screws.
4. Equivalent products by the following manufacturers will be accepted:
 - a. Ives

Silencers

1. Ives #SR64 for hollow metal frames
Ives #SR65 for wood frames

Constant Latching Flush Bolts

1. Ives #FB61P pair; FB61T at top of door leaf and #FB41B automatic flush bolt at bottom of leaf.
2. Coordinate with undercut of door.
3. Equivalent product of Hager is acceptable.

Dust-Proof Strike

1. Ives #DP2
2. Hager #280X

Proximity Access System

1. Schlage Control Smart Interconnected Locks (FE410).

Door Stops

1. Provide door stops for interior doors. Wherever possible, provide Glynn-Johnson wall bumpers 60W. Provide Glynn-Johnson floor stops FB-13 or FB-14 where the use of wall bumpers is not feasible, if the location of the stop is not a stumbling hazard or would cause the door to rack at the hinges. Furnish carpet risers as required.
2. Equivalent products by the following manufacturers will be accepted:
 - a. Ives
 - b. Hager

Locksets/Latchsets – Commercial Spaces/Garages:

1. Locks and latches shall be Schlage ND-Series with Athens lever, rose and interchangeable core (6 PIN). Functions as indicated on the Hardware Sets.
2. Backset for new hardware on new doors shall be 2-3/4"
3. No substitution.

Locksets/Latchsets – Commercial Spaces/Garages:

1. Locksets & latchsets shall be Schlage F Series, levers. Function as indicated on Door Schedule.

Thresholds & Sill Sweeps:

1. Unless otherwise specified thresholds, weather-stripping and sill sweeps shall be by Pemko as follows:
 - a. Thresholds: 181A x MS&ES10
 - b. Sill Sweeps: 315CN
 - c. Weather-stripping: 316AS
2. Equivalent products by the following manufacturers will be accepted
 - a. National Guard
 - b. Reese

Closers:

1. Door Closers shall be LCN 4041-72.C-DA with delayed action and/or hold open

feature.

2. Door closers shall be mounted on the least conspicuous side of the door. The hardware supplier shall consult with the Architect to verify applications and note the mounting locations on the Hardware Schedule.
3. Maximum opening force 5.0 ft lb. for 36" door. Contractor to adjust opening force of closer in the field as required prior to punch list.

2.4

FINISHES

Materials & Finishes:

Unless otherwise specified in the Hardware Sets, materials and finishes shall be as follows:

1. Door Hinges
Brass with US26D, brushed chrome finish.
2. Exit Devices
Aluminum with 630 touchpad
3. Locks and Latches
Finish US26D, brushed chrome
4. Closers
Factory painted finish to match the balance of the hardware on the door.
5. Wall Bumpers & Throw Bolts
Finish US26D, Brushed chrome
6. Kick plates stainless steel unless noted otherwise.

2.5 FABRICATION

- A. Manufacturer's Nameplate: Do not provide products that have manufacturer's name or trade name displayed in a visible location except in conjunction with required fire-rated labels and as otherwise approved by Architect.
 1. Manufacturer's identification is permitted on rim of lock cylinders only.
- B. Base Metals: Produce door hardware units of base metal indicated, fabricated by forming method indicated, using manufacturer's standard metal alloy, composition, temper, and hardness. Furnish metals of a quality equal to or greater than that of specified door hardware units and BHMA A156.18.
- C. Fasteners: Provide door hardware manufactured to comply with published templates prepared for machine, wood, and sheet metal screws. Provide screws that comply with commercially recognized industry standards for application intended, except aluminum fasteners are not permitted. Provide Phillips flat-head screws with finished heads to match surface of door hardware, unless otherwise indicated.
 1. Concealed Fasteners: For door hardware units that are exposed when door is closed, except for units already specified with concealed fasteners. Do not use through bolts for installation where bolt head or nut on opposite face is exposed

unless it is the only means of securely attaching the door hardware. Where through bolts are used on hollow door and frame construction, provide sleeves for each through bolt.

2. Fire-Rated Applications:

a. Wood or Machine Screws: For the following:

- 1) Hinges mortised to doors or frames
- 2) Strike plates to frames.
- 3) Closers to doors and frames.

b. Steel Through Bolts: For the following unless door blocking is provided:

- 1) Surface hinges to doors.
- 2) Closers to doors and frames.
- 3) Surface-mounted exit devices.

3. Spacers or Sex Bolts: For through bolting of hollow-metal doors.

4. Fasteners for Wood Doors: Comply with requirements in DHI WDHS.2, "Recommended Fasteners for Wood Doors."

5. Gasketing Fasteners: Provide noncorrosive fasteners for exterior applications and elsewhere as indicated.

2.6 FINISHES

D. Provide finishes complying with BHMA A156.18 as indicated in door hardware schedule.

E. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

F. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance.

B. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.

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

3.2 PREPARATION

- A. Steel Doors and Frames: For surface applied door hardware, drill and tap doors and frames according to ANSI/SDI A250.6.
- B. Wood Doors: Comply with DHI WDHS.5 "Recommended Hardware Reinforcement Locations for Mineral Core Wood Flush Doors."

3.3 INSTALLATION

- A. Mounting Heights: Mount door hardware units at heights to comply with the following unless otherwise indicated or required to comply with governing regulations.
 - 1. Standard Steel Doors and Frames: ANSI/SDI A250.8.
 - 2. Custom Steel Doors and Frames: HMMA 831.
 - 3. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
 - 4. Americans with Disability Act
 - 5. CT State Building Code
- B. Install each door hardware item to comply with manufacturer's written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing. Do not install surface-mounted items until finishes have been completed on substrates involved.
 - 1. Set units level, plumb, and true to line and location. Adjust and reinforce attachment substrates as necessary for proper installation and operation.
 - 2. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
- C. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than the number recommended by manufacturer for application indicated or one hinge for every 30 inches of door height, whichever is more stringent, unless other equivalent means of support for door, such as spring hinges or pivots, are provided.
- D. Intermediate Offset Pivots: Where offset pivots are indicated, provide intermediate offset pivots in quantities indicated in door hardware schedule but not fewer than one intermediate offset pivot per door and one additional intermediate offset pivot for every 30 inches of door height greater than 90 inches.
- E. Lock Cylinders: Install construction cores to secure building and areas during construction period.
 - 1. Replace construction cores with permanent cores as indicated in keying schedule.
 - 2. Furnish permanent cores to Owner for installation.

- F. Key Control System: Tag keys and place them on markers and hooks in key control system cabinet, as determined by final keying schedule.
- G. Boxed Power Supplies: Locate power supplies as indicated or, if not indicated, in equipment room. Verify location with Architect.
 - 1. Configuration: Provide one power supply for each door opening least number of power supplies required to adequately serve doors with electrified door hardware.
- H. Thresholds: Set thresholds for exterior doors and other doors indicated in full bed of sealant complying with requirements specified in Section 079200 "Joint Sealants."
- I. Stops: Provide floor stops for doors unless wall or other type stops are indicated in door hardware schedule. Do not mount floor stops where they will impede traffic.
- J. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.
- K. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.
- L. Door Bottoms: Apply to bottom of door, forming seal with threshold when door is closed.

3.4 FIELD QUALITY CONTROL

- A. Independent Architectural Hardware Consultant: Owner will engage a qualified independent Architectural Hardware Consultant to perform inspections and to prepare inspection reports.
 - 1. Independent Architectural Hardware Consultant will inspect door hardware and state in each report whether installed work complies with or deviates from requirements, including whether door hardware is properly installed and adjusted.

3.5 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.
 - 1. Spring Hinges: Adjust to achieve positive latching when door is allowed to close freely from an open position of 30 degrees.
 - 2. Electric Strikes: Adjust horizontal and vertical alignment of keeper to properly engage lock bolt.
 - 3. Door Closers: Adjust sweep period to comply with accessibility requirements and requirements of authorities having jurisdiction.

- B. Occupancy Adjustment: Approximately three (3) months after date of Substantial Completion, Installer's Architectural Hardware Consultant shall examine and readjust each item of door hardware, including adjusting operating forces, as necessary to ensure function of doors, door hardware, and electrified door hardware.

