



Office of Administration

PO Box 885
1087 Newell
White Cloud, Michigan 49349
Phone: (231) 689-7234
Fax: (231) 689-7205

November 21, 2025

Subject: Invitation to Submit Qualifications and Bid – Newaygo County Courthouse Renovation Project

Dear Prospective Bidders,

Newaygo County is seeking qualified contractors to submit both a Statement of Qualifications and a Bid Proposal for the renovation of the Newaygo County Courthouse, as outlined in the accompanying bid documents.

While the project as presented reflects the County's full intended scope, final selections may be influenced by budgetary considerations. The Newaygo County Board of Commissioners' goal is to achieve the most comprehensive renovation possible within the available funding. Accordingly, once a qualified contractor is selected and preliminary pricing is reviewed, the County may engage in cooperative discussions to ensure the project delivers the greatest overall impact to the facility.

Qualified bidders must demonstrate the capability to complete the full project as described in the bid documents, while understanding that the scope may be adjusted to align with budgetary realities. The County's intent is not to "piecemeal" the work but rather to prioritize improvements that provide the most significant aesthetic and functional enhancements. For example, carpeting is included, the intent would be to complete the entire building rather than limit the work by area.

The Newaygo County Board of Commissioners is eager to move forward with these long-overdue improvements to the Courthouse and appreciates your interest in participating in this important project.

Please direct all questions and correspondence to:

Christopher Wren
County Administrator
Newaygo County
1087 E. Newell St., PO Box 885
White Cloud, MI 49349
nccourthouserfb@newaygocountymi.gov
231.689.7203

Respectfully,

Christopher Wren
Newaygo County Administrator

Bid Package for:



COURTHOUSE RENOVATIONS

Project #12407

Newaygo County
1092 Newell Street
Newaygo, MI 49349

Bid Due Date: 02/03/2026

1087 E. Newell St., PO Box 885, White Cloud, MI 49337 | P: 231-689-7234 | F: 231-689-7205

nccourthousefb@newaygocountymi.gov | www.newaygocountymi.gov

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INTRODUCTION TO PROJECT

The Newaygo County Board of Commissioners (NCBOC) is soliciting proposals from qualified firms to provide renovation services for the Newaygo County Courthouse (the “Courthouse”), located at 1092 Newell Street in White Cloud, Michigan. The goal of upgrading the Courthouse is to better serve the public, employees, and judicial operations in an efficient, effective, and safe manner.

The Courthouse is the central location where Newaygo County citizens address their legal needs. On a daily basis, litigants and members of the public appear for hearings, submit and receive legal documents, and utilize public spaces within the building. The Courthouse also serves as the workplace for nearly 50 employees who process legal documents and assist the public across multiple case types.

Constructed in 1991–1992, with an office addition completed around 2002, the Courthouse now requires significant updates to meet modern operational and public service needs. The facility houses the Circuit, District, and Probate Courts, the Newaygo County Prosecuting Attorney’s Office, three courtrooms and hearing rooms, five employee office areas, public meeting rooms, and a secured entrance staffed by the Sheriff’s Department security team.

This renovation project will exclude the Newaygo County Prosecuting Attorney’s Office and the security station.

Modernization Needs

Recent updates to the Michigan Court Rules require that courtrooms be capable of accommodating remote hearings, as specified by the State Court Administrative Office (SCAO). When originally constructed, the Courthouse did not anticipate or incorporate such technology. Since the COVID-19 pandemic, employees have adapted existing infrastructure to meet these requirements; however, the building was not designed for the technological, security, and sanitation demands now expected. These inefficiencies affect both employees and the public.

This renovation project presents an opportunity to:

- Improve technology infrastructure for remote participation.
- Enhance physical spaces to support sanitation, safety, and accessibility.
- Upgrade functionality for both public-facing and employee work areas.

Governance and Oversight

The Newaygo County Courthouse serves as the center of the County’s judicial operations and is primarily occupied by judicial personnel. Oversight and responsibility for the building, however, rests with the Newaygo County Board of Commissioners (NCBOC).

The NCBOC is responsible for the stewardship of County-owned facilities, including capital planning, renovation, and long-term maintenance. Accordingly, the Board has authorized this Request for Proposals to secure a qualified contractor to carry out the Courthouse renovation.

Scope of Authority

To ensure clarity regarding roles and responsibilities:

- **Judicial Operations:** The Courthouse is home to the County's courts and judicial offices, which retain full authority over the administration of justice and all judicial activities conducted within the building.
- **Facility Oversight:** The Courthouse building, as a County-owned asset, is under the jurisdiction of the NCBOC, which is responsible for capital improvements, renovations, and facility management decisions.
- **Decision-Making:** All decisions related to the physical structure, renovation design, budget approval, and contractor selection are subject to the approval of the NCBOC.

Renovation Goals

The County intends to complete a full renovation of the facility as outlined in this bid document; however, final project elements may be refined based on available funding. The Board of Commissioners aims to maximize the overall benefit of the renovation and may work with the selected contractor to adjust the scope after reviewing initial pricing.

Bidders must be capable of performing the complete project as designed, with the understanding that the County may prioritize components that offer the greatest functional and visual improvement. The County does not intend to divide the work into isolated segments.

INVITATION TO BID

General Information

PROJECT IDENTIFICATION

- A. Project / Site Address: Newaygo County Courthouse Renovations
Newaygo County Courts
1092 Newell Street
Newaygo, Michigan 49343
- B. Owner: Newaygo County
PO Box 885
1087 E Newell Street
White Cloud, Michigan 49349

TYPES OF PROPOSALS

- A. General Contractor bids shall be submitted in one overall proposal covering all divisions and including all portions of work. Bidders shall fill in all blank spaces of required proposal forms where indicated and be signed by a person authorized to bind the bidder to a contract on behalf of submitting Company.
- B. The Contractor(s) are wholly responsible for any and all costs associated with assembling and submitting a bid, obtaining information, and any participation in post-bid interviews, etc.
- C. Only hard copies will be accepted.

TIME AND PLACE OF BID PACKAGE SUBMISSION

- A. Bids are due no later than February 3, 2026, at 11:00 am.
A Committee will review all bids, but reserves the right to reject any proposals and may opt to contact the bidder with further questions or clarifications, etc.
- B. Hard copy submissions only: personally deliver or mail sealed bids in an envelope to:

Newaygo County Clerk
1087 E. Newell St., PO Box 885
White Cloud, MI 49337

PLEASE MARK YOUR ENVELOPES: 12407 NEWAGO COUNTY COURTHOUSE BID SUBMISSION

ACCESS TO PLANS, SPECS, AND OTHER DOCUMENTATION

Bidding documents will be available via OneDrive using this link [Courthouse Renovation Project - Shared](#)

- A. The electronic files will regularly be kept up to date with any changes, additional documents, relevant information, etc., and labeled as ADDENDA 01, ADDENDA 02, so forth. It is the responsibility of bidders to ensure their bid is compliant through the latest addenda provided.

PRE-BID MEETING / SITE VISITS / REQUESTS FOR INFORMATION

- A. A pre-bid meeting will be held at 1092 Newell Street, Newaygo, Michigan 49349 on Tuesday, December 16, 2025, at 10:00 am
- B. Site visits, meetings, and any requests for information will be taken on an as-needed and ongoing basis through January 15, 2026, by emailing or calling the office of County Administrator Christopher Wren, at (231) 689-7203, nccourthousefb@newaygocountymi.gov.

SPECIFIC TO THIS REQUEST FOR PROPOSAL

- A. Due to government funding and availability, the County may choose to select and award various portions of the project versus the entirety, customizing a project tailored to their budget. Bids must be submitted to allow for line-item selection, and each line item should include a complete scope of work.

INSTRUCTIONS TO BIDDERS

DOCUMENT AND SITE REVIEW

- A. Bidders shall carefully examine the contract and project documents and visit the construction site when necessary to obtain first-hand knowledge of the existing conditions. Contractors will not be given change orders (extra payments) for conditions that can be visually determined through review of site and documents.

QUESTIONS, INTERPRETATIONS, AND ADDENDA

- A. Should any bidders find discrepancies between the drawings and specifications, or should there be doubt as to the exact meaning of an item, the County Administrator should be notified at once. The County Administrator may then, at his discretion, issue addenda to clarify the same. The County Administrator will not be responsible for oral instructions or the Contractor's misinterpretations of the drawings and specifications.
- B. Newaygo County reserves the right to issue addenda at any time prior to bid opening. All such addenda, upon issuance, shall become a part of the contract and project documents. Each bidder shall incorporate all costs for items listed in the addenda and, by submitting their bid package, acknowledge receipt of the addenda.

CONTRACTOR INSURANCE

- A. Contractors are required to carry provable insurance policies as required by and with coverage as specified by the County of Newaygo.

MODIFICATION AND WITHDRAWAL

- A. Proposals may be withdrawn and/or altered at any time prior to the final submission deadline. Proposals may not be withdrawn or altered after the deadline and therefore deemed a firm offer for (90) ninety days from the bid due date. Contractors will be notified of their award or loss of project after a decision has been made.

CODES, ORDINANCES, REGULATIONS, ETC.

- A. All labor and materials shall be furnished and installed in strict accordance with the latest bid date applicable codes, ordinances, and regulations of any governing body that has jurisdiction over this project.
- B. If the quality of the labor and materials required by the drawings and specifications exceeds the requirements of the applicable codes, ordinances, and regulations, the drawings and specifications take precedence, and vice versa, if the quality of the labor and materials required by applicable codes, ordinances, and regulations exceeds the requirements of the drawings and specifications, the applicable codes, ordinances, and regulations take precedence.

ANTICIPATED PROJECT SCHEDULE

Issued for Bidding	11/21/2025
Mandatory Pre-Bid Meeting	12/16/2025
Deadlines for Pre-Bid Questions, Requests, etc.	01/15/2026
Bids Due	02/03/2026
Estimated Time of Award	03/19/2026
Tentative Project Start	Spring of 2026
Estimated Project Close Out	Winter of 2026

The existing building and its operations must remain usable and functional during the construction process. The contractor will have to coordinate activity and scheduling throughout the construction process. Anticipated schedule subject to change.

Planning and Coordination

- a. All work is to be coordinated and scheduled in advance through Christopher Wren as the Facility Oversight representative and Wendy Jarvis as the Judicial Operations representative:
Christopher Wren
County Administrator
Newaygo County
(231) 689-7203
nccourthouserfb@newaygocountymi.gov
Wendy Jarvis
Trial Courts Administrator
Newaygo County
(231) 689-7251
wendy.jarvis@newaygocountymi.gov
- b. Work Schedule: Contractor shall arrange for work to be done during regular business hours which are 8:00 am to 5:00 pm, Monday through Friday, excluding holidays, unless otherwise agreed upon by County Administrator and Court Administrator, with the exception of any power shutdown to the building that may be needed during construction which must be arranged for in advance and completed after-hours.
- c. Renovation work within the courtrooms must be scheduled in close coordination with court operations to avoid disruption to judicial proceedings. Contractors are expected to develop a detailed project schedule that aligns with court dockets and operational needs. Timely completion of work is essential. Once a schedule is established and approved, the contractor must adhere to the agreed-upon timeframe.

PROPOSAL FORM

CONTRACTOR NAME: _____

FOR PROJECT: 12407_Newaygo County Courthouse Renovations

FORWARD BID TO: Newaygo County Clerk
1087 E. Newell St., PO Box 885
White Cloud, Michigan 49349

The undersigned agrees to the performance of the work as stated in the scope of work for the following bid sum (provide the amount in both words and figures: the amount in words governs in the event of discrepancies).

Additionally, the undersigned, having examined the scope of the work, including the instructions to contractors, project documentation and scheduling requirements, and being familiar with all conditions affecting this project, hereby proposes to furnish the material, labor, and services necessary to perform and complete the work as indicated for this request in accordance with the documents for the sums and under the conditions as follows:

PROPOSED TOTAL
(not-to-exceed amount) _____

AMOUNT IN WORDS: _____

TO INCLUDE WITH BID SUBMITTAL:

1. Technical Qualifications
2. General Contractor License
3. Certificate of Insurances
4. Detailed scope of work broken down by division

– SIGNATURE PAGE TO FOLLOW –

SIGNATURE PAGE

Upon notification of the acceptance of the proposal, the County will execute a contract to the undersigned for the enclosed stated work for the enclosed stated compensation. The undersigned further agrees, if awarded the contract, to complete all the improvements as specified within the contract and project documents.

The qualification and experience of the Contractor, the amount of the bid, among other factors will be considered when determining the award of contract.

Signature

Title

Printed Name

Company

Company Address

Email Address

Phone Number

Date

– SCHEDULE OF VALUES TO FOLLOW –

SCHEDULE OF VALUES

DIVISION NAME	DIVISION TOTAL	SECTION TOTAL
01 – GENERAL CONDITIONS		
02 – DEMOLITION		
	02 – REMOVAL OF FRAMED WALLS AND BENCHES	
	02 – REMOVAL OF FLOORING AND BASE	
	02 – REMOVAL OF CEILING TILE AND GRIDS	
06 – CARPENTRY		
	06 – JUDGES’ BENCHES	
	06 – CEILING GRID REWORK AND TILE REPLACEMENT	
08 – DOORS & WINDOWS		
09 – FINISHES		
	09 – FLOORING	
	09 – PAINTING	
12 – FURNISHINGS		
	12 – COURTHOUSE PEWS	
13 – TECH UPGRADES		

DIVISION 01 GENERAL CONDITIONS

This section does not necessarily include the entire scope for any one trade.
Refer to the drawings and bid documents for all applicable work.

Contractor shall perform all work in a good and workmanlike manner, in accordance with the plans and specifications, and with the highest standards of safety and the construction industry. All work shall be performed in compliance with all OSHA and applicable state and building codes and regulations.

