

PROJECT MANUAL



**#2022-42
INVITATION TO BID
ROCK COUNTY
COURTHOUSE LAW LIBRARY ALTERATION
51 SOUTH MAIN STREET
JANESVILLE, WISCONSIN
FOR
ROCK COUNTY FACILITIES MANAGEMENT**

/Venture/Architects

Venture Project No. 210105.00

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FOR
ROCK COUNTY FACILITIES MANAGEMENT**

Bids due in Rock County Purchasing Division by: **October 11, 2022 - 2:00 p.m. (local time)**

Bids received after this date and time will be rejected.

Bids shall remain in effect 45 days from due date.

Address Bid to: Shilo Titus, Purchasing Manager
Rock County Courthouse
Purchasing Division
51 S. Main Street
Janesville WI. 53545

*****MARK SEALED ENVELOPE: #2022-42 COURTHOUSE LAW LIBRARY ALTERATION*****

Rock County reserves the right to accept or reject any or all bids; to waive any technicality or error in any bid or part therein, and to accept the same or combinations, in whole or in part, whichever is deemed to be in the best interest of Rock County.

Contracts are awarded to the lowest, most qualified, responsible and responsive bidder on the basis of the base bid and full consideration of any or all alternatives, as may be in the best interest of Rock County. In determining the award of contract, Rock County will consider the scope of the work involved, timeliness of delivery, competency of bidder, bidder's ability to render satisfactory service, and past performance. If two or more bidders submit identical bids, Rock County will make award to bidder of its choice and such decision will be final.

INSTRUCTIONS FOR BIDS

The bidder is required to submit one (1) copy of their bid in a sealed envelope marked ITB #2022-26 to Shilo Titus, Financial Services Purchasing Division, 51 South Main, Janesville, WI 53545. All bids shall be received by 2:00 a.m. (local time), July 14, 2022. Any bid submitted after this date and time will be rejected. Vendors are responsible for ensuring that the above office receives their bid before the deadline. No faxed or emailed bids will be accepted, however bids maybe submitted through DemandStar.

Bid "packets" shall be clearly labeled with vendor name, return address, bid title, date and the name of the vendor's primary contact for bid questions.

Bids shall be signed with named printed below signature. Where Bidder is a Corporation, Bid shall be signed with the legal name of the Corporation followed by the legal signature of an officer authorized to bind the Corporation to contract.

Bidders must be licensed to business in the State of Wisconsin.

PRE-BID CONFERENCE & SITE TOUR

A Pre-Bid Conference and site tour will be held on **September 20, 2022 at 9:00 a.m.**

The Pre-Bid is not mandatory, but it will be the only opportunity for contractors to tour the site. Representatives of the Owner and Architect will be in attendance.

Interest vendors should meet in the lobby at the Rock County Courthouse, 51 South Main Street, Janesville, Wisconsin.

INQUIRIES

All questions concerning this Invitation to Bid shall be submitted **in writing** to Shilo Titus, Purchasing Manager. Questions shall be received by **12:00 noon (local time), September 27, 2022**. Questions received after this date and time will not be answered. Questions shall be e-mailed to **shilo.titus@co.rock.wi.us**.

No verbal explanation or instructions will be given in regard to the meaning of the drawings or specifications during the bid period. Bidders shall bring inadequacies, omissions or conflicts to Rock County's attention in writing by the question cut-off date and time. If necessary, answers to questions will be provided to all specification holders in the form of an addendum. Addendum will include a list of each question received and Rock County's response.

ADDENDA

All changes in or interpretations of the Bidding Documents prior to bid opening will be made by written addenda issued by Rock County to each recipient of the Bidding Documents on record. All addenda will be issued no later than 72 hours prior to bid opening. All addenda or notice of addenda will be posted on Rock County's website, www.co.rock.wi.us.

PROJECTED TIMETABLE

Issue Invitation to Bid	September 13, 2022
Pre-Bid Conference	September 20, 2022 – 9:00 a.m.
Questions Due	September 27, 2022 – 12:00 noon
Amendments Issued by	October 5, 2022 – 5:00 p.m.
Bids Due	October 11, 2022 – 2:00 p.m.
Governing Committee Approval	October 18, 2022
County Board Approval	October 27, 2022

Vendors not involved in the final selection process will be notified in writing. The above schedule is for informational purposes only and is in no way binding upon Rock County.

BID SECURITY – REQUIRED

Make Bid Security payable to Rock County, Wisconsin, in the amount of five (5) percent of the Bid Sum. Security shall either be certified check or bid bond issued by surety licensed to conduct business in the State of Wisconsin. The successful Bidder's security will be retained until he/she has signed a Contract and furnished the required payment and performance bonds. Rock County will retain the security of all Bidders until the successful bidder enters into Contract or until 45 days after bid opening, whichever is shorter. If any Bidder refuses to enter into a Contract, Rock County will retain Bid Security as liquidated damages, but not as a penalty. **Submit Bid Security with Bid.**

PERFORMANCE BOND AND LABOR AND MATERIALS PAYMENT BOND - REQUIRED

The successful Contractor shall furnish a Performance Bond and Labor and Materials Payment Bond each in the amount of 100% of the Contract Sum. All such bonds shall be issued by a surety company licensed to do business in the State of Wisconsin. Contractor shall pay all premiums. Deliver said bonds to Rock County no later than the date of execution of the contract. Failure or neglecting to deliver said bonds as specified, shall be considered as having abandoned the Contract, and the Bid Security will be retained as liquidated damages.

VENDOR SUPPLIED DOCUMENTATION AND MATERIALS

All vendor-supplied materials, including the vendor's bid, become the property of Rock County. We will work with vendors to meet their confidentiality requirements, provided that they are within reason. All vendor confidential material shall have each page clearly marked as confidential. Rock County's determination to treat matters as public or confidential under the Wisconsin Open Records Law shall be final.

BID AND PRESENTATION COSTS

Rock County will not be liable in any way for any costs incurred by the offerors in the presentation of their bid in response to this Invitation to Bid nor for the presentation of their bid and/or participation in any discussions or negotiations.

IMPLIED REQUIREMENTS

Products and services that are not specifically addressed in this Invitation to Bid, but which are necessary to provide functional capabilities proposed by the offeror, shall be included in the bid.

COMPLIANCE WITH INVITATION TO BID

Bids submitted shall be in strict compliance with the Invitation to Bid. Failure to comply with all provisions on the ITB may result in disqualification. Failure to visit the site or failure to examine any and all Contract Documents will in no way relieve the successful Bidder from necessity of furnishing any materials or equipment, or performing any work, that may be required to complete the work in accordance with the drawings and specifications. Neglect of the above requirements will not be accepted as reason for the delay in the work or additional compensation.

NON-DISCRIMINATION

In connection with the performance of work under this contract, the contractor agrees not to discriminate against any employee or applicant for employment because of age, race, religion, color, handicap, sex, physical condition, developmental disability as defined in s.51.01 (5)(a), sexual orientation, national origin, or military service as defined in §111.355(1), Wis. Stats. This provision shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor further agrees to take affirmative action to ensure equal employment opportunities. The contractor agrees to post in conspicuous places, available for employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of the non-discrimination clause (Wisconsin Statutes S.16.765 (2)).

INDEMNIFICATION

The contractor to perform services for Rock County shall indemnify, hold harmless, and defend Rock County, its officers, agents, and employees from any and all liability including claims, demands, losses, costs, damages and expenses of any kind and description or damage to person or property arising out of or in connection with or occurring during the course of any agreement between the contractor and Rock County where such liability is founded upon or grows out of the acts, omissions, negligence or misconduct of any agents or employees of the contractor.

PROOF OF COMPETENCY OF BIDDER

Any Bidder may be required to furnish evidence satisfactory to Rock County that the Bidder and proposed subcontractors have sufficient means, expertise, financial ability, and experience in the types of work bid to assure completion of the Contract in a satisfactory manner.

DEBARMENT

The Contractor certifies through signing their Bid that neither the Contractor nor any of its principals are debarred, suspended, proposed for debarment or declared ineligible by any federal department or agency. In addition, the Contractor shall notify Rock County within five business days in writing by registered mail if the Contractor or its principals receive a designation from the federal government that they are debarred, suspended, proposed for debarment, or declared ineligible by a federal agency.

MODIFICATION AND WITHDRAWAL

Bids may not be modified after submittal. Bidders may withdraw Bids at any time before the Bid opening, but may not resubmit them. No Bid may be withdrawn or modified after the Bid opening except where the award of Contracts has been delayed for more than 45 days from the day of the Bid opening.

DEVIATION AND EXCEPTIONS

Deviations and exceptions from terms, conditions, or specifications will be described fully under the bidder's letterhead, signed, and attached to the Bid. In the absence of such statements, the bid will be accepted as in strict compliance with all terms, conditions, and specifications and the bidder shall be held liable.

SUBSTITUTIONS

When substitutions are bid, they shall be identified by manufacturer, stock number, and other descriptive information to establish equivalencies. Substitutions shall be requested prior to the question cut-off date and time. Approved substitutions will be included in an Addendum. Rock County shall be the sole judge of equivalency.

DISQUALIFICATION

Rock County reserves the right to disqualify Bids, before and after opening upon evidence of collusion with the intent to defraud or other illegal practices upon the part of the Bidder.

REQUEST FOR CLARIFICATION

All requests by Rock County for clarification of bids will be in writing. Such requests shall not alter the offeror's pricing information contained in its bid.

CONFLICT OF INTEREST

All respondents must disclose with their Bid, the name of any officer, director or agent who is also an officer or employee of Rock County. Further, all respondents must disclose the name of any Rock County officer or employee who owns, directly or indirectly, any interest in the vendor's firm or any of its branches. Failure to disclose this information will result in disqualification of Bid and/or cancellation of Contract. Rock County reserves the right to seek damages for recoupment of losses in having to re-let or reassign.

QUANTITIES

Quantities shown within the Invitation to Bid are based upon estimated needs. The County reserves the right to increase or decrease quantities to meet actual needs or availability of funds.

QUALITY LEVEL

Unless otherwise indicated in the Invitation to Bid, all materials shall be first quality. Items which are used, obsolete, or which have been discontinued are unacceptable without prior written approval by Rock County.

SAFETY REQUIREMENTS

Materials, equipment and supplies provided to the County shall comply fully with all safety requirements that are set forth by the Wisconsin Administrative Code, Rules of the Industrial Commission on Safety, and all applicable OSHA standards. When furnishing toxic or hazardous materials as defined in sub-part "Z" of the U. S. Occupational Safety and Health Standards, the contractor shall furnish OSHA Form 20, "Material Safety and Data Sheet", for each item provided. Further, during the course of performing the service necessary to satisfy the requirements of any Invitation to Bid, the contractor is fully liable for public and private protection while work is in progress or at any site exposed as a potential hazard. Contractor shall provide warning devices and/or signs, which shall be prominently installed and displayed, and be fully in compliance with safety regulations.

TAXES

Rock County is exempt from the payment of all federal excise taxes, registration no. 41407 (For tax-free transactions under Chapter 32 of the Internal Revenue Code. The certificate of exemption is on file with the District Attorney, U. S. Treasury Department, Internal Revenue Service, Milwaukee, Wisconsin). Rock County is exempt from Wisconsin State and Local taxes on its purchases except Wisconsin excise tax as the Wisconsin Department of Revenue does not issue state exempt numbers to Counties per Wisconsin Statute 77.54 (9) (a). Contractors performing construction activities are required to pay state user tax on the cost of materials which they purchase. Rock County is required to pay an excise tax on Wisconsin beer, liquor, wine, cigarettes, tobacco products, motor vehicle fuel engine oil and aviation fuel.

OWNER PURCHASE – ACT 126

Gov. Scott Walker has signed into law Senate Bill (SB) 227 on Dec. 16, 2015, allowing contractors to purchase construction materials on behalf of certain tax-exempt clients without paying Wisconsin sales or use tax. The law applies to construction material contracts signed beginning Jan. 1, 2016. The new exemption applies to contracts with a Wisconsin county, city, village, municipality, school district, city or county hospital, and local sewer and water districts. It also covers real property construction jobs with religious, charitable, educational, and other nonprofit organizations that are themselves exempt under Wisconsin's statutes. The bill excludes highway, street, and road projects from the scope of the sales and use tax exemption.

AWARD

Award will not be made to any Bidder in default of a Contract with Rock County, or to any Bidder having as its agent or employee, any individual previously in default or guilty of misrepresentation.

NOTICE TO PROCEED

Written notice of award to successful Bidder shall be in the form of a Purchase order from Rock County mailed or delivered to the address shown on the Bid and will be considered sufficient notice of acceptance of Bid, intent to award the Contract, and "Notice to Proceed" with the work.

COMPLETION DATE

Provide a start and finish date on the Bid Form in which your Company could complete this project if awarded as indicated.

ASSIGNMENT

No right or duty in whole or in part by the contractor under any purchasing contract may be assigned or delegated without the written consent of Rock County.

GUARANTEED DELIVERY

Failure of the contractor to adhere to the delivery schedule that is specified or to promptly replace rejected materials renders the contractor liable for all costs in excess of contract price if alternate procurement is necessary. Excess costs include administrative costs.

SUBSTANCE ABUSE POLICY

Pursuant to Wis. Stat. 103.503(3), contractor, subcontractor or agent of a contractor or subcontractor that will be performing any work on this public works project verifies that it has in place, prior to the commencement of any work on this project, a written program for the prevention of substance abuse among its employees. Said verification includes confirmation that the written program contains all of the following:

1. A prohibition against any employee using, possessing, attempting to possess, distributing, delivering, or being under the influence of a drug, or use or be under the influence of alcohol, while performing work on this project.
2. A requirement that employees performing work on this project shall submit to random, reasonable suspicion, and post-accident drug and alcohol testing and to drug and alcohol testing before commencing work on this project, except that testing of an employee before commencing work on this project is not required if the employee has been participating in a random testing program during the ninety (90) days preceding the date on which the employee commences work on this project.
3. A procedure for notifying an employee who tests positive or who refuses to submit to drug or alcohol testing that he/she may not perform work on this project or have access to this project until he/she has submitted to the required drug or alcohol testing and does not test positive.

Rock County is not responsible for the cost of developing, implementing or enforcing this required substance abuse prevention program in any way; nor is it responsible for the cost of drug and alcohol testing any employee. Each employer shall be responsible for said costs.

CONTRACT REQUIREMENTS

CONTRACT

The documents that will form the contract include the "Invitation to Bid", any attachments or addendum and the successful respondent's "Bid".

APPLICABLE LAW

All contracts are governed under the laws of the State of Wisconsin and are made at Rock County, Wisconsin, and venue for any legal action to enforce the terms of the agreement will be in Rock County Circuit Court.

TERMINATION FOR DEFAULT

The contract may be terminated by Rock County, in whole or in part, in writing, whenever the County determines that the Contractor has failed to meet performance requirements of the Contract.

TERMINATION FOR CONVENIENCE

Rock County reserves the right to terminate the Contract, in whole or in part, by giving the Contractor written notice of at least thirty (30) days prior to the effective date of the termination. Upon receipt of termination from Rock County, the Contractor shall only provide those services specifically approved or directed by Rock County. All other rights and duties of the parties under the Contract shall continue during such notice period.

CANCELLATION

Failure to maintain the required certificates of insurance, permits, licenses and bonds will be cause for contract termination. If the Contractor fails to maintain and keep in force the required insurance, Rock County shall have the right to cancel and terminate the contract without notice.

Rock County reserves the right to cancel a purchasing contract in whole or in part without penalty due to the non-appropriation of funds or for failure of the contractor to comply with terms, conditions, and specifications of the contract. Any dispute arising as to quality and quantity is subject to arbitration as provided in Chapter 788, Wisconsin Statutes.

FORCE MAJEURE

Neither party to this agreement shall be liable to the other for any cost or damages if the failure to perform the Contract arises out of causes beyond the control and without the fault or negligence of the parties. Such causes may include, but are not restricted to, acts of God, fires, quarantine restriction, strikes and freight embargoes. In all cases, the failure to perform must be totally beyond the control and without fault or negligence of the party.

PERMITS, LICENSES AND FEES

The selected vendor shall be responsible for obtaining all permits, licenses, certifications etc. required by Federal, State, County and Municipal laws, regulations, codes and ordinance for the performance of the work required in these specifications and to conform with the requirements of said legislation.

PATENT FEES, ROYALTIES AND LICENSES

By accepting a contract or purchase order from Rock County, the vendor or contractor guarantees that the sale or use of the items or goods being provided will not infringe any United States patent, and covenants that it will at its own expense defend every suit which may be brought against Rock County, (provided that such party is promptly notified of such suit, and all papers therein are delivered to it) for any alleged infringement of any patent by reason of the sale or use of such article or articles, and agrees that it will pay all costs, damages and profits recoverable in such suit. The party selling to Rock County guarantees that the items or goods being provided were manufactured in accordance with applicable federal labor laws.

PUBLIC ENTITIES CRIMES

A person or affiliate that has been convicted of a public entity crime is not allowed to submit a Bid for this contract.

PUBLIC RELATIONS IMAGE

Selected vendor's personnel shall at all times handle complaints and any public contact with due regard to the County's relationship with the public. Any personnel in the employ of the selected vendor involved in the execution of work that is deemed to be conducting themselves in an unacceptable manner shall be removed from the contract at the request of Rock County.

PUBLICITY RELEASES

Contractor agrees not to refer to award of this contract in commercial advertising in such a manner as to state or imply that the products or services provided are endorsed or preferred by Rock County. The contractor shall not have the right to include the County's name in its published list of customers without prior approval of Rock County. The contractor further agrees not to publish or cite in any form, any comments or quotes from County staff.

ASSIGNMENT & SUBCONTRACTING

The selected Contractor will not be permitted to sublet, sell, transfer, assign or otherwise dispose of the contract or any portion therein, or its right, title or interest in, to any person, firm or corporation without the written consent of Rock County.

VENDOR'S RELATIONSHIP TO ROCK COUNTY

It is expressly agreed and understood that the successful vendor is in all respects an Independent Contractor as to the work, and the vendor is in no respect an agent, servant or employee of Rock County. The contract will specify the work to be done by the vendor, but the method utilized to accomplish the work shall be the responsibility of the vendor.