3.6 CLEANING AND PROTECTION

- A. Clean adjacent surfaces soiled by door hardware installation.
- B. Clean operating items as necessary to restore proper function and finish.
- C. Provide final protection and maintain conditions that ensure that door hardware is without damage or deterioration at time of Substantial Completion.

3.7 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain door hardware and door hardware finishes.

3.8 DOOR HARDWARE SCHEDULE

- A. To be supplied by Hardware Contractor.

END OF SECTION

PART ONE - 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 the following:
 - 1. Interior gypsum board.
 - 2. Exterior gypsum board.
 - 3. Tile backing boards.
 - 4. Light gage steel framing.

1.3 SUBMITTALS

1.4 QUALITY ASSURANCE

- A. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.
- B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.

1.5 STORAGE AND HANDLING

- A. Store materials inside under cover and keep them dry and protected against damage from weather, condensation, direct sunlight, construction traffic, and other causes. Stack panels flat to prevent sagging.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.
- B. Do not install interior products until installation areas are enclosed and conditioned.
- C. Do not install panels that are wet, those that are moisture damaged, and those that are mold damaged.
 - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
 - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART TWO – PRODUCTS

2.1 PANELS, GENERAL

- A. Size: Provide in maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

2.2 INTERIOR GYPSUM BOARD

A. General: Complying with ASTM C 36/C 36M or ASTM C 1396/C 1396M, as applicable to type of gypsum board indicated and whichever is more stringent.

1. Basis-of-Design Product: The design for each type of gypsum board and related products is based on G-P Gypsum products named. Subject to compliance with requirements, provide the named product or a comparable product by one of the following:

- a. National Gypsum Company.
- b. USG Corporation.

B. Regular Type:

- 1. Basis-of-Design Product: G-P Gypsum Board; Grade R, Class 1, Type III.
- 2. Thickness: 5/8"
- 3. Long Edges: Tapered.

C. Type X:

- 1. Basis-of-Design Product: G-P Gypsum; Grade R, Class 1, Type III Fireguard Interior Panel
- 2. Thickness: 5/8"
- 3. Long Edges: Tapered.

Note U.L. numbers for shaft wall ratings are based on U.S. gypsum company Type 'X' gypsum board.

D. Ceiling Type: Manufactured to have more sag resistance than regular-type gypsum board.

- 1. Basis-of-Design Product: G-P Gypsum; DensArmor Plus Paperless Interior Panel, Grade R, Class 1, Type III
- 2. Thickness: 5/8"
- 3. Long Edges: Tapered.

E. Abuse-Resistant Type: Manufactured to produce greater resistance to surface indentation, through-penetration (impact resistance), and abrasion than standard, regular-type and Type X gypsum board.

- 1. Core: regular type 5/8".
- 2. Long Edges: Tapered.

F. Examples of moisture- and mold-resistant panels include; moisture- and mold-resistant type with moisture-resistant surfaces: G-P's "DensArmor Plus Paperless Interior Panel" panels, which have coated glass-mat facings and comply with both ASTM C 36/C 36M and ASTM C 1177/C 1177M. Mold-resistant type; USG's "SHEETROCK Brand HUMITEK" panels and National Gypsum's "XP Wallboard," which are both paper faced and comply with ASTM C 36/C 36M. Moisture- and Mold-Resistant Type: With moisture- and mold-resistant core and surfaces.

- 1. Basis-of-Design Product: G-P Gypsum; DensArmor Plus Paperless Interior Panel.

Bedford Middle School, Westport, CT

2. Core: 5/8"
3. Long Edges: Tapered.

2.3 TRIM ACCESSORIES

- A. Interior Trim: ASTM C 1047.
 1. Material: Galvanized or aluminum-coated steel sheet, rolled zinc, plastic, or paper-faced galvanized steel sheet.
 2. Shapes:
 - a. Cornerbead.
 - b. Bullnose bead.
 - c. LC-Bead: J-shaped; exposed long flange receives joint compound.
 - d. L-Bead: L-shaped; exposed long flange receives joint compound.
 - e. U-Bead: J-shaped; exposed short flange does not receive joint compound.
 - f. Expansion (control) joint.
 - g. Curved-Edge Cornerbead: With notched or flexible flanges.
- B. Exterior Trim: ASTM C 1047.
 1. Material
 2. Shapes:
 - a. Cornerbead.
 - b. LC-Bead: J-shaped; exposed long flange receives joint compound.
 - c. Expansion (Control) Joint: One-piece, rolled zinc with V-shaped slot and removable strip covering slot opening.
- C. Aluminum Trim: Extruded accessories of profiles and dimensions indicated.
 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Fry Reglet Corp.
 - b. Gordon, Inc.
 - c. Pittcon Industries.
 3. Aluminum: Alloy and temper with not less than the strength and durability properties of ASTM B 221 (ASTM B 221M), Alloy 6063-T5.
 4. Finish: Corrosion-resistant primer compatible with joint compound and finish materials specified.

2.4 JOINT TREATMENT MATERIALS

- A. General: Comply with ASTM C 475/C 475M.
- B. Joint Tape:
 1. Basis-of-Design Product: G-P Gypsum; ToughRock Tape.
 2. Interior Gypsum Wallboard: Paper.
 3. Exterior Gypsum Soffit Board: Paper.
 4. Glass-Mat Gypsum Wallboard: Paper.
 5. Glass-Mat Gypsum Sheathing Board: 10-by-10 glass mesh.
 6. Tile Backing Panels: As recommended by panel manufacturer.

Bedford Middle School, Westport, CT

- C. Joint Compound for Interior Gypsum Wallboard: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.
 - 1. Prefilling: At open joints, rounded or beveled panel edges and damaged surface areas, use setting-type taping compound.
 - a. Basis-of-Design Product: G-P Gypsum; ToughRock Sandable Setting Compound.
 - 2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use all-purpose compound.
 - a. Basis-of-Design Product: G-P Gypsum; ToughRock Sandable Setting Compound.
 - b. Use setting-type compound for installing paper-faced metal trim accessories.
 - 3. Fill Coat: For second coat, use setting-type, sandable topping.
 - a. Basis-of-Design Product: G-P Gypsum; ToughRock Sandable Setting Compound.
 - 4. Finish Coat: For third coat, use setting-type, sandable topping compound.
 - a. Basis-of-Design Product: G-P Gypsum; ToughRock Sandable Setting Compound.
- D. Joint Compound for Exterior Applications:
 - 1. Basis-of-Design Product: G-P Gypsum; "ToughRock Setting Compound."
 - 2. Exterior Gypsum Soffit Board: Use setting-type taping compound and setting-type, sandable topping compound.
 - 3. Glass-Mat Gypsum Sheathing Board: As recommended by sheathing board manufacturer.
- E. Joint Compound for Tile Backing Panels:
 - 1. Basis-of-Design Product: G-P Gypsum; "ToughRock Setting Compound."
 - 2. Water-Resistant Gypsum Backing Board: Use setting-type taping compound and setting-type, sandable topping compound.
 - 3. Glass-Mat, Water-Resistant Backing Panel: As recommended by backing panel manufacturer.
 - 4. Glass-Mat Gypsum Wallboard: As recommended by wallboard manufacturer.
 - 5. Cementitious Backer Units: As recommended by backer unit manufacturer.

2.5 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.
- B. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.
 - 1. Use adhesives that have a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- C. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.
 - 1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch (0.84 to 2.84 mm) thick.
 - 2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.

Bedford Middle School, Westport, CT

- D. Sound Attenuation Blankets: ASTM C 665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.
 - 1. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.