SUMMARY

Furnish all materials, equipment, and perform services and labor to execute all requirements defined herein and within the project documents and drawings.

Contractors are required and not limited to provide the following for the duration of the project:

A) Scope of Work

- 1) Construction Manager / Superintendent
- 2) General cleanup
- 3) Waste receptables with disposal
- 4) Applicable permitting, applications and fees, inspections
- 5) Required submittals
- 6) Safety equipment
- 7) Construction signage
- 8) Mobilization

B) Exclusions

- 1) None

Conforming with bidding and contract documents, performance and technical specifications, and all other contract conditions defined in the bid documents.

DIVISION 02 DEMOLITION

This section does not necessarily include the entire scope for any one trade.
Refer to the drawings and bid documents for all applicable work.

Contractor shall perform all work in a good and workmanlike manner, in accordance with the plans and specifications, and with the highest standards of safety and the construction industry. All work shall be performed in compliance with all OSHA and applicable state and building codes and regulations.

SUMMARY

Furnish all materials, equipment, and perform services and labor to execute all requirements defined herein and within the project documents and drawings.

Contractors are required and not limited to provide the following for the duration of the project:

A) Scope of Work

Demolition

- 1) Removal of blockwalls
- 2) Removal of framed walls and benches
- 3) Removal of doors
- 4) Removal of flooring and base
- 5) Ceiling tile and grid removal

B) Exclusions

- 1) None

Conforming with bidding and contract documents, performance and technical specifications, and all other contract conditions defined in the bid documents.

**DIVISION 06
CARPENTRY**

This section does not necessarily include the entire scope for any one trade.
Refer to the drawings and bid documents for all applicable work.

Contractor shall perform all work in a good and workmanlike manner, in accordance with the plans and specifications, and with the highest standards of safety and the construction industry. All work shall be performed in compliance with all OSHA and applicable state and building codes and regulations.

SUMMARY

Furnish all materials, equipment, and perform services and labor to execute all requirements defined herein and within the project documents and drawings.

Contractors are required and not limited to provide the following for the duration of the project:

A) Scope of Work

- 1) New walls
- 2) New ramps
- 3) Stairs
- 4) Judges' benches
- 5) Ceiling grid rework
- 6) Ceiling tile replacement
- 7) Drywall patching
- 8) Drywall install on new walls

Millwork

- 1) All wood finishes for Judges' benches
- 2) All wood finishes for new full Judge / Jury
- 3) Half walls and dividing walls
- 4) ArmorCore level 3 installed at Judges' benches

B) Exclusions

- 1) None

Conforming with bidding and contract documents, performance and technical specifications, and all other contract conditions defined in the bid documents.

ACOUSTICAL CEILINGS

A) Submittals

- 1) Product Data: Submit manufacturer's technical data for each type of acoustical ceiling unit and suspension system required.
- 2) Shop Drawings: Layout and details of acoustical ceilings show locations of items that are to be coordinated with or supported by the ceilings.
- 3) Certifications: Manufacturer's certifications that products comply with specified requirements, including laboratory reports showing compliance with specified tests and standards. For acoustical performance, each carton of material must carry an approved independent laboratory classification of NRC, CAC, and AC.

B) System Description

- 1) Suspension System Only

C) Sustainable Materials

Transparency: Manufacturers will be given preference when they provide documentation to support sustainable requirements for the following: Material ingredient transparency, Removal of Red List Ingredients per LBCV3, Life Cycle impact information, Low-Emitting Materials, and Clean Air performance.

- 1) Health Product Declaration. The end use product has a published, complete Health Product Declaration with disclosure at a minimum of 1000ppm of known hazards in compliance with the Health Product Declaration open Standard.
- 2) Declare Label. The end use product has a published Declare label by the International Living Future Institute with disclosure of 100 ppm with a designation of Red List Free or Compliant (less than 1% proprietary ingredients).
- 3) Low Emitting products with VOC emissions data. Preference will also be given to manufacturers that can provide emissions data showing their products meet CDHP Standard Method v1.1 (Section 01350).
- 4) Life cycle analysis. Products that have communicated lifecycle data through Environmental Product Declarations (EPDs) will be preferred.
- 5) End of Life Programs/Recycling: Where applicable, manufacturers that provide the option for recycling of their products into new products at end-of-life through take-back programs will be preferred.
- 6) Products meeting LEED V4 requirements including:
 - a) Storage & Collection of Recyclables.
 - b) Construction and Demolition Waste Management Planning.
 - c) Building Life-Cycle Impact Reduction.
 - d) Building Product Disclosure and Optimization Environmental Product Declarations.
 - e) Building Product Disclosure and Optimization Sourcing of Raw Materials.
 - f) Building Product Disclosure and Optimization Material Ingredients.
 - g) Construction and Demolition Waste Management.

D) Quality Assurance

- 1) Single-Source Responsibility: Provide acoustical panel units and grid components by a single manufacturer
- 2) Fire Performance Characteristics: Identify acoustical ceiling components with appropriate markings of applicable testing and inspecting organization.

- a) Surface Burning Characteristics: As follows, tested per ASTM E 84 and complying with ASTM E 1264 Classification.
- b) Fire Resistance: As follows tested per ASTM E119 and listed in the appropriate floor or roof design in the Underwriters Laboratories Fire Resistance Directory.
- 3) Acoustical Panels: As with other architectural features located at the ceiling, may obstruct or skew the planned fire sprinkler water distribution pattern through possibly delay or accelerate the activation of the sprinkler or fire detection systems by channeling heat from a fire either toward or away from the device. Designers and installers are advised to consult a fire protection engineer, NFPA 13, or their local codes for guidance where automatic fire detection and suppression systems are present.
- 4) Coordination of Work: Coordinate acoustical ceiling work with installers of related work including, but not limited to building insulation, gypsum board, light fixtures, mechanical systems, electrical systems, and sprinklers.

E) Delivery, Storage, and Handling

- 1) Deliver acoustical ceiling units to project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination, and other causes.
- 2) Before installing acoustical ceiling units, permit them to reach room temperature and a stabilized moisture content.
- 3) Handle acoustical ceiling units carefully to avoid chipping edges or damaged units in any way.

F) Products

- 1) Metal Suspension Systems
 - a) Components: Main beams and cross tees, base metal and end detail, fabricated from commercial quality hot dipped galvanized steel complying with ASTM A 653. Main beams and cross tees are double-web steel construction with type exposed flange design. Exposed surfaces chemically cleansed, capping prefinished galvanized steel in baked polyester paint. Main beams and cross tees shall have rotary stitching.
 - (i) Structural Classification: ASTM C 635 Heavy Duty
 - (a) Color: White (custom colors are available to match Ultima Create! ceiling panels)
 - (ii) Main beams: Length 12ft. web height 2 7/16" with peaked roof top bulb and 15/16 inch bottom flange, item 730145
 - (iii) Cross tee: Length 4ft. web height 2 7/16 inch" with peaked roof top bulb and 15/16 inch bottom flange, item XL7345
 - (iv) Cross Tee: Length 2ft. web height 2 7/16" with peaked roof top bulb and 15/16 inch bottom flange, item XL7325
 - b) Attachment Devices: Size for five times design load indicated in ASTM C 635, Table 1, Direct Hung unless otherwise indicated.
 - c) Edge Moldings and Trim:
 - d) Accessories:
 - (i) Prelude Max Hanging Clip (PMHC)
 - (a) Increases main beam to cross tee connection strength and carry system load with 3/8" threaded rod from structure.
 - (b) Carries the system load with 3/8" threaded rod from structure when plenum obstructions prevent the use of the PMHC Clip at the main beam and cross tee intersection.

- (ii) Prelude XL Mas Load Connector (PMLC)
 - (a) Supports bus bar, cable trays and other components with 3/8" threaded rod along the suspension system face.
- (iii) Intersection Joint Clip (IJC)
 - (a) Increases main beam to cross tee connection strength.
- (iv) Cross Tee Adapter Clip (XTAC)
 - (a) Attaches cross tee or main beams to the structural wall molding.
- (v) Top Lock Main Beam Splice Clip (TLMBS)
 - (a) Locks two main beams together for a secure connection.
- (vi) Prelude XL Max Hold Down Clip (PMHDC)
 - (a) Holds ceiling planes in place, helps prevent ceiling panel movement.
- (vii) Structural Wall Angle (SWA9878HRC)
- (viii) Attachment Devices: Size for five times design load indicated in ASTM C 635, Table 1, Direct Hung unless otherwise indicated

G) Examination

- 1) Do not proceed with installation until all wet work such as concrete, terrazzo, plastering and painting has been completed and thoroughly dried out, unless expressly permitted by manufacturer's printed recommendations. (Exception: HumiGuard Max Ceilings)

H) Preparation

- 1) Measure each ceiling area and establish layout of acoustical units to balance border widths at opposite edges of each ceiling. Avoid use of less than half width units at borders, and comply with reflected ceiling plans. Coordinate panel layout with mechanical and electrical fixtures.
- 2) Coordination: Furnish layouts for preset inserts, clips, and other ceiling anchors whose installation is specified in other sections. Furnish concrete inserts and similar devices to other trades for installation well in advance of time needed for coordination of other work.

I) Installation

- 1) Follow manufacturer installation instructions.
- 2) Install suspension system and panels in accordance with the manufacturer's instructions, and in compliance with ASTM C 636 and with the authorities having jurisdiction.
- 3) Install Prelude Max Hanging Clip at main beam to cross-tee locations at minimum of 4' on-center to strengthen and carry the system with 3/8"-16 threaded rod - ASTM rated from structure. Refer to manufacturer's technical data for load carrying capacity.
- 4) Install Prelude XL Max Load Connector used to support bus bars, cable trays and other components with 3/8"-16 threaded rod.
- 5) Use Prelude Max Hanging Clips to carry ceiling system with 3/8"-16 threaded rod from any route location along the main beam when plenum obstructions prevent the use of the Intersection Hanging Clip. Refer to manufacturer's Technical Guide for load carrying capacity information.
- 6) Install wall moldings at intersection of suspended ceiling and vertical surfaces. Miter corners where wall moldings intersect or install corner caps.

J) Adjusting and Cleaning

- 1) Replace damaged and broken panels.

- 2) Clean exposed surfaces of acoustical ceilings, including trim, edge moldings, and suspension members. Comply with the manufacturer's instructions for cleaning and touch-up of minor finish damage. Remove any ceiling products that cannot be successfully cleaned and or repaired. Replace with attic stock or new product to eliminate evidence of damage.
- 3) Before disposing of ceilings, contact the Manufacturers Recycling Center to review with a consultant the condition and location of the building where the ceilings will be removed. The consultant will verify the condition of the material and that it meets their requirements for recycling. The manufacturer's consultant will provide assistance to facilitate the recycling of the ceiling.

BULLET RESISTANT PANEL

A) Submittals

- 1) UL LISTING Verification and UL752 Current Test Results as provided by Underwriters Laboratories.
- 2) Printed data in sufficient detail to indicate compliance with the contract documents.
- 3) ASTM E119-98 One-Hour Fire Rating of Building Construction and Materials.
- 4) ASTM F1233-98 Standard Test Method for Forced Entry Testing of Materials/Assemblies.
- 5) Manufacturer's Instructions for installation of Bullet Resistant Fiberglass Panels.

B) Design

- 1) Through the design, manufacturing technique and material application the Bullet Resistant Fiberglass shall be of the "non ricochet type." This design is intended to permit the encapture and retention of an attacking projectile lessening the potential of a random injury or lateral penetration.

C) Delivery, Handling, and Storage

- 1) Deliver the materials to the project with the manufacturer's UL LISTED Labels intact and legible.
- 2) Handle the material with care to prevent damage. Store the materials inside under cover, stack flat and off the floor.

D) Materials

- 1) The panels shall be made of multiple layers of woven roving ballistic grade fiberglass cloth impregnated with a thermoset polyester resin and compressed into flat rigid sheets. The production technique and materials used shall provide the controlled internal delamination to defeat the penetrating projectile.
- 2) Bullet Resistant Fiberglass panels: 7/16" nominal thickness, and 4.8 lbs. per sq. ft. nominal weight.

E) Security Level

- 1) The Bullet Resistant Fiberglass will be warranted to meet the requirements of UL752 **Level 3**.

F) Execution

- 1) Supporting Members
 - a) Prior to installing the bullet resistive material the contractor shall verify that all supports have been installed as required by the contract documents and the architectural drawings.
- 2) Joints
 - a) All joints shall be reinforced by a back-up layer of bullet resistive material. The bullet resistance of the joint, as reinforced, shall be at least equal to that of the panel. Minimum width of reinforcing layer at joint shall be 4-inches (2" on each panel or a 2" minimum overlap).
- 3) Application

- a) Armor shall be installed in accordance with the manufacturer's printed recommendations. Armor panels shall be adhered using an industrial adhesive, mastic, screws or bolts. Method of application shall maintain the bullet resistive rating at junctures with the concrete floor slab, the concrete roof slab, the bullet resistive door frames, the bullet resistive window frames, and all required penetrations.