DEFICIENCIES

In the event that Rock County determines that there are deficiencies in the service work provided by the vendor under the contract, Rock County shall notify the vendor in writing as to the precise nature of any such deficiencies. Within ten (10) working days of receipt of such notice, vendor shall take responsible steps to correct any deficiencies.

WORK CHANGES

Rock County reserves the right to order work changes in the nature of additions, deletions or modifications without invalidating the Contract.

COMPLIANCE WITH LAWS

The Contractor shall give all notices required by and shall otherwise comply with all applicable laws, ordinances and codes and shall, at his own expense, secure and pay the fees and charges for all permits required for the performance of the contract. All materials furnished and work done is to comply with all local, state and federal laws and regulations.

WORK SITE DAMAGE

Any damage, including damage to finished surfaces, resulting from the performance of this contract shall be repaired to Rock County's satisfaction at the Contractor's expense.

RECORDS

The Contractor shall maintain accurate and complete records. All books and records pertaining to the performance of the contract shall be made available at any time during the contract and for three years following the expiration of said contract to the Rock County Finance Department, Purchasing Department or any independent auditing firm acting at the direction of Rock County.

**REQUIRED
BIDDER'S QUALIFICATION STATEMENT
AFFIDAVIT OF COMPLIANCE**

**#2022-42
INVITATION TO BID
COURTHOUSE LAW LIBRARY ALTERATION
51 SOUTH MAIN STREET
JANESVILLE, WISCONSIN
FOR ROCK COUNTY FACILITIES MANAGEMENT**

THIS FORM MUST BE COMPLETED AND SUBMITTED WITH BID TO BE CONSIDERED

_____ ("Affiant"), as a potential contractor or subcontractor, on a project for the County of Rock, swears, under oath and penalty of perjury, as follows:

NAME OF FIRM	
FIRM CONTACT	
ADDRESS AND/OR PO BOX	
CITY-STATE-ZIP	
TELEPHONE NUMBER	
FAX NUMBER	
E-MAIL	
WHEN ORGANIZED	
WHERE INCORPORATED	

Has your firm ever defaulted on any contract or failed to complete any work awarded to you?	YES	NO
Have any of your contracts resulted in lawsuits?	YES	NO
Has your firm or any member thereof, while performing work of the nature to which is being bid, ever filed bankruptcy?	YES	NO
Does your firm possess all technical qualifications and resources, including equipment, personnel, and financial resources, necessary to perform the work required for this project?	YES	NO
Does your firm possess all valid, effective licenses, registrations or certificates required by federal, state, county or local law, but not limited to, those for any type of trade work or specialty work?	YES	NO
Does your firm maintain a substance abuse policy for employees?	YES	NO
Will all employees assigned to this work have been through a safety training program within the last year?	YES	NO
Has your firm committed a willful violation of federal, state, or local government safety laws determined by a final decision of a court or government agency authority?	YES	NO
All employees assigned to this work will have to pass a Rock County Law Enforcement Background Check. Will your firm pre-screen these employees before they are submitted for a County Law Enforcement Background Check?	YES	NO
Has your firm had any type of business contracting or trade license, certification or registration revoked or suspended?	YES	NO
Has your firm been debarred by any federal, state or local government agency?	YES	NO

CURRENT CONTRACTS HELD: List contracts your organization has in progress as of the date of this statement. If contract is as a sub, give the name of the prime contractor, amount of total contract and amount of sub contract.

To adequately describe the scope of work, please feel free to attach a separate sheet with relevant information.

CONTRACT AMOUNT	SCOPE OF WORK	COMPLETION DATE	OWNER PHONE #	ARCHITECT PHONE #

LIST LAST FIVE CONTRACTS COMPLETED:

CONTRACT AMOUNT	SCOPE OF WORK	COMPLETION DATE	OWNER PHONE #	ARCHITECT PHONE #

In order for a bidder to be considered for an award of Contract, the County shall be satisfied that the bidder meets the following requirements:

- **Has completed at least two (2) project of similar size and scope of work being bid.**
- Said project shall have been of the scope and type currently being bid as outlined in the Specifications of this Project Manual.

CONTRACT AMOUNT	SCOPE OF WORK	COMPLETION DATE	OWNER PHONE #	ARCHITECT PHONE #

To adequately describe the scope of work, please feel free to attach a separate sheet with relevant information.

Do you have any objection to our inquiring about any or all of the projects listed above? If yes, describe the circumstances: Yes ☐ No ☐

Will an on-site, skilled superintendent or foreman capable of executing the work under the Contract be assigned to this project? Yes ☐ No ☐

Will this skilled superintendent or foreman actually be entrusted with executing the work under the Contract? Yes ☐ No ☐

If no, please explain:

List the training and experience of the superintendent or foreman:

EQUIPMENT: List all major equipment to be used on this project.

DESCRIPTION	OWNED/LEASED	QTY	CONDITION

- Financing: Financial Statement must be provided upon request.
- List any additional information or references on company letterhead.

The person signing below has the authority to sign on behalf of, and bind, the Affiant.

Affiant understands that failing to submit the required affidavit, or providing incorrect, false, or misleading information, shall automatically disqualify the Affiant from be awarded the public works contract and/or performing work on the project.

Signature: _____

Printed Name: _____

Title: _____

Date: _____

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DOCUMENT 00 21 00

INSTRUCTIONS TO BIDDERS

1.1 PROJECT MANUAL AND DRAWINGS

- A. Project Manual and Drawings have been prepared by;

Venture Architects, LLC,
212 North 25th Street, Milwaukee, WI. 53233

1.2 QUALIFICATIONS OF BIDDERS

- A. Before award of any contract is approved, Owner shall be satisfied that bidder:
1. Maintains a permanent place of business.
 2. Ability to obtain required Insurance and Bonding for the project.
 3. Successful record of completing projects on time and on budget
 4. Has adequate equipment to do work properly and expeditiously.
 5. Has a suitable financial status to meet obligations incidental to work.
 6. Has appropriate technical experience.

1.3 DESIGN CLARIFICATIONS

- A. The Drawings and Specifications included herein are representative and typical of the quality and type of construction for the Project.
- B. In the bidding process the Contractor shall assume the same quality and level of detail in areas of the building not specifically shown or detailed.
- C. When questions arise during construction relating to items not detailed on the architectural or engineering drawings, the Contractor shall submit a Request for Information (RFI) document and explanatory drawing or statement illustrating what the Contractor is questioning for design intent. The Request for Information (RFI) shall be submitted to the Owner for review.
- D. If Contractor has failed to completely review the Drawings and the Project Manual for the subject answer submitted via the Request for Information (RFI), and the information is clearly identified on the Drawings or in the Project Manual determined by the Architect or Engineer, the Contractor will be subject to reimburse the Architect or Engineer for the time spent verifying and confirming the condition of the Request for Information (RFI).

1.4 OTHER MANUFACTURERS AS APPROVED BY ARCHITECT

- A. Submittal shall include the Name, Model or Series number of the specific product, material, equipment or related other being submitted for approval and shall include all information specific to that Name, Model or Series number necessary to prove compliance with the specified requirements. Approved items will be so noted by Addendum.
- B. The decision of Architect is final concerning all product, material, equipment or other approvals.
- C. No products will be considered for approval if received less than ten (10) days prior to bid date unless product, material or equipment becomes discontinued by the manufacturer within the timeframe of bidding or actual construction. In some cases, the Owner shall determine a decision of purchase.
- D. If no additional products have been submitted for approval and approved, as described herein, and if no substitute products have been submitted on the Bid Form and accepted, then one of the specified product must be provided.

1.5 PREPARATION OF BIDS

- A. Bids shall be submitted on the forms included with the Bidding Documents.
- B. All blanks on the bid form shall be legibly executed in a non-erasable medium.
- C. Sums shall be expressed in both words and figures. In case of discrepancy, the amount written in words shall govern.
- D. Interlineations, alterations and erasures must be initialed by the signer of the Bid.
- E. All requested Alternates shall be bid. If no change in the Base Bid is required, enter "No Change."
- F. Where two or more Bids for designated portions of the Work have been requested, the Bidder may, without forfeiture of the bid security, state the Bidder's refusal to accept award of less than the combination of Bids stipulated by the Bidder. The Bidder shall make no additional stipulations on the bid form nor qualify the Bid in any other manner.
- G. Each copy of the Bid shall state the legal name of the Bidder and the nature of legal form of the Bidder. The Bidder shall provide evidence of legal authority to perform within the jurisdiction of the Work. Each copy shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A Bid by a corporation shall further give the state of incorporation and have the corporate seal affixed. A Bid submitted by an agent shall have a current power of attorney attached certifying the agent's authority to bind the Bidder.
- A. At the discretion of the Owner, if stipulated in the Invitation to Bid, the properly identified Bids received on time will be publicly opened by the Owner.

1.13 SUB-CONTRACTS

- A. Bidder shall submit complete list of all Sub-Contractors proposed to be used on the project for Owner's review. Submit list to Owner within two (2) days after notification of being the apparent low Bidder.

END OF DOCUMENT

EXISTING HAZARDOUS MATERIAL INFORMATION

1.1 EXISTING HAZARDOUS MATERIAL INFORMATION

- A. This Document with its referenced attachments is part of the Procurement and Contracting Requirements for Project. They provide Owner's information for Bidders' convenience and are intended to supplement rather than serve in lieu of Bidders' own investigations. They are made available for Bidders' convenience and information, but are not a warranty of existing conditions. This Document and its attachments are not part of the Contract.
- B. An existing Limited Pre-demolition Asbestos, Lead Based Paint and Universal Waste Survey, prepared by Professional Service Industries, Inc. (Intertek PSI), dated April 27th 2022, is available for viewing as appended to this document.
- C. Venture Architects, LLC assumes no liability or responsibility for the preparation or content of the Report.

1.2 INTERPRETATION

- A. The report is provided only for bidder's information and convenience and is not part of the Contract Documents. Owner and Architect do not warrant the accuracy or extent of the report or locations of the hazardous materials.
- B. Venture Architects, LLC assumes no liability or responsibility for the preparation or content of the Limited Pre-demolition Asbestos, Lead Based Paint and Universal Waste Survey. All questions concerning Limited Pre-demolition Asbestos, Lead Based Paint and Universal Waste Survey shall be directed to the Hazardous Waste Inspectors as identified in within the report.
- C. The report is based upon the assumption that hazardous materials exist in the survey scope. Interpretation of the report is bidder's responsibility. Owner and Architect will not be responsible for interpretation of report by bidders.
- D. Bidders are urged to examine the report and the site.
- E. Additional hazardous material surveys or other exploratory operations may be made by bidders at no additional cost to Owner, provided such operations are approved by Owner in advance.
- F. Refer to Conditions of the Contract for additional information.

END OF SECTION



Intertek-PSI
821 Corporate Court
Waukesha, WI 53189

Tel (262) 521-2125
Fax (262) 521-2471
intertek.com/building

April 26, 2021

Rock County

51 S. Main Street
Janesville WI, 53545

Attn: Mr. Brent Sutherland
Director -Facilities Management
brent.sutherland@co.rock.wi.us

Re: Limited Pre-Renovation Asbestos and Lead-Based Paint Survey
Rock County Courthouse – Law Library and Probate Vault
51 S. Main Street
Janesville, Wisconsin
PSI Project No.: 00542312

Dear Mr. Sutherland:

In accordance with proposal number 0054-340118 authorized on March 8, 2021, in the form of Purchase Order P2101184, Professional Service Industries, Inc. (PSI), an Intertek Company, has performed a Limited Pre-Renovation Asbestos and Lead-Based Paint Survey of the above-referenced property. Please find the electronic version of the report enclosed.

Thank you for choosing PSI as your consultant for this project. If you have any questions, or if we can be of additional service, please call us at (262) 521-2125.

Respectfully submitted,

PROFESSIONAL SERVICE INDUSTRIES, INC.

A handwritten signature in black ink, appearing to read "Michael Larsen".

Michael Larsen
Asbestos Inspector/Lead Risk Assessor
(AII/LRA-13850)

A handwritten signature in blue ink, appearing to read "Jeff Chapman".

Jeff Chapman
Principal Consultant

Enclosures

**LIMITED PRE-RENOVATION ASBESTOS AND
LEAD-BASED PAINT SURVEY**

For the

**ROCK COUNTY COURTHOUSE
LAW LIBRARY AND PROBATE VAULT
51 S. MAIN STREET
JANESVILLE, WISCONSIN**

Prepared for

**ROCK COUNTY
51 S. MAIN STREET
JANESVILLE WI, 53545**

Prepared by

**PROFESSIONAL SERVICE INDUSTRIES, INC.
821 CORPORATE COURT
WAUKESHA, WI 53189
TELEPHONE (262) 521-2125**

PSI PROJECT NO. 00542312

April 26, 2021



A handwritten signature in black ink, appearing to read "Michael Larsen".

Michael Larsen
Asbestos Inspector/
Lead Risk Assessor
(AII/LRA-13850)

A handwritten signature in blue ink, appearing to read "Jeff Chapman".

Jeff Chapman
Principal Consultant



Project Number: 00542312
Rock County Courthouse
Law Library and Probate Vault
Janesville, WI
April 26, 2021

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LIST OF APPENDICES

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APPENDIX B: BULK SAMPLE LOG
APPENDIX C: LEAD-BASED PAINT FIELD INSPECTION DATA SHEET
APPENDIX D: COMPANY/LABORATORY/PERSONNEL CERTIFICATIONS



1. EXECUTIVE SUMMARY

Professional Service Industries, Inc. (PSI) conducted a Limited Pre-Renovation Asbestos and Lead-Based Paint Survey (Survey) at the Rock County Courthouse, within the planned renovation areas of the Law library and Probate Vault. The Rock County Courthouse is located at 51 S. Main Street, in Janesville, Wisconsin. The Survey was conducted by PSI on April 15 and 19, 2021.

It should be noted that in June 2020, PSI tested flooring material within the law library and therefore those materials were not included as part of this Survey. The flooring materials that were sampled in 2020 did not contain asbestos and consisted of gray sheet flooring with associated mastic, blue vinyl flooring and associated mastic, stair tread and associated mastic, and vinyl baseboard with associated mastic.

PSI understands that the renovation scope of work for the law library will include adding walls and possibly moving an existing door and painting. PSI's scope of services for the planned renovation work included testing of paint within the library for lead and sampling wall and ceiling material for asbestos. It is understood that the renovation scope of work for the probate vault will include adding a wall and two new door openings, and possibly removing the existing ceiling and replacing it with a drop ceiling. PSI's scope of services for the planned renovation work included testing paint throughout the probate vault for lead and sampling wall and ceiling material for asbestos. Additionally, observations were performed for potential suspect asbestos-containing materials associated with the HVAC pipe system; however, no such material was apparent.

Per the scope of work, the asbestos inspection and sampling activities were limited to the renovation project areas, and that were exposed and readily accessible. Wall cavities, closed ceiling systems, building plenums, pipe chases and/or other such concealed spaces were not accessed. In addition, the electrical system for the facility was energized at the time of this inspection; as such, wiring and other electrical components were not sampled. Additionally, roofing materials and exterior materials were **not** included as part of the scope of work for this Survey.

The intent of the asbestos inspection portion of the Survey was to identify the location, quantity, and condition of asbestos-containing materials (ACM) present in visually and readily accessible areas of the renovation project area in general accordance with Federal EPA/OSHA sampling guidelines. PSI's inspector identified, quantified and assessed the condition of accessible regulated asbestos-containing materials (RACM), Category I non-friable ACM and Category II non-friable asbestos-containing materials (ACM). A hand pressure test was used to determine whether the material was friable.

Based on the methodologies described in this report, and laboratory analysis, **no ACM was detected within the sampled collected from the Law Library and Probate Vault.**

The limited lead-based paint Survey consisted of testing six (6) representative painted building components/surfaces for lead-based paint (LBP) with an X-ray Fluorescence (XRF) lead testing device. The XRF test of the gray paint on the concrete floor in the Probate Vault indicated an inconclusive result. As such, a paint chip sample was collected and submitted to a laboratory for analysis. The laboratory analysis result indicated that **the gray paint on the floor of the Probate Vault is LBP.** The laboratory analysis report of the paint chip sample is included in the Appendix. Additionally, a spreadsheet detailing the XRF tests of the painted building components and the results is provided in the Appendix.



2. INTRODUCTION

PSI conducted a Limited Pre-Renovation Asbestos and Lead-Based Paint Survey (Survey) at the Rock County Courthouse, within the planned renovation area of the Law Library and Probate Vault. The Rock County Courthouse is located at 51 S. Main Street, in Janesville, Wisconsin. This Survey was conducted by Mr. Michael Larsen with PSI, Inc. on April 15 and 19, 2021.

The Survey was generally conducted in five phases as follows:

- **Phase 1 – Record Document Review-** No renovation plans or documents were provided to PSI for review.
- **Phase 2 – Visual Inspection-** A visual inspection of the renovation project area was conducted to identify, quantify and assess the condition of accessible and exposed suspect ACM. The inspection team accessed each area within the planned renovation scope and recorded suspect asbestos containing materials present. Each material was visually estimated for total quantity within the space. The general condition and friability was also recorded. Per the scope of work, the asbestos inspection and sampling activities were limited to those materials within the renovation project areas that were planned to be Impacted or disturbed and were generally exposed and readily accessible. Wall cavities, closed ceiling systems, building plenums, pipe chases and/or other such concealed spaces were not inspected. In addition, the electrical system for the facility was energized at the time of this inspection; as such, wiring and other electrical components were not sampled. Additionally, roofing materials and exterior materials were **not** included as part of the scope of work for this Survey.
- **Phase 3 – Sample Collection and Analysis-** Samples were collected for each suspect homogeneous area. All samples were analyzed at CEI Labs located at 730 SE Maynard Road, Cary, North Carolina 27511. The CEI Labs Asbestos Laboratory is a National Voluntary Laboratory Accreditation Program (NVLAP) Laboratory.
- **Phase 4 – Lead-Based Paint Testing-** PSI was authorized to conduct XRF testing per the agreement with Rock County. The XRF tests were conducted on a randomly selected painted building components within the planned renovation areas, based on the type of painted substrate material, color of the paint, and apparent paint history. Additionally, based on an inconclusive XRF test, a paint chip sample was collected and submitted to a laboratory for analysis.
- **Phase 5 - Project Report** - This report outlines the Survey findings based on the testing results and field observations. This report includes a discussion of sampling methodology, locations, analytical methods, results, conclusions and recommendations.