2.6 STEEL FRAMING CEILINGS AND SOFFITS

- A. Comply with ASTM C 754 for materials and sizes, unless otherwise indicated.
 - 1. Protective Coating: ASTM A1003/A1003 M, G40 (Z120) or equivalent corrosion resistance.
- B. Hanger and Tie Wire: ASTM A 641, Class 1 zinc-coating, soft temper.
- C. Hanger Rods: Mild steel, zinc coated.
- D. Flat Hangers: Mild steel, zinc coated.
- E. Angle-Type Hangers: Angles with legs not less than 7/8 inch wide, formed from 0.0312 inch thick galvanized steel sheet per ASTM A 653, G 60 coating, with bolted connections and 5/16 inch diameter bolts.
- F. Carrying Channels: ASTM C 754, shall be cold-formed from steel with a 0.0538 inch (1.37 mm) minimum base metal thickness and 1/2 inch (12.7 mm) wide flanges, as follows:
 - 1. Depth: As indicated on Drawings.
- G. Steel Studs for Furring Channels: ASTM C 645
 - 1. Subject to compliance with requirements, provide Dietrich Metal Framing UltraSTEEL® 25 gauge-equivalent.
 - 2. Minimum Base-Metal Thickness: 0.0179 inch.
 - 3. Members that can show independently verified test performance that meets the limiting height values listed in C 754.
 - 4. Depth: As indicated on Drawings or 3-5/8 inches.
- H. Hat-Shaped, Rigid Furring Channels: ASTM C 645, hat-shaped, depth of 7/8 inch (22.2 mm).
 - 1. Minimum Base Metal Thickness: 0.0179 inch (0.45 mm).
- I. Resilient Furring Channels: Manufacturer's standard product designed to reduce sound transmission, fabricated from steel sheet per ASTM C 645 to form 1/2 inch deep channel of the following configuration:
 - 1. Subject to compliance with requirements, provide Dietrich Metal Framing; Resilient Channel.
 - 2. Single Leg Configuration: Asymetric-shaped channel with face connected to a single flange by a single-slotted leg.
- K. Grid Suspension System for Interior Ceilings: ASTM C 645, direct-hung system composed of main beams and interlocking cross furring members.
 - 1. Products: Subject to compliance with requirements, provide the following:
 - a. Armstrong World Industries, "Furring Systems/Drywall".
 - b. Chicago Metallic Corp. "Drywall Furring 640 / Drywall Furring 660".
 - c. USG Interiors, Inc. "Drywall Suspension System".

2.7 STEEL FRAMING FOR WALLS AND PARTITIONS

- A. Provide steel framing members complying with the following:
 - 1. Protective Coating: C 645/C 645 M, G40 (Z120), or equivalent corrosion resistance.

- B. Steel Studs and Runners: ASTM C 645
 - 1. Subject to compliance with requirements, provide Dietrich Metal Framing UltraSTEEL® equivalent gauge as noted on drawings. 20 gage unless noted otherwise on drawings.
 - 2. Minimum Base-Metal Thickness: 0.0179 inch (0.45 mm).
 - 3. Members that can show independently verified test performance that meets the limiting height values listed in C 754.
 - 4. Depth: 6 inches, unless noted otherwise on drawings.
- C. Steel Runner Track at Curved Walls/Partitions: Steel sheet runner for non-structural curves, bends, variable radii and arches. Designed to provide higher strength capacity than conventional lighter gauge material by using a work-hardened steel base strip.
 - 1. Subject to compliance with requirements, provide Dietrich Metal Framing; UltraSTEEL® Framing Contour Track.
 - 2. Minimum Base-Metal Thickness: 0.0179 inch.
- D. Hat-Shaped Rigid Furring Channels: ASTM C 645, hat-shaped, depth and minimum thickness of base (uncoated) metal as follows:
 - 1. Depth: 7/8 inch
- E. Resilient Furring Channels: Manufacturer's standard product designed to reduce sound transmission, fabricated from steel sheet per ASTM C 645 to form 1/2 inch deep channel of the following configuration:
 - 1. Subject to compliance with requirements, provide Dietrich Metal Framing; Resilient Channel.
 - 2. Single Leg Configuration: Asymetric-shaped channel with face connected to a single flange by a single-slotted leg.
- G. Single Long-Leg Runner System: Manufacturer's top runner complying with ASTM C 645, with 2-inch (50.8 mm) deep flanges in thickness not less than indicated for studs, installed with studs friction fit into top runner and with continuous bridging located within 12 inches (305 mm) of the top of studs to provide lateral bracing.
- H. Deflection Track: Steel sheet top runner manufactured to prevent cracking of finishes applied to interior partition framing resulting from deflection of structure above; in thickness not less than indicated for studs and in width to accommodate depth of studs.
 - 1. Subject to compliance with requirements, provide Dietrich Metal Framing; SLP-TRK® Slotted Deflection Track, or a comparable product.
- I. Flat Strap and Backing Plate: Sheet for blocking or bracing in length and width as indicated, and with minimum base metal (uncoated) thickness as required.
- J. Channel Bridging: 0.0538 inch (1.37 mm) base metal thickness, with minimum 1/2 inch (12.7 mm) wide flanges
 - 1. Subject to compliance with requirements, provide Dietrich Metal Framing; Spazzer® 9200 Bridging and Spacing Bar
 - 3. Subject to compliance with requirements, provide Dietrich Metal Framing; EasyClip™ U-Series Clip Angle not less than 1-1/2 by 1-1/2 inches, 0.0538 inch (1.37 mm) thick, galvanized steel.
- K. Header/Sill System: Preformed, pre-engineered header/sill, minimum 20 gage, galvanized sheet steel for use at openings in metal stud wall systems.

1. Manufacturer: Subject to compliance with requirements, provide products by the following:
 - a. Brady Construction Innovations, Inc. "Pro X Header".
- L. Fasteners for Metal Framing: Provide fasteners of type, material, size, corrosion resistance, holding power and other properties required to fasten steel framing and furring member securely to substrates involved; comply with recommendations of gypsum board manufacturers for applications indicated.

PART THREE – EXECUTION

3.1 EXAMINATION

- A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames and framing, for compliance with requirements and other conditions affecting performance.
- B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 APPLYING AND FINISHING PANELS, GENERAL

- A. Comply with ASTM C 840.
- B. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.
- C. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch (1.5 mm) of open space between panels. Do not force into place.
- D. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.
- E. Form control and expansion joints with space between edges of adjoining gypsum panels.
- F. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.
 1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. (0.7 sq. m) in area.
 2. Fit gypsum panels around ducts, pipes, and conduits.
 3. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch- (6.4- to 9.5-mm-) wide joints to install sealant.
- G. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments, except floors. Provide 1/4- to 1/2-inch wide spaces at these locations, and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.

- H. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.
- I. Wood Framing: Install gypsum panels over wood framing, with floating internal corner construction. Do not attach gypsum panels across the flat grain of wide-dimension lumber, including floor joists and headers. Float gypsum panels over these members, or provide control joints to counteract wood shrinkage.
- J. STC-Rated Assemblies: Seal construction at perimeters, behind control joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C 919 and with manufacturer's written recommendations for locating edge trim and closing off sound-flanking paths around or through assemblies, including sealing partitions above acoustical ceilings.

3.3 APPLYING INTERIOR GYPSUM BOARD

- A. Single-Layer Application:
 - 1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing, unless otherwise indicated.
 - 2. On partitions/walls, apply gypsum panels horizontally (perpendicular to framing), unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.
 - a. Stagger abutting end joints not less than one framing member in alternate courses of panels.
 - b. At stairwells and other high walls, install panels horizontally, unless otherwise indicated or required by fire-resistance-rated assembly.
 - 3. On Z-furring members, apply gypsum panels vertically (parallel to framing) with no end joints. Locate edge joints over furring members.
 - 4. Fastening Methods: Apply gypsum panels to supports with steel drill screws.
- B. Multilayer Application:
 - 1. On ceilings, apply gypsum board indicated for base layers before applying base layers on walls/partitions; apply face layers in same sequence. Apply base layers at right angles to framing members and offset face-layer joints 1 framing member, 16 inches (400 mm) minimum, from parallel base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly.
 - 2. On partitions/walls, apply gypsum board indicated for base layers and face layers vertically (parallel to framing) with joints of base layers located over stud or furring member and face-layer joints offset at least one stud or furring member with base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly. Stagger joints on opposite sides of partitions.
 - 3. On Z-furring members, apply base layer vertically (parallel to framing) and face layer either vertically (parallel to framing) or horizontally (perpendicular to framing) with vertical joints offset at least one furring member. Locate edge joints of base layer over furring members.
 - 4. Fastening Methods: Fasten base layers and face layers separately to supports with screws.