DRYWALL

A) Submittals

- 1) Product data for each type of product

B) Products

- 1) Performance Requirements
 - a) Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.
 - b) STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.
- 2) Interior Gypsum Board
 - a) Gypsum Board, Type X: ASTM C 1396/C 1396M.
 - (i) Thickness: 5/8 inch.
 - (ii) Long Edges: Tapered and featured (rounded or beveled) for prefilling.
- 3) Trim Accessories
 - a) Interior Trim: ASTM C 1047.
 - (i) Material: Galvanized or aluminum-coated steel sheet, rolled zinc, plastic, or paper-faced galvanized steel sheet.
- 4) Joint Treatment Materials
 - a) General: Comply with ASTM C 475/C 475M.
 - b) Joint Tape:
 - (i) Interior Gypsum Board: Paper.
 - c) Joint Compound for Interior Gypsum Board: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.
- 5) Auxiliary Materials
 - a) Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.
 - b) Steel Drill Screws: ASTM C 1002, unless otherwise indicated.
 - c) Sound Attenuation Blankets: As specified in Section 072100 "Thermal Insulation."
 - d) Acoustical Joint Sealant: ASTM C 834. Product effectively reduces airborne sound transmission through perimeter joints and openings as demonstrated by testing according to ASTM E 90.
 - (i) Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - (a) Accumetric LLC; BOSS 824 Acoustical Sound Sealant.
 - (b) Grabber Construction Products; Acoustical Sealant GSC.
 - (c) Pecora Corporation; AC-20FTR.

- (d) Specified Technologies, Inc.; Smoke N Sound Acoustical Sealant.
- (e) USG Corporation; SHEETROCK Acoustical Sealant.
- e) Thermal Insulation: As specified in Section 072100 "Thermal Insulation."
- f) Vapor Retarder: As specified in Section 072100 "Thermal Insulation."

C) Execution

1) Applying and Finishing Panels

- a) Comply with ASTM C 840.
- b) Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.
- c) 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.
- d) Install 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.
 - (i) Control Joints: Install control joints according to ASTM C 840 and in specific locations approved by Architect for visual effect.
- e) Prefill open joints, rounded or beveled edges, and damaged surface areas.
- f) Smooth tapered edges for substrates to wall base.
- g) Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.
- h) Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840:
 - (i) Level 1: Ceiling plenum areas, concealed areas, and where indicated.
 - (ii) Level 2: Panels that are substrate for tile.
 - (iii) Level 4: At panel surfaces that will be exposed to view unless otherwise indicated.
 - (a) Primer and its application to surfaces are specified in Section 099123 "Interior Painting."
- i) Protect adjacent surfaces from drywall compound and texture finishes and promptly remove from floors and other non-drywall surfaces. Repair surfaces stained, marred, or otherwise damaged during drywall application.
- j) Remove and replace panels that are wet, moisture damaged, and mold damaged.

NON-STRUCTURAL METAL FRAMING (STEEL STUDS)

A) Products

1) Framing Systems

- a) Steel Studs and Runners: ASTM C 645. Use either steel studs and runners or dimpled steel studs and runners of equivalent minimum base-metal thickness.
 - (i) Minimum Base-Metal Thickness: 0.018 inch. See drawings for locations that require thicker metal.
 - (ii) Depth: As indicated on Drawings.
- b) Slip-Type Head Joints: Where indicated, provide one of the following in thickness not less than indicated for studs and in width to accommodate depth of studs:
 - (i) Single Long-Leg Runner System: ASTM C 645 top runner with 2-inch deep flanges, 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.
 - (ii) Double-Runner System: ASTM C 645 top runners, inside runner with 2-inch deep flanges and fastened to studs, and outer runner sized to friction fit inside runner.
 - (iii) Deflection Track: Steel sheet top runner manufactured to prevent cracking of finishes due to deflection of structure above.
- c) Firestop Tracks: Manufactured to allow partition heads to expand and contract with movement of the structure while maintaining continuity of fire-resistance-rated assembly indicated; in thickness not less than indicated for studs and in width to accommodate depth of studs.
- d) Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated.
 - (i) Minimum Base-Metal Thickness: 0.018 inch.
- e) Cold-Rolled Channel Bridging: Steel, 0.053-inch minimum base-metal thickness, with minimum 1/2-inch-wide flanges.
 - (i) Depth: 1-1/2 inches.
 - (ii) Clip Angle: Not less than 1-1/2 by 1-1/2 inches, 0.068-inch-thick, galvanized steel.

2) Auxiliary Materials

- a) Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.
- b) Isolation Strip at Exterior Walls: Provide asphalt saturated organic felt or foam gasket.

B) Execution

1) Installation, General

- a) Installation Standard: ASTM C 754.
 - (i) Gypsum Board Assemblies: Also comply with requirements in ASTM C 840 that apply to framing installation.
- b) Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.
- c) Install bracing at terminations in assemblies.
- d) Do not bridge building control and expansion joints with non-load bearing steel framing members. Frame both sides of joints independently.

2) Installing Framed Assemblies

- a) Install framing system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.
- b) Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.

- c) Install studs so flanges within framing system point in same direction.
- d) Install tracks (runners) at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts penetrating partitions above ceiling.
 - (i) Slip-Type Head Joints: Where framing extends to overhead structural supports, install to produce joints at tops of framing systems that prevent axial loading of finished assemblies.
 - (ii) Door Openings: Screw vertical studs at jambs to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.
 - (a) Install two studs at each jamb unless otherwise indicated.
- e) Other Framed Openings: Frame openings other than door openings the same as required for door openings unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.
- f) Fire-Resistance-Rated Partitions: Install framing to comply with fire-resistance-rated assembly indicated and support closures and to make partitions continuous from floor to underside of solid structure.
 - (i) Firestop Track: Where indicated, install to maintain continuity of fire-resistance-rated assembly indicated.
- g) Sound-Rated Partitions: Install framing to comply with sound-rated assembly indicated.

ROUGH CARPENTRY (WOOD FRAMING)

A) Submittals

- 1) Submit in accordance with shop drawings, product data, and samples.
- 2) Shop Drawings showing framing connection details, fasteners, connections and dimensions.
- 3) Manufacturer's Literature and Data:
 - a) Submit data for lumber, panels, hardware and adhesives.
 - b) Submit data for wood-preservative treatment from chemical treatment manufacturer and certification from treating plants that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
 - c) Submit data for fire retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include physical properties of treated materials based on testing by a qualified independent testing agency.
 - d) For products receiving a waterborne treatment, submit statement that moisture content of treated materials was reduced to levels specified before shipment to project site.
- 4) Manufacturer's certificate for unmarked lumber.

B) Product Delivery, Storage and Handling

- 1) Protect lumber and other products from dampness both during and after delivery at site.
- 2) Pile lumber in stacks in such manner as to provide air circulation around surfaces of each piece.
- 3) Stack plywood and other board products so as to prevent warping.
- 4) Locate stacks on well drained areas, supported at least 152 mm (6 inches) above grade and cover with well-ventilated sheds having firmly constructed over hanging roof with sufficient end wall to protect lumber from driving rain.

C) Quality Assurance

- 1) Installer: A firm with a minimum of three (3) years' experience in the type of work required by this section.

D) Grading And Markings

- 1) Any unmarked lumber or plywood panel for its grade and species will not be allowed on VA Construction sites for lumber and material not normally grade marked, provide manufacturer's certificates (approved by an American Lumber Standards approved agency) attesting that lumber and material meet the specified the specified requirements.

E) Products

- 1) Lumber
 - a) Unless otherwise specified, each piece of lumber must bear grade mark, stamp, or other identifying marks indicating grades of material, and rules or standards under which produced.
 - (i) Identifying marks are to be in accordance with rule or standard under which material is produced, including requirements for qualifications and authority of the inspection organization, usage of authorized identification, and information included in the identification.
 - (ii) Inspection agency for lumber approved by the Board of Review, American Lumber Standards Committee, to grade species used.

- b) Structural Members: Species and grade as listed in the AFPA NDS having design stresses as shown.
 - c) Lumber Other Than Structural:
 - (i) Unless otherwise specified, species graded under the grading rules of an inspection agency approved by Board of Review, American Lumber Standards Committee.
 - (ii) Framing lumber: Minimum extreme fiber stress in bending of 7584 kPa (1100 PSI).
 - (iii) Furring, blocking, nailers and similar items 101 mm (4 inches) and narrower Standard Grade; and, members 152 mm (6 inches) and wider, Number 2 Grade.
 - (iv) Board Sub-flooring: Shiplap edge, 25 mm (1 inch) thick, not less than 203 mm (8 inches) wide.
 - d) Sizes:
 - (i) Conforming to PS20.
 - (ii) Size references are nominal sizes, unless otherwise specified, actual sizes within manufacturing tolerances allowed by standard under which produced.
 - e) Moisture Content:
 - (i) Maximum moisture content of wood products is to be as follows at the time of delivery to site.
 - (a) Boards and lumber 50 mm (2 inches) and less in thickness: 19 percent or less.
 - (b) Lumber over 50 mm (2 inches) thick: 25 percent or less.
 - f) Fire Retardant Treatment:
 - (i) Comply with Mil Spec. MIL-L-19140.
 - (ii) Treatment and performance inspection, by an independent and qualified testing agency that establishes performance ratings.
 - g) Preservative Treatment:
 - (i) Do not treat Heart Redwood and Western Red Cedar.
 - (ii) Treat wood members and plywood exposed to weather or in contact with plaster, masonry or concrete, including framing of open roofed structures; sills, sole plates, furring, and sleepers that are less than 610 mm (24 inches) from ground; nailers, edge strips, blocking, crickets, curbs, cant, vent strips and other members provided in connection with roofing and flashing materials.
 - (iii) Treat other members specified as preservative treated (PT).
 - (iv) Preservative treat by the pressure method complying with AWPA Book use category system standards U1 and T1, except any process involving the use of Chromated Copper Arsenate (CCA) or other agents classified as carcinogenic for pressure treating wood is not permitted.
- 2) Plastic Lumber
- a) General:
 - (i) Allowable loads and spans, as documented in evaluation reports or in information referenced in evaluation reports, are not to be less than design loads and spans indicated on contract documents.
 - (ii) Restricted to exterior use only.
 - b) Composite Plastic Lumber: Shapes made from a mixture of cellulose fiber and polyethylene or polypropylene.
 - (i) Provide lumber with a minimum of 75 percent recycled content with a minimum of 25 percent post-consumer recycled content.
 - (ii) Decking Standard: ICC-ES AC109 or ICC-ES AC174.
 - (iii) Shear Parallel to Length: Maximum 6894 kPa (1,000 psi) in accordance with ASTM D2344/D2344M.
 - (iv) Density: ASTM D6111.
 - (v) Compressive Strength:
 - (a) Secant Modulus: Minimum 482,633 kPa (70,000 psi) in accordance with ASTM D6108.
 - (b) Stress at 3 percent strain: Minimum 10,342 kPa (1,500 psi) in accordance with ASTM D6108.
 - (c) Compression Parallel to Grain: Minimum 20,684 kPa (3,000 psi) in accordance with ASTM D6112.

- (d) Compression Perpendicular to Grain: Minimum 6,894 kPa (1,000 psi) in accordance with ASTM D6112.
- (vi) Flexural Strength: Minimum 13,789 kPa (2,000 psi) in accordance with ASTM D6109.
- (vii) Tensile Strength: Minimum 8618 kPa (1,250 psi) in accordance with ASTM D198.
- (viii) Surface Texture: Woodgrain, Smooth
- (ix) Color: As indicated in Finish Schedules
- c) All-Plastic Lumber: Shapes made from high-density polyethylene (HDPE), PVC, polystyrene, or cellular PVC with no cellulose fiber.
 - (i) Provide lumber with a minimum of 75 percent recycled content with a minimum of 25 percent of post-consumer recycled content.
 - (ii) Decking Standard: ICC-ESAC174.
 - (iii) Shear Parallel to Length: Maximum 6,894 kPa (1,000 psi) in accordance with ASTM D2344/D2344M.
 - (iv) Density: ASTM D6111.
 - (v) Compressive Strength:
 - (a) Secant Modulus: Minimum 482,633 kPa (70,000 psi) in accordance with ASTM D6108.
 - (b) Stress at 3 percent strain: Minimum 10,342 kPa (1,500 psi) in accordance with ASTM D6108.
 - (c) Compression Parallel to Grain: Minimum 20,684 kPa (3,000 psi) in accordance with ASTM D6112.
 - (d) Compression Perpendicular to Grain: Minimum 6,894 kPa (1,000 psi) in accordance with ASTM D6112.
 - (vi) Flexural Strength: Minimum 13,789 kPa (2,000 psi) in accordance with ASTM D6109.
 - (vii) Tensile Strength: Minimum 8618 kPa (1,250 psi) in accordance with ASTM D198.
 - (viii) Surface Texture: Woodgrain, Smooth
 - (ix) Color: // // // As indicated in Section 09 06 00, SCHEDULE FOR FINISHES //
- 3) Plywood
 - a) Comply with PS1.
 - b) Bear the mark of a recognized association or independent inspection agency that maintains continuing control over quality of plywood which identifies compliance by veneer grade, group number, span rating where applicable, and glue type.
 - c) Sheathing:
 - (i) APA rated Exposure 1 or Exterior; panel grade CD or better.
 - (ii) Wall sheathing:
 - (a) Minimum 9 mm (11/32 inch) thick with supports 406 mm (16 inches) on center and 12 mm (15/32 inch) thick with supports 610 mm (24 inches) on center unless specified otherwise.
 - (b) Minimum 1200 mm (48 inches) wide at corners without corner bracing of framing.
 - (iii) Roof sheathing:
 - (a) Minimum 9 mm (11/32 inch) thick with span rating 24/0 or 12 mm (15/32 inch) thick with span rating for supports 406 mm (16 inches) on center unless specified otherwise.
 - (b) Minimum 15 mm (19/32 inch) thick or span rating of 40/20 or 18 mm (23/32 inch) thick or span rating of 48/24 for supports 610 mm (24 inches) on center.
 - d) Subflooring:
 - (i) Under finish wood flooring or underlayment:
 - (a) APA Rated sheathing, Exposure 1, panel grade CD.
 - (b) Minimum 15 mm (19/32 inch) thick with span rating 32/16 or greater for supports at 406 mm (16 inches) on center and 18.25 mm (23/32 inch) thick with span rating 48/24 for supports at 610 mm (24 inches) on center.
 - (ii) Combination subflooring-underlayment under resilient flooring or carpet:
 - (a) APA Rated Stud-I-Floor Exterior or Exposure 1, T and G.