2.1 AUTHORIZATION

Authorization to perform this Limited Pre-Renovation Asbestos and Lead-Based Paint Survey was provided by Rock County, in the form of in the form of Purchase Order P2101184 authorized on March 8, 2021.



2.2 SITE DESCRIPTION

The facility consists of the existing Rock County Courthouse, at 51 S. Main Street, in Janesville, Wisconsin. The planned renovation area of the Rock County Courthouse is limited to within the Law Library and Probate Vault.

2.3 PROJECT BACKGROUND

PSI understands that the scope of services for the planned renovation work includes testing of paint within the library for lead and sampling wall and ceiling material for asbestos. It is understood that the renovation scope of work for the probate vault will include adding a wall and two new door openings, and possibly removing the existing ceiling and replacing it with a drop ceiling.

PSI's scope of services for the planned renovation work included testing paint throughout the probate vault for lead and sampling wall and ceiling material for asbestos. Additionally, observations were performed for potential suspect asbestos-containing materials associated with the HVAC pipe system; however, no such material was apparent.

2.4 PURPOSE AND SCOPE

This limited asbestos inspection portion of the Survey included a visual inspection and sampling of the building materials within the renovation project area and was conducted in general accordance with Federal EPA/OSHA sampling guidelines to evaluate the presence of ACM. PSI's inspection team identified, quantified and assessed the condition of accessible and exposed RACM, Category I non-friable ACM and Category II non-friable ACM. When accessible materials were touched to determine whether the material was friable.

Per the scope of work, the asbestos inspection and sampling activities were limited to those areas that were generally exposed and readily accessible within the plan limits of the renovation project area. Wall cavities, closed ceiling systems, building plenums, pipe chases and/or other such concealed spaces were not inspected. In addition, the electrical system for the facility was energized at the time of this inspection; as such, wiring and other electrical components were not sampled. Additionally, roofing materials and exterior materials were **not** included as part of the scope of work for this Survey.

The limited lead-based paint Survey consisted of testing six (6) painted building components/surfaces for lead-based paint with a non-destructive X-ray Fluorescence (XRF) lead testing device. Additionally, based on an inconclusive XRF test, a paint chip sample was collected and submitted to a laboratory for analysis.

The Limited Pre-Renovation Asbestos and Lead-Based Paint Survey was completed in general accordance with the authorized scope of work as identified in the agreement between PSI and the client.



3. ASSESSMENT ACTIVITIES

The visual inspection and sampling activities were conducted on April 15 and 19, 2021 by Mr. Michael Larsen of PSI, Asbestos Inspector (certification number AII-13850) and Lead-Based Paint Risk Assessor (certification number LRA-13850).

3.1 RECORD DOCUMENT REVIEW

No renovation plans or documents were provided to PSI for review.

3.2 VISUAL INSPECTION

PSI's inspector accessed each readily accessible room or space within the planned renovation area to identify suspect homogenous areas of ACM. Suspect ACM was categorized into homogeneous areas on the basis of color, texture, appearance, use and apparent construction era (where available). Each homogeneous area was given a unique material description. Quantities were visually estimated by the inspector. The general condition and friability was also recorded.

Per the scope of work, the asbestos inspection and sampling activities were limited to those materials within the renovation project areas that were planned to be impacted or disturbed and were generally exposed and readily accessible. Wall cavities, closed ceiling systems, building plenums, pipe chases and/or other such concealed spaces were not inspected. In addition, the electrical system for the facility was energized at the time of this inspection; as such, wiring and other electrical components were not sampled. Additionally, roofing materials and exterior materials were **not** included as part of the scope of work for this Survey.

3.3 SAMPLING AND ANALYSIS

Samples were collected by cutting, chipping or coring through the material from the surface down to the base substrate. All layers of the material were extracted and placed into a sample container for transport to the laboratory. Sample containers were sealed and labeled with a unique sample ID. Restoration of finishes and materials to their pre-sampling condition was not provided.

Samples were collected for each suspect homogeneous area. All samples were analyzed at CEI Labs located at 730 SE Maynard Road, Cary, North Carolina 27511. The CEI Labs Asbestos Laboratory is a National Voluntary Laboratory Accreditation Program (NVLAP) Laboratory.

Samples were dried, homogenized and representative portions were examined with a stereobinocular microscope. If no asbestos is found in a sample, "No Asbestos Detected" is reported. If asbestos is found in a sample, the percentage and type of asbestos is reported. Point Counting verification of low concentration samples was not requested or performed.

3.4 LEAD-BASED PAINT TESTING

The non-destructive XRF testing was performed with a LPA-1 XRF Lead Paint Analyzer (LPA-1) manufactured by Radiation Monitoring Devices (RMD), operated in the quick mode. Validation checks against known lead-based



paint standards were performed before testing began, periodically during the testing session, and after the testing was completed to ensure proper operation of the XRF testing device.

XRF testing values were collected by placing the LPA-1 scanner on the surface to be tested and exposing the paint film to gamma radiation. XRF analyzers are usually capable of penetrating up to 3/8" of paint to determine lead content. At the conclusion of each test, the display on the control console shows the lead concentration in mg/cm² for manual tabulation.

The accuracy and precision of any measurement is determined by the length of each test, instrument validation checks against known standards or control blocks, measurement conditions, and mathematical laws of random error. Even when XRF equipment is properly operated within the manufacturer's specification, unusual substrates, paint additives, uneven paint applications, electrical fields, lead components in wall cavities and many other variables may cause significant fluctuations in apparent test values.

Where paint chip sample collection was necessary, an area of approximately two (2) square inches was extracted from coated components down to but not including the substrate. Chip samples were placed in a sealed container and labeled for analysis. Restoration and repainting of sampled surfaces was not within the scope of PSI's paint sampling protocol.

The paint chip sample was analyzed for lead by Atomic Absorption Spectrometry (AAS) methodology in accordance with method EPA SW-846 7420 or 7000B. The analyses were performed by Eurofins-CEI American Industrial Hygiene Association (AIHA) and Environmental Lead Laboratory Accreditation Program (ELLAP) accredited laboratory (AIHA #103025) in Cary, North Carolina.

Sampling Strategies

PSI was authorized to conduct non-destructive XRF tests per the agreement with Rock County. Tests were performed on a representative painted building components. XRF testing was performed on representative components. These components were painted, stained or varnished. In addition, based on an inconclusive XRF test result for the paint on the floor of the Probate Vault, a paint chip sample was collected and submitted to a laboratory for analysis.

Interpreting XRF Results

XRF testing results are based upon the published Performance Characteristic Sheet (PCS) for the RMD LPA-1 device. The PCS lists the performance parameters as determined by current WDNR criteria as set forth in HFS 163.

Test readings of 0.9 mg/cm² or below are reported as negative for lead-based paint.

Test readings of 1.0 mg/cm² or above are reported as positive for lead-based paint.

Inconclusive results require confirmation bulk paint chip sampling for laboratory analysis.



Explanation of XRF Spreadsheet

The XRF testing results are presented in a spreadsheet format, which can be found in the Appendix of this report. A brief explanation of each spreadsheet element is given below. The data is organized under ten column headings. Rows with bold text indicate samples that were identified as being positive for lead content.

XRF Test #: This is the number assigned to a XRF test of a painted, stained or varnished building component.

VAL: This column contains the XRF validation results. Validation tests are conducted using known standards to ensure the XRF device is operating properly.

Building Component: This is a description of the building component or material that was tested.

Paint/Varnish Color: This lists the color of the surface that was tested.

CLC mg/cm²: This is the XRF test result, which identifies the approximate level of lead that is present in the component being tested.

Result: This column identifies if the painted surface is considered to be lead-based (test readings of 1.0 mg/cm² or above) or was found not to be lead-based paint (test readings of 0.9 mg/cm² or below).

Paint Condition: The paint film quality is identified in this column. The paint film quality is identified as being good or poor.

Substrate: A description of the type of material the paint, stain or varnish is applied to. Examples include: wood, plaster, metal and brick.

Room/Direction/Height: This column gives the specific room number or name, directional designation and elevation where the test was conducted.



4. CONCLUSIONS AND RECOMMENDATIONS

PSI has performed a Limited Pre-Renovation Asbestos and Lead-Based Paint Survey of the facility's planned renovation area in general accordance with PSI's agreement with the client. Based on the results of this assessment, the following conclusions recommendations have been developed.

3.1 ASBESTOS CONTAINING MATERIALS

The facility consists existing Rock County Courthouse building located at 51 S. Main Street, Janesville, Wisconsin. The planned renovation areas of the facility were limited to the Law library and Probate Vault.

During the visual inspection, PSI identified 6 homogenous materials. A total of 22 representative bulk samples of the homogenous materials were collected and submitted to a laboratory for analysis of asbestos. **No asbestos was detected within the samples.**

Data Interpretation

A material is considered an asbestos containing material if at least one sample from the homogenous area is confirmed to contain greater than one percent (>1.0%) asbestos under laboratory analysis. In addition, OSHA's construction standard considers all thermal systems insulation and surfacing materials in a facility constructed prior to 1981 to be presumed asbestos containing (PACM) and all flooring to be assumed asbestos containing unless it is demonstrated through laboratory analysis to contain 1.0% asbestos or less. The National Emissions Standard for Hazardous Air Pollutants (NESHAPs) further classifies ACM as regulated (RACM), Category I non-friable ACM or Category II non-friable ACM.

A RACM as defined by NESHAP is any (a) Friable asbestos material, (b) Category I non-friable ACM that has become friable, (c) Category I non-friable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading, or (d) Category II non-friable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations.

Following the EPA inspection protocol, each identified suspect homogeneous material was placed in one of the following EPA classifications:

- **Friable Materials** NESHAP defines a friable ACM as any material containing more than one percent asbestos that when dry, can be crumbled, pulverized, or reduced to powder by hand pressure.
- **Category I Non-friable** NESHAP defines a Category I non-friable ACM as packing, gaskets, resilient floor covering (except vinyl sheet flooring products which are considered friable), and asphalt roofing products which contain more than one percent asbestos.
- **Category II Non-friable** NESHAP defines a Category II non-friable ACM as any material, except for a Category I non-friable ACM, which contains more than one percent asbestos and cannot be reduced to a powder by hand pressure when dry.



Recommendations

No additional inspection or sample collection within the renovation areas is warranted.

3.2 LEAD-BASED PAINT

The definition of a Lead-Based Paint (LBP) by the U.S. EPA and the State of Wisconsin is a paint that contains 1.0 mg/cm² (or greater) by XRF test, or a laboratory AAS result of more than 0.5% lead by weight. As indicated in the laboratory analysis report (Sample ID P-1), the concentration of lead in the gray paint on the floor of the Probate Vault is 1.1% by weight. As such, **the gray paint on the floor of the Probate Vault is LBP.**

The laboratory analysis report of the paint chip sample is included in the Appendix. Additionally, a spreadsheet detailing the XRF tests of the painted building components and the results is provided in the Appendix.

Recommendations

No additional testing for the presence of lead-based paint appears to be warranted at this time.

When renovation activities disturb LBP, the Occupational Safety & Health Administration (OSHA) Construction Standard for Lead must be followed. OSHA regulates workers exposure to lead concentrations based on the permissible exposure limit of 50 µg/m³ in the air. Therefore, in order to satisfy OSHA requirements, worker protection and monitoring may be required for work activities that disturb paints that contain lead in any amount. In accordance with the OSHA Construction Standard for Lead (29 CFR 1926.62), it is the contractors' responsibility to protect their workers when an employee may be occupationally exposed to lead. As such, it is recommended that the contractor be made aware of the presence of LBP, and that a copy of this report be made available for review.



4. WARRANTY

Limited Asbestos and Lead-Based Paint Survey

The information contained in this report is based upon the data furnished by the Client and observations and test results provided by PSI. These observations and results are time dependent, are subject to changing site conditions, and revisions to Federal, State and local regulations.

PSI warrants that these findings have been promulgated after being prepared in general accordance with generally accepted practices in the asbestos and/or lead-based paint testing and abatement industries. PSI also recognizes that raw laboratory test data are not usually sufficient to make all abatement and management decisions.

PSI did not provide any service to investigate or detect the presence of moisture, mold or other biological contaminants in or around any structure, or any service that was designed or intended to prevent or lower the risk of the occurrence of the amplification of the same. Client acknowledges that mold is ubiquitous to the environment with mold amplification occurring when building materials are impacted by moisture. Client further acknowledges that site conditions are outside of PSI's control, and that mold amplification will likely occur, or continue to occur, in the presence of moisture. As such, PSI cannot and shall not be held responsible for the occurrence or recurrence of mold amplification.

No other warranties are implied or expressed.

Use By Third Parties

This report was prepared for Rock County. That contractual relationship included an exchange of information about the facility that was unique and between PSI and its client and serves as the basis upon which this report was prepared. Because of the importance of the communication between PSI and its client, reliance or any use of this report by anyone other than Rock County, for whom it was prepared, is prohibited and therefore not foreseeable to PSI.

Reliance or use by any such third party without explicit authorization in the report does not make said third party a third-party beneficiary to PSI's contract with Rock County. Any such unauthorized reliance on or use of this report, including any of its information or conclusions, will be at third party's risk. For the same reasons, no warranties or representations, expressed or implied in this report, are made to any such third party.

Unidentifiable Conditions

This report is necessarily limited to the conditions observed and to the information available at the time of the work. Due to the nature of the work, there is a possibility that there may exist conditions which could not be identified within the scope of work or which were not apparent at the time of our site work. This report is also limited to information available from the client at the time it was conducted. The report may not represent all conditions at the facility as it only reflects the information gathered from specific locations.

APPENDIX A: LABORATORY ANALYTICAL REPORTS

Client: **PSI**
821 Corporate Ct.
Waukesha, WI 53189

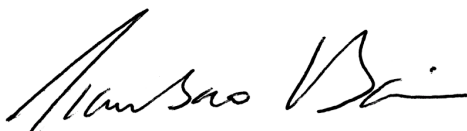
Lab Code: C210387
Received: 04-16-21
Analyzed: 04-20-21
Reported: 04-20-21

Project: Probate Vault / Law Library, 00542312

METHOD: EPA SW846 7000B

CLIENT ID	LAB ID	PPM (µg/g)	CONCENTRATION % BY WEIGHT
P-1	CA2000	11000	1.1

Reviewed By:


Tianbao Bai, Ph.D.
Laboratory Director

This method has been validated for sample weights of 0.020g or greater. When samples with a weight of less than that are analyzed those results fall outside of the scope of accreditations.

*** The analysis of composite wipe samples as a single samples is not included under AIHA accreditation.**

Minimum reporting limit is 10 µg total lead. Sample results denoted with a "less than" (<) sign contain less than 10.0 µg total lead, based on a 40ml sample volume.

Lead samples are not analyzed by Eurofins CEI Lead samples are submitted to an AIHA ELLAP accredited laboratory for lead analysis of soil, dust, paint, and TCLP samples.

Laboratory results represent the analysis of samples as submitted by the client. Information regarding sample location, description, area, volume, etc., was provided by the client. Unless notified in writing to return samples, Eurofins CEI discards client samples after 30 days. This report shall not be reproduced, except in full, without the written consent of Eurofins CEI.

Information provided by customer includes customer sample ID, location, volume and area as well as date and time of sampling.

REGULATORY LIMITS

OSHA Standard: No safe limit.
Consumer Products Safety Standard: Greater than 0.009% lead by weight.
Federal Lead Standard / HUD: 0.5% lead by weight.

LEGEND

µg = microgram
ml = milliliter

ppm = parts per million
Pb = lead

g = grams
wt = weight

End of Report



CEI

CHAIN OF CUSTODY

C210387
CA2000
(1)

730 SE Maynard Road, Cary, NC 27511

Tel: 866-481-1412; Fax: 919-481-1442

LAB USE ONLY:

CEI Lab Code:

CEI Lab I.D. Range:

COMPANY INFORMATION	PROJECT INFORMATION
CEI CLIENT #:	Job Contact: <u>MICHAEL DEHFELDT</u>
Company: <u>INTERTEK PSI</u>	Email / Tel: <u>MICHAEL.DEHFELDT@INTERTEK.COM</u>
Address: <u>821 CORPORATE COURT</u> <u>WAUKESHA, WI 53189</u>	Project Name: <u>Pasbate Vault/LAW Library</u>
Email: <u>LARRY.RASTHAK@INTERTEK.COM</u>	Project ID#: <u>00542312</u>
Tel: <u>262-521-2121</u> Fax: <u>262-521-2471</u>	PO #:
	STATE SAMPLES COLLECTED IN: <u>WI</u>

IF TAT IS NOT MARKED STANDARD 3 DAY TAT APPLIES.

ASBESTOS	METHOD	TURN AROUND TIME					
		4 HR	8 HR	1 DAY	2 DAY	3 DAY	5 DAY
PLM BULK	EPA 600	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PLM POINT COUNT (400)	EPA 600	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PLM POINT COUNT (1000)	EPA 600	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PLM GRAV w POINT COUNT	EPA 600	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PLM BULK	CARB 435	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PCM AIR	NIOSH 7400	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM AIR	EPA AHERA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM AIR	NIOSH 7402	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM AIR (PCME)	ISO 10312	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM AIR	ASTM 6281-15	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM BULK	CHATFIELD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM DUST WIPE	ASTM D6480-05 (2010)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM DUST MICROVAC	ASTM D5755-09 (2014)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM SOIL	ASTM D7521-16	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM VERMICULITE	CINCINNATI METHOD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM QUALITATIVE	IN-HOUSE METHOD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
OTHER: <u>Pb analysis by weight</u>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

REMARKS / SPECIAL INSTRUCTIONS:

Samples #01 - #14Pb sample: P-1 (Paint chip sample)JP

Accept Samples

☐

Reject Samples

Relinquished By:	Date/Time	Received By:	Date/Time
<u>[Signature]</u>	<u>4/15/21</u>	<u>JL</u>	<u>04/16 9:50</u>
<u>M. K. Larson</u>	<u>4:00 PM</u>		

Samples will be disposed of 30 days after analysis

April 21, 2021

PSI

821 Corporate Ct.
Waukesha, WI 53189

CLIENT PROJECT: Probate Vault / Law Library, 00542312
CEI LAB CODE: A214596

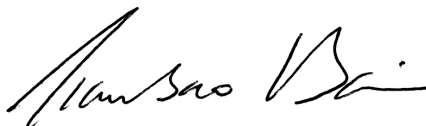
Dear Customer:

Enclosed are asbestos analysis results for PLM Bulk samples received at our laboratory on April 16, 2021. The samples were analyzed for asbestos using polarizing light microscopy (PLM) per the EPA 600 Method.