Bedford Middle School, Westport, CT

3.4 INSTALLING TRIM ACCESSORIES

- A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.

3.5 FINISHING GYPSUM BOARD

- A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.
- B. Prefill open joints, beveled edges and damaged surface areas.
- C. Apply joint tape over gypsum board joints, except those with trim having flanges not intended for tape.
- D. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840:
 - 1. Level 1: Ceiling plenum areas, concealed areas, and where indicated.
 - 2. Level 4: At panel surfaces that will be exposed to view, unless otherwise indicated.
 - a. Primer and its application to surfaces are specified in other Division 9 Sections.
 - 3. Level 5: On walls and ceiling in the new car delivery area.
- E. Glass-Mat Gypsum Sheathing Board: Finish according to manufacturer's written instructions for use as exposed soffit board.
- F. Glass-Mat, Water-Resistant Backing Panels: Finish according to manufacturer's written instructions.
- G. Cementitious Backer Units: Finish according to manufacturer's written instructions.

3.6 INSTALLATION OF STEEL FRAMING FOR WALLS AND PARTITIONS

- A. Install runners (tracks) at floors, ceilings and structural walls and columns where gypsum board stud system abuts other construction.
 - 1. Use proprietary tracks for non-rated and fire rated walls and partitions.
 - 2. Install studs full height for all partitions unless noted otherwise.
 - 3. Where studs are installed directly against exterior walls, install asphalt felt/foam isolation strips between studs and wall.
- B. Installation Tolerances: Install each steel framing and furring member so that fastening surface does not vary more than 1/8 inch from plane of faces of adjacent framing.
- C. Extend partition framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at or just above suspended ceilings. Continue framing over frames for doors and openings and frame around ducts penetrating partitions above ceiling to provide support for gypsum board.
 - 1. Cut studs 1/2 inch short of full height to provide perimeter relief.
 - 2. For STC-rated or fire-resistance rated partitions that extend full height, install framing around structural members, as required to support gypsum board closures needed to make partitions continuous from floor to underside of structure above.
 - 3. Install bridging/spacing bar.

Bedford Middle School, Westport, CT

- D. Brace partition framing, not extending full height to structure above, with studs same size and thickness as partition framing. Provide bracing at:
 - 1. 6'-0" o.c. intervals along length of partitions.
 - 2. Not less than 6'-0" from partition ends and corners.
 - 3. Door and window openings.
- E. Terminate partition framing at suspended ceilings where indicated.
- F. Install steel studs and furring in sizes and at spacings indicated.
 - 1. Single-Layer Construction: Space studs 16 inches o.c., unless otherwise indicated.
 - 2. Multiple-Layer Construction: Space studs 16 inches o.c., unless otherwise indicated.
- G. Install steel studs with flanges in same direction and leading edge or end of gypsum board panel can be attached to open (unsupported) edges of stud flanges first.
- H. Frame door openings to comply with details indicated, with GA-219 and with applicable published recommendations of gypsum board manufacturer. Attach vertical studs at jambs with screws either directly to frames or to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.
 - 1. Extend vertical jamb studs through suspended ceilings and attach to underside of floor or roof structure above.
- I. Frame openings other than door openings to comply with details indicated, or if none indicated, in same manner as required for door openings; and install framing below sills of openings to match framing required above door heads.
- J. Install thermal insulation vertically and hold in place with Z-furring members spaced at 24 inches o.c.
 - 1. Except at exterior corners, securely attach narrow flanges of furring members to wall with concrete stub nails or screws designed for masonry attachment, spaced at 24 inches o.c.
 - 2. At exterior corners attach wide flange of furring members to wall with short flange extending beyond corner; on adjacent wall surface, screw attach short flange of furring channel to web of attached channel. Start from this furring channel with standard width insulation and continue in regular manner.
 - 3. At interior corners, space second member no more than 12 inches from corner and cut insulation to fit.
- K. Install deflection track at the top of all metal stud walls.

3.7

PROTECTION

- A. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.
- B. Remove and replace panels that are wet, moisture damaged, and mold damaged.
 - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
 - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION

PART ONE - GENERAL

1.1 DESCRIPTION

Work Included:

Acoustical ceiling tile and suspension system including alternate ceiling for showroom.

1.2 QUALITY ASSURANCE

Qualifications of Manufacturer:

Products used in the work of this Section shall be produced by manufacturers regularly engaged in manufacture of similar items and with a history of successful production acceptable to the Architect.

Qualifications of Personnel:

Use thoroughly trained and experienced workmen who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

1.3 SUBMITTALS

General:

Comply with the provisions of Section 01300.

Product Data:

Prior to proceeding with the work of this Section, provide the following for the Architect's review:

- a. Complete materials list showing all items proposed to be furnished and installed under this Section.
- b. Sufficient data to demonstrate that all such materials meet or exceed the specified requirements.
- c. Samples of available colors for the Architect's selection.

1.4 PRODUCT HANDLING

Protection:

Use all means necessary to protect the materials of this Section before, during and after installation and to protect the work and materials of all other trades.

Replacements:

In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

PART TWO - PRODUCTS

2.1 ACOUSTICAL TILE

General:

Acoustical ceiling tile, suspension system and all related components shall be manufactured by the Armstrong World Industries.

Acoustical Ceiling Tile

Acoustical ceiling tile to be 24" x 24" tiles to match the existing ceiling tiles and suspension grid in the Library.

2.2 SUSPENSION SYSTEM

Suspension system for ACT shall be inverted tee exposed grid to match the existing ceiling grid in the Library and supporting ceiling tile on all four sides, factory finished white. Provide all components of suspension system as required to properly install the ceiling system.

Suspension system for gypsum board ceiling shall be drywall grid system in conformance with ASTM C635, C636 and C645.

Provide all miscellaneous clips and components as required to properly install all suspended ceiling systems, including tile hold down clips.

2.3 All ceilings to have a Class 'A' finish.

PART THREE - EXECUTION

3.1 INSPECTION

Examine the areas and conditions under which work of this Section will be installed. Correct conditions detrimental to the proper and timely completion of the work. Do not proceed until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

Install all materials in strict accordance with the manufacturer's recommendations as approved by the Architect, anchoring all components firmly into position for long life under hard use and to resist seismic forces as required by the Building Code. Install acoustical tile true to alignment within a tolerance of one in 1000 and true to plane within a tolerance of one in 200, and in accordance with ASTM C636.

Install hold down clips on all ceiling tiles on garage ceiling.

3.3 CLEANING UP

Clean up all scraps, dust, debris, etc. at the completion of each segment of installation of the work of this Section.

END OF SECTION

INTERIOR ALTERATIONS & ADDITIONS
Bedford Middle School, Westport, CT

Westport RFP #19-022-BOE

SUSPENDED CEILING SYSTEM

095000 - 2

PART ONE - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Flooring and accessories as shown on the drawings and schedules and as indicated by the requirements of this section.
- B. Related Documents
 - 1. Drawings and General Provisions of the Contract (including General and Supplementary Conditions and Division 1 sections) apply to the work of this section.

1.02 REFERENCES

- A. Flooring Manufacturers Technical Manuals
- B. ASTM International:
 - 1. ASTM E 648 Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source
 - 2. ASTM E 662 Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials
 - 3. ASTM F 710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring
 - 4. ASTM F 1482, Standard Guide to Wood Underlayment Products Available for Use Under Resilient Flooring
 - 5. ASTM F 1700 Standard Specification for Solid Vinyl Tile
 - 6. ASTM F 1861 Standard Specification for Resilient Wall Base
 - 7. ASTM F 1869 Standard Test Method for Measuring Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride
 - 8. ASTM F 2170 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes
 - 9. ASTM F 1066 Standard Specifications for Vinyl Composition Flooring
- C. National Fire Protection Association (NFPA):
 - 1. NFPA 253 Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source
 - 2. NFPA 258 Standard Test Method for Measuring the Smoke Generated by Solid Materials
- D. Standards Council of Canada
 - 1. CAN/ULC-S102.2 Standard Test Method for Surface Burning Characteristics of
 - 2. Flooring, Floor Covering and Miscellaneous Materials and Assemblies

1.03 SYSTEM DESCRIPTION

- A. Performance Requirements: Provide flooring which has been manufactured, fabricated and installed to performance criteria certified by manufacturer without defects, damage, or failure.
- B. Administrative Requirements
 - 1. Pre-installation Meeting: Conduct an on-site pre-installation meeting to verify project requirements, substrate conditions, manufacturer's installation instructions and manufacturer's warranty requirements.
 - 2. Pre-installation Testing: Conduct pre-installation testing as follows: Moisture tests, bond test, pH test, etc.