- (b) Minimum 15 mm (19/32 inch) thick or greater, span rating 16, for supports at 406 mm (16 inches) on center; 18 mm (23/32 inch) thick or greater, span rating 24, for supports at 610 mm (24 inches) on center.
- (c) Minimum 19 mm (3/4-inch) thick or greater, span rating 32, for supports at 812 mm (32 inches) on center; 28 mm (1-1/8 inch) thick, span rating 48 for supports at 1219 mm (48 inches) on center. //
- e) Underlayment:
 - (i) APA rated Exposure 1 or Exterior, panel grade C-C Plugged.
 - (ii) Minimum 6 mm (1/4 inch) thick or greater over plywood subflooring // and 9 mm (3/8 inch) thick or greater over board subflooring, // unless otherwise shown.
- 4) Structural-Use Panels:
 - a) Comply with APAE30.
 - b) Bearing the mark of a recognized association or independent agency that maintains continuing control over quality of panel which identifies compliance by end use, Span Rating, and exposure durability classification.
 - c) Wall and Roof Sheathing:
 - (i) APA Rated sheathing panels, durability classification of Exposure 1 or Exterior Span Rating of 16/0 or greater for supports 406 mm (16 inches) on center and 24/0 or greater for supports 610 mm (24 inches) on center.
 - d) Subflooring:
 - (i) Under finish wood flooring or underlayment:
 - (a) APA rated sheathing panels, durability classification of Exposure 1 or Exterior.
 - (b) Span Rating of 24/16 or greater for supports 406 mm (16 inches).
 - (ii) Under resilient floor or carpet.
 - (a) APA rated combination subfloor-underlayment grade panels, durability classification of Exposure 1 or Exterior T and G.
 - (iii) Span Rating of 16 or greater for supports 406 mm (16 inches) on center and 24 or greater for supports 610 mm (24 inches) on center.
 - e) Underlayment:
 - (i) APA rated Exposure 1.
 - (ii) Minimum 6 mm (1/4 inch) thick or greater over subfloor.
 - f) Wood "I" Beam Members:
 - (i) Size and Shape as indicated in contract documents.
 - (ii) Cambered and marked "TOP UP".
 - (iii) Plywood webs: PS-1, minimum 9 mm (3/8 inch) thick, unless shown otherwise.
 - (iv) Flanges: Kiln dried stress rated dense lumber minimum 38 mm (1 1/2 inch) thick, width as indicated on contract documents.
 - (v) Plywood web fitted into flanges and joined with ASTM D2559 adhesive to form "I" beam section unless shown otherwise.
 - g) Laminated Veneer Lumber (LVL):
 - (i) Bonded jointed wood veneers with ASTM D2559 adhesive.
 - (ii) Scarf jointed wood veneers with grain of wood parallel.
 - (iii) Size as indicated on contract documents.
- 5) Rough Hardware and Adhesives:
 - a) Anchor Bolts:
 - (i) ASME B18.2.1 and ASME B18.2.2 galvanized, 13 mm (1/2 inch) unless shown otherwise.
 - (ii) Extend at least 203 mm (8 inches) into masonry or concrete with ends bent 50 mm (2 inches).
 - b) Miscellaneous Bolts: Expansion Bolts: C1D A-A-55615; lag bolt, long enough to extend at least 65 mm (2-1/2 inches) into masonry or concrete. Provide 13 mm (1/2 inch) bolt unless shown otherwise.

- c) Washers
 - (i) ASTM F844.
 - (ii) Provide zinc or cadmium coated steel or cast iron for washers exposed to weather.
- d) Screws:
 - (i) Wood to Wood: ASME B18.6.1 or ASTM C1002.
 - (ii) Wood to Steel: ASTM C954, or ASTM C1002.
- e) Nails:
 - (i) Size and type best suited for purpose unless noted otherwise. Provide aluminum-alloy nails, plated nails, or zinc-coated nails, for nailing wood work exposed to weather and on roof blocking.
 - (ii) ASTM F1667:
 - (a) Common: Type I, Style 10.
 - (b) Concrete: Type I, Style 11.
 - (c) Barbed: Type I, Style 26.
 - (d) Underlayment: Type I, Style 25.
 - (e) Masonry: Type I, Style 27.
 - (f) Provide special nails designed for use with ties, strap anchors, framing connectors, joists hangers, and similar items. Nails not less than 32 mm (1-1/4 inches) long, 8d and deformed or annular ring shank.
- f) Framing and Timber Connectors:
 - (i) Fabricate of ASTM A653/A653M, Grade A; steel sheet not less than 1.3 mm (0.052 inch) thick unless specified otherwise. Apply standard plating to steel timber connectors after punching, forming and assembly of parts.
 - (ii) Framing Angles: Angle designed with bendable legs to provide three (3) way anchors.
 - (iii) Straps:
 - (a) Designed to provide wind and seismic ties with sizes as shown or specified.
 - (b) Strap ties not less than 32 mm (1-1/4 inches) wide.
 - (c) Punched for fastener.
 - (iv) Metal Bridging:
 - (a) V shape deformed strap with not less than two (2) nail holes at ends, designed to nail to top and side of framing member and bottom and side of opposite member.
 - (b) Not less than 19 by 127 mm (3/4 by 5 inches) bendable nailing flange on ends.
 - (c) Fabricated of 1 mm (0.04 inch) minimum thick sheet. //
 - (v) Joist Hangers:
 - (a) Fabricated of 1.6 mm (0.063 inch) minimum thick sheet, U design unless shown otherwise.
 - (b) Heavy duty hangers fabricated of minimum 2.7 mm (0.108 inch) thick sheet, U design with bent top flange to lap over beam.
 - (vi) Timber Connectors: Fabricated of steel to shapes indicated on contract drawings.
 - (vii) Joist Ties: Mild steel flats, 5 mm by 32 mm (3/16 inch by 1 1/4 inch) size with ends bent about 30 degrees from horizontal, and extending at least 406 mm (16 inches) onto framing. Punch each end for three (3) spikes.
 - (viii) Wall Anchors for Joists and Rafters:
 - (a) Mild steel strap, 5 mm by 32 mm (3/16 inch by 1-1/4 inch) with wall ends bent 50 mm (2 inches), or provide 9 mm by 130 mm (3/8 inch by 5 inch) pin through strap end built into masonry.
 - (b) Strap long enough to extend onto three joists or rafters, and punched for spiking at each bearing.
 - (c) Strap not less than 101 mm (4 inches) embedded end.
 - (ix) Joint Plates:
 - (a) Steel plate punched for nails.
 - (b) Steel plates formed with teeth or prongs for mechanically clamping plates to wood.

(c) Size for axial eccentricity, and fastener loads.

g) Adhesives:

- (i) For field-gluing plywood to lumber framing floor or roof systems: ASTM D3498.
- (ii) For structural laminated Wood: ASTM D2559.
- (iii) Adhesives to have a VOC content of 70 g/L or less when calculated according to 40 CFR 59, (EPA Method 24).

F) Execution

1) Installation of Framing and Miscellaneous Wood Members:

a) Conform to applicable requirements of the following:

- (i) AFPA NDS for timber connectors.
- (ii) AITC A190.1 Timber Construction Manual for heavy timber construction.
- (iii) AFPA WCD1 for nailing and framing unless specified otherwise.
- (iv) APA for installation of plywood or structural use panels.
- (v) TPI for metal plate connected wood trusses.
- (vi) Space plastic lumber boards to allow for lengthwise expansion and contraction in accordance with manufacturer recommendations.

b) Fasteners:

(i) Nails.

- (a) Nail in accordance with the Recommended Nailing Schedule as specified in AFPA WCD1 where detailed nailing requirements are not specified in nailing schedule. Select nail size and nail spacing sufficient to develop adequate strength for the connection without splitting the members.
- (b) Use special nails with framing connectors.
- (c) For sheathing and subflooring, select length of nails sufficient to extend 25 mm (1 inch) into supports.
- (d) Use 8d or larger nails for nailing through 25 mm (1 inch) thick lumber and for toe nailing 50 mm (2 inch) thick lumber.
- (e) Use 16d or larger nails for nailing through 50 mm (2 inch) thick lumber.
- (f) Select the size and number of nails in accordance with the Nailing Schedule except for special nails with framing anchors.
- (g) Nailing Schedule; Using Common Nails:
 - i. Joist bearing on sill or girder, toe nail three (3) 8d nails or framing anchor.
 - ii. Bridging to joist, toe nail each end two (2) 8d nails.
 - iii. Ledger strip to beam or girder three (3) 16d nails under each joint.
 - iv. Subflooring or Sheathing:
 - a. 152 mm (6 inch) wide or less to each joist face nail two (2) 8d nails.
 - b. Subflooring, more than 152 mm (6 inches) wide, to each stud or joint, face nail three (3) 8d nails.
 - c. Plywood or structural use panel to each stud or joist face nail 8d, at supported edges 152 mm (6 inches) on center and at intermediate supports 254 mm (10 inches) on center. When gluing plywood to joint framing increase nail spacing to 305 mm (12 inches) at supported edges and 508 mm (20 inches) o.c. at intermediate supports.
 - v. Sole plate to joist or blocking, through sub floor face nail 20d nails, 406 mm (16 inches) on center.
 - vi. Top plate to stud, end nail two (2) 16d nails.
 - vii. Stud to sole plate, toe nail or framing anchor. Four (4) 8d nails.
 - viii. Doubled studs, face nail 16d at 610 mm (24 inches) on center.

- ix. Built-up corner studs 16d at 610 mm (24 inches) (24 inches) on center.
 - x. Doubled top plates, face nails 16d at 406 mm (16 inches) on center.
 - xi. Top plates, laps, and intersections, face nail two (2) 16d.
 - xii. Continuous header, two pieces 16d at 406 mm (16 inches) on center along each edge.
 - xiii. Ceiling joists to plate, toenail three (3) 8d or framing anchor.
 - xiv. Continuous header to stud, four (4) 16d.
 - xv. Ceiling joists, laps over partitions, face nail three (3) 16d or framing anchor.
 - xvi. Ceiling joists, to parallel rafters, face nail three (3) 16d.
 - xvii. Rafter to plate, toe nail three (3) 8d or framing anchor. Brace 25 mm (1 inch) thick board to each stud and plate, face nail three (3) 8d.
 - xviii. Built-up girders and beams 20d at 812 mm (32 inches) on center along each edge.
- (ii) Bolts:
- (a) Fit bolt heads and nuts bearing on wood with washers.
 - (b) Countersink bolt heads flush with the surface of nailers.
 - (c) Embed in concrete and solid masonry or provide expansion bolts. Special bolts or screws designed for anchor to solid masonry or concrete in drilled holes may be used.
 - (d) Provide toggle bolts to hollow masonry or sheet metal.
 - (e) Provide bolts to steel over 2.84 mm (0.112 inch, 11 gage) in thickness. Secure wood nailers to vertical structural steel members with bolts, placed one at ends of nailer and 610 mm (24 inch) intervals between end bolts. Provide clips to beam flanges.
- (iii) Drill Screws to steel less than 2.84 mm (0.112 inch) thick.
- (a) ASTM C1002 for steel less than 0.84 mm (0.033 inch) thick.
 - (b) ASTM C954 for steel over 0.84 mm (0.033 inch) thick.
- (iv) Power actuated drive pins may be provided where practical to anchor to solid masonry, concrete, or steel.
- (v) Do not anchor to wood plugs or nailing blocks in masonry or concrete. Provide metal plugs, inserts or similar fastening.
- (vi) Screws to Join Wood:
- (a) Where shown or option to nails.
 - (b) ASTM C1002, sized to provide not less than 25 mm (1 inch) penetration into anchorage member.
 - (c) Spaced same as nails.
- (vii) Installation of Timber Connectors:
- (a) Conform to applicable requirements of the AFPA NDS.
 - (b) Fit wood to connectors and drill holes for fasteners so wood is not split.
- (viii) Install plastic lumber with stainless steel bolts or screws; if nails are used use stainless steel spiral shank or ring shank type.//
- c) Set sills or plates level in full bed of mortar on masonry or concrete walls.
- (i) Space anchor bolts 1219 mm (4 feet) on centers between ends and within 152 mm (6 inches) of end. Stagger bolts from side to side on plates over 178 mm (7 inches) in width.
 - (ii) Provide shims of slate, tile or similar approved material to level wood members resting on concrete or masonry. Do not use wood shims or wedges.
 - (iii) Closely fit, and set to required lines.
- d) Cut notch, or bore in accordance with AFPA WCD1 passage of ducts wires, bolts, pipes, conduits and to accommodate other work. Repair or replace miscut, misfit or damaged work.
- e) Blocking Nailers, and Furring:
- (i) Install furring, blocking, nailers, and grounds where shown.
 - (ii) Provide longest lengths practicable.
 - (iii) Provide fire retardant treated wood blocking where shown at openings and where shown or specified.