Sample results containing >1% asbestos are considered asbestos-containing materials (ACMs) per EPA regulatory requirements. The detection limit for the EPA 600 Method is <1% asbestos by weight as determined by visual estimation.

Thank you for your business and we look forward to continuing good relations.

Kind Regards,



Tianbao Bai, Ph.D., CIH
Laboratory Director

ASBESTOS ANALYTICAL REPORT

By: Polarized Light Microscopy

Prepared for

PSI

CLIENT PROJECT: Probate Vault / Law Library, 00542312

LAB CODE: A214596

TEST METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

REPORT DATE: 04/21/21

TOTAL SAMPLES ANALYZED: 14

SAMPLES >1% ASBESTOS:

Asbestos Report Summary

By: POLARIZING LIGHT MICROSCOPY

PROJECT: Probate Vault / Law Library, 00542312

LAB CODE: A214596

METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

Client ID	Layer	Lab ID	Color	Sample Description	ASBESTOS %
01		A66646A	Gray	Mv4-y	None Detected
		A66646B	Yellow,Tan	Mv4-y	None Detected
02		A66647A	Gray	Mv4-y	None Detected
		A66647B	Yellow,Tan	Mv4-y	None Detected
03		A66648A	Gray	Mv4-y	None Detected
		A66648B	White	Mv4-y	None Detected
04		A66649	Gray,White	Mcb	None Detected
05		A66650	Gray,White	Mcb	None Detected
06		A66651	Gray,White	Mcb	None Detected
07		A66652	Gray,White	Mcbm	None Detected
08		A66653	Gray,White	Mcbm	None Detected
09		A66654	Gray,White	Mcbm	None Detected
10	Layer 1	A66655	White	Sp1	None Detected
	Layer 2	A66655	Gray	Sp1	None Detected
11	Layer 1	A66656	White	Sp1	None Detected
	Layer 2	A66656	Gray	Sp1	None Detected
12	Layer 1	A66657	White	Sp1	None Detected
	Layer 2	A66657	Gray	Sp1	None Detected
13	Layer 1	A66658	White	Sp1	None Detected
	Layer 2	A66658	Gray	Sp1	None Detected
14	Layer 1	A66659	White	Sp1	None Detected
	Layer 2	A66659	Gray	Sp1	None Detected

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

Client: **PSI**
821 Corporate Ct.
Waukesha, WI 53189

Lab Code: A214596
Date Received: 04-16-21
Date Analyzed: 04-21-21
Date Reported: 04-21-21

Project: Probate Vault / Law Library, 00542312

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS		ASBESTOS %
			Fibrous	Non-Fibrous	
01 A66646A	Mv4-y	Homogeneous		85% Vinyl	None Detected
		Gray		15% Binder	
		Non-fibrous Bound			
A66646B	Mv4-y	Heterogeneous		100% Mastic	None Detected
		Yellow, Tan			
		Non-fibrous Bound			
02 A66647A	Mv4-y	Homogeneous		85% Vinyl	None Detected
		Gray		15% Binder	
		Non-fibrous Bound			
A66647B	Mv4-y	Heterogeneous		100% Mastic	None Detected
		Yellow, Tan			
		Non-fibrous Bound			
03 A66648A	Mv4-y	Homogeneous		85% Vinyl	None Detected
		Gray		15% Binder	
		Non-fibrous Bound			
A66648B	Mv4-y	Heterogeneous		100% Mastic	None Detected
		White			
		Non-fibrous Bound			
04 A66649	Mcb	Heterogeneous		5% Paint	None Detected
		Gray, White		30% Binder	
		Non-fibrous		65% Silicates	
		Bound			

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

Client: **PSI**
 821 Corporate Ct.
 Waukesha, WI 53189

Lab Code: A214596
Date Received: 04-16-21
Date Analyzed: 04-21-21
Date Reported: 04-21-21

Project: Probate Vault / Law Library, 00542312

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS			ASBESTOS %	
			Fibrous		Non-Fibrous		
05 A66650	Mcb	Heterogeneous			5%	Paint	None Detected
		Gray,White			30%	Binder	
		Non-fibrous			65%	Silicates	
		Bound					
06 A66651	Mcb	Heterogeneous			5%	Paint	None Detected
		Gray,White			30%	Binder	
		Non-fibrous			65%	Silicates	
		Bound					
07 A66652	Mcbm	Heterogeneous			5%	Paint	None Detected
		Gray,White			30%	Binder	
		Non-fibrous			65%	Silicates	
		Bound					
08 A66653	Mcbm	Heterogeneous			5%	Paint	None Detected
		Gray,White			30%	Binder	
		Non-fibrous			65%	Silicates	
		Bound					
09 A66654	Mcbm	Heterogeneous			5%	Paint	None Detected
		Gray,White			30%	Binder	
		Non-fibrous			65%	Silicates	
		Bound					
10 Layer 1 A66655	Sp1	Heterogeneous			5%	Paint	None Detected
		White			30%	Binder	
		Non-fibrous			65%	Perlite	
		Bound					
Layer 2 A66655	Sp1	Heterogeneous	2%	Cellulose	60%	Binder	None Detected
		Gray			25%	Vermiculite	
		Non-fibrous			13%	Perlite	
		Bound					

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

Client: **PSI**
 821 Corporate Ct.
 Waukesha, WI 53189

Lab Code: A214596
Date Received: 04-16-21
Date Analyzed: 04-21-21
Date Reported: 04-21-21

Project: Probate Vault / Law Library, 00542312

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
11	Sp1	Heterogeneous			5%	Paint	None Detected
Layer 1		White			30%	Binder	
A66656		Non-fibrous			65%	Perlite	
		Bound					
Layer 2	Sp1	Heterogeneous	2%	Cellulose	60%	Binder	None Detected
A66656		Gray			25%	Vermiculite	
		Non-fibrous			13%	Perlite	
		Bound					
12	Sp1	Heterogeneous			5%	Paint	None Detected
Layer 1		White			30%	Binder	
A66657		Non-fibrous			65%	Perlite	
		Bound					
Layer 2	Sp1	Heterogeneous	2%	Cellulose	60%	Binder	None Detected
A66657		Gray			25%	Vermiculite	
		Non-fibrous			13%	Perlite	
		Bound					
13	Sp1	Heterogeneous			5%	Paint	None Detected
Layer 1		White			30%	Binder	
A66658		Non-fibrous			65%	Perlite	
		Bound					
Layer 2	Sp1	Heterogeneous	2%	Cellulose	60%	Binder	None Detected
A66658		Gray			25%	Vermiculite	
		Non-fibrous			13%	Perlite	
		Bound					
14	Sp1	Heterogeneous			5%	Paint	None Detected
Layer 1		White			30%	Binder	
A66659		Non-fibrous			65%	Perlite	
		Bound					

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

Client: **PSI**
 821 Corporate Ct.
 Waukesha, WI 53189

Lab Code: A214596
Date Received: 04-16-21
Date Analyzed: 04-21-21
Date Reported: 04-21-21

Project: Probate Vault / Law Library, 00542312

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
Layer 2 A66659	Sp1	Heterogeneous	2%	Cellulose	60%	Binder	None Detected
		Gray			25%	Vermiculite	
		Non-fibrous			13%	Perlite	
		Bound					

LEGEND: Non-Anth = Non-Asbestiform Anthophyllite
 Non-Trem = Non-Asbestiform Tremolite
 Calc Carb = Calcium Carbonate

METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

REPORTING LIMIT: <1% by visual estimation

REPORTING LIMIT FOR POINT COUNTS: 0.25% by 400 Points or 0.1% by 1,000 Points

REGULATORY LIMIT: >1% by weight

Due to the limitations of the EPA 600 method, nonfriable organically bound materials (NOBs) such as vinyl floor tiles can be difficult to analyze via polarized light microscopy (PLM). EPA recommends that all NOBs analyzed by PLM, and found not to contain asbestos, be further analyzed by Transmission Electron Microscopy (TEM). Please note that PLM analysis of dust and soil samples for asbestos is not covered under NVLAP accreditation. *Estimated measurement of uncertainty is available on request.*

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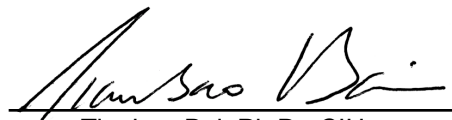
Information provided by customer includes customer sample ID and sample description.

ANALYST:



Justin Shu

APPROVED BY:



Tianbao Bai, Ph.D., CIH
Laboratory Director



CEI

CHAIN OF CUSTODY

730 SE Maynard Road, Cary, NC 27511

Tel: 866-481-1412; Fax: 919-481-1442

LAB USE ONLY:

CEI Lab Code: A214596

CEI Lab I.D. Range: A66646-A66659

(14)

COMPANY INFORMATION	PROJECT INFORMATION
CEI CLIENT #:	Job Contact: MICHAEL REHFELDT
Company: INTERTEK PSI	Email / Tel: MICHAEL.REHFELDT@INTERTEK.COM
Address: 821 CORPORATE COURT WAUKESHA, WI 53189	Project Name: Probate Vault/Law Library
Email: Larry.Radtke@INTERTEK.COM	Project ID#: 00542312
Tel: 262-521-2121 Fax: 262-521-2471	PO #:
	STATE SAMPLES COLLECTED IN: WI

IF TAT IS NOT MARKED STANDARD 3 DAY TAT APPLIES.

ASBESTOS	METHOD	TURN AROUND TIME					
		4 HR	8 HR	1 DAY	2 DAY	3 DAY	5 DAY
PLM BULK	EPA 600	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PLM POINT COUNT (400)	EPA 600	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PLM POINT COUNT (1000)	EPA 600	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PLM GRAV w POINT COUNT	EPA 600	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PLM BULK	CARB 435	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PCM AIR	NIOSH 7400	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM AIR	EPA AHERA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM AIR	NIOSH 7402	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM AIR (PCME)	ISO 10312	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM AIR	ASTM 6281-15	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM BULK	CHATFIELD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM DUST WIPE	ASTM D6480-05 (2010)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM DUST MICROVAC	ASTM D5755-09 (2014)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM SOIL	ASTM D7521-16	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM VERMICULITE	CINCINNATI METHOD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM QUALITATIVE	IN-HOUSE METHOD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
OTHER: Pb analysis by weight		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

REMARKS / SPECIAL INSTRUCTIONS:

Samples #01 - #14

Pb sample: P-1 (Paint chip sample)



Accept Samples



Reject Samples

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	4/15/21	J.C.	04/16 9:50
M. K. Larson	4:00 PM		

Samples will be disposed of 30 days after analysis

April 22, 2021

PSI

821 Corporate Ct.
Waukesha, WI 53189

CLIENT PROJECT: 51 S. Main St. Janesville, WI, 00542312
CEI LAB CODE: A214791

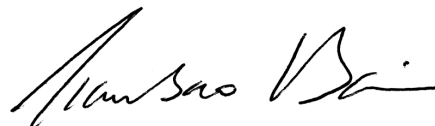
Dear Customer:

Enclosed are asbestos analysis results for PLM Bulk samples received at our laboratory on April 20, 2021. The samples were analyzed for asbestos using polarizing light microscopy (PLM) per the EPA 600 Method.

Sample results containing >1% asbestos are considered asbestos-containing materials (ACMs) per EPA regulatory requirements. The detection limit for the EPA 600 Method is <1% asbestos by weight as determined by visual estimation.

Thank you for your business and we look forward to continuing good relations.

Kind Regards,



Tianbao Bai, Ph.D., CIH
Laboratory Director

ASBESTOS ANALYTICAL REPORT

By: Polarized Light Microscopy

Prepared for

PSI

CLIENT PROJECT: 51 S. Main St. Janesville, WI, 00542312

LAB CODE: A214791

TEST METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

REPORT DATE: 04/22/21

TOTAL SAMPLES ANALYZED: 8

SAMPLES >1% ASBESTOS:



CEI

Asbestos Report Summary

By: POLARIZING LIGHT MICROSCOPY

PROJECT: 51 S. Main St. Janesville, WI, 00542312 LAB CODE: A214791

METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

Client ID	Layer	Lab ID	Color	Sample Description	ASBESTOS %
15		A69134	White, Tan	Msct	None Detected
16		A69135	White, Tan	Msct	None Detected
17		A69136	White, Tan	Msct	None Detected
18	Layer 1	A69137	White	Sp2	None Detected
	Layer 2	A69137	Tan	Sp2	None Detected
19	Layer 1	A69138	White	Sp2	None Detected
	Layer 2	A69138	Gray	Sp2	None Detected
	Layer 3	A69138	Tan	Sp2	None Detected
20	Layer 1	A69139	White	Sp2	None Detected
	Layer 2	A69139	Tan	Sp2	None Detected
21	Layer 1	A69140	White	Sp2	None Detected
	Layer 2	A69140	Gray	Sp2	None Detected
22	Layer 1	A69141	White	Sp2	None Detected
	Layer 2	A69141	Tan	Sp2	None Detected

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

Client: **PSI**
821 Corporate Ct.
Waukesha, WI 53189

Lab Code: A214791
Date Received: 04-20-21
Date Analyzed: 04-22-21
Date Reported: 04-22-21

Project: 51 S. Main St. Janesville, WI, 00542312

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
15 A69134	Msct	Heterogeneous	50%	Cellulose	5%	Paint	None Detected
		White, Tan	10%	Fiberglass	25%	Perlite	
		Fibrous	10%	Mineral Wool			
		Loosely Bound					
16 A69135	Msct	Heterogeneous	50%	Cellulose	5%	Paint	None Detected
		White, Tan	10%	Fiberglass	25%	Perlite	
		Fibrous	10%	Mineral Wool			
		Loosely Bound					
17 A69136	Msct	Heterogeneous	50%	Cellulose	5%	Paint	None Detected
		White, Tan	10%	Fiberglass	25%	Perlite	
		Fibrous	10%	Mineral Wool			
		Loosely Bound					
18 Layer 1 A69137	Sp2	Heterogeneous			25%	Calc Carb	None Detected
		White			15%	Silicates	
		Non-fibrous			60%	Binder	
		Tightly Bound					
Layer 2 A69137	Sp2	Heterogeneous	2%	Cellulose	20%	Vermiculite	None Detected
		Tan			15%	Silicates	
		Fibrous			63%	Binder	
		Bound					
19 Layer 1 A69138	Sp2	Heterogeneous			25%	Calc Carb	None Detected
		White			15%	Silicates	
		Non-fibrous			60%	Binder	
		Tightly Bound					
Layer 2 A69138	Sp2	Heterogeneous			25%	Perlite	None Detected
		Gray			10%	Silicates	
		Non-fibrous			65%	Binder	
		Bound					

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

Client: **PSI**
 821 Corporate Ct.
 Waukesha, WI 53189

Lab Code: A214791
Date Received: 04-20-21
Date Analyzed: 04-22-21
Date Reported: 04-22-21

Project: 51 S. Main St. Janesville, WI, 00542312

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS		ASBESTOS %
			Fibrous	Non-Fibrous	
Layer 3 A69138	Sp2	Heterogeneous		20% Vermiculite	None Detected
		Tan		15% Silicates	
		Non-fibrous		65% Binder	
		Bound			
20 Layer 1 A69139	Sp2	Heterogeneous		25% Calc Carb	None Detected
		White		15% Silicates	
		Non-fibrous		60% Binder	
		Tightly Bound			
Layer 2 A69139	Sp2	Heterogeneous	2% Cellulose	20% Vermiculite	None Detected
		Tan		15% Silicates	
		Fibrous		63% Binder	
		Bound			
21 Layer 1 A69140	Sp2	Heterogeneous		25% Calc Carb	None Detected
		White		15% Silicates	
		Non-fibrous		60% Binder	
		Tightly Bound			
Layer 2 A69140	Sp2	Heterogeneous		25% Perlite	None Detected
		Gray		10% Silicates	
		Non-fibrous		65% Binder	
		Bound			
22 Layer 1 A69141	Sp2	Heterogeneous		25% Calc Carb	None Detected
		White		15% Silicates	
		Non-fibrous		60% Binder	
		Tightly Bound			
Layer 2 A69141	Sp2	Heterogeneous	2% Cellulose	20% Vermiculite	None Detected
		Tan		15% Silicates	
		Fibrous		63% Binder	
		Bound			

LEGEND: Non-Anth = Non-Asbestiform Anthophyllite
 Non-Trem = Non-Asbestiform Tremolite
 Calc Carb = Calcium Carbonate

METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

REPORTING LIMIT: <1% by visual estimation

REPORTING LIMIT FOR POINT COUNTS: 0.25% by 400 Points or 0.1% by 1,000 Points

REGULATORY LIMIT: >1% by weight

Due to the limitations of the EPA 600 method, nonfriable organically bound materials (NOBs) such as vinyl floor tiles can be difficult to analyze via polarized light microscopy (PLM). EPA recommends that all NOBs analyzed by PLM, and found not to contain asbestos, be further analyzed by Transmission Electron Microscopy (TEM). Please note that PLM analysis of dust and soil samples for asbestos is not covered under NVLAP accreditation. *Estimated measurement of uncertainty is available on request.*

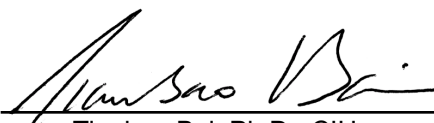
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Information provided by customer includes customer sample ID and sample description.

ANALYST:


 Elisabeth Thinh

APPROVED BY:


 Tianbao Bai, Ph.D., CIH
 Laboratory Director



CEI

730 SE Maynard Road, Cary, NC 27511
Tel: 866-481-1412; Fax: 919-481-1442

CHAIN OF CUSTODY

LAB USE ONLY:

CEI Lab Code:

CEI Lab I.D. Range:

A214791

A69134-A69141

COMPANY INFORMATION		PROJECT INFORMATION	
CEI CLIENT #:		Job Contact:	Mike Kehfort
Company:	INTERTEK PSI, INC.	Email / Tel:	MICHAEL.KEHFORT@INTERTEK.COM
Address:	821 CORPORATE COURT WAUKESHA, WI 53189	Project Name:	51 S. MAIN ST. JANESVILLE, WI
Email:	LARRY.RASTH@INTERTEK.COM	Project ID#:	00542812
Tel:	262-521-2125	PO #:	
Fax:	262-521-2471	STATE SAMPLES COLLECTED IN:	WI

IF TAT IS NOT MARKED STANDARD 3 DAY TAT APPLIES.