- C. Test Installations/ Mock-ups: Install at the project site a job mock-up using acceptable products and manufacturer approved installation methods, including concrete substrate testing. Obtain Owner's and Architect's acceptance of finish color, texture and pattern, and workmanship standards.
 - 1. Mock-Up Size: 36" x 36"
 - 2. Maintenance: Maintain mock-up during construction for workmanship comparison; remove and legally dispose of mock-up when no longer required.
 - 3. Incorporation: Mock-up may be incorporated into the final construction with Owner's approval.
- D. Sequencing and Scheduling
 - 1. Install flooring and accessories after the other finishing operations, including painting, have been completed. Close spaces to traffic during the installation of the flooring.
 - 2. Do not install flooring over concrete slabs until they are sufficiently dry to achieve a bond with the adhesive, in accordance with the manufacturer's recommended bond, moisture tests and pH test.

1.04 SUBMITTALS

- A. Submit shop drawings, seaming plan, coving details, and manufacturer's technical data, installation and maintenance instructions for flooring and accessories.
- B. Submit the manufacturer's standard samples showing the required colors for flooring and applicable accessories.
- C. Submit Safety Data Sheets (SDS) available for flooring product, adhesives, patching/leveling compounds, floor finishes and cleaning agents.
- D. If required, submit the manufacturer's certification that the flooring has been tested by an independent laboratory and complies with the required fire tests.
- E. Closeout Submittals: Submit the following:
 - 1. Operation and Maintenance Data: Operation and maintenance data for installed products. Include methods for maintaining installed products, and precautions against cleaning materials and methods detrimental to finishes and performance.
 - 2. Warranty: Warranty documents specified herein

1.05 QUALITY ASSURANCE

- A. Single-Source Responsibility: provide types of flooring and accessories for respective flooring supplied by one manufacturer, including leveling and patching compounds, and adhesives.
- B. Select an installer who is competent in the installation of Armstrong resilient solid vinyl tile flooring.
 - 1. Engage installers certified as Mannington Commercial Flooring Certified Installers with a minimum of three years' experience installing the same materials specified.
- C. Fire Performance Characteristics: Provide flooring with the following fire performance characteristics as determined by testing material in accordance with ASTM test methods indicated below by a certified testing laboratory or other testing agency acceptable to authorities having jurisdiction:

1. ASTM E 648 (NFPA 253) Critical Radiant Flux of 0.45 watts per sq. cm. or greater, Class I
2. ASTM E 662 (NFPA 258) (Smoke Generation) Maximum Specific Optical Density of 450 or less
3. CAN/ULC-S102.2 – Flame Spread Rating and Smoke Developed – Results as tested

1.06 DELIVERY, STORAGE AND HANDLING

- A. Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.
- B. Deliver materials in good condition to the jobsite in the manufacturer's original unopened containers that bear the name and brand of the manufacturer, project identification, and shipping and handling instructions.
- C. Store materials in a clean, dry, enclosed space off the ground, protected from harmful weather conditions and at temperature and humidity conditions recommended by the manufacturer. Protect adhesives from freezing. Store flooring, adhesives and accessories in the spaces where they will be installed for at least 48 hours before beginning installation.

1.07 PROJECT CONDITIONS

- A. Maintain a minimum temperature in the spaces to receive the flooring and accessories of 65°F (18°C) and a maximum temperature of 100°F for at least 48 hours before, during, and for not less than 48 hours after installation. Thereafter, maintain a minimum temperature of 55°F (13°C) in areas where work is completed. Protect all materials from the direct flow of heat from hot-air registers, radiators, or other heating fixtures and appliances.

1.08 LIMITED WARRANTY

- A. Resilient Flooring: Submit a written warranty executed by the manufacturer, agreeing to repair or replace resilient flooring that fails within the warranty period.
- B. Limited Warranty Period:
Mannington Luxury Vinyl Tile – 20 years
Vinyl composition Tile – 5 years
Roppe Rubber Treads & Tile – 5 years
- C. The Limited Warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under the requirements of the Contract Documents.

1.09 MAINTENANCE

- A. Extra Materials: Deliver extra materials to Owner. Furnish extra materials from same production run as products installed. Packaged with protective covering for storage and identified with appropriate labels.

1. Quantity: Furnish quantity of flooring units equal to 5% of amount installed for each product.

2. Delivery, Storage and Protection: Comply with Owner's requirements for delivery, storage and protection of extra material.

PART TWO - PRODUCTS

2.01 VINYL COMPOSITION TILE

Resilient tile flooring, wall base, adhesives and accessories:

Armstrong Flooring Inc., 2500 Columbia Avenue, Lancaster, PA 17604,
www.armstrongflooring.com/commercial

- A. Provide Vinyl Composition Tile: Standard Excelon® Tile Flooring manufactured by Armstrong Flooring, Inc.
 1. Description: Tile composed of polyvinyl chloride resin, plasticizers, fillers, stabilizers and pigments with colors and texture dispersed uniformly throughout its entire thickness.
 2. Vinyl composition tile shall conform to the requirements of ASTM F 1066, "Standard Specification Vinyl Composition Floor Tile", Class 2, through-pattern
 3. Pattern and Color: in color selected from the range currently available from Armstrong Flooring, Inc.
 4. Size: 12 in. x 12 in.
 5. Thickness: 1/8"/0.125 in.

2.02 ADHESIVES

- A. Vinyl composite tile: Provide Armstrong S-288 Flooring Adhesive under the flooring and Armstrong S-725 Wall Base Adhesive at the wall base as recommended by the flooring manufacturer.

2.03 BASE

- A. Base at vinyl composition tile is to be Armstrong, 4" high, color integrated vinyl cove base conforming to ASTM F1861.

2.04 ACCESSORIES

- A. For patching, smoothing, and leveling monolithic subfloors (concrete, terrazzo, quarry tile, ceramic tile, and certain metals), provide Fast-Setting Cement-Based Patch and Underlayment as recommended by flooring manufacturer.
- B. For sealing joints between the top of wall base or integral cove cap and irregular wall surfaces such as masonry, provide plastic filler applied according to the manufacturer's recommendations.
- C. Provide transition/reducing strips tapered to meet abutting materials.
- D. Provide threshold of thickness and width as shown on the drawings.
- E. Provide resilient edge strips of width shown on the drawings, of equal gauge to the flooring, homogeneous vinyl or rubber composition, tapered or bullnose edge, with color to match or contrast with the flooring, or as selected by the Architect from standard colors available.

- F. Provide metal edge strips of width shown on the drawings and of required thickness to protect exposed edges of the flooring. Provide units of maximum available length to minimize the number of joints. Use butt-type metal edge strips for concealed anchorage, or overlap-type metal edge strips for exposed anchorage. Unless otherwise shown, provide strips made of extruded aluminum with a mill finish.

PART THREE - EXECUTION

3.01 MANUFACTURER'S INSTRUCTIONS

- A. Compliance: Comply with manufacturer's product data, including technical bulletins, product catalog, installation instructions, and product carton instructions for installation and maintenance procedures as needed.

3.02 EXAMINATION

- A. Site Verification of Conditions: Verify substrate conditions (which have been previously installed under other sections) are acceptable for product installation in accordance with manufacturer's instructions (i.e. moisture tests, bond test, pH test, etc.).
- B. Visually inspect flooring materials, adhesives and accessories prior to installation. Flooring material with visual defects shall not be installed and shall not be considered as a legitimate claim.
- C. Examine subfloors prior to installation to determine that surfaces are smooth and free from cracks, holes, ridges, and other defects that might prevent adhesive bond or impair durability or appearance of the flooring material.
- D. Inspect subfloors prior to installation to determine that surfaces are free from curing, sealing, parting and hardening compounds; residual adhesives; adhesive removers; and other foreign materials that might prevent adhesive bond. Visually inspect for evidence of moisture, alkaline salts, carbonation, dusting, mold, or mildew.
- E. Report conditions contrary to contract requirements that would prevent a proper installation. Do not proceed with the installation until unsatisfactory conditions have been corrected.
- F. Failure to call attention to defects or imperfections will be construed as acceptance and approval of the subfloor. Installation indicates acceptance of substrates with regard to conditions existing at the time of installation.