- (iv) Layers of Blocking or Plates:
 - (a) Stagger end joints between upper and lower pieces.
 - (b) Nail at ends and not over 610 mm (24 inches) between ends.
 - (c) Stagger nails from side to side of wood member over 127 mm (5 inches) in width.
 - (v) Fabricate roof edge vent strips with 6 mm by 6 mm (1/4 inch by 1/4 inch) notches, 101 mm (4 inches) on center, aligned to allow for venting of insulating concrete and venting base sheet. Option: Texture 1-11 plywood with parallel grooves 101 mm (4 inches) o.c. may be used.
 - (vi) Unless otherwise shown, provide wall furring 25 mm by 75 mm (1 inch by 3 inch) continuous wood strips installed plumb on walls, using wood shims where necessary so face of furring forms a true, even plane. Space furring not over 406 mm (16 inches) on centers, butt joints over bearings and rigidly secure in place. Anchor furring on 406 mm (16 inches) centers.
- f) Floor and Ceiling Framing:
- (i) Set with crown edge up.
 - (ii) Keep framing at least 50 mm (2 inches) away from chimneys.
 - (iii) Bear on not less than 101 mm (4 inches) on concrete and masonry, and 38 mm (1-1/2 inches) on wood and metal unless shown otherwise.
 - (iv) Support joist, trimmer joists, headers, and beams framing into carrying members at same relative levels on joist hangers unless shown otherwise.
 - (v) Lap and spike wood joists together at bearing, or butt end-to-end with scab ties at joint and spike to plates. Scab tie lengths not less than 203 mm (8 inches) lap on joist ends. Install wood I beam joists as indicated in contract documents.
 - (vi) Frame openings with headers and trimmer joist. Double headers carrying more than two tail joists and trimmer joists supporting headers carrying more than one tail joist unless otherwise indicated in contract documents.
 - (vii) Drive nails through headers into joists using two (2) nails for 50 mm by 152 mm (2 inch by 6 inch); three (3) nails for 50 mm by 203 mm (2 inch by 8 inch) and four (4) nails for 50 mm by 254 mm (2 inch by 10 inch) and over in size.
 - (viii) Install nearest joist to double headers and spike joist to both header members before trimmer joist is installed and secured together.
 - (ix) Doubled joists under partitions parallel with floor joists. Fire cut joists built into masonry or concrete.
 - (x) Where joists run perpendicular to masonry or concrete, anchor every third joist to masonry or concrete with one (1) metal wall anchor. Securely spike anchors with three (3) nails to side of joist near its bottom.
 - (xi) Anchor joists running parallel with masonry or concrete walls to walls with steel flats spaced not over 1828 mm (6 feet) apart. Extend steel flats over at least three (3) joists and into masonry 101 mm (4 inches) with ends turned 50 mm (2 inches); bolt to concrete. Set top of flats flush with top of joists, and securely nail steel flats to each joist.
 - (xii) Hook ties at steel framing over top flange of steel members.
 - (xiii) Nonbearing partitions running parallel with ceiling joists, install solid 50 mm (2 inch) thick bridging same depth as ceiling joists cut to fit snug between joists for securing top plate of partitions. Securely spike bridging to joists. Space 1219 mm (4 feet) on center.
 - (xiv) Where ceramic tile finish floors are set in Portland cement mortar, nail continuous 50 mm by 75 mm (2 inches by 3 inches) ledgers to sides of joists to support subflooring flush with top of joist.
- g) Bridging:
- (i) Provide 25 mm by 75 mm (1 inch by 3 inch) lumber with ends beveled for slope. Option: Metal bridging may be provided in lieu of wood bridging.
 - (ii) Install one (1) row of bridging for joist spans over 2438 mm (8 feet), but less than 4877 mm (16 feet) long; install two (2) rows for spans over 4877 mm (16 feet) long.

- (iii) Install an extra row of bridging between trimmer and next two (2) joists if header is more than 610 mm (2 feet) from end of trimmer or from regular row of bridging.
 - (iv) Secure with two (2) nails at ends.
 - (v) Leave bottom ends loose until after subflooring or roof sheathing is installed.
 - (vi) Install single row of bridging at centerline of span and two (2) rows at the third points of span unless otherwise shown.
- h) Roof Framing:
- (i) Set rafters with crown edge up.
 - (ii) Form a true plane at tops of rafters.
 - (iii) Valley, Ridge, and Hip Members:
 - (a) Size for depth of cut on rafters.
 - (b) Straight and true intersections of roof planes.
 - (c) Secure hip and valley rafters to wall plates by using framing connectors.
 - (d) Double valley rafters longer than the available lumber, with pieces lapped not less than 1219 mm (4 feet) and spiked together.
 - (e) Butt joint and scab hip rafters longer than the available lumber.
 - (iv) Spike to wall plate and to ceiling joists except when secured with framing connectors.
 - (v) Frame openings in roof with headers and trimmer rafters. Double headers carrying more than one (1) rafter unless shown otherwise.
 - (vi) Install 50 mm by 101 mm (2 inch by 4 inch) strut between roof rafters and ceiling joists at 1219 mm (4 feet) on center unless shown otherwise.
- i) Framing of Dormers:
- (i) Frame as indicated in contract documents, with top edge of ridge beveled to pitch of roof header.
 - (ii) Set studs on doubled trimmer rafters.
 - (iii) Double studs at corners of dormers.
 - (iv) Double plate on studs and notch rafters over plate and bear at least 75 mm (3 inches) on plates.
 - (v) Frame opening to receive window frame or louver frame.
- j) Partition and Wall Framing:
- (i) Provide 50 mm by 101 mm (2 inch by 4 inch) studs spaced 406 mm (16 inches) on centers; unless otherwise indicated on contract documents.
 - (ii) Install double studs at openings and triple studs at corners.
 - (iii) Installation of sole plate:
 - (a) Anchor plates of walls or partitions resting on concrete floors in place with expansion bolts, one (1) near ends of piece and at intermediate intervals of not more than 1219 mm (4 feet) or with power actuated drive pins with threaded ends of suitable type and size, spaced 610 mm (2 feet) on center unless shown otherwise.
 - (b) Nail plates to wood framing through subfloor as specified in nailing schedule.
 - (iv) Headers or Lintels:
 - (a) Make headers for openings of two (2) pieces of 50 mm (2 inch) thick lumber of size shown with plywood filler to finish flush with face of studs or solid lumber of equivalent size.
 - (b) Support ends of headers on top of stud cut for height of opening. Spike cut stud to adjacent stud. Spike adjacent stud to header.
 - (v) Provide double top plates, with members lapped at least 610 mm (2-feet) spiked together.
 - (vi) Install intermediate cut studs over headers and under sills to maintain uniformity of stud spacing.
 - (vii) Provide single sill plates at bottom of opening unless otherwise indicated in contract documents. Toe nail to end stud, face nail to intermediate studs.
 - (viii) Install 50 mm (2 inch) blocking for firestopping so that maximum dimension of any concealed space is not over 2438 mm (8 feet) in accordance with AFPA WCD1.
 - (ix) Install corner bracing when plywood or structured use panel sheathing is not used.

- (a) Let corner bracing into exterior surfaces of studs at an angle of approximately 45 degrees, extended completely over walls plates, and secured at bearing with two (2) nails.
- (b) Provide 25 mm by 101 mm (1 inch by 4 inch) corner bracing.
- k) Rough Bucks:
 - (i) Install rough wood bucks at opening in masonry or concrete where wood frames or trim occur.
 - (ii) Brace and maintain bucks plumb and true until masonry has been built around them or concrete cast in place.
 - (iii) Cut rough bucks from 50 mm (2 inch) thick stock, of same width as partitions in which they occur and of width shown in exterior walls.
 - (iv) Extend bucks full height of openings and across head of openings; fasten securely with anchors specified.
- l) Subflooring:
 - (i) Subflooring may be either boards, structural-use panels, or plywood.
 - (ii) Lay board subflooring diagonally, with close joints. Stagger end joints and make joints over supports. Bear each board on at least three supports.
 - (iii) Provide a clearance of approximately 13 mm (1/2 inch) at masonry or concrete at walls.
 - (iv) Apply plywood and structural-use panel subflooring with face grain or long dimension at right angles to the supports, with edges 6 mm (1/4 inch) apart at side joints, and 3 mm (1/8 inch) apart at end joints.
 - (v) Combination subfloor-underlayment:
 - (a) Space edges 3 mm (1/8 inch) apart.
 - (b) Provide a clearance of 6 mm (1/4 inch) at masonry on concrete at walls.
 - (c) Stagger panel end joints and make over support.
- m) Underlayment:
 - (i) Where finish flooring of different thickness is used in adjoining areas, provide underlayment of thickness required to bring finish flooring surfaces into same plane.
 - (ii) Apply to dry, level, securely nailed, clean, wood subfloor without any projections.
 - (iii) Plywood and particle underlayment are to be glue-nailed to subfloor.
 - (iv) Butt underlayment panels to a light contact with a 1 mm (1/32 inch) space between plywood or hardboard underlayment panels and walls, and approximately 9 mm (3/8 inch) between particleboard underlayment panels and walls.
 - (v) Stagger underlayment panel end joints with respect to each other and offset joints with respect to joints in the subfloor at least 50 mm (2 inches).
 - (vi) After installation, avoid traffic on underlayment and damage to the finish surface.
- n) Sheathing:
 - (i) Provide plywood or structural-use panels for sheathing.
 - (ii) Lay panels with joints staggered, with edge and ends 3 mm (1/8 inch) apart and nailed over bearings as specified.
 - (iii) Set nails not less than 9 mm (3/8 inch) from edges.
 - (iv) Install 50 mm by 101 mm (2 inch by 4 inch) blocking spiked between joists, rafters and studs to support edge or end joints of panels.
 - (v) Match and align sheathing which is an extension of work in place to existing.

DIVISION 08 DOORS & WINDOWS

This section does not necessarily include the entire scope for any one trade.
Refer to the drawings and bid documents for all applicable work.

Contractor shall perform all work in a good and workmanlike manner, in accordance with the plans and specifications, and with the highest standards of safety and the construction industry. All work shall be performed in compliance with all OSHA and applicable state and building codes and regulations.

SUMMARY

Furnish all materials, equipment, and perform services and labor to execute all requirements defined herein and within the project documents and drawings.

Contractors are required and not limited to provide the following for the duration of the project:

A) Scope of Work

Doors & Hardware

- 1) Installation of new doors for proposed areas

Glass & Glazing

- 1) Installation of new windows for offices and workstations

B) Exclusions

- 1) None

Conforming with bidding and contract documents, performance and technical specifications, and all other contract conditions defined in the bid documents.

HOLLOW METAL DOORS AND FRAMES

A) Submittals

- 1) Product data for each type of product.
- 2) Shop Drawings: Include elevations, door edge details, frame profiles, metal thicknesses, preparations for hardware, and other details.
- 3) Schedule: Prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings.

B) Products

- 1) Regulatory Requirements
 - a) Fire-Rated Assemblies: Complying with NFPA 80 and listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction for fire- protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C.
 - (i) Smoke-and-Draft-Control Assemblies: Provide an assembly with gaskets listed and labeled for smoke and draft control by a qualified testing agency acceptable to authorities having jurisdiction, based on testing according to UL 1784 and installed in compliance with NFPA 105.
- 2) Interior Doors and Frames
 - a) Standard-Duty Doors and Frames: SDI A250.8, Level 1. At general office locations.
 - (i) Physical Performance: Level C according to SDI A250.4.
 - (ii) Doors:
 - (a) Type: As indicated in the Door and Frame Schedule.
 - (b) Thickness: 1-3/4 inches.
 - (c) Face: Uncoated, cold-rolled steel sheet, minimum thickness of 0.032 inch.
 - (d) Edge Construction: Model 1, Full Flush.
 - (e) Core: Manufacturer's standard kraft-paper honeycomb, polystyrene, polyurethane, polyisocyanurate, mineral-board, or vertical steel-stiffener core.
 - b) Frames:
 - (i) Materials: Uncoated, cold-rolled steel sheet, minimum thickness of.
 - (ii) Construction: Full profilewelded.
 - c) Exposed Finish: Prime.
- 3) Frame Anchors
 - a) Jamb Anchors
 - (i) Masonry Type: Adjustable strap-and-stirrup or T- shaped anchors to suit frame size, not less than 0.042 inch thick, with corrugated or perforated straps not less than 2 inches wide by 10 inches long; or wire anchors not less than 0.177 inch thick.
 - (ii) Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042 inch thick.
 - (iii) Postinstalled Expansion Type for In-Place Concrete or Masonry: Minimum 3/8-inch diameter bolts with expansion shields or inserts. Provide pipe spacer from frame to wall, with throat reinforcement plate, welded to frame at each anchor location.
 - b) Floor Anchors: Formed from same material as frames, minimum thickness of 0.042 inch, and as follows:
 - (i) Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.
 - (ii) Separate Topping Concrete Slabs: Adjustable- type anchors with extension clips, allowing not less than 2-inch height adjustment. Terminate bottom of frames at finish floorsurface.

C) Materials

- 1) Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.
- 2) Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.
- 3) Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B.
- 4) Frame Anchors: ASTM A 879/A 879M, Commercial Steel (CS), 04Zcoating designation; mill phosphatized.
 - a) For anchors built into exterior walls, steel sheet complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.
- 5) Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.
- 6) Power-Actuated Fasteners in Concrete: From corrosion-resistant materials.
- 7) Grout: ASTM C 476, except with a maximum slump of 4 inches, as measured according to ASTM C 143/C 143M.
- 8) Mineral-Fiber Insulation: ASTM C 665, Type I (blankets without membrane facing).
- 9) Glazing: Section 088000 "Glazing."
- 10) Bituminous Coating: Cold-applied asphalt mastic, compounded for 15-mil dry film thickness per coat.