ASBESTOS	METHOD	TURN AROUND TIME					
		4 HR	8 HR	1 DAY	2 DAY	3 DAY	5 DAY
PLM BULK	EPA 600	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PLM POINT COUNT (400)	EPA 600	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PLM POINT COUNT (1000)	EPA 600	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PLM GRAV w POINT COUNT	EPA 600	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PLM BULK	CARB 435	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PCM AIR	NIOSH 7400	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM AIR	EPA AHERA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM AIR	NIOSH 7402	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM AIR (PCME)	ISO 10312	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM AIR	ASTM 6281-15	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM BULK	CHATFIELD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM DUST WIPE	ASTM D6480-05 (2010)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM DUST MICROVAC	ASTM D5755-09 (2014)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM SOIL	ASTM D7521-16	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM VERMICULITE	CINCINNATI METHOD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM QUALITATIVE	IN-HOUSE METHOD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
OTHER:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

REMARKS / SPECIAL INSTRUCTIONS:



Accept Samples



Reject Samples

Relinquished By:

Date/Time

Received By:

Date/Time

[Signature]
M. K. Larson

4/19/21

4:00 pm

J.C.

04/20

10:30

Samples will be disposed of 30 days after analysis

APPENDIX B: BULK SAMPLE LOG



BULK SAMPLE LOG

Client:	Rock County
Project:	0542312
Address:	51 S. Main St, Janesville, WI

Date of Inspection: 4/15/21
Inspector: ML/KH
Inspector #:

[illegible]

psi Information
To Build On
Engineering • Consulting • Testing

Client:	Rock County
Project:	Court House - 0542312
Address:	51 S. Main St, Janesville

Date of Inspection: 4/19/21
Inspector: ML/KH
Inspector #: 13850 / 2385

[illegible]



HOMOMGENEOUS BUILDINGS MATERIALS FORM

Client:	Rock County	Construction Date:	
Project:	0542312 Court House	Date of Inspection:	4/19/21
Address:	51 S. Main St, Janesville	Inspector:	ML / RH
		Inspector #:	13850 / 4385

[illegible]

Note: Include all assumed materials and non-material codes such as INC, INA, etc.

APPENDIX C: LEAD-BASED PAINT FIELD INSPECTION DATA SHEET



Page: 1 of 1

Project No.: 00542312

XRF Serial #: 3576

Note: * = Paint Chip Sample Collected/Submitted to Lab for Analysis (Inconclusive XRF Test Result), Lab Analysis Result Indicates LBP

APPENDIX D: COMPANY/LABORATORY/PERSONNEL CERTIFICATIONS

Company Certificate

This certifies that

PSI - PROFESSIONAL SERVICE INDUSTRIES INC

821 CORPORATE CT
WAUKESHA WI 53189-5009

is certified under ch. DHS 159, Wis.Adm.Code as a

Asbestos Company -- Primary

Certificate Issue Date: 07/31/2019
Expiration Date: 08/01/2021, 12:01 a.m.
Certification #: CAP-16820

Wisconsin Department of Health Services
Division of Public Health
Bureau of Environmental and Occupational Health
Asbestos & Lead Section
PO Box 2659
Madison WI 53701-2659
Phone: (608) 261-6876



Miriam Hasan
Miriam Hasan, Unit Supervisor

Company Certificate

This certifies that

PSI - PROFESSIONAL SERVICE INDUSTRIES INC

821 CORPORATE CT
WAUKESHA WI 53189-5009

is certified under ch. DHS 163, Wis.Adm.Code as a

Lead Company

Certificate Issue Date: 07/22/2019
Expiration Date: 08/01/2021, 12:01 a.m.
Certification #: DHS-16820

Wisconsin Department of Health Services
Division of Public Health
Bureau of Environmental and Occupational Health
Asbestos & Lead Section
PO Box 2659
Madison WI 53701-2659
Phone: (608) 261-6876



Miriam Hasan
Miriam Hasan, Unit Supervisor

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 101768-0

Eurofins CEI, Inc.

Cary, NC

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

Asbestos Fiber Analysis

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).*

2020-04-01 through 2021-03-31

Effective Dates



Dana S. Laman
For the National Voluntary Laboratory Accreditation Program

Milwaukee Lead/Asbestos Information Center

*A division of Midwest Certified Training, Inc.
3495 North 124th Street, Brookfield, WI 53005 Phone: 414-481-9070*



Michael Louis Franklin Larsen

COPY

*Has successfully completed a course and passed the examination on June 29, 2020
with a minimum score of 70 percent, that meets all criteria for the State of Wisconsin
Recertification as an*

Asbestos Inspector Refresher Course

Date of Course: June 29, 2020

Date Issued June 29, 2020

Date of Expiration: June 29, 2021

Certification Number: AIR20062959688

Location: Milwaukee Lead/Asbestos Information Center, 3495 North 124th Street, Brookfield, WI 53005

DCQ Course ID #: 9606

A handwritten signature in dark ink, appearing to read "Rocky Everly". The signature is fluid and cursive, written over a horizontal line.

*Rocky Everly, Director of Milwaukee Lead/Asbestos Information Center, Inc.
3495 North 124th Street
Brookfield, WI 53005
414-481-9070*

This training course complies with the requirements of TSCA Title II and is accredited by the State of Wisconsin Department of Health Services under ch. DHS 159, Wis. Admin. Code.



LEAD(PB) RISK ASSESSOR

Issued By

STATE OF WISCONSIN

Dept. of Health Services

Michael Louis Larsen

6352 N 104th St

Milwaukee WI 53225-1408

		350 lbs	5' 10"
LRA-13850	Exp: 03/02/2021	07/24/1970	

Training due by: 03/02/2022

SECTION 00 41 00 BID FORM

**Courthouse Law Library Alteration
Janesville, Wisconsin
Rock County Project #2022-42**

_____, 2022
(Date)

To: Shilo Titus, Purchasing Manager
Rock County Courthouse, Purchasing Division
51 South Main Street
Janesville, WI 53545

From: _____
(Name)

(Address)

(If addendum numbers are not filled in, it will be assumed that if an addendum was issued, it was not received and therefore the bid will be rejected as nonresponsive.)

Having carefully examined the Instructions to Bidders, General and Supplementary Conditions of the Contract, the Specifications, including Addenda Nos. _____ to _____ inclusive, (receipt of which is hereby acknowledged) and the Drawings and having visited the site and examined all conditions affecting the work, the Undersigned proposes to furnish all labor and materials called for by the said Documents for completion of the construction project of the Law Library/Probate Renovation located at 51 South Main Street in Janesville Wisconsin for the sum constituting:

BASE BIDS:

All labor and miscellaneous products, materials, equipment and appliances necessary to complete all the Work as described in Divisions 00 thru 33.

Total cost shall be:

\$ _____
Written Words

\$ _____
Numeric Amount

Bidder agrees that, if awarded contract, project will be completed, ready for occupancy and/or use on dates indicated below. (NO EXCEPTIONS).

Start Date: _____, 2022

Completion of Work: _____, 2022

SUBCONTRACTORS

Bidder agrees to furnish complete list of Subcontractors within two (2) days after notification that they are low bidder and that they will not subcontract any work, except as noted in list or as permitted by Change Order.

BID GUARANTEE

Accompanying this Proposal is a (Certified Check) (Bid Bond) (Bank Draft) in the amount of not less than five percent (5%) of the total bid:

\$ _____
Written Words

\$ _____
Numeric Amount

payable to _____ of _____, WI. which will be forfeited if the Undersigned fails to enter into Contract for the Project.

Sworn and subscribed before me this _____ day of _____, 2022

Notary Public _____

(Seal)

County _____

My Commission expires _____

END OF DOCUMENT

DRAFT AIA® Document A101™ – 2017

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

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

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

« »
« »
« »
« »

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

« »
« »
« »
« »

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

« »
« »
« »

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

« »
« »
« »
« »

The Owner and Contractor agree as follows.

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

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

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

ELECTRONIC COPYING of any portion of this AIA® Document to another electronic file is prohibited and constitutes a violation of copyright laws as set forth in the footer of this document.

TABLE OF ARTICLES

- 1 THE CONTRACT DOCUMENTS
- 2 THE WORK OF THIS CONTRACT
- 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION
- 4 CONTRACT SUM
- 5 PAYMENTS
- 6 DISPUTE RESOLUTION
- 7 TERMINATION OR SUSPENSION
- 8 MISCELLANEOUS PROVISIONS
- 9 ENUMERATION OF CONTRACT DOCUMENTS

EXHIBIT A INSURANCE AND BONDS

ARTICLE 1 THE CONTRACT DOCUMENTS

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

ARTICLE 2 THE WORK OF THIS CONTRACT

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

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be:

(Check one of the following boxes.)

☐ The date of this Agreement.

☐ A date set forth in a notice to proceed issued by the Owner.

☐ Established as follows:

(Insert a date or a means to determine the date of commencement of the Work.)

« »

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

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

§ 3.3 Substantial Completion

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

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

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

[« »] By the following date: « »

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

Portion of Work	Substantial Completion Date

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

ARTICLE 4 CONTRACT SUM

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

§ 4.2 Alternates

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

Item	Price

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

Item	Price	Conditions for Acceptance

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

Item	Price

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

Item	Units and Limitations	Price per Unit (\$0.00)

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

« »

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

« »

ARTICLE 5 PAYMENTS

§ 5.1 Progress Payments

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

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

« »

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

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

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

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

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

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

- .1 That portion of the Contract Sum properly allocable to completed Work;
- .2 That portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction, or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing; and
- .3 That portion of Construction Change Directives that the Architect determines, in the Architect's professional judgment, to be reasonably justified.

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

- .1 The aggregate of any amounts previously paid by the Owner;
- .2 The amount, if any, for Work that remains uncorrected and for which the Architect has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A201–2017;
- .3 Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;
- .4 For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A201–2017; and
- .5 Retainage withheld pursuant to Section 5.1.7.

§ 5.1.7 Retainage

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

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

« »

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

<< >>

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

<< >>

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

<< >>

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

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

§ 5.2 Final Payment

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

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

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

<< >>

§ 5.3 Interest

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

(Insert rate of interest agreed upon, if any.)

<< >> % << >>

ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 Initial Decision Maker

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

<< >>

<< >>

<< >>

<< >>

§ 6.2 Binding Dispute Resolution

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

(Check the appropriate box.)

☐ Arbitration pursuant to Section 15.4 of AIA Document A201–2017

☐ Litigation in a court of competent jurisdiction

☐ Other *(Specify)*

☐

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

ARTICLE 7 TERMINATION OR SUSPENSION

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

§ 7.1.1 If the Contract is terminated for the Owner’s convenience in accordance with Article 14 of AIA Document A201–2017, then the Owner shall pay the Contractor a termination fee as follows:

(Insert the amount of, or method for determining, the fee, if any, payable to the Contractor following a termination for the Owner’s convenience.)

☐

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

ARTICLE 8 MISCELLANEOUS PROVISIONS

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

§ 8.2 The Owner’s representative:

(Name, address, email address, and other information)

☐

☐

☐

☐

☐

☐

§ 8.3 The Contractor’s representative:

(Name, address, email address, and other information)

☐

☐

☐

☐

☐

☐

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

§ 8.5 Insurance and Bonds

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

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

§ 8.6 Notice in electronic format, pursuant to Article 1 of AIA Document A201–2017, may be given in accordance with AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, if completed, or as otherwise set forth below:

(If other than in accordance with AIA Document E203–2013, insert requirements for delivering notice in electronic format such as name, title, and email address of the recipient and whether and how the system will be required to generate a read receipt for the transmission.)

<< >>

§ 8.7 Other provisions:

<< >>

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 This Agreement is comprised of the following documents:

- .1 AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor
- .2 AIA Document A101™–2017, Exhibit A, Insurance and Bonds
- .3 AIA Document A201™–2017, General Conditions of the Contract for Construction
- .4 AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, dated as indicated below:

(Insert the date of the E203-2013 incorporated into this Agreement.)

<< >>

- .5 Drawings

Number	Title	Date

- .6 Specifications

Section	Title	Date	Pages

- .7 Addenda, if any:

Number	Date	Pages

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

- .8 Other Exhibits:

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

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

<< >>

[<< >>] The Sustainability Plan:

Title	Date	Pages

[<< >>] Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages

.9 Other documents, if any, listed below:

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

<< >>

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

OWNER (Signature)

<< >><< >>

(Printed name and title)

CONTRACTOR (Signature)

<< >><< >>

(Printed name and title)

DRAFT

AIA® Document G701™ – 2017

Change Order**PROJECT:** *(Name and address)***CONTRACT INFORMATION:**

Contract For:

Date:

CHANGE ORDER INFORMATION:

Change Order Number:

Date:

OWNER: *(Name and address)***ARCHITECT:** *(Name and address)***CONTRACTOR:** *(Name and address)***THE CONTRACT IS CHANGED AS FOLLOWS:***(Insert a detailed description of the change and, if applicable, attach or reference specific exhibits. Also include agreed upon adjustments attributable to executed Construction Change Directives.)*

The original Contract Sum was

\$ 0.00

The net change by previously authorized Change Orders

\$ 0.00

The Contract Sum prior to this Change Order was

\$ 0.00

The Contract Sum will be increased by this Change Order in the amount of

\$ 0.00

The new Contract Sum including this Change Order will be

\$ 0.00

The Contract Time will be increased by Zero (0) days.

The new date of Substantial Completion will be

NOTE: This Change Order does not include adjustments to the Contract Sum or Guaranteed Maximum Price, or the Contract Time, that have been authorized by Construction Change Directive until the cost and time have been agreed upon by both the Owner and Contractor, in which case a Change Order is executed to supersede the Construction Change Directive.**NOT VALID UNTIL SIGNED BY THE ARCHITECT, CONTRACTOR AND OWNER.****ARCHITECT** *(Firm name)***CONTRACTOR** *(Firm name)***OWNER** *(Firm name)***SIGNATURE****SIGNATURE****SIGNATURE****PRINTED NAME AND TITLE****PRINTED NAME AND TITLE****PRINTED NAME AND TITLE****DATE****DATE****DATE**

DRAFT

AIA® Document G704™ – 2017

Certificate of Substantial Completion

PROJECT: *(name and address)*

CONTRACT INFORMATION:

Contract For:

Date:

CERTIFICATE INFORMATION:

Certificate Number:

Date:

OWNER: *(name and address)*

ARCHITECT: *(name and address)*

CONTRACTOR: *(name and address)*

The Work identified below has been reviewed and found, to the Architect's best knowledge, information, and belief, to be substantially complete. Substantial Completion is the stage in the progress of the Work when the Work or designated portion is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use. The date of Substantial Completion of the Project or portion designated below is the date established by this Certificate.

(Identify the Work, or portion thereof, that is substantially complete.)

ARCHITECT *(Firm Name)*

SIGNATURE

PRINTED NAME AND TITLE

DATE OF SUBSTANTIAL COMPLETION

WARRANTIES

The date of Substantial Completion of the Project or portion designated above is also the date of commencement of applicable warranties required by the Contract Documents, except as stated below:

(Identify warranties that do not commence on the date of Substantial Completion, if any, and indicate their date of commencement.)

WORK TO BE COMPLETED OR CORRECTED

A list of items to be completed or corrected is attached hereto, or transmitted as agreed upon by the parties, and identified as follows:

(Identify the list of Work to be completed or corrected.)

The failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents. Unless otherwise agreed to in writing, the date of commencement of warranties for items on the attached list will be the date of issuance of the final Certificate of Payment or the date of final payment, whichever occurs first. The Contractor will complete or correct the Work on the list of items attached hereto within () days from the above date of Substantial Completion.

Cost estimate of Work to be completed or corrected: \$

The responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work, insurance, and other items identified below shall be as follows:

(Note: Owner's and Contractor's legal and insurance counsel should review insurance requirements and coverage.)

The Owner and Contractor hereby accept the responsibilities assigned to them in this Certificate of Substantial Completion:

CONTRACTOR *(Firm Name)*

SIGNATURE

PRINTED NAME AND TITLE

DATE

OWNER *(Firm Name)*

SIGNATURE

PRINTED NAME AND TITLE

DATE

DRAFT AIA® Document A201™ – 2007

General Conditions of the Contract for Construction

for the following PROJECT:

(Name and location or address)

<< >>
<< >>

THE OWNER:

(Name, legal status and address)

<< >><< >>
<< >>

THE ARCHITECT:

(Name, legal status and address)

<< >><< >>
<< >>

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ADDITIONS AND DELETIONS:

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

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

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ARTICLE 1 GENERAL PROVISIONS

§ 1.1 BASIC DEFINITIONS

§ 1.1.1 THE CONTRACT DOCUMENTS

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

§ 1.1.2 THE CONTRACT

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

§ 1.1.3 THE WORK

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

§ 1.1.4 THE PROJECT

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

§ 1.1.5 THE DRAWINGS

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

§ 1.1.6 THE SPECIFICATIONS

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

§ 1.1.7 INSTRUMENTS OF SERVICE

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

§ 1.1.8 INITIAL DECISION MAKER

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2 and certify termination of the Agreement under Section 14.2.2.

§ 1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

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

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

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

§ 1.3 CAPITALIZATION

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

§ 1.4 INTERPRETATION

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

§ 1.5 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS AND OTHER INSTRUMENTS OF SERVICE

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

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

§ 1.6 TRANSMISSION OF DATA IN DIGITAL FORM

If the parties intend to transmit Instruments of Service or any other information or documentation in digital form, they shall endeavor to establish necessary protocols governing such transmissions, unless otherwise already provided in the Agreement or the Contract Documents.