3.03 PREPARATION

- A. Subfloor Preparation: Smooth concrete and gyp-crete surfaces, removing rough areas, projections, ridges, and bumps, and filling low spots, control or construction joints as recommended by the manufacturer. Refer to ASTM F 710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring for additional information on subfloor preparation.
- B. Subfloor Cleaning: The surface shall be free of dust, solvents, varnish, paint, wax, oil, grease, sealers, release agents, curing compounds, residual adhesive, adhesive removers and other foreign materials that might affect the adhesion of resilient flooring to the concrete or cause a discoloration of the flooring from below. Remove residual adhesives as recommended by the flooring manufacturer. Remove curing and hardening compounds not compatible with the adhesives used, as indicated by a bond test or by the compound manufacturer's recommendations

Bedford Middle School, Westport, CT

for flooring. Avoid organic solvents. Spray paints, permanent markers and other indelible ink markers must not be used to write on the back of the flooring material or used to mark the concrete slab as they could bleed through, telegraphing up to the surface and permanently staining the flooring material. If these contaminants are present on the substrate they must be mechanically removed prior to the installation of the flooring material.

- C. Concrete pH Testing: Perform pH tests on concrete floors regardless of their age or grade level. All test results shall be documented and retained.

3.04 INSTALLATION OF FLOORING

- A. Install flooring in strict accordance with the latest edition of recommendations and specifications of the flooring material manufacturer.
- B. Install flooring wall to wall before the installation of floor-set cabinets, casework, furniture, equipment, movable partitions, etc. Extend flooring into toe spaces, door recesses, closets, and similar openings as shown on the drawings.
- C. If required, install flooring on pan-type floor access covers. Maintain continuity of color and pattern within pieces of flooring installed on these covers. Adhere flooring to the subfloor around covers and to covers.
- D. Scribe, cut, and fit to permanent fixtures, columns, walls, partitions, pipes, outlets, and built-in furniture and cabinets.
- E. Install flooring with adhesives, tools, and procedures in strict accordance with the manufacturer's written instructions. Observe the recommended adhesive trowel notching, open times, and working times.

3.05 INSTALLATION OF ACCESSORIES

- A. Apply top set wall base to walls, columns, casework, and other permanent fixtures in areas where top-set base is required. Install base in lengths as long as practical, with inside corners fabricated from base materials that are mitered or coped. Tightly bond base to vertical substrate with continuous contact at horizontal and vertical surfaces.
- B. Fill voids with plastic filler along the top edge of the resilient wall base or integral cove cap on masonry surfaces or other similar irregular substrates.
- C. Place resilient edge strips tightly butted to flooring, and secure with adhesive recommended by the edge strip manufacturer. Install edge strips at edges of flooring that would otherwise be exposed.
- D. Apply [butt-type] [overlap] metal edge strips where shown on the drawings, [before] [after] flooring installation. Secure units to the substrate, complying with the edge strip manufacturer's recommendations.

3.06 CLEANING

- A. Perform initial and on-going maintenance according to the manufactures specifications.

3.07 PROTECTION

- A. Protect installed flooring as recommended by the flooring manufacturer against damage from rolling loads, other trades, or the placement of fixtures and furnishings.

END OF SECTION

GENERAL

1.1 SECTION INCLUDES

- A. Interior paint and coatings systems including surface preparation.
- B. Material Safety Data Sheets / Environmental Data Sheets: Per manufacturer's MSDS/EDS for specific VOCs (calculated per 40 CFR 59.406). VOCs may vary by base and sheen.
- C. South Coast Air Quality Management District (SCAQMD): Rule 1113 - Architectural Coatings.
- D. Green Seal, Inc.:
 - 1. GS-11 Standard for Paints and Coatings (1st Edition, May 20, 1993).
 - 2. GC-03 - Environmental Criteria for Anti-Corrosive Paints.

1.2 SUBMITTALS

- A. Submit under provisions of Section 013000 – Substitutions & Submissions
- B. Product Data: For each paint system indicated, including.
 - 1. Product characteristics.
 - 2. Surface preparation instructions and recommendations.
 - 3. Primer requirements and finish specification.
 - 4. Storage and handling requirements and recommendations.
 - 5. Application methods.
 - 6. Cautions for storage, handling and installation.
- C. Selection Samples: Submit a complete set of color chips that represent the full range of manufacturer's products, colors and sheens available.
- D. Verification Samples: For each finish product specified, submit samples that represent actual product, color, and sheen.
- E. Only submit complying products based on project requirements.

1.3 QUALITY ASSURANCE

- A. Installer Qualifications: A firm or individual experienced in applying paints and coatings similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance.
- B. Paint exposed surfaces. If a color of finish, or a surface is not specifically mentioned, Architect will select from standard products, colors and sheens available.
- C. Do not paint prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels unless indicated.
- D. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
 - 1. Finish surfaces for verification of products, colors and sheens.
 - 2. Finish area designated by Architect.
 - 3. Provide samples that designate primer and finish coats.
 - 4. Do not proceed with remaining work until the Architect approves the mock-up.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver manufacturer's unopened containers to the work site. Packaging shall bear the manufacturer's name, label, and the following list of information.
 - 1. Product name, and type (description).
 - 2. Application and use instructions.
 - 3. Surface preparation.
 - 4. VOC content.
 - 5. Environmental handling.
 - 6. Batch date.
 - 7. Color number.
- B. Storage: Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.
- C. Store materials in an area that is within the acceptable temperature range, per manufacturer's instructions. Protect from freezing.
- D. Handling: Maintain a clean, dry storage area, to prevent contamination or damage to the coatings.

1.5 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

1.6 EXTRA MATERIALS

- A. Furnish extra paint materials from the same production run as the materials applied and in the quantities described below. Package with protective covering for storage and identify with labels describing contents. Deliver extra materials to Owner.
- B. Furnish Owner with an additional one percent of each material and color, but not less than 1 gal or 1 case, as appropriate.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Sherwin-Williams, which is located at: 101 Prospect Ave.; Cleveland, OH 44115; Toll Free Tel: 800-524-5979; Tel: 216-566-2000; Fax: 440-826-1989; Email: request info specifications@sherwin.com; Web: www.swspecs.com.
- B. Requests for substitutions will be considered in accordance with provisions of Section 013000.

2.2 APPLICATIONS/SCOPE

- A. Interior Paints and Coatings:

2.3 PAINT MATERIALS - GENERAL

- A. Paints and Coatings:
 - 1. Unless otherwise indicated, provide factory-mixed coatings. When required, mix coatings to correct consistency in accordance with manufacturer's instructions before application. Do not reduce, thin, or dilute coatings or add materials to coatings unless such procedure is specifically described in manufacturer's product instructions.
 - 2. For opaque finishes, tint each coat including primer coat and intermediate coats, one-half shade lighter than succeeding coat, with final finish coat as base color. Or follow

manufactures product instructions for optimal color conformance.

- B. Primers: Where the manufacturer offers options on primers for a particular substrate, use primer categorized as "best" by the manufacturer.
- C. Coating Application Accessories: Provide all primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials required, per manufacturer's specifications.
- D. Color: All colors to be selected by the Architect.