D) Fabrication

- 1) Fabricate hollow-metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for metal thickness. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.
- 2) Hollow-Metal Doors:
 - a) Exterior Doors: Provide weep-hole openings in bottoms of exterior doors to permit moisture to escape. Seal joints in top edges of doors against water penetration.
 - b) Astragals: Provide overlapping astragal on one leaf of pairs of doors where required by NFPA 80 for fire-performance rating or where indicated.
- 3) Hollow-Metal Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.
 - a) Sidelight Frames: Provide closed tubular members with no visible face seams or joints, fabricated from same material as door frame. Fasten members at crossings and to jambs by butt welding.
 - b) Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
 - c) Grout Guards: Weld guards to frame at back of hardware mortises in frames to be grouted.
 - d) Floor Anchors: Weld anchors to bottoms of jambs with at least four spot welds per anchor; however, for slip-on drywall frames, provide anchor clips or countersunk holes at bottoms of jambs.
 - e) Jamb Anchors: Provide number and spacing of anchors as follows:
 - (i) Masonry Type: Locate anchors not more than 16 inches from top and bottom of frame. Space anchors not more than 32 inches o.c., to match coursing, and as follows:
 - (a) Two anchors per jamb up to 60 inches high.
 - (b) Three anchors per jamb from 60 to 90 inches high.
 - (c) Four anchors per jamb from 90 to 120 inches high.
 - (ii) Stud-Wall Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:
 - (a) Three anchors per jamb up to 60 inches high.
 - (b) Four anchors per jamb from 60 to 90 inches high.
 - (c) Five anchors per jamb from 90 to 96 inches high.
 - (iii) Compression Type: Not less than two anchors in each frame.

- (iv) Postinstalled Expansion Type: Locate anchors not more than 6 inches from top and bottom of frame. Space anchors not more than 26 inches o.c.
- (v) Door Silencers: Except on weather-stripped frames, drill stops to receive door silencers.
 - (a) Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
 - (b) Double-Door Frames: Drill stop in head jamb to receive two door silencers.
- 4) Hardware Preparation: Factory prepared hollow- metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to SDI A250.6, the Door Hardware Schedule, and templates.
 - a) Reinforce doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.
 - b) Comply with applicable requirements in SDI A250.6 and BHMA A156.115 for preparation of hollow-metal work for hardware.
- 5) Stops and Moldings: Provide stops and moldings around glazed lites and louvers where indicated. Form corners of stops and moldings with butted hairline joints.
 - a) Single Glazed Lites: Provide fixed stops and moldings welded on secure side of hollow-metal work.
 - b) Multiple Glazed Lites: Provide fixed and removable stops and moldings so that each glazed lite is capable of being removed independently.
 - c) Provide fixed frame moldings on outside of exterior and on secure side of interior doors and frames.
 - d) Provide loose stops and moldings on inside of hollow-metal work.
 - e) Coordinate rabbet width between fixed and removable stops with glazing and installation types indicated.
- 6) Steel Finishes
 - a) Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.
 - (i) Shop Primer: SDIA250.10.
- 7) Accessories
 - a) Mullions and Transom Bars: Join to adjacent members by welding or rigid mechanical anchors.
 - b) Grout Guards: Formed from same material as frames, not less than 0.016 inch thick.

E) Execution

1) Installation

- a) Hollow-Metal Frames: Install hollow-metal frames of size and profile indicated. Comply with SDI A250.11 or NAAMM-HMMA 840 as required by standards specified.
 - (i) Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.
 - (a) At fire-rated openings, install frames according to NFPA 80.
 - (b) Where frames are fabricated in sections because of shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.
 - (c) Install frames with removable stops located on secure side of opening.
 - (d) Install door silencers in frames before grouting.
 - (e) Remove temporary braces necessary for installation only after frames have been properly set and secured.
 - (f) Check plumb, square, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
 - (g) Field apply bituminous coating to backs of frames that will be filled with grout containing antifreezing agents.
 - (ii) Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with postinstalled expansion anchors.
 - (a) Floor anchors may be set with power-actuated fasteners instead of postinstalled expansion

anchors if so indicated and approved on Shop Drawings.

- (iii) Metal-Stud Partitions: Solidly pack mineral-fiber insulation inside frames.
- (iv) Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with grout.
- (v) Concrete Walls: Solidly fill space between frames and concrete with mineral-fiber insulation.
- (vi) Installation Tolerances: Adjust hollow-metal door frames for squareness, alignment, twist, and plumb to the following tolerances:
 - (a) Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
 - (b) Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.
 - (c) Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
 - (d) Plumbness: Plus or minus 1/16 inch, measured at jambs at floor.
- b) Hollow-Metal Doors: Fit hollow-metal doors accurately in frames, within clearances specified below. Shim as necessary.
 - (i) Non-Fire Rated Steel Doors
 - (a) Between Door and Frame Jambs and Head: 1/8 inch plus or minus 1/32 inch.
 - (b) Between Edges of Pairs of Doors: 1/8 inch to 1/4 inch plus or minus 1/32 inch.
 - (c) At Bottom of Door: 3/4 inch plus or minus 1/32 inch.
 - (d) Between Door Face and Stop: 1/16 inch to 1/8 inch plus or minus 1/32 inch.
 - (ii) Fire Rated Steel Doors: Install doors with clearances according to NFPA 80.
- c) Glazing: Comply with installation requirements in Section 088000 "Glazing" and with hollow-metal manufacturer's written instructions.
 - (i) Secure stops with countersunk flat or oval head machine screws spaced uniformly not more than 9 inches o.c. and not more than 2 inches o.c. from each corner.

F) Adjusting and Cleaning

- 1) Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow-metal work that is warped, bowed, or otherwise unacceptable.
- 2) Remove grout and other bonding material from hollow-metal work immediately after installation.
- 3) Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.
- 4) Metallic-Coated Surface Touchup: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.

GLASS & GLAZING

A) Submittals

- 1) Product data for each glass product and glazing material indicated.
- 2) Glazing Schedule: List glass types and thicknesses for each size opening and location. Use same designations indicated on Drawings.

B) Quality Assurance

- 1) Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below, unless more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in this Section or in referenced standards.
 - a) GANA Publications: GANA's "Laminated Glazing Reference Manual" and GANA's "Glazing Manual."
 - b) IGMA Publication for Insulating Glass: SIGMA TM-3000, "North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial and Residential Use."
- 2) Safety Glazing Labeling: Where safety glazing labeling is indicated, permanently mark glazing with certification label of the SGCC or another certification agency acceptable to authorities having jurisdiction. Label shall indicate manufacturer's name, type of glass, thickness, and safety glazing standard with which glass complies.
- 3) Insulating-Glass Certification Program: Permanently mark either on spacers or on at least one component lite of units with appropriate certification label of IGCC.

C) Products

- 1) Glass Products, General
 - a) Thickness: Where glass thickness is indicated, it is a minimum. Provide glass lites in thicknesses as needed to comply with requirements indicated.
 - b) Strength: Where float glass is indicated, provide annealed float glass, Kind HS heat-treated float glass, or Kind FT heat-treated float glass as needed to comply with "Performance Requirements" Article. Where heat-strengthened glass is indicated, provide Kind HS heat-treated float glass or Kind FT heat treated float glass as needed to comply with "Performance Requirements" Article. Where fully tempered glass is indicated, provide Kind FT heat-treated float glass.
 - c) Thermal and Optical Performance Properties: Provide glass with performance properties specified, as indicated in manufacturer's published test data, based on procedures indicated below:
 - (i) U-Factors: Center-of-glazing values, according to NFRC 100 and based on LBL's WINDOW 5.2 computer program, expressed as Btu/sq. ft. x h x deg F.
 - (ii) Solar Heat-Gain Coefficient and Visible Transmittance: Center-of-glazing values, according to NFRC 200 and based on LBL's WINDOW 5.2 computer program.
 - (iii) Visible Reflectance: Center-of-glazing values, according to NFRC 300.
- 2) Glass Products
 - a) Float Glass: ASTM C 1036, Type I, Quality-Q3, Class I (clear) unless otherwise indicated.
 - b) Heat-Treated Float Glass: ASTM C 1048; Type I; Quality-Q3; Class I (clear) unless otherwise indicated; of kind and condition indicated.
- 3) Insulating Glass
 - a) Insulating-Glass Units: Factory-assembled units consisting of sealed lites of glass separated by a dehydrated interspace, qualified according to ASTM E 2190, and complying with other requirements specified.

- (i) Sealing System: Dualseal.
 - (ii) Spacer: Manufacturer's standard spacer material and construction.
- 4) Glazing Gaskets
- a) Dense Compression Gaskets: Molded or extruded gaskets of profile and hardness required to maintain watertight seal, made from[one of] the following:
 - (i) Neoprene complying with ASTM C 864.
 - (ii) EPDM complying with ASTM C 864.
 - (iii) Silicone complying with ASTM C 1115.
 - (iv) Thermoplastic polyolefin rubber complying with ASTM C 1115.
 - b) Soft Compression Gaskets: Extruded or molded, closed-cell, integral-skinned neoprene, EPDM, silicone, or thermoplastic polyolefin rubber gaskets complying with ASTM C 509, Type II, black; of profile and hardness required to maintain watertight seal.
 - (i) Application: Use where soft compression gaskets will be compressed by inserting dense compression gaskets on opposite side of glazing or pressure applied by means of pressure-glazing stops on opposite side of glazing.
- 5) Glazing Sealants
- a) General:
 - (i) Compatibility: Provide glazing sealants that are compatible with one another and with other materials they will contact, including glass products, seals of insulating-glass units, and glazing channel substrates, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
 - (ii) Suitability: Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.
 - (iii) Sealants used inside the weatherproofing system, shall have a VOC content of not more than 250 g/L when calculated according to
 - (iv) 40 CFR 59, Subpart D (EPA Method 24).
 - (v) Colors of Exposed Glazing Sealants: As selected by Architect from manufacturer's full range.
 - b) Glazing Sealant: Neutral-curing silicone glazing sealant complying with ASTM C 920, Type S, Grade NS, Class 100/50, Use NT.
 - c) Glazing Sealants for Fire-Rated Glazing Products: Products that are approved by testing agencies that listed and labeled fire-resistant glazing products with which they are used for applications and fire-protection ratings indicated.
- 6) Glazing Tapes
- a) Back-Bedding Mastic Glazing Tapes: Preformed, butyl-based, 100 percent solids elastomeric tape; nonstaining and nonmigrating in contact with nonporous surfaces; with or without spacer rod as recommended in writing by tape and glass manufacturers for application indicated; and complying with ASTM C 1281 and AAMA 800 for products indicated below:
 - (i) AAMA 804.3 tape, where indicated.
 - (ii) AAMA 806.3 tape, for glazing applications in which tape is subject to continuous pressure.
 - (iii) AAMA 807.3 tape, for glazing applications in which tape is not subject to continuous pressure.
 - b) Expanded Cellular Glazing Tapes: Closed-cell, PVC foam tapes; factory coated with adhesive on both surfaces; and complying with AAMA 800 for the following types:
 - (i) AAMA 810.1, Type 1, for glazing applications in which tape acts as the primary sealant.
 - (ii) AAMA 810.1, Type 2, for glazing applications in which tape is used in combination with a full bead of liquid sealant.
- 7) Miscellaneous Glazing Materials
- a) Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.
 - b) Setting Blocks: Elastomeric material with a Shore, Type A durometer hardness of 85, plus or minus 5.

- c) Spacers: Elastomeric blocks or continuous extrusions of hardness required by glass manufacturer to maintain glass lites in place for installation indicated.
 - d) Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side walking).
 - e) Cylindrical Glazing Sealant Backing:
 - f) ASTM C 1330, Type O (open-cell material), of size and density to control glazing sealant depth and otherwise produce optimum glazing sealant performance.
 - g) Perimeter Insulation for Fire-Resistive Glazing: Product that is approved by testing agency that listed and labeled fire-resistant glazing product with which it is used for application and fire-protection rating indicated.
- 8) Insulating Glass Types
- a) Glass Type "A":
 - (i) OB Lite: Clear Tempered (North America) ¼" (6mm) Sunguard SN54 (North America) on #2 IB Lite: Vitro Solargray Glass (IIGBD) 1.4" (6mm) Vitro Solarcool (IIGDB) on #3 Double Glazing (1 overall, 1.2" (12.7 mm) 10% air, 90% Argon Gap).
 - (ii) Transmittance = 11%.
 - (iii) Reflectance Out = 24%.
 - (iv) Reflectance In = 11%.
 - (v) Solar Heat Gain = 0.19
 - (vi) Shading Coefficient = 0.22
 - (vii) U-Value = 0.24
 - (viii) Light to Solar Gain = 0.55
 - b) Glass Type "B":
 - (i) NOT USED
 - c) Glass Type C: ¼" Clear Tempered.
 - d) Glass Type D: TEXTURED GLASS
 - (i) OB Lite: Clear Float (North America) ¼" (6mm) Sunguard SN54 (North America) on #2 IB Lite: Vitro Solargray Glass (IIGBD) 1.4" (6mm) Vitro Solarcool (IIGDB) on #3 Double Glazing (1 overall, 1.2" (12.7 mm) 10% air, 90% Argon Gap).
 - (ii) Transmittance = 11%.
 - (iii) Reflectance Out = 24%.
 - (iv) Reflectance In = 11%.
 - (v) Solar Heat Gain = 0.19
 - (vi) Shading Coefficient = 0.22
 - (vii) U-Value = 0.24
 - (viii) Light to Solar Gain = 0.55

D) Execution

- 1) Glazing, General
 - a) Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.
 - b) Adjust glazing channel dimensions as required by Project conditions during installation to provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances.
 - c) Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass is glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and appearance.