ARTICLE 2 OWNER

§ 2.1 GENERAL

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

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

§ 2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

§ 2.2.1 Prior to commencement of the Work, the Contractor may request in writing that the Owner provide reasonable evidence that the Owner has made financial arrangements to fulfill the Owner’s obligations under the Contract. Thereafter, the Contractor may only request such evidence if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) a change in the Work materially changes the Contract Sum; or (3) the Contractor identifies in writing a reasonable concern regarding the Owner’s ability to make payment when due. The Owner shall furnish such evidence as a condition precedent to commencement or continuation of the Work or

the portion of the Work affected by a material change. After the Owner furnishes the evidence, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

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

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

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

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

§ 2.3 OWNER'S RIGHT TO STOP THE WORK

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

§ 2.4 OWNER'S RIGHT TO CARRY OUT THE WORK

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such deficiencies. In such case an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect or failure. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

ARTICLE 3 CONTRACTOR

§ 3.1 GENERAL

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

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

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

§ 3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

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

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.2.3, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

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

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

§ 3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract, unless the Contract Documents give other specific instructions concerning these matters. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences or procedures, the Contractor shall evaluate the jobsite safety thereof and, except as stated below, shall be fully and solely responsible for the jobsite safety of such means, methods, techniques, sequences or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely written notice to the Owner and Architect and shall not proceed with that portion of the Work without further written instructions from the Architect. If the Contractor is then instructed to proceed with the required means, methods, techniques, sequences or procedures without acceptance of changes proposed by the Contractor, the Owner shall be solely responsible for any loss or damage arising solely from those Owner-required means, methods, techniques, sequences or procedures.

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

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

§ 3.4 LABOR AND MATERIALS

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other

facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

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

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

§ 3.5 WARRANTY

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

§ 3.6 TAXES

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

§ 3.7 PERMITS, FEES, NOTICES AND COMPLIANCE WITH LAWS

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

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

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

§ 3.7.4 Concealed or Unknown Conditions. If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature, that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than 21 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend an equitable adjustment in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor in writing, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may proceed as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume

the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

§ 3.8 ALLOWANCES

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

§ 3.8.2 Unless otherwise provided in the Contract Documents,

- .1** Allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
- .2** Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and
- .3** Whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

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

§ 3.9 SUPERINTENDENT

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

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Architect the name and qualifications of a proposed superintendent. The Architect may reply within 14 days to the Contractor in writing stating (1) whether the Owner or the Architect has reasonable objection to the proposed superintendent or (2) that the Architect requires additional time to review. Failure of the Architect to reply within the 14 day period shall constitute notice of no reasonable objection.

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

§ 3.10 CONTRACTOR'S CONSTRUCTION SCHEDULES

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall prepare and submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work.

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

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

§ 3.11 DOCUMENTS AND SAMPLES AT THE SITE

The Contractor shall maintain at the site for the Owner one copy of the Drawings, Specifications, Addenda, Change Orders and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and one copy of approved Shop Drawings, Product Data, Samples and similar required submittals. These shall be available to the Architect and shall be delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

§ 3.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

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

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

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

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

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

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

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

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

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

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

required to provide professional services in violation of applicable law. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall cause such services or certifications to be provided by a properly licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor all performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review, approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Contractor shall not be responsible for the adequacy of the performance and design criteria specified in the Contract Documents.

§ 3.13 USE OF SITE

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

§ 3.14 CUTTING AND PATCHING

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

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

§ 3.15 CLEANING UP

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

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

§ 3.16 ACCESS TO WORK

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

§ 3.17 ROYALTIES, PATENTS AND COPYRIGHTS

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

§ 3.18 INDEMNIFICATION

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

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

ARTICLE 4 ARCHITECT

§ 4.1 GENERAL

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

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

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

§ 4.2 ADMINISTRATION OF THE CONTRACT

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

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for, the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents, except as provided in Section 3.3.1.

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

§ 4.2.4 COMMUNICATIONS FACILITATING CONTRACT ADMINISTRATION

Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Owner and Contractor shall endeavor to communicate with each other through the Architect about matters arising out of or relating to the Contract. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with separate contractors shall be through the Owner.

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

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.5.2 and 13.5.3, whether or not such Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons or entities performing portions of the Work.

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

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

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

§ 4.2.10 If the Owner and Architect agree, the Architect will provide one or more project representatives to assist in carrying out the Architect's responsibilities at the site. The duties, responsibilities and limitations of authority of such project representatives shall be as set forth in an exhibit to be incorporated in the Contract Documents.

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

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

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

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

ARTICLE 5 SUBCONTRACTORS

§ 5.1 DEFINITIONS

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

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

§ 5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

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

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

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

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

§ 5.3 SUBCONTRACTUAL RELATIONS

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

be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

§ 5.4 CONTINGENT ASSIGNMENT OF SUBCONTRACTS

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

- .1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor in writing; and
- .2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

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

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

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

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 OWNER'S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS

§ 6.1.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project or other construction or operations on the site under Conditions of the Contract identical or substantially similar to these including those portions related to insurance and waiver of subrogation. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, the Contractor shall make such Claim as provided in Article 15.

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

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

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

§ 6.2 MUTUAL RESPONSIBILITY

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

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a separate contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly report to the Architect apparent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results. Failure of the Contractor so to report shall constitute an acknowledgment that

the Owner's or separate contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work, except as to defects not then reasonably discoverable.

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

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

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

§ 6.3 OWNER'S RIGHT TO CLEAN UP

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

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 GENERAL

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

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

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

§ 7.2 CHANGE ORDERS

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

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

§ 7.3 CONSTRUCTION CHANGE DIRECTIVES

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

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

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

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

.4 As provided in Section 7.3.7.

§ 7.3.4 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed in a proposed Change Order or Construction Change Directive so that application of such unit prices to quantities of Work proposed will cause substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

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

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

§ 7.3.7 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the method and the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.7 shall be limited to the following:

- .1 Costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and workers' compensation insurance;
- .2 Costs of materials, supplies and equipment, including cost of transportation, whether incorporated or consumed;
- .3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
- .4 Costs of premiums for all bonds and insurance, permit fees, and sales, use or similar taxes related to the Work; and
- .5 Additional costs of supervision and field office personnel directly attributable to the change.

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

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

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

§ 7.4 MINOR CHANGES IN THE WORK

The Architect has authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes will be effected by written order signed by the Architect and shall be binding on the Owner and Contractor.

ARTICLE 8 TIME

§ 8.1 DEFINITIONS

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

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

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

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

§ 8.2 PROGRESS AND COMPLETION

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

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, prematurely commence operations on the site or elsewhere prior to the effective date of insurance required by Article 11 to be furnished by the Contractor and Owner. The date of commencement of the Work shall not be changed by the effective date of such insurance.

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

§ 8.3 DELAYS AND EXTENSIONS OF TIME

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by an act or neglect of the Owner or Architect, or of an employee of either, or of a separate contractor employed by the Owner; or by changes ordered in the Work; or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other causes beyond the Contractor's control; or by delay authorized by the Owner pending mediation and arbitration; or by other causes that the Architect determines may justify delay, then the Contract Time shall be extended by Change Order for such reasonable time as the Architect may determine.

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

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

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 CONTRACT SUM

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

§ 9.2 SCHEDULE OF VALUES

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

§ 9.3 APPLICATIONS FOR PAYMENT

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

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

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

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

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

§ 9.4 CERTIFICATES FOR PAYMENT

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

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

§ 9.5 DECISIONS TO WITHHOLD CERTIFICATION

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

- .1 defective Work not remedied;
- .2 third party claims filed or reasonable evidence indicating probable filing of such claims unless security acceptable to the Owner is provided by the Contractor;

- .3 failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or a separate contractor;
- .6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- .7 repeated failure to carry out the Work in accordance with the Contract Documents.

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

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

§ 9.6 PROGRESS PAYMENTS

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

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

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

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

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

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

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

§ 9.7 FAILURE OF PAYMENT

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents the amount certified by the Architect or awarded by binding

dispute resolution, then the Contractor may, upon seven additional days' written notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shut-down, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 SUBSTANTIAL COMPLETION

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

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

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

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

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

§ 9.9 PARTIAL OCCUPANCY OR USE

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer as required under Section 11.3.1.5 and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

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

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

§ 9.10 FINAL COMPLETION AND FINAL PAYMENT

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

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment and (5), if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

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

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

- .1 liens, Claims, security interests or encumbrances arising out of the Contract and unsettled;
- .2 failure of the Work to comply with the requirements of the Contract Documents; or
- .3 terms of special warranties required by the Contract Documents.

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

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 SAFETY PRECAUTIONS AND PROGRAMS

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

§ 10.2 SAFETY OF PERSONS AND PROPERTY

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

- .1 employees on the Work and other persons who may be affected thereby;
- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors; and

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

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

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

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

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

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

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

§ 10.2.8 INJURY OR DAMAGE TO PERSON OR PROPERTY

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

§ 10.3 HAZARDOUS MATERIALS

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

§ 10.3.2 Upon receipt of the Contractor's written notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of such material or substance or who are to perform the task of removal or safe containment of such material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be

extended appropriately and the Contract Sum shall be increased in the amount of the Contractor's reasonable additional costs of shut-down, delay and start-up.

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

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

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

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

§ 10.4 EMERGENCIES

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

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 CONTRACTOR'S LIABILITY INSURANCE

§ 11.1.1 The Contractor shall purchase from and maintain in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located such insurance as will protect the Contractor from claims set forth below which may arise out of or result from the Contractor's operations and completed operations under the Contract and for which the Contractor may be legally liable, whether such operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

- .1 Claims under workers' compensation, disability benefit and other similar employee benefit acts that are applicable to the Work to be performed;
- .2 Claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor's employees;
- .3 Claims for damages because of bodily injury, sickness or disease, or death of any person other than the Contractor's employees;
- .4 Claims for damages insured by usual personal injury liability coverage;
- .5 Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;
- .6 Claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle;
- .7 Claims for bodily injury or property damage arising out of completed operations; and
- .8 Claims involving contractual liability insurance applicable to the Contractor's obligations under Section 3.18.

§ 11.1.2 The insurance required by Section 11.1.1 shall be written for not less than limits of liability specified in the Contract Documents or required by law, whichever coverage is greater. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from the date of commencement of the

Work until the date of final payment and termination of any coverage required to be maintained after final payment, and, with respect to the Contractor's completed operations coverage, until the expiration of the period for correction of Work or for such other period for maintenance of completed operations coverage as specified in the Contract Documents.

§ 11.1.3 Certificates of insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the Work and thereafter upon renewal or replacement of each required policy of insurance. These certificates and the insurance policies required by this Section 11.1 shall contain a provision that coverages afforded under the policies will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner. An additional certificate evidencing continuation of liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment as required by Section 9.10.2 and thereafter upon renewal or replacement of such coverage until the expiration of the time required by Section 11.1.2. Information concerning reduction of coverage on account of revised limits or claims paid under the General Aggregate, or both, shall be furnished by the Contractor with reasonable promptness.

§ 11.1.4 The Contractor shall cause the commercial liability coverage required by the Contract Documents to include (1) the Owner, the Architect and the Architect's consultants as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's completed operations.

§ 11.2 OWNER'S LIABILITY INSURANCE

The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance.

§ 11.3 PROPERTY INSURANCE

§ 11.3.1 Unless otherwise provided, the Owner shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance written on a builder's risk "all-risk" or equivalent policy form in the amount of the initial Contract Sum, plus value of subsequent Contract Modifications and cost of materials supplied or installed by others, comprising total value for the entire Project at the site on a replacement cost basis without optional deductibles. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in Section 9.10 or until no person or entity other than the Owner has an insurable interest in the property required by this Section 11.3 to be covered, whichever is later. This insurance shall include interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Project.

§ 11.3.1.1 Property insurance shall be on an "all-risk" or equivalent policy form and shall include, without limitation, insurance against the perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, earthquake, flood, windstorm, falsework, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Architect's and Contractor's services and expenses required as a result of such insured loss.

§ 11.3.1.2 If the Owner does not intend to purchase such property insurance required by the Contract and with all of the coverages in the amount described above, the Owner shall so inform the Contractor in writing prior to commencement of the Work. The Contractor may then effect insurance that will protect the interests of the Contractor, Subcontractors and Sub-subcontractors in the Work, and by appropriate Change Order the cost thereof shall be charged to the Owner. If the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain insurance as described above, without so notifying the Contractor in writing, then the Owner shall bear all reasonable costs properly attributable thereto.

§ 11.3.1.3 If the property insurance requires deductibles, the Owner shall pay costs not covered because of such deductibles.

§ 11.3.1.4 This property insurance shall cover portions of the Work stored off the site, and also portions of the Work in transit.

§ 11.3.1.5 Partial occupancy or use in accordance with Section 9.9 shall not commence until the insurance company or companies providing property insurance have consented to such partial occupancy or use by endorsement or otherwise. The Owner and the Contractor shall take reasonable steps to obtain consent of the insurance company or companies and shall, without mutual written consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse or reduction of insurance.

§ 11.3.2 BOILER AND MACHINERY INSURANCE

The Owner shall purchase and maintain boiler and machinery insurance required by the Contract Documents or by law, which shall specifically cover such insured objects during installation and until final acceptance by the Owner; this insurance shall include interests of the Owner, Contractor, Subcontractors and Sub-subcontractors in the Work, and the Owner and Contractor shall be named insureds.

§ 11.3.3 LOSS OF USE INSURANCE

The Owner, at the Owner's option, may purchase and maintain such insurance as will insure the Owner against loss of use of the Owner's property due to fire or other hazards, however caused. The Owner waives all rights of action against the Contractor for loss of use of the Owner's property, including consequential losses due to fire or other hazards however caused.

§ 11.3.4 If the Contractor requests in writing that insurance for risks other than those described herein or other special causes of loss be included in the property insurance policy, the Owner shall, if possible, include such insurance, and the cost thereof shall be charged to the Contractor by appropriate Change Order.

§ 11.3.5 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, the Owner shall waive all rights in accordance with the terms of Section 11.3.7 for damages caused by fire or other causes of loss covered by this separate property insurance. All separate policies shall provide this waiver of subrogation by endorsement or otherwise.

§ 11.3.6 Before an exposure to loss may occur, the Owner shall file with the Contractor a copy of each policy that includes insurance coverages required by this Section 11.3. Each policy shall contain all generally applicable conditions, definitions, exclusions and endorsements related to this Project. Each policy shall contain a provision that the policy will not be canceled or allowed to expire, and that its limits will not be reduced, until at least 30 days' prior written notice has been given to the Contractor.

§ 11.3.7 WAIVERS OF SUBROGATION

The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents and employees, each of the other, and (2) the Architect, Architect's consultants, separate contractors described in Article 6, if any, and any of their subcontractors, sub-subcontractors, agents and employees, for damages caused by fire or other causes of loss to the extent covered by property insurance obtained pursuant to this Section 11.3 or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by the Owner as fiduciary. The Owner or Contractor, as appropriate, shall require of the Architect, Architect's consultants, separate contractors described in Article 6, if any, and the subcontractors, sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

§ 11.3.8 A loss insured under the Owner's property insurance shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.3.10. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their Sub-subcontractors in similar manner.

§ 11.3.9 If required in writing by a party in interest, the Owner as fiduciary shall, upon occurrence of an insured loss, give bond for proper performance of the Owner's duties. The cost of required bonds shall be charged against proceeds received as fiduciary. The Owner shall deposit in a separate account proceeds so received, which the Owner shall distribute in accordance with such agreement as the parties in interest may reach, or as determined in accordance with the method of binding dispute resolution selected in the Agreement between the Owner and Contractor. If after such loss no other special agreement is made and unless the Owner terminates the Contract for convenience, replacement of damaged property shall be performed by the Contractor after notification of a Change in the Work in accordance with Article 7.

§ 11.3.10 The Owner as fiduciary shall have power to adjust and settle a loss with insurers unless one of the parties in interest shall object in writing within five days after occurrence of loss to the Owner's exercise of this power; if such objection is made, the dispute shall be resolved in the manner selected by the Owner and Contractor as the method of binding dispute resolution in the Agreement. If the Owner and Contractor have selected arbitration as the method of binding dispute resolution, the Owner as fiduciary shall make settlement with insurers or, in the case of a dispute over distribution of insurance proceeds, in accordance with the directions of the arbitrators.

§ 11.4 PERFORMANCE BOND AND PAYMENT BOND

§ 11.4.1 The Owner shall have the right to require the Contractor to furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder as stipulated in bidding requirements or specifically required in the Contract Documents on the date of execution of the Contract.

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

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 UNCOVERING OF WORK

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

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, costs of uncovering and replacement shall, by appropriate Change Order, be at the Owner's expense. If such Work is not in accordance with the Contract Documents, such costs and the cost of correction shall be at the Contractor's expense unless the condition was caused by the Owner or a separate contractor in which event the Owner shall be responsible for payment of such costs.

§ 12.2 CORRECTION OF WORK

§ 12.2.1 BEFORE OR AFTER SUBSTANTIAL COMPLETION

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

§ 12.2.2 AFTER SUBSTANTIAL COMPLETION

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

nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.4.

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

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

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

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

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

§ 12.3 ACCEPTANCE OF NONCONFORMING WORK

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

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 GOVERNING LAW

The Contract shall be governed by the law of the place where the Project is located except that, if the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

§ 13.2 SUCCESSORS AND ASSIGNS

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

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

§ 13.3 WRITTEN NOTICE

Written notice shall be deemed to have been duly served if delivered in person to the individual, to a member of the firm or entity, or to an officer of the corporation for which it was intended; or if delivered at, or sent by registered or certified mail or by courier service providing proof of delivery to, the last business address known to the party giving notice.

§ 13.4 RIGHTS AND REMEDIES

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

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

§ 13.5 TESTS AND INSPECTIONS

§ 13.5.1 Tests, inspections and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of (1) tests, inspections or approvals that do not become requirements until after bids are received or negotiations concluded, and (2) tests, inspections or approvals where building codes or applicable laws or regulations prohibit the Owner from delegating their cost to the Contractor.

§ 13.5.2 If the Architect, Owner or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection or approval not included under Section 13.5.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection or approval by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.5.3, shall be at the Owner's expense.

§ 13.5.3 If such procedures for testing, inspection or approval under Sections 13.5.1 and 13.5.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure including those of repeated procedures and compensation for the Architect's services and expenses shall be at the Contractor's expense.

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

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

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

§ 13.6 INTEREST

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

§ 13.7 TIME LIMITS ON CLAIMS

The Owner and Contractor shall commence all claims and causes of action, whether in contract, tort, breach of warranty or otherwise, against the other arising out of or related to the Contract in accordance with the requirements of the final dispute resolution method selected in the Agreement within the time period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all claims and causes of action not commenced in accordance with this Section 13.7.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 TERMINATION BY THE CONTRACTOR

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

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

- .2 An act of government, such as a declaration of national emergency that requires all Work to be stopped;
- .3 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or
- .4 The Owner has failed to furnish to the Contractor promptly, upon the Contractor's request, reasonable evidence as required by Section 2.2.1.