2.4 INTERIOR PAINT SYSTEMS

- A. MASONRY: CMU - Concrete, Split Face, Scored, Smooth, High Density, Low Density, Fluted.
 - 1. Epoxy Systems (Water Based):
 - a. Gloss Finish:
 - 1) 1st Coat: S-W Loxon Block Surfer, A24W200 (50-100 sq ft/gal).
 - 2) 2nd Coat: S-W Pro Industrial Water Based Catalyzed Epoxy, B73-300 Series.
 - 3) 3rd Coat: S-W Pro Industrial Water Based Catalyzed Epoxy, B73-300 Series (5.0 mils wet, 2.0 mils dry per coat).
 - b. Eg-Shel/Low Luster Finish:
 - 1) 1st Coat: S-W Loxon Block Surfer, A24W200 (50-100 sq ft/gal).
 - 2) 2nd Coat: S-W Pro Industrial Water Based Catalyzed Epoxy, B73-360 Series.
 - 3) 3rd Coat: S-W Pro Industrial Water Based Catalyzed Epoxy, B73-360 Series (5.0 mils wet, 2.0 mils dry per coat).
- B. WOOD, including MDF - (Walls, Doors, Trim):
 - 1. Alkyd Systems (Water based):
 - a. Gloss Finish:
 - 1) 1st Coat: S-W Premium Wood & Wall Primer, B28W8111 (4 mils wet, 1.8 mils dry).
 - 2) 2nd Coat: S-W Industrial Water Based Alkyd Urethane Enamel Gloss, B53-1050 Series.
 - 3) 3rd Coat: S-W Industrial Water Based Alkyd Urethane Enamel Gloss, B53-1050 Series (4.0-5.0 mils wet, 1.4 - 1.7 mils dry per coat).
 - b. Semi-Gloss Finish:
 - 1) 1st Coat: S-W Premium Wood & Wall Primer, B28W8111 (4 mils wet, 1.8 mils dry).
 - 2) 2nd Coat: S-W Industrial Water Based Alkyd Urethane Enamel Semi-Gloss, B53-1150 Series.
 - 3) 3rd Coat: S-W Industrial Water Based Alkyd Urethane Enamel Semi-Gloss, B53-1150 Series ((4.0-5.0 mils wet, 1.4 - 1.7 mils dry per coat).
 - c. Low Sheen Finish:
 - 1) 1st Coat: S-W Premium Wood & Wall Primer, B28W8111 (4 mils wet, 1.8 mils dry).
 - 2) 2nd Coat: S-W Industrial Water Based Alkyd Urethane Enamel Low Sheen, B53-1250 Series.
 - 3) 3rd Coat: S-W Industrial Water Based Alkyd Urethane Enamel Low Sheen, B53-1250 Series (4.0-5.0 mils wet, 1.4 - 1.7 mils dry per coat).
- C. DRYWALL - (Walls, Ceilings, Gypsum Board and similar items)
 - 1. Latex Systems:
 - a. Eg-Shel / Satin Finish:
 - 1) 1st Coat: S-W Premium Wall & Wood Interior Latex Primer, B28W08111 (4 mils wet, 1.8 mils dry).
 - 2) 2nd Coat: S-W Emerald Interior Latex Satin, K37 Series.

- 3) 3rd Coat: S-W Emerald Interior Latex Satin, K37 Series (4 mils wet, 1.7 mils dry per coat).
 - b. Flat Finish: Ceilings
 - 1) 1st Coat: S-W Premium Wall & Wood Interior Latex Primer, B28W08111 (4 mils wet, 1.8 mils dry).
 - 2) 2nd Coat: S-W Emerald Interior Acrylic Latex Flat. K35 Series.
 - 3) 3rd Coat: S-W Emerald Interior Acrylic Latex Flat. K35 Series (4 mils wet, 1.6 mils dry per coat).
- D. A. METAL - (Doors, Trim)

Alkyd Systems (Water based):

- a. Gloss Finish:
 - 1) 1st Coat: S-W Pro Industrial Pro-Cryl Universal Primer, B66-1310 Series (5.0-10.0 mils wet, 1.8-3.6 mils dry).
 - 2) 2nd Coat: S-W Pro Industrial Water Based Alkyd Urethane Enamel Gloss, B53-1050 Series.
 - 3) 3rd Coat: S-W Pro Industrial Water Based Alkyd Urethane Enamel Gloss, B53-1050 Series (4.0-5.0 mils wet, 1.4 - 1.7 mils dry per coat).
- b. Semi-Gloss Finish:
 - 1) 1st Coat: S-W Pro Industrial Pro-Cryl Universal Primer, B66-1310 Series (5.0-10.0 mils wet, 1.8-3.6 mils dry).
 - 2) 2nd Coat: S-W Pro Industrial Water Based Alkyd Urethane Enamel Semi-Gloss, B53-1150 Series.
 - 3) 3rd Coat: S-W Pro Industrial Water Based Alkyd Urethane Enamel Semi-Gloss, B53-1150 Series (4.0-5.0 mils wet, 1.4 - 1.7 mils dry per coat).
- c. Low Sheen Finish:
 - 1) 1st Coat: S-W Pro Industrial Pro-Cryl Universal Primer, B66-1310 Series (5.0-10.0 mils wet, 1.8-3.6 mils dry).
 - 2) 2nd Coat: S-W Pro Industrial Water Based Alkyd Urethane Enamel Low Sheen, B53-1250 Series.
 - 3rd Coat: S-W Pro Industrial Water Based Alkyd Urethane Enamel Low Sheen, B53-1250 Series (4.0-5.0 mils wet, 1.4 - 1.7 mils dry per coat).

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared; notify Architect of unsatisfactory conditions before proceeding. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
- B. Proceed with work only after conditions have been corrected and approved by all parties, otherwise application of coatings will be considered as an acceptance of surface conditions.
- C. Previously Painted Surfaces: Verify that existing painted surfaces do not contain lead based paints, notify Architect immediately if lead based paints are encountered.

3.2 SURFACE PREPARATION

- A. General: Surfaces shall be dry and in sound condition. Remove oil, dust, dirt, loose rust, peeling paint or other contamination to ensure good adhesion.
 - 1. Remove items including but not limited to thermostats, electrical outlets, switch covers and similar items prior to painting. After completing painting operations in each space or area, reinstall items removed using workers skilled in the trades involved.
 - 2. No exterior painting should be done immediately after a rain, during foggy weather, when rain is predicted or when the temperature is below 50 degrees F (10 degrees C), unless products are designed specifically for these conditions. On large expanses of metal siding, the air, surface and material temperatures must be 50 degrees F (10 degrees C) or higher to use low temperature products.
- B. Aluminum: Remove all oil, grease, dirt, oxide and other foreign material by cleaning per SSPC-SP1, Solvent Cleaning.
- C. Block (Cinder and Concrete): Remove all loose mortar and foreign material. Surface must be free of laitance, concrete dust, dirt, form release agents, moisture curing membranes, loose cement, and hardeners. Concrete and mortar must be cured at least 30 days at 75 degrees F (24 degrees C). The pH of the surface should be between 6 and 9, unless the products are designed to be used in high pH environments. On tilt-up and poured-in-place concrete, commercial detergents and abrasive blasting may be necessary to prepare the surface. Fill bug holes, air pockets, and other voids with a cement patching compound.
- D. Concrete, SSPC-SP13 or NACE 6: This standard gives requirements for surface preparation of concrete by mechanical, chemical, or thermal methods prior to the application of bonded protective coating or lining systems. The requirements of this standard are applicable to all types of cementitious surfaces including cast-in-place concrete floors and walls, precast slabs, masonry walls, and shotcrete surfaces. An acceptable prepared concrete surface should be free of contaminants, laitance, loosely adhering concrete, and dust, and should provide a sound, uniform substrate suitable for the application of protective coating or lining systems.
- E. Drywall - Interior: Must be clean and dry. All nail heads must be set and spackled. Joints must be taped and covered with a joint compound. Spackled nail heads and tape joints must be sanded smooth and all dust removed prior to painting.
- F. Drywall - Exterior: Must be clean and dry. All nail heads must be set and spackled. Joints must be taped and covered with a joint compound. Spackled nail heads and tape joints must be sanded smooth and all dust removed prior to painting. Exterior surfaces must be spackled with exterior grade compounds.
- G. Galvanized Metal: Clean per SSPC-SP1 using detergent and water or a degreasing cleaner to remove greases and oils. Apply a test area, priming as required. Allow the coating to dry at least one week before testing. If adhesion is poor, Brush Blast per SSPC-SP16 is necessary to remove these treatments.
- H. Plaster: Must be allowed to dry thoroughly for at least 30 days before painting, unless the products are designed to be used in high pH environments. Room must be ventilated while drying; in cold, damp weather, rooms must be heated. Damaged areas must be repaired with an appropriate patching material. Bare plaster must be cured and hard. Textured, soft, porous, or powdery plaster should be treated with a solution of 1 pint household vinegar to 1 gallon of water. Repeat until the surface is hard, rinse with clear water and allow to dry.
- I. Steel: Structural, Plate, And Similar Items: Should be cleaned by one or more of the surface preparations described below. These methods are used throughout the world for describing methods for cleaning structural steel. Visual standards are available through the Society of Protective Coatings. A brief description of these standards together with numbers by which

they can be specified follow.