- d) Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction testing.
 - e) Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.
 - f) Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
 - g) Provide spacers for glass lites where length plus width is larger than 50 inches.
 - h) Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and according to requirements in referenced glazing publications.
- 2) Gasket Glazing (Dry)
- a) Cut compression gaskets to lengths recommended by gasket manufacturer to fit openings exactly, with allowance for stretch during installation.
 - b) Insert soft compression gasket between glass and frame or fixed stop so it is securely in place with joints miter cut and bonded together at corners.
 - c) Installation with Drive-in Wedge Gaskets: Center glass lites in openings on setting blocks and press firmly against soft compression gasket by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.
 - d) Installation with Pressure-Glazing Stops: Center glass lites in openings on setting blocks and press firmly against soft compression gasket. Install dense compression gaskets and pressure-glazing stops, applying pressure uniformly to compression gaskets. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.
 - e) Install gaskets so they protrude past face of glazing stops.
- 3) Sealant Glazing (Wet)
- a) Install continuous spacers, or spacers combined with cylindrical sealant backing, between glass lites and glazing stops to maintain glass face clearances and to prevent sealant from extruding into glass channel and blocking weep systems until sealants cure. Secure spacers or spacers and backings in place and in position to control depth
 - b) of installed sealant relative to edge clearance for optimum sealant performance.
 - c) Force sealants into glazing channels to eliminate voids and to ensure complete wetting or bond of sealant to glass and channel surfaces.
 - d) Tool exposed surfaces of sealants to provide a substantial wash away from glass.
- 4) Cleaning and Protection
- a) Protect exterior glass from damage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove nonpermanent labels and clean surfaces.
 - b) Protect glass from contact with contaminating substances resulting from construction operations. If, despite such protection, contaminating substances do come into contact with glass, remove substances immediately as recommended in writing by glass manufacturer.
 - c) Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for buildup of dirt, scum, alkaline deposits, or stains; remove as recommended in writing by glass manufacturer.
 - d) Remove and replace glass that is broken, chipped, cracked, or abraded or that is damaged from natural causes, accidents, and vandalism, during construction period.

DIVISION 09 FINISHES

This section does not necessarily include the entire scope for any one trade.
Refer to the drawings and bid documents for all applicable work.

Contractor shall perform all work in a good and workmanlike manner, in accordance with the plans and specifications, and with the highest standards of safety and the construction industry. All work shall be performed in compliance with all OSHA and applicable state and building codes and regulations.

SUMMARY

Furnish all materials, equipment, and perform services and labor to execute all requirements defined herein and within the project documents and drawings.

Contractors are required and not limited to provide the following for the duration of the project:

A) Scope of Work

Flooring

- 1) Carpet tiles
- 2) Tile
- 3) Vinyl base

Painting

- 1) Priming of all patches and new drywall
- 2) (2) coats approved paint

B) Exclusions

- 1) None

Conforming with bidding and contract documents, performance and technical specifications, and all other contract conditions defined in the bid documents.

FLOORING BASE

A) Submittals

- 1) Product data for each type of product.

B) Products

1) Carpet Squares

The specs for the carpet are carpet tile equal to Shaw; Change in Attitude #J0111size 24x24 solution-dyed nylon, pile weight 26 oz. Contractor shall provide a color scheme proposal for review and approval by the Owner

C) Installation Materials

- 1) Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by resilient-product manufacturer for applications indicated.
- 2) Adhesives: Water-resistant type recommended by resilient-product manufacturer for resilient products and substrate conditions indicated.

D) Execution

1) Preparation

- a) Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.
- b) Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.
- c) Do not install resilient products until they are the same temperature as the space where they are to be installed.
- d) Immediately before installation, sweep and vacuum clean substrates to be covered by resilient products.

2) Resilient Base Installation

- a) Comply with manufacturer's written instructions for installing resilient base.
- b) Ensure any tapered edges of gypsum board installed horizontally are finished flush prior to installation.
- c) Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.
- d) Install resilient base in lengths as long as practical without gaps at seams and with tops of adjacent pieces aligned.
- e) Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.
- f) Do not stretch resilient base during installation.
- g) On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient base with manufacturer's recommended adhesive filler material.

3) Cleaning and Protection

- a) Comply with manufacturer's written instructions for cleaning and protecting resilient products.

PAINTING

A) Submittals

- 1) Product data for each type of product. Include preparation requirements and application instructions. Indicate VOC content.
- 2) Product list for each product indicated, include the following:
 - a) Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and inschedules.
 - b) Indicate VOC content.
- 3) Closeout submittals
 - a) Coating Maintenance Manual: Provide coating maintenance manual including area summary with finish schedule, area detail designating location where each product/color/finish was used, product data pages, material safety data sheets, care and cleaning instructions, touch-up procedures, and color samples of each color and finish used.

B) Delivery, Storage, and Handling

- 1) Delivery and Handling: Deliver products to Project site in an undamaged condition in manufacturer's original sealed containers, complete with labels and instructions for handling, storing, unpacking, protecting, and installing. Packaging shall bear the manufacturer's label with the following information:
 - a) Product name and type (description)
 - b) Batch date
 - c) Color number
 - d) VOC content
 - e) Environmental handling requirements
 - f) Surface preparation requirements
 - g) Application instructions
- 2) Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F (7 deg C).
- 3) Maintain containers in clean condition, free of foreign materials and residue.
- 4) Remove rags and waste from storage areas daily.

C) Field Conditions

- 1) Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F (10 and 35 deg C).
- 2) Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.
- 3) Lead Paint: It is not expected that lead paint will be encountered in the work.
 - a) If suspected lead paint is encountered, do not disturb; immediately notify Maintenance Supervisor.
 - b) Lead Paint: Lead paint [is] [may be] present in buildings and structures to be painted. A report on the presence of lead paint is on file for review and use. Examine report to become aware of locations where lead paint is present.
 - c) Do not disturb lead paint or items suspected of containing hazardous materials except under procedures specified.

- d) Perform preparation for painting of substrates known to include lead paint in accordance with EPA Renovation, Repair and Painting Rule and additional requirements of authorities having jurisdiction.

D) Products

1) Manufacturers

- a) Basis-of-Design Product: Subject to compliance with requirements, comparable product to Sherwin-Williams Company.
- b) Comparable Products: Comparable products of approved manufacturers will be considered in accordance with product requirements," and the following:
 - (i) Products are approved by manufacturer in writing for application specified.
 - (ii) Products meet performance and physical characteristics of basis of design product including published ratio of solids by volume, plus or minus two percent.
- c) Source Limitations: Obtain paint materials from single source from single manufacturer.
- d) Manufacturer's designations listed on a separate color schedule are for color reference only and do not indicate prior approval.

2) Paint, General

- a) Material Compatibility:
 - (i) Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
 - (ii) For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.
- b) VOC Content: For field applications that are inside the weatherproofing system, paints and coatings shall provide materials that comply with VOC limits of authorities having jurisdiction and for interior paints and coatings applied at Project site, the following VOC limits exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
 - (i) Flat Paints and Coatings: 50 g/L.
 - (ii) Nonflat Paints and Coatings: 150 g/L.
 - (iii) Primers, Sealers, and Undercoaters: 200 g/L.
 - (iv) Anticorrosive and Antirust Paints Applied to Ferrous Metals: 250 g/L.
 - (v) Floor Coatings: 100 g/L.
 - (vi) Shellacs, Clear: 730g/L.
 - (vii) Shellacs, Pigmented: 550g/L.
- c) Low-Emitting Materials: Interior paints and coatings shall comply with the testing and product requirements of the Michigan Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small Scale Environmental Chambers."
- d) Colors: Contractor shall provide a color scheme proposal for review and approval by the Owner.

E) Execution

- 1) Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers. Where acceptability of substrate conditions is in question, apply samples and perform in-situ testing to verify compatibility, adhesion, and film integrity of new paint application.
 - a) Report, in writing, conditions that may affect application, appearance, or performance of paint.

b) Substrate Conditions:

- (i) Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
 - (a) Concrete: 12 percent.
 - (b) Masonry (Clay and CMU): 12 percent.
 - (c) Wood: 15 percent.
 - (d) Gypsum Board: 12 percent.
 - (e) Plaster: 12 percent.
- (ii) Gypsum Board Substrates: Verify that finishing compound is sanded smooth.
- (iii) Plaster Substrates: Verify that plaster is fully cured.
- (iv) Spray-Textured Ceiling Substrates: Verify that surfaces are dry.
- (v) Proceed with coating application only after unsatisfactory conditions have been corrected; application of coating indicates acceptance of surfaces and conditions.

F) Preparation

- 1) Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates indicated.
- 2) Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
 - a) After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
- 3) Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
 - a) Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.
- 4) Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.
 - a) Concrete Floors: Remove oil, dust, grease, dirt, and other foreign materials. Comply with SSPC-SP-13/NACE 6 or ICRI 03732.
- 5) Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces or mortar joints exceed that permitted in manufacturer's written instructions.
- 6) Steel Substrates: Remove rust, loose mill scale, and shop primer, if any. Clean using methods recommended in writing by paint manufacturer but not less than the following:
 - a) SSPC-SP 2, "Hand Tool Cleaning."
 - b) SSPC-SP 3, "Power Tool Cleaning."
 - c) SSPC-SP 7/NACE No. 4, "Brush-off Blast Cleaning."
 - d) SSPC-SP 11, "Power Tool Cleaning to Bare Metal."
- 7) Shop-Primed Steel Substrates: Clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.
- 8) Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal fabricated from coil stock by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.
- 9) Aluminum Substrates: Remove loose surface oxidation.
- 10) Wood Substrates:
 - a) Scrape and clean knots, and apply coat of knot sealer before applying primer.

- b) Sand surfaces that will be exposed to view, and dust off.
 - c) Prime edges, ends, faces, undersides, and backsides of wood.
 - d) After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.
- 11) Cotton or Canvas Insulation Covering Substrates: Remove dust, dirt, and other foreign material that might impair bond of paints to substrates.

G) Application

- 1) Apply paints according to manufacturer's written instructions and to recommendations in "MPI Manual."
 - a) Use applicators and techniques suited for paint and substrate indicated.
 - b) Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
 - c) Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
 - d) Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
 - e) Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.
- 2) Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- 3) If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- 4) Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
- 5) Painting Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:
 - a) Paint the following work where exposed in equipment rooms:
 - (i) Equipment, including panelboards [and switch gear].
 - (ii) Uninsulated metal piping.
 - (iii) Uninsulated plastic piping.
 - (iv) Pipe hangers and supports.
 - (v) Metal conduit.
 - (vi) Plastic conduit.
 - (vii) Tanks that do not have factory-applied final finishes.
 - (viii) Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
 - b) Paint the following work where exposed in occupied spaces:
 - (i) Equipment, including panelboards.
 - (ii) Uninsulated metal piping.
 - (iii) Uninsulated plastic piping.
 - (iv) Pipe hangers and supports.
 - (v) Metal conduit.
 - (vi) Plastic conduit.
 - (vii) Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
 - (viii) Other items as directed by Engineer / Architect and Owners

- 6) Paint portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets that are visible from occupied spaces.

H) Cleaning and Protection

- 1) At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from project site.
- 2) After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- 3) Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Maintenance Supervisor, and leave in an undamaged condition.
- 4) At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

DIVISION 12 FURNISHINGS

This section does not necessarily include the entire scope for any one trade.
Refer to the drawings and bid documents for all applicable work.

Contractor shall perform all work in a good and workmanlike manner, in accordance with the plans and specifications, and with the highest standards of safety and the construction industry. All work shall be performed in compliance with all OSHA and applicable state and building codes and regulations.

SUMMARY

Furnish all materials, equipment, and perform services and labor to execute all requirements defined herein and within the project documents and drawings.

Contractors are required and not limited to provide the following for the duration of the project:

A. Scope of Work

1. Workstations
2. Courtroom pews
3. Cubicles

B. Exclusions

1. None

Conforming with bidding and contract documents, performance and technical specifications, and all other contract conditions defined in the bid documents.

**DIVISION 13
TECHNOLOGICAL UPGRADES**

This section does not necessarily include the entire scope for any one trade.
Refer to the drawings and bid documents for all applicable work.

Contractor shall perform all work in a good and workmanlike manner, in accordance with the plans and specifications, and with the highest standards of safety and the construction industry. All work shall be performed in compliance with all OSHA and applicable state and building codes and regulations.

SUMMARY

Furnish all materials, equipment, and perform services and labor to execute all requirements defined herein and within the project documents and drawings.

Contractors are required and not limited to provide the following for the duration of the project:

A. Scope of Work

Building Automation Systems

1. Technical upgrades

B. Exclusions

1. None

Conforming with bidding and contract documents, performance and technical specifications, and all other contract conditions defined in the bid documents.

CIRCUIT COURT

A) Technical Renovations

- 1) Replace camera, microphones, recording and audiovisual equipment to facilitate remote hearings – compatible with BIS equipment.
 - a) Increase staff capabilities via USB connectivity to import video from the courtroom cameras or a party's laptop.
 - b) Improve ability to import all microphones from the laptops being used in the courtroom.
 - c) Provide a dedicated streaming and recording device that can be used to record and stream directly to YouTube.
 - d) Install camera with 40X zoom with ceiling mount in the back of the courtroom to view the courtroom without showing the jury box.
 - e) Multiply amplification of judicial bench, witness stand and party tables with push-to-mute gooseneck microphones.
 - f) Install ceiling-mounted microphone above jury box.
- 2) Increase User Connectivity for parties and staff
 - a) Add retracting HDMI laptop connections to party and staff. tables controlled with flip-top table interfaces.
 - b) Add USB connectivity to staff table.
 - c) Add AC power outlets in each flip-top table interface.
- 3) Upgrade jury box with tablets for jurors to view exhibits and other information.
- 4) Upgrade witness stand with a tablet for witnesses to view exhibits and information.
- 5) Obtain mobile workstation for employee and party use with HDMI, USB, and AC capabilities.

B) Suggested Product List – the products below are suggestions only and may be replaced in the bidding document with like and/or upgraded products should the product listed below no longer exist.