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

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' written notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, including reasonable overhead and profit, costs incurred by reason of such termination, and damages.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor or a Subcontractor or their agents or employees or any other persons performing portions of the Work under contract with the Contractor because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' written notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.2 TERMINATION BY THE OWNER FOR CAUSE

§ 14.2.1 The Owner may terminate the Contract if the Contractor

- .1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- .2 fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;
- .3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- .4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

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

- .1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- .2 Accept assignment of subcontracts pursuant to Section 5.4; and
- .3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

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

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

§ 14.3 SUSPENSION BY THE OWNER FOR CONVENIENCE

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

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

- .1 that performance is, was or would have been so suspended, delayed or interrupted by another cause for which the Contractor is responsible; or
- .2 that an equitable adjustment is made or denied under another provision of the Contract.

§ 14.4 TERMINATION BY THE OWNER FOR CONVENIENCE

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

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

- .1 cease operations as directed by the Owner in the notice;
- .2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and
- .3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Contractor shall be entitled to receive payment for Work executed, and costs incurred by reason of such termination, along with reasonable overhead and profit on the Work not executed.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 CLAIMS

§ 15.1.1 DEFINITION

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim.

§ 15.1.2 NOTICE OF CLAIMS

Claims by either the Owner or Contractor must be initiated by written notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party must be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.3 CONTINUING CONTRACT PERFORMANCE

Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents. The Architect will prepare Change Orders and issue Certificates for Payment in accordance with the decisions of the Initial Decision Maker.

§ 15.1.4 CLAIMS FOR ADDITIONAL COST

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

§ 15.1.5 CLAIMS FOR ADDITIONAL TIME

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

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

§ 15.1.6 CLAIMS FOR CONSEQUENTIAL DAMAGES

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

- .1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and
- .2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.6 shall be deemed to preclude an award of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 INITIAL DECISION

§ 15.2.1 Claims, excluding those arising under Sections 10.3, 10.4, 11.3.9, and 11.3.10, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim arising prior to the date final payment is due, unless 30 days have passed after the Claim has been referred to the Initial Decision Maker with no decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

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

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

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

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

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

§ 15.2.6.1 Either party may, within 30 days from the date of an initial decision, demand in writing that the other party file for mediation within 60 days of the initial decision. If such a demand is made and the party receiving the demand fails to file for mediation within the time required, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

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

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

§ 15.3 MEDIATION

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.6 shall be subject to mediation as a condition precedent to binding dispute resolution.

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

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

§ 15.4 ARBITRATION

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

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

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

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

§ 15.4.4 CONSOLIDATION OR JOINDER

§ 15.4.4.1 Either party, at its sole discretion, may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration

permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

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

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

SECTION 00 73 00

GENERAL CONDITIONS – SUPPLEMENTARY GENERAL CONDITIONS

01 GENERAL CONDITIONS

General conditions of the Contract for Construction, American Institute of Architects (AIA), Document A201, 2017 Edition, Articles 1 through 15, is hereby made a part of this Specification, except as modified by Supplementary General Conditions that follow.

Copies of this Document, A201, are on file at the Architect's office.

02 SUPPLEMENTARY GENERAL CONDITIONS

NOTE: Where any article of AIA, General Conditions of the Contract for Construction, is hereby supplemented, AIA provisions of such articles shall remain in effect. Where any article is amended, voided, or superseded; provisions of such article not so specifically amended, voided or superseded shall remain in effect.

ARTICLE 1 – GENERAL PROVISIONS

1.1 **BASIC DEFINITIONS**

1.1.2 Delete entirely and substitute the following:

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

1.1.4 Delete entirely and substitute the following:

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

1.1.8 Delete entirely

1.2 **CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS**

Supplement Paragraph 1.2 as follows:

1.2.1.2 In the case of conflicts or discrepancies within or among the Contract Documents not clarified by Addendum, better quality or greater quality of work, as determined by the Architect, shall be provided.

1.2.1.3 Requirements of Sections in Division 01 "General Requirements" apply to the Work of all Sections in the Specifications

1.2.4 Where a Contract Document refers to standard specifications, such as Fec. Spec., ANSI, ASTM, or other standards, if no date or edition is indicated, the latest or most recent edition of the standard, including all supplements, at the date of issue of that Contract Document shall apply to this Project.

1.2.5 Execute work as per Contract Documents. Make no changes therefrom without prior written permission. Where detailed information is lacking, before proceeding with work, refer matter to Architect for information.

1.2.6 If any errors or omissions appear in Drawings, Specifications, or other documents, bidding Contractor shall notify Architect prior to submitting bid. Should conflict occur in or between Drawings and Specifications, bidding Contractor is deemed to have estimated more expensive way of doing work unless bidding Contractor shall have asked for and obtained written decision before submission of Proposal as to which method or materials will be required.

1.2.7 Should any work be specified under more than one Section of this Specification, it will be assumed that each Contractor and Sub-Contractor has included said item of material or labor unless they shall have obtained a written decision before submission of Proposal as to who shall furnish item in question. If no such decision has been obtained, it shall be Architect's choice as to who shall furnish such item(s).

1.5 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS, AND OTHER INSTRUMENTS OF SERVICE

1.5.1 Delete entirely and substitute the following:

Drawings, Specifications and other documents, including those in electronic form, prepared by the Architect and the Architect's consultants are Instruments of Service for use solely with respect to this Project and any remodeling, reconstruction or repair of the Project and the completed Project. The Owner shall be deemed the owner of the Instruments of Service.

1.7. DIGITAL DATA USE AND TRANSMISSION

Supplement Paragraph 1.7 as follows:

1.7.1 Copies of Architect's Electronic Files (CAD and or BIM) will be provided to Contractor for Contractor's use in connection with Project, subject to execution of AIA Document C106 - Digital Data Licensing Agreement" and receipt of \$350 processing fee for each discipline (Civil, Landscaping, Architectural, Structural, Plumbing, Fire Protection, HVAC, or Electrical) requested.

ARTICLE 2 – OWNER

2.1 GENERAL

2.1.1 Delete entirely and substitute the following:

The Owner is Rock County

2.1.2 Delete "fifteen days" and substitute "a reasonable time".

2.2 EVIDENCE OF OWNER'S FINANCIAL ARRANGEMENTS

Delete entirely all articles under 2.2 including 2.2.1, 2.2.2, 2.2.3, 2.2.4

2.3 INFORMATION AND SERVICES REQUIRED OF THE OWNER

2.1.5 Delete "relevant" and substitute "necessary".

Supplement Paragraph 2.3 as follows:

2.3.7 The Owner may provide the Contractor access to the Owner's records, which may contain information about the site and adjacent land and improvements that was not collected specifically for the Project. The Owner makes no representations as to the relevance, accuracy or completeness of information made available to the Contractor from the Owner's records.

2.5 OWNER'S RIGHT TO CARRY OUT THE WORK

2.5 Delete entirely and substitute the following:

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

2.6 OWNER'S RIGHT TO INSPECT AND REJECT THE WORK

2.6 Add the following Paragraph:

The Owner shall have the right to reject Work that does not conform to the Contract Documents and to require inspection and testing of the Work to the same extent as the Architect's authority under Section 4.2.6. Neither this right, nor the exercise or failure to exercise this right, shall give rise to any duty or responsibility on the part of the Owner to the Contractor, the Architect, or any other person or entity.

ARTICLE 3 – CONTRACTOR

3.1 GENERAL

3.1.1 Delete entirely the second sentence and substitute the following:

"The Contractor shall be, and continue to be, throughout the performance of the Work, lawfully licensed, if required in the jurisdiction where the Project is located."

Supplement Paragraph 3.1 as follows:

3.1.4 Execution of the Contract by the Contractor is a representation by the Contractor that (1)the Contractor is financially solvent, able to pay its debts as they mature and possessed of sufficient working capital to complete the Work and perform its obligations under the Contract Documents in an efficient and capable manner, (2)The Contractor is authorized to do business as a contractor in the jurisdiction where the Project is located, and (3)the person(s) executing the Agreement on behalf of the Contractor are properly authorized to do so.

3.1.5 The Contractor shall exercise the skill and care of a sophisticated contractor with experience in projects similar to the Project.

3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

3.2.1 Delete entirely and substitute the following:

Execution of the Contract by the Contractor is a representation that the Contractor has (1) visited the site, become familiar with local conditions under which the Work is to be performed, (2) reviewed information provided by the Owner and obtained by the Contractor from other sources, (3) correlated personal observations with requirements of the Contract Documents and (4) knows of no reason why the Contractor cannot perform the Work for the Contract Sum and within the Contract time.

3.2.2 Delete entirely and substitute the following:

Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.3.4, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. Any errors, inconsistencies or omissions discovered by the Contractor shall be promptly reported as a request for information in such form as the Architect or the Owner may require.

3.2.3 Delete entirely and substitute the following:

While the Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report, in writing, to the Architect and the Owner any nonconformity discovered by or made known to the Contractor.

3.2.4 Delete entirely the last sentence and substitute the following:

"If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities unless the Contractor in the exercise of ordinary care reasonably should have recognized the error, inconsistency, omission, differences, or nonconformities".

3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

3.3.1 Delete entirely and substitute the following:

The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention normally used by competent and experienced contractors. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences, and procedures, and for coordination all portions of the Work under the Contract.

3.3.2 Delete entirely and substitute the following:

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

3.4 LABOR AND MATERIALS

3.4.1 Add the following sentence to the end of the first paragraph:

At the time of payment application, the Contractor shall provide the Owner with lien waivers for all payments for Work completed.

3.4.3 Add the following sentence to the end of the first paragraph:

Contractor's employees shall be removed from the Project by the Contractor if requested by the Owner. Such persons shall not be allowed to return to work without written consent of the Owner.

Supplement Paragraph 3.4 as follows:

3.4.4 The Contractor shall check and keep accounts of all materials and labor entering into the Work. The Contractor shall reject any materials that will not conform to the Contract Documents when properly installed.

3.4.5 The Contractor agrees that it is an independent contractor and an employing unit subject as an employer to all applicable unemployment compensation, worker's compensation, occupational safety and health, or similar statutes so as to relieve the Owner of any responsibility or liability for safety or of keeping records, making reports or paying any payroll taxes or contributions. The Contractor agrees to indemnify, defend (with counsel acceptable to the Owner) and hold the Owner harmless and reimburse it for any expenses or liability incurred in connection with the Contractor's employees, including but limited to attorneys' fees. The Contractor's obligations under this Section 3.4.5 shall survive the Owner's acceptance of the Work or termination of the Contract.

3.4.6 The Contractor shall keep and have available all necessary records and make all payments, reports, collections and deductions and otherwise do any and all things so as to fully comply with all federal, state and local laws, ordinances and regulations as they affect performance of this Contract, all so as to fully protect the Owner from any and all responsibility or liability relating to: (1)the production, purchase and sale, furnishing and delivering, pricing and use or consumption of materials, supplies and equipment, (2)the hire, tenure or conditions of employment of employees and their hours of work and rates of payment, (3)the keeping of records, making of reports, and the payment, collection and/or deduction of federal, state, and local taxes, contributions, pension funds, welfare funds or similar assessments.

3.7.7 The Contractor shall bring to and store on the site only materials and equipment that are to be used directly in the Work. The Contractor shall promptly remove equipment from the site after it is no longer required for the Work. The Contractor shall be solely responsible for protection of construction materials and equipment stored at the site.

3.5 WARRANTY

3.2.4 Delete entirely the last sentence and substitute the following:

If required by the Architect or the Owner, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment. All warranties shall begin at the time of Substantial Completion.

3.6 TAXES

3.6 Delete entirely and substitute the following:

Rock County is exempt from the payment of all federal excise taxes, registration no. 41407 (For tax-free transactions under Chapter 32 of the Internal Revenue Code. The certificate of exemption is on file with the District Attorney, U. S. Treasury Department, Internal Revenue Service, Milwaukee, Wisconsin). Rock County is exempt from Wisconsin State and Local taxes on its purchases except Wisconsin excise tax as the Wisconsin Department of Revenue does not issue state exempt numbers to Counties per Wisconsin Statute 77.54 (9) (a). Contractors performing construction activities are required to pay state user tax on the cost of materials which they purchase. Rock County is required to pay an excise tax on Wisconsin beer, liquor, wine, cigarettes, tobacco products, motor vehicle fuel engine oil and aviation fuel.

OWNER PURCHASE – ACT 126

Gov. Scott Walker has signed into law Senate Bill (SB) 227 on Dec. 16, 2015, allowing contractors to purchase construction materials on behalf of certain tax-exempt clients without paying Wisconsin sales or use tax. The law applies to construction material contracts signed beginning Jan. 1, 2016. The new exemption applies to contracts with a Wisconsin county, city, village, municipality, school district, city or county hospital, and local sewer and water districts. It also covers real property construction jobs with religious, charitable, educational, and other nonprofit organizations that are themselves exempt under Wisconsin's statutes. The bill excludes highway, street, and road projects from the scope of the sales and use tax exemption.

3.7 PERMIT, FEES, NOTICES AND COMPLIANCE WITH LAWS

3.7.1 Delete entirely and substitute the following:

Unless otherwise provided in the Contract Documents, each Contractor shall secure and pay for applicable permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded. General Contractor shall secure and pay for local building permit. Mechanical (including, but not limited to, HVAC, Plumbing, and Fire Protection) and Electrical Contractors shall secure and pay for local permits for mechanical and electrical installation. Copies of all inspection certificates shall be delivered to the Owner promptly on receipt.

3.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

Supplement Paragraph 3.12 as follows:

3.12.11 Contractors shall submit Shop Drawings in the form of five (5) prints of each sheet for each submittal until final review by Architect. Review comments of Architect will be made and returned to Contractor.

3.12.12 Mechanical and Electrical Contractors shall, as soon as possible, submit to Architect two (2) copies of a brochure containing catalog cuts and specifications of all equipment being furnished. After Architect approval, one (1) copy shall remain in the file and one (1) copy shall be kept in job office for reference.

3.12.13 When materials are specified "to be installed as per manufacturer's specifications or instructions", two (2) copies of these specifications or instructions shall be submitted to Architect.

3.12.14 Contractor shall include, as part of Progress Schedule, dates various Shop Drawings will be made available for Architect approval. (Refer to G.C. 3.10.).

3.12.15 Shop Drawings shall be marked with the name of project, numbered consecutively and bear stamp of approval of Contractor as evidence that Drawings have been checked by Contractor. Any drawings submitted without this stamp of approval will not be considered and will be returned to Contractor for re-submittal.

3.12.16 Samples, where called for, shall be provided in triplicate, except where otherwise specified.

3.15 CLEANING UP (Add the following)

3.15.3 General Contractor shall remove all rubbish and leave building broom clean. Broom clean shall be defined as being free from dust and other material capable of being removed by use of a reasonable effort and a hand-held broom. In addition, General Contractor shall clean and wash all glass; replace any broken glass; remove stains, spots, marks and dirt from decorated work; clean hardware; remove paint spots and smears from all surfaces; clean fixtures and wash all concrete and tile floors; and vacuum and clean all carpets.

3.18 INDEMNIFICATION (Add the following)

3.18.3 This "Hold Harmless Agreement" shall be specifically covered by Contractual Liability Insurance to be incorporated in Contractor's Comprehensive General Liability and Property Damage Insurance Policy and shall be so stated in insurance certificate provided by Contractor. Limits required for this coverage shall be same as for General Liability and Property Damage Coverage specified.

ARTICLE 5 – SUBCONTRACTORS

5.2 AWARD OF SUBCONTRACTORS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

5.2.1 Delete entirely and substitute the following:

Apparent successful bidder, within two (2) days after notification that their bid has been accepted, shall submit to Architect, in writing, names and addresses of Sub-Contractors proposed to be used. Submit minimum of one (1) name for each Section of Specifications and list Section Number and type of work for each name. Sub-Contractors with Sub-Contracts of \$10,000 or less need not be listed. Failure of apparent successful bidder to have properly listed Sub-Contractors in Architect's office within two (2) days after notification will be cause for rejection of Bid by Owner. If agreement on Sub-Contractors cannot be reached, Owner reserves right to delete that particular portion of work from Contract and let separate Prime Contract for same. All listings shall be subject to preconstruction meetings and alternate bid selections. If construction conditions necessitate, Contractor, at no change in Contract Price, may make substitution of a Sub-Contractor provided such substitution is acceptable to Owner and Architect.

ARTICLE 9 – PAYMENTS AND COMPLETION

9.3 APPLICATIONS FOR PAYMENT

9.3.1 Add the following:

Applications for payment shall be made on AIA Documents G702 and G703, Current Edition. Retainage shall be in accordance with Wisconsin Statutes 66.0901(9)(b) "retained percentages".

9.6 PROGRESS PAYMENTS

9.6.1 Add the following:

"This provision shall not be construed as relieving Contractor from sole responsibility for care and protection of materials and work upon which payments have been made or the restoration of any damaged work or materials or as a waiver of the right of Owner to require fulfillment of all terms of Contract".

9.8 SUBSTANTIAL COMPLETION

9.8.4 Delete the last sentence of this Paragraph.

9.10 FINAL COMPLETION AND FINAL PAYMENT

Supplement Paragraph 9.10 as follows:

9.10.6 Warranties required by the Contract Documents shall commence on the date of Final Completion of the Work or designated portion thereof.

ARTICLE 10 – SAFETY OF PERSONS AND PROPERTY

10.2.1.2 Add the following:

All materials delivered on premises for Work shall be neatly and compactly piled with such protection as may be required to prevent damage or soiling.

If a Contractor's equipment or stored material interferes with work of another Contractor, first Contractor shall move same to another location upon reasonable advance notice.

General Contractor shall protect all glass surfaces against damage and discoloration due to run off of alkalis leaking from masonry materials and fluorides that wash from concrete floors treated with hardening solutions. To avoid damage, wash glass as soon as practical after a rain or other wash off conditions.

All Contractors shall protect glass against pitting by welding sparks whenever such work is carried on in the vicinity of glazed openings.