1. Solvent Cleaning, SSPC-SP1: Solvent cleaning is a method for removing all visible oil, grease, soil, drawing and cutting compounds, and other soluble contaminants. Solvent cleaning does not remove rust or mill scale. Change rags and cleaning solution frequently so that deposits of oil and grease are not spread over additional areas in the cleaning process. Be sure to allow adequate ventilation.
 2. Hand Tool Cleaning, SSPC-SP2: Hand Tool Cleaning removes all loose mill scale, loose rust, and other detrimental foreign matter. It is not intended that adherent mill scale, rust, and paint be removed by this process. Before hand tool cleaning, remove visible oil, grease, soluble welding residues, and salts by the methods outlined in SSPC-SP1.
 3. Power Tool Cleaning, SSPC-SP3: Power Tool Cleaning removes all loose mill scale, loose rust, and other detrimental foreign matter. It is not intended that adherent mill scale, rust, and paint be removed by this process. Before power tool cleaning, remove visible oil, grease, soluble welding residues, and salts by the methods outlined in SSPC-SP1.
 4. White Metal Blast Cleaning, SSPC-SP5 or NACE 1: A White Metal Blast Cleaned surface, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, mill scale, rust, paint, oxides, corrosion products, and other foreign matter. Before blast cleaning, visible deposits of oil or grease shall be removed by any of the methods specified in SSPC-SP1 or other agreed upon methods.
 5. Commercial Blast Cleaning, SSPC-SP6 or NACE 3: A Commercial Blast Cleaned surface, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, mill scale, rust, paint, oxides, corrosion products, and other foreign matter, except for staining. Staining shall be limited to no more than 33 percent of each square inch of surface area and may consist of light shadows, slight streaks, or minor discoloration caused by stains of rust, stains of mill scale, or stains of previously applied paint. Before blast cleaning, visible deposits of oil or grease shall be removed by any of the methods specified in SSPC-SP1 or other agreed upon methods.
 6. Brush-Off Blast Cleaning, SSPC-SP7 or NACE 4: A Brush-Off Blast Cleaned surface, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, loose mill scale, loose rust, and loose paint. Tightly adherent mill scale, rust, and paint may remain on the surface. Before blast cleaning, visible deposits of oil or grease shall be removed by any of the methods specified in SSPC-SP 1 or other agreed upon methods.
 7. Power Tool Cleaning to Bare Metal, SSPC-SP11: Metallic surfaces that are prepared according to this specification, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, mill scale, rust, paint, oxide corrosion products, and other foreign matter. Slight residues of rust and paint may be left in the lower portions of pits if the original surface is pitted. Prior to power tool surface preparation, remove visible deposits of oil or grease by any of the methods specified in SSPC-SP1, Solvent Cleaning, or other agreed upon methods.
 8. Near-White Blast Cleaning, SSPC-SP10 or NACE 2: A Near White Blast Cleaned surface, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, mill scale, rust,
- J. Wood: Must be clean and dry. Prime and paint as soon as possible. Knots and pitch streaks must be scraped, sanded, and spot primed before a full priming coat is applied. Patch all nail holes and imperfections with a wood filler or putty and sand smooth.

3.3 INSTALLATION

- A. Apply all coatings and materials with the manufacturer's specifications in mind. Mix and thin coatings according to manufacturer's recommendations.
- B. Do not apply to wet or damp surfaces. Wait at least 30 days before applying to new concrete or masonry. Or follow manufacturer's procedures to apply appropriate coatings prior to 30 days. Test new concrete for moisture content. Wait until wood is fully dry after rain or morning fog or dew.

- C. Apply coatings using methods recommended by manufacturer.
- D. Uniformly apply coatings without runs, drips, or sags, without brush marks, and with consistent sheen.
- E. Apply coatings at spreading rate required to achieve the manufacturers recommended dry film thickness.
- F. Regardless of number of coats specified, apply as many coats as necessary for complete hide, and uniform appearance.
- G. Inspection: The coated surface must be inspected and approved by the Architect just prior to the application of each coat.

3.4 PROTECTION

- A. Protect finished coatings from damage until completion of project.
- B. Touch-up damaged coatings after substantial completion, following manufacturer's recommendation for touch up or repair of damaged coatings. Repair any defects that will hinder the performance of the coatings.

END OF SECTION

APPENDIX

Appendix 'A'	List of Current Vendors
Appendix 'B'	IT Scope of Work

TECHNOLOGY SCOPE OF WORK

IT EQUIPMENT ROOM/ IDF:

Supply and install the following:

1. The following is to be installed in the existing equipment rack:
48-port 8-pin modular 568B Category 6 patch panel.

Wiring:

Supply and install new work area telecommunications outlets are to consist of the following:

Work area telecommunications outlets will comprise of:

Cat 6 4-pair 24 AWG UTP plenum (CMP) rated cables for data.

At each end user location:

1. Each 4-pair cable is to terminate in its own 8-pin modular T568B connector. It must be a continuous cable run from the work area location to the horizontal cross-connect located in the IDF. Splicing will not be allowed.

Along the cable pathways:

1. Install a network of cable management “J” hooks above the suspended ceiling to create a cabling pathway from the work area to the IDF. All cable pathways are to run parallel and/or perpendicular to the outside walls.

In the Distribution Frame:

1. The data cables are to terminate on a new 48-port equipment rack mounted patch panel. This patch panel is to be an 8-pin modular T568B Category 6 type.

Identification/Labeling:

1. Each faceplate and the end of each cable is to be labeled with a consistent numbering system. Labeling is to be done in a professional manner with black on white, large font printed labels.

Testing:

1. Each Category 6 cable and pair is to be tested at 250 MHz using a Fluke DTX Cable/Analyzer. This test is to perform a full range of tests, and then compare the results to the ANSI/TIA/EIA 568B, Category 6 standard.

Standards:

1. This Scope of Work must be done in compliance with NFPA-70 (National Electrical Code), unless otherwise directed or prohibited, all applicable Telecommunications Industry Standards, and specifications presented by the customer at the time of bid.
2. Avoidance of Electromagnetic Interference (EMI) is critical for performance of the structured cabling system described in this Scope of Work. Structured Cabling System be the sole occupant of any cable pathways and spaces, including, but not limited to, cable supports and sleeves for telecommunications use. Sources of EMI introduced into the cabling pathway must be properly isolated and/or separated by their installer.

BEDFORD MIDDLE SCHOOL LIST OF CURRENT VENDORS

COMPANY	ADDRESS		CONTACT	PHONE NUMBER	EMAIL ADDRESS
Calvert Safe & Lock	300 Roosevelt Drive, Derby, CT 06418	Doors & Frames &	Jane Liscio	203-735-2137	info@calvertsafelandlock.com
Elite Electric	14 Peters Road, Trumbull, CT 06611	Elecrial Wiring	Cheryl Reardon	203-459-8234	creardon@eliteelectricct.com
Integrated Technical Systems	8 Capital Drive, Wallingford, CT 06492	Fire Alarm	Mike Sosnovich	203-265-8100	MSosnovich@integrated-tec.com
Orange Fence	205 Boston Post Rd., Orange, CT 06477	Fencing	Roy Cuzzocreo	203-799-2437	rcuzzocreo@orangefence.com
Stanley Security	30-A Progress Avenue, Seymour, CT 06483	Security	James McGovern	203-888-3746 C: 203-710-4560	jim.mcgovern@sbdinc.com
Utility Communications, Inc	920 Sherman Ave. Hamden, CT 06514	Camera's	Stephanie Seymour	(203) 287-1306	stephanies@utilitycommunications.com