- 1) Poly New Remote Poly RealPresence Group Series Remote Control (1)
- 2) Poly New Remote Battery Poly RealPresence Group Series Remote Control Battery (1)
- 3) Creston HD-PS622 8x2 4K60 4:4:4 HDR Presentation System (1)
- 4) RDL TX-J2 Unbalanced Input Transformer – Unbalanced stereo inputs to summed balanced mono output (1)
- 5) Chief CSSLP15X10 Component Storage Panel, Sliding (1)
- 6) Creston HD-DA4-4KZ-E 1:4 HDMI Distribution Amplifier w/4K60 4:4:4 & HDR Support (1)
- 7) Chief K0W100B K0 Pitch/Pivot wall mount single, black (1)
- 8) Multi-tasking Monitor (23.8 diagonal Full HD IPS Display, Adjustable Screen, Daisy Chain Functionality) (5)
- 9) Ergomart SAA2010 Compact Monitor Arm (4)
- 10) Ergomart PM192 Pole 4-Foot-Black 1.92" outside diameter with 2 wire management access ports (4)
- 11) Ergomart PM192 Monitor Pole Stand Flange (4)
- 12) Crown OFE AMP OFE Crown 8 300 (1)
- 13) Tp-Link TL-SG1016PE 16-Port Gigabit Easy Smart Switch w/ 8 Ports (1)
- 14) Creston RMC4 4-Series Control System (1)
- 15) ClearOne 910001013W Microphone Array Kit, White (1)
- 16) Shure MX393/C Cardioid - Condenser Boundary Microphones, Build-in Preamp, 12' 3-pin Mini Connector (TA3F) to XLR Cable, Programmable Switch and LED Indicator (6)
- 17) Creston SAROS IC6LPT-W-T-EACH Saros Low-Profile 6.5 2-Way In-Ceiling Speaker, White Textured, Single (14)
- 18) RDL DB-XLR2F Dual XLR 3-pin Female Jacks on D Plate, Euroblock Connectors, Black (3)
- 19) RDL DB-XLR3F XLR 3-pin Female Jack on D Plate, Terminal Block, Black (1)
- 20) EPIPHAN ESP1610 Pearn Nano (1)
- 21) Kramer 87-000190 Kramer Via Go 2 4K (1)
- 22) Kramer VSM-ON-CLOUD- SUB- 1Y 1 Year Cloud Management Platform (1)
- 23) Creston HD-TX-4KZ-101 DM Lite 4K60 4:4:4 Transmitter for HDMI Signal Extension over CATx Cable (3)

- 24) Creston HD-RXC-4KZ-101 DM Lite 4K60 4:4:4 Receiver for HDMI RS-232, and IR Signal Extension over CATx Cable, Power Pack Included (5)
- 25) Creston TS-770-GV-W-S 7 in. Tabletop Touch Screen, Government Version, White Smooth (1)
- 26) Jury Room - Kramer C-HM/HM-10 HDMI (M) to HDMI (M) Cable – 10' (1)
- 27) Jury Room – C2G 39870 HDMI Pass-Through Single Gang Wall Plate (1)
- 28) Jury Room – Kramer C-HM/HM-25 HDMI (M) to HDMI (M) – Cable – 25'

DISTRICT COURT (143B)

A) Technical Renovations

- 1) Replace camera, microphones, recording and audiovisual equipment to facilitate remote hearings consistent with BIS equipment.
 - a) Increase staff capabilities via USB connectivity to import video from the courtroom cameras or a party's laptop.
 - b) Improve ability to import all microphones from the laptops being used in the courtroom.
 - c) Provide a dedicated streaming and recording device that can be used to record and stream directly to YouTube.
 - d) Add two lapel microphones for better audio of those presenting evidence.
- 2) Increase User Connectivity for parties and staff
 - a) Add retracting HDMI laptop connections to party and staff tables controlled with flip-top table interfaces.
 - b) Add USB connectivity to staff table .
 - c) Add AC power outlets in each flip-top table interface.
 - d) Upgrade jury box with tablets for jurors to view exhibits and other information.
 - e) Upgrade witness stand with a tablet to view exhibits and information.
 - f) Obtain moveable workstation for employee use with HDMI, USB and AC capabilities.

B) Suggested Product List – the products below are suggestions only and may be replaced in the bidding document with like and/or upgraded products should the product listed below no longer exist.

- 1) Poly New Remote Poly RealPresence Group Series Remote Control (1)
- 2) Poly New Remote Battery Poly RealPresence Group Series Remote Control Battery (1)
- 3) Creston HD-PS622 8x2 4K60 4:4:4 HDR Presentation System (1)
- 4) RDL TX-J2 Unbalanced Input Transformer – Unbalanced stereo inputs to summed balanced mono output (1)
- 5) Chief CSSLP15X10 Component Storage Panel, Sliding (1)
- 6) Creston HD-DA4-4KZ-E 1:4 HDMI Distribution Amplifier w/4K60 4:4:4 & HDR Support (1)
- 7) Chief K0W100B K0 Pitch/Pivot wall mount single, black (1)
- 8) Multi-tasking Monitor (23.8 diagonal Full HD IPS Display, Adjustable Screen, Daisy Chain Functionality) (3)
- 9) Ergomart SAA2010 Compact Monitor Arm (2)
- 10) Ergomart PM192 Pole 4-Foot-Black 1.92" outside diameter with 2 wire management access ports (2)
- 11) Ergomart PM192 Monitor Pole Stand Flange (2)
- 12) Tp-Link TL-SG1016PE 16-Port Gigabit Easy Smart Switch w/ 8 Ports Poe + (1)
- 13) Creston RMC4 4-Series Control System (1)
- 14) ClearOne 910001013W Microphone Array Kit, White (1)
- 15) Shure MX393/C Cardioid - Condenser Boundary Microphones, Build-in Preamp, 12' 3-pin Mini Connector (TA3F) to XLR Cable, Programmable Switch and LED Indicator (6)
- 16) Creston SAROS IC6LPT-W-T-EACH Saros Low-Profile 6.5 2-Way In-Ceiling Speaker, White Textured, Single (12)
- 17) Crown OFE AMP OFE Crown 8 300 (1)
- 18) Shure SLXD14D-G58 Dual Combo System with (2) SLXD1 Bodypacks and SLXD4D Receiver
- 19) Shure SBC203-US Dual Docking Station for SLX-D transmitters and SB903 Battery
- 20) RDL DB-XLR2F Dual XLR 3-pin Female Jacks on D Plate, Euroblock Connectors, Black (3)
- 21) RDL DB-XLR3F XLR 3-pin Female Jack on D Plate, Terminal Block, Black (1)

- 22) EPIPHAN ESP1610 Pearn Nano (1)
- 23) Kramer 87-000190 Kramer Via Go 2 4K (1)
- 24) Kramer VSM-ON-CLOUD- SUB- 1Y 1 Year Cloud Management Platform (1)
- 25) Creston HD-TX-4KZ-101 DM Lite 4K60 4:4:4 Transmitter for HDMI Signal Extension over CATx Cable (3)
- 26) Creston HD-RXC-4KZ-101 DM Lite 4K60 4:4:4 Receiver for HDMI RS-232, and IR Signal Extension over CATx Cable, Power Pack Included (5)
- 27) Creston TS-770-GV-W-S 7 in. Tabletop Touch Screen, Government Version, White Smooth (1)
- 28) Jury Room – LG 55UR340C9UD HDMI(3), RS-232C(1), USB (1) RF IN (1), AUDIO OUT (1) External Speaker, RJ45IN/OUT, WEBOX 6.0 (1)
- 29) Jury Room – Chief MTM1U Micro-Adjust Tilt Wall Mount, Medium
- 30) Jury Room - Kramer C-HM/HM-10 HDMI (M) to HDMI (M) Cable – 10' (1)
- 31) Jury Room – C2G 39870 HDMI Pass-Through Single Gang Wall Plate (1)
- 32) Jury Room – Kramer C-HM/HM-25 HDMI (M) to HDMI (M) – Cable – 25'
- 33) Magistrate's Office – Schure MX391/O Ominidirectional – Miniature Black Condenser Boundary Microphone, 12' Attached Cable Detachable preamp with XLR

PROBATE COURT (129)

A) Technical Renovations

- 1) Update recording and audiovisual equipment to facilitate remote hearings compatible with BIS equipment.
- 2) Replace camera, microphones, recording and audiovisual equipment to facilitate remote hearings.
 - a) Increase staff capabilities via USB connectivity to import video from the courtroom cameras or a party's laptop.
 - b) Improve ability to import all microphones from the laptops being used in the courtroom.
 - c) Provide a dedicated streaming and recording device that can be used to record and stream directly to YouTube.
- 3) Increase User Connectivity for parties and staff.
 - a) Add retracting HDMI laptop connections to party and staff tables controlled with flip-top table interfaces.
 - b) Add USB connectivity to staff table.
 - c) Add AC power outlets in each flip-top table interface.
- 4) Upgrade witness stand with a tablet to view exhibits and information.
- 5) Obtain moveable workstation for employee use with HDMI, USB and AC capabilities.

B) Suggested Product List the products below are suggestions only and may be replaced in the bidding document with like and/or upgraded products should the product listed below no longer exist.

- 1) Poly New Remote Poly RealPresence Group Series Remote Control (1)
- 2) Poly New Remote Battery Poly RealPresence Group Series Remote Control Battery (1)
- 3) Creston HD-PS622 8x2 4K60 4:4:4 HDR Presentation System (1)
- 4) RDL TX-J2 Unbalanced Input Transformer – Unbalanced stereo inputs to summed balanced mono output (1)
- 5) Chief CSSLP15X10 Component Storage Panel, Sliding (1)
- 6) Chief K0W100B K0 Pitch/Pivot wall mount single, black (1)
- 7) Multi-tasking Monitor (23.8 diagonal Full HD IPS Display, Adjustable Screen, Daisy Chain Functionality) (1)
- 8) Tp-Link TL-SG1016PE 16-Port Gigabit Easy Smart Switch w/ 8 Ports Poe + (1)
- 9) Creston RMC4 4-Series Control System (1)
- 10) Shure MX393/C Cardioid - Condenser Boundary Microphones, Build-in Preamp, 12' 3-pin Mini Connector (TA3F) to XLR Cable, Programmable Switch and LED Indicator (6)
- 11) Creston SAROS IC6LPT-W-T-EACH Saros Low-Profile 6.5 2-Way In-Ceiling Speaker, White Textured, Single (10)
- 12) Crown OFE AMP OFE Crown 8 300 (1)
- 13) RDL DB-XLR2F Dual XLR 3-pin Female Jacks on D Plate, Euroblock Connectors, Black (3)
- 14) RDL DB-XLR3F XLR 3-pin Female Jack on D Plate, Terminal Block, Black (1)

- 15) EPIPHAN ESP1610 Pearn Nano (1)
- 16) Kramer 87-000190 Kramer Via Go 2 4K (1)
- 17) Kramer VSM-ON-CLOUD- SUB- 1Y 1 Year Cloud Management Platform (1)
- 18) Creston HD-TX-4KZ-101 DM Lite 4K60 4:4:4 Transmitter for HDMI Signal Extension over CATx Cable (3)
- 19) Creston HD-RXC-4KZ-101 DM Lite 4K60 4:4:4 Receiver for HDMI RS-232, and IR Signal Extension over CATx Cable, Power Pack Included (4)
- 20) Creston TS-770-GV-W-S 7 in. Tabletop Touch Screen, Government Version, White Smooth (1)

C) Additional Suggested Product List – the products below are suggestions only and may be replaced in the bidding document with like and/or upgraded products should the product listed below no longer exist.

- 1) On-Q 24845CC6 CAT 6-24-PORT Rack Mount Patch Panel (1)
- 2) Biamp Systems Q 100 Qt-100, 1-zone sound masking control module (1)
- 3) Biamp Systems QT-RC2 In Room Volume Controles with Decora Style Plate for the Qt-100 only (1)
- 4) Biamp Systems E-A-W-16-4 Standard Emitters, White, 4 pack, with 4 x 16 ft white plenum rated cables (1)
- 5) Belden Cat6 Belden 2412 009A1000 CAT6 Plus 23/4 Riser Solid BC Enhanced Cable, UTP, CMR, 1000' Reel-in-Box, White (5)
- 6) Belden 18/2 Belden 6300FE 1/22 Stranded Shielded Plenum Cable, 1000' (3)
- 7) Belden 22/2 Belden 9451P 010Z500 22/2 Line Level Audio Cable, Tinned Copper, FEP insulation, Overall Beldfoil Sheild, Flamarrest Jacket, CMP 500' (152.4m) ReelTuffBox, Black (3)
- 8) Creston DM-8G-CONN-WG-100 Connectors with Wire Guide for DM-CBL-*G Digital Media 8G Cable, 100-Pack (1)
- 9) Kramer C-MHM/MHM-3 HDMI (M) to HDMI (M) Ethernet Cable with Pull Resistant Connectors – 3' (18)
- 10) Kramer C-MHM/MHM-6 HDMI (M) to HDMI (M) Ethernet Cable with Pull Resistant Connectors – 6' (12)
- 11) Kramer C-MHM/MHM-10 HDMI (M) to HDMI (M) Ethernet Cable with Pull Resistant Connectors – 10' (12)
- 12) Kramer C-MHM/MHM-15 HDMI (M) to HDMI (M) Ethernet Cable with Pull Resistant Connectors – 15' (4)
- 13) Kramer C-MHM/MHM – 25 HDMI (M) to HDMI (M) Ethernet Cable with Pull Resistant Connectors – 25'
- 14) Cables Plus 1-4 x 3-8 ¼-20 x 3/8 (100 pack) (1)
- 15) Cables Plus Beam Clamp .25 Threaded Steel 100 pack (1)
- 16) Cables Plus J-Hook ¾" Basic J Hook 100 Pack (1)