10.2.1.3 Add the following:

General Contractor shall provide pumps, equipment, and enclosures to protect excavations, trenches, and building against damage from rain water, spring water, drain or sewer back-up, and all other water.

General Contractor shall construct and maintain all necessary drainage and pumping to keep excavation free of water.

General Contractor shall remove snow and ice as necessary to protect and execute Work.

General Contractor shall provide continuous protection for Work, materials, apparatus, and fixtures against damage from wind, storms, rain, frost, heat, and other weather. For example, masonry work must be covered at end of each day's work.

General Contractor shall protect all Work from cold weather damage. Should low temperatures make it impossible to continue operations safely, Contractor shall cease and shall notify Architect as soon as possible.

10.2.2 Add the following:

Comply fully with General Orders of Chapter XIII, Bureau of Labor Standards, Department of Labor, Part 1518, Safety and Health Regulations for Construction.

Precaution shall be executed at all times for protection of persons and property. All scaffolds, forms, and other support equipment shall be carefully designed to adequately support any superimposed loads. Any damage or injuries resulting from collapse of such scaffolds, forms, or supporting equipment shall be responsibility of Contractor.

10.2.3 Add the following:

General Contractor shall provide and maintain guard lights at barricades, railings, street, road and sidewalk obstructions, and at all trenches adjacent to public walks and roads.

10.2.5 Add the following:

If glass is broken and plastering or other work is damaged, it will be repaired at expense of Contractor doing damage. If responsible party cannot be found, cost will be equally pro-rated among Contractors working in building at time damage occurred.

10.2.7 Add the following:

Storage area on the premises will be apportioned among the various Contractors as needs dictate with due regard for storage requirements of each Contractor. Each Contractor shall be responsible for safety of their materials which are stored on premises.

ARTICLE 11 – INSURANCE AND BONDS

11.1.1 Supplemented as follows: See Document 00 73 05 for Contractor's Insurance Requirements, (Exhibit A).

Add the following to Article 11:

11.6 Performance Bond and Payment Bond

11.6.1 Every Contractor for work under this Project shall furnish surety company bond in an amount not less than full amount of this Contract as security for faithful performance of the Contract, and shall furnish a Payment Bond. Bonds shall continue for 12 months after date of final certificate. Premium for bonds shall be paid by Contractor. Surety Company's form conforming to requirements of Performance Labor and Material Payment Bond, Wisconsin AIA Document A312/WI for public projects, Latest Edition, may be used subject to Owner's approval.

Owner will not dictate name of bonding company, but reserves the right to approve or disapprove company selected by Contractor.

ARTICLE 14 – TERMINATION OR SUSPENSION OF THE CONTRACT

14.4.2 Delete entirely and substitute the following:

In the case of termination for the Owner's convenience, the Owner shall pay the Contractor only for Work properly executed up to the receipt of notice from Owner of such termination. Owner shall not be responsible for Contractor's overhead and profit on work not executed.

END OF DOCUMENT

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SECTION 00 73 05
SPECIAL CONDITIONS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. These Supplementary Conditions are hereby made a part of every section in this specification and shall be binding upon every Contractor, Sub Contractor and material supplier.
- B. SUMMARY
 - 1. Index:
 - a. Description
 - b. Commencement and Completion
 - c. Cooperation
 - d. Priority
 - e. Cooperation with Public Service Companies
 - f. Measurements
 - g. Substitute Materials
 - h. Design Clarifications
 - i. Warranty
 - j. Asbestos
 - k. Non Discrimination in Employment

1.2 COMMENCEMENT AND COMPLETION

- A. Successful bidder must agree to commence work within five (5) days of date specified in a written Notice to Proceed and fully complete Project on date indicated in this Manual.
- B. Should it be found impossible to complete Work on or before time specified for completion, a written request may be submitted for extension of time setting forth reasons believed to justify granting of such request. If Owner finds that Work was delayed because of conditions beyond control of Contractor, or that quantities of work done or to be done are in excess of estimated quantities by an amount sufficient to warrant additional time, Owner may grant an extension of time for completion as appears reasonable and proper. Extended time for completion shall then be considered as in full force and effect, as if it were original time for completion.
- C. Permitting Work or any part of it to continue after time fixed for its completion, or after date to which time for completion may have been extended, shall in no way operate as a waiver on part of Owner or any of Owner's rights under Contract.

1.3 COOPERATION

- A. General Contractor and all Sub Contractors shall coordinate their work with all adjacent work and shall cooperate with all other trades so as to facilitate general progress of Work. Each trade shall afford all other trades every reasonable opportunity for installation of their work and storage of their material.
- B. Inasmuch as building completion within time limit is dependent upon cooperation of those engaged therein, it is required that each Contractor lay out and install their work at a time and in such a manner not to delay or interfere with progress of other Contractors' work.
- C. If any Contractor's work is delayed due to lack of storage facilities or non cooperation of other Contractors, Contractor shall immediately notify Architect in writing who will then notify Contractors involved of their obligation under this Article.

1.4 PRIORITY

- A. In case of close quarters for installation of piping systems and in absence of instructions to contrary, following order of priority shall be followed:
 - 1. Lighting fixtures;
 - 2. Sheet metal ductwork
 - 3. Plumbing work;
 - 4. Mechanical work, including heating and air conditioning
 - 5. Piping
 - 6. Electrical work
 - 7. Control systems
- B. The above list, in descending order, is the precedence assigned the work items for space priority. Recessed light fixtures and space for their installation has first priority, sheet metal ductwork second priority, etc

1.5 COOPERATION WITH PUBLIC SERVICE COMPANIES

- A. When performing Work near public service lines, cables or pipes, Contractor shall notify companies owning same so that they may cooperate to avoid damage or accidents.

1.6 MEASUREMENT

- A. Before ordering materials or doing any work, each Contractor shall verify all measurements at building and shall be responsible for their correctness. No extra compensation will be allowed because of difference between actual dimensions and those indicated on Drawings. Any discovered difference which may be found shall be reported to Architect for consideration before proceeding with Work.

1.7 SUBSTITUTE MATERIALS

- A. When substitutions are bid, they shall be identified by manufacturer, stock number, and other descriptive information to establish equivalencies. Substitutions shall be requested prior to the question cut-off date.

1.8 DESIGN CLARIFICATIONS

- A. The Drawings and Specifications are representative and typical of the quality and type of construction for the Project.
- B. During the bidding process the Contractor shall assume the same quality and level of detail in areas of the building not specifically shown or detailed.
- C. The Contractor shall provide a complete and functional building and complete and functional building systems whether or not fully specified or detailed. If questions arise during construction relating to items not detailed on the architectural or engineering drawings, the Contractor shall submit a "Design Clarifications" document (drawing or statement) illustrating what the Contractor had anticipated in their bid for this particular detail. The "Design Clarification" shall be submitted to the Architect for review.

1.9 WARRANTY (See Article 3.5 of General Conditions)

- A. Contractor shall and hereby does warrant all work and materials called for in this specification, including all work performed by Sub Contractors, for a period of one (1) year from date of final completion of project.

- B. In case of work performed by Sub Contractors and where guarantees are required, secure warranties from said Sub Contractors addressed to and in favor of Owner. Deliver copies of same to Architect upon completion of work.
- C. Delivery of said warranties shall not relieve Contractor from any obligation assumed under any other provisions of Contract.
- D. Nothing herein intends or implies that warranty shall apply to work which has been abused or neglected by Owner or Owners successor in interest.

1.10 ASBESTOS

- A. If, during the construction of this project, work involving friable asbestos is suspected or encountered, the Owner or the Owner's representative shall be notified immediately and the Owner, with its own forces or by separate contract, shall be responsible for complete investigation, removal and disposition of the friable asbestos hazard in accordance with applicable laws and regulations.

1.11 NON-DISCRIMINATION IN EMPLOYMENT

- A. In connection with the performance of work under this Contract, the Contractor agrees not to discriminate against any employee or applicant for employment because of race, religion, color or national origin. The aforesaid provision shall include, but not be limited to, the following: Employment, upgrading, demotion or transfer; recruitment or recruitment advertising; lay off or termination; rates of pay or other forms of compensation; and selection for training including apprenticeship. The Contractor agrees to post in conspicuous places, available for employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of the non discrimination clause.

END OF SECTION

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DOCUMENT 00 73 10

REQUIREMENTS FOR CONTRACTOR'S LIABILITY INSURANCE

Required By

Rock County, Wisconsin

1. Worker's Compensation:

- (a) State: Statutory.
- (b) Employer's Liability: \$100,000 per accident; \$100,000 per disease, Policy Limit; \$500,000, per disease, each employee.

2. Comprehensive or Commercial General Liability including Premises-Operations; Independent Contractors' Protective; Products and Completed Operations; Broad Form Property Damage:

- (a) Bodily Injury: \$2,000,000 each occurrence; \$2,000,000 aggregate.
- (b) Property Damage: \$1,000,000 each occurrence; \$2,000,000 aggregate.
- (c) Products and Completed Operations shall be maintained for 2 years after final payment. Provide evidence of coverage on annual basis.
- (d) Property Damage Liability: Include X, C and U coverage.
- (e) Broad Form Property Damage shall include Completed Operations.

3. Contractual Liability:

- (a) Bodily Injury: \$1,000,000 each occurrence; \$2,000,000 aggregate.
- (b) Property Damage: \$1,000,000 each occurrence; \$1,000,000 aggregate.

4. Personal Injury, with Employment Exclusion deleted: \$1,000,000 aggregate.

5. Business Automobile Liability including Owned, Non-Owned and Hired Vehicles:

- (a) Bodily Injury: \$1,000,000 each person; \$1,000,000 each occurrence.
- (b) Property Damage: \$1,000,000 each occurrence.

6. If General Liability Coverages are Provided by a Commercial Liability Policy, the:

- (a) General Aggregate shall be not less than \$5,000,000 and it shall apply, in total, to this policy only.
- (b) Fire Damage Limit shall be not less than \$5,000,000 on any one Fire.
- (c) Medical Expense Limit shall be not less than \$1,000,000 on any one person.

7. Umbrella Excess Liability:

- (a) \$1,000,000 over primary insurance.
- (b) \$1,000,000 retention for self-insured hazards each occurrence.

END OF DOCUMENT

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SECTION 01 11 00

SUMMARY OF WORK

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes:
 - 1. Project description
 - 2. Work sequence
 - 3. Contractor's use of site and premises
 - 4. Owner furnished products

1.2 PROJECT DESCRIPTION

- A. Work of this Project is described as the renovation within the Rock County Courthouse for one new courtroom space. The location for the work is a former approximately 750 square foot law library on the fourth floor. Also, there will be a new door in the existing Hearing Room. Work will include:
 - 1. General construction:
 - 2. HVAC work.
 - 3. Electrical work.
 - 4. Fire Protection work.
 - 5. Communications work.
 - 6. Safety and Security work.
- B. The Project will be constructed under a single prime contract.

1.3 WORK SEQUENCE

- A. Coordinate and relay construction schedule and operations updates to the Owner and Architect.

1.4 CONTRACTOR'S USE OF SITE AND PREMISES

- A. Limit use of site and premises to allow for:
 - 1. Work by separate contractors.
 - 2. Work by Owner.
 - 3. Owner occupancy.
 - 4. Use of site and adjacent premises by the public.
- B. Move any stored products under Contractor's control that interfere with the operations of the Owner or separate contractors.
- C. Assume full responsibility for protection and safekeeping of products under this Contract stored on site.
- D. Obtain and pay for use of any additional storage or work areas needed for operations.
- E. Coordinate use of site and premises with the Owner:
 - 1. Employee parking: In designated areas.
 - 2. Access to site and premises: As directed by the Owner.
 - 3. Storage and staging areas: Established at the pre-construction meeting.
 - 4. Transport materials and equipment to and from construction area along routes approved by Owner.
- F. Confine operations to construction area unless otherwise approved by Owner.

- G. Prohibit smoking within interior spaces.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not used

END OF SECTION

SECTION 01 25 00

SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes:
 - 1. Substitution requests.

1.2 GENERAL

- A. Definition: Proposal by Contractor to use manufacturer, product, material, or system different from one required in Contract Documents.
- B. Do not substitute Products unless a substitution request has been approved by Architect.
- C. Substitutions only allowed during Bidding: Refer to Instructions to Bidders.
- D. In case of non-availability of a specified Product notify Architect in writing as soon as non-availability becomes apparent.

1.3 SUBSTITUTION REQUESTS

- A. Submit substitution requests on form provided by Architect.
- B. Document specified product and proposed substitution with complete data, including:
 - 1. Product identification, including name and address of manufacturer.
 - 2. Product description, performance and test data, and reference standards.
 - 3. Sample, if requested.
 - 4. Description of any anticipated effect that acceptance of proposed substitution will have on Progress Schedule, construction methods, or other items of Work.
 - 5. Description of any differences between specified product and proposed substitution.
 - 6. Difference in cost between specified product and proposed substitution.
- C. Burden of proof for substantiating compliance of proposed substitution with Contract Document requirements remains with Contractor.
- D. A request constitutes a representation that the Contractor:
 - 1. Has investigated the proposed Product and determined that it meets or exceeds the quality level of the specified Product.
 - 2. Will provide the same warranty for the substitution as for the specified Product.
 - 3. Will coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Owner.
 - 4. Waives claims for additional costs or time extension that may subsequently become apparent.
 - 5. Will reimburse Owner for design services associated with re-approval by authorities or revisions to Contract Documents to accommodate the substitution.
- E. Substitutions will not be considered if:
 - 1. They are indicated or implied on Shop Drawings or other submittals without submittal of a substitution request.
 - 2. Approval will require substantial revision of Contract Documents without additional compensation to Architect.

- F. Submit electronically only in Adobe PDF format. No secondary format deliveries will be accepted.
- G. Architect will notify Contractor of approval or rejection of each Substitution Request.

1.4 CONTRACTOR'S USE OF SITE AND PREMISES

- A. Limit use of site and premises to allow for:
 - 1. Work by separate contractors.
 - 2. Work by Owner.
 - 3. Owner occupancy.
 - 4. Use of site and adjacent premises by the public.

END OF SECTION

DOCUMENT 01 25 19
SUBSTITUTION REQUEST FORM

DATE: _____, _____, 2022

TO: _____

ATTENTION: _____

PROJECT: _____

1.1 We submit for your consideration the following product as a substitution for the specified product:

Section No.	Paragraph	Specified Product
-------------	-----------	-------------------

_____	_____	_____
-------	-------	-------

Proposed Substitution: _____

Reason for Substitution: _____

1.2 Product Data:

Attach complete technical data for both the specified product and the proposed substitution. Include information on changes to Contract Documents that the proposed substitution will require for its proper installation.

1.3 Samples:

___ Attached ___ Will be furnished upon request

Does the substitution affect dimensions shown on Drawings?

___ No ___ Yes (explain) _____

Effects of proposed substitution on other Work:

Differences between proposed substitution and specified Product:

Manufacturer's warranties of the proposed substitution are:

☐ Same ☐ Different (explain) _____

Maintenance service and spare parts are available for proposed substitution from:

Previous installations where proposed substitution may be seen:

Project: _____	Project: _____
Owner: _____	Owner: _____
Architect: _____	Architect: _____
Date Installed: _____	Date Installed: _____

Cost savings to be realized by Owner, if proposed substitution is approved:

Change to Contract Time, if proposed substitution is approved:

☐ No Change ☐ Add _____ days ☐ Deduct _____ days

Submitted by Contractor:

Signature

Firm

Architect Response:

Based on the information supplied by the [Contractor,] [Construction Manager,] the Architect has reviewed the proposed substitution on the basis of design concept of the Work and conformance with information given in Contract Documents.

☐ Approved ☐ Approved as Noted ☐ Rejected

Submit Additional Information: _____

By: _____ Date: _____

SECTION 01 26 00

CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes:
 - 1. Supplemental Instructions.
 - 2. Proposal Requests.
 - 3. Contractor proposed changes.
 - 4. Construction Change Directives.
 - 5. Change Orders.

1.3 CHANGE PROCEDURES

- A. Architect's Supplemental Instructions:
 - 1. Format: AIA Document G710 - Architect's Supplemental Instructions.
 - 2. Architect will advise of minor changes in Work not involving an adjustment to Contract Sum or Contract Time as authorized by the Conditions of the Contract.
- B. Proposal Requests:
 - 1. Format: AIA Document G709 - Proposal Request.
 - 2. Architect may issue a Proposal Request that includes a detailed description of a proposed change with supplemental or revised Drawings and specifications.
 - 3. Prepare and submit an estimate of any change to the Contract Sum or Contract Time within 7 days after receipt. Include:
 - a. Quantities and unit costs, with total cost or credit to Owner.
 - b. Regarding Contractor's proposal request, the following cost information is required to be provided for Architect's evaluation of the proposed changes:
 - 1) Labor
 - 2) Labor Fringes, Insurance and Taxes
 - 3) Materials
 - 4) Supplies
 - 5) Equipment – Owned
 - 6) Equipment – Rented
 - 7) Subcontractors
 - 8) Supervision
 - 9) General Conditions/Field Overhead
 - 10) Insurance
 - 11) Taxes
 - 12) Permits
 - 13) Bonds
 - 4. If change in Contract Time is involved, provide updated Progress Schedule.
 - 5. Do not stop work or initiate changes in response to a Proposal Request. If approved, Architect will prepare and issue a Change Order.
 - 6. Submit to Architect electronically in Adobe PDF format.
- C. Contractor Proposed Changes:
 - 1. Format: Contractor's standard.

2. Contractor may propose a change by submitting request for change to Architect.
 3. Describe proposed change, reason for change, its full effect on Work, and any change to Contract Sum or Contract Time. Include the following:
 - a. Quantities and unit costs, with total cost or credit to Owner. If requested, furnish documentation of quantities.
 - b. Regarding Contractor's proposed changes, the following cost information is required to be provided for Architect's evaluation of the proposed changes:
 - 1) Labor
 - 2) Labor Fringes, Insurance and Taxes
 - 3) Materials
 - 4) Supplies
 - 5) Equipment – Owned
 - 6) Equipment – Rented
 - 7) Subcontractors
 - 8) Supervision
 - 9) General Conditions/Field Overhead
 - 10) Insurance
 - 11) Taxes
 - 12) Permits
 - 13) Bonds
 - c. If change in Contract Time is involved, provide updated Progress Schedule.
 4. Document any required substitutions in accordance with Section 01 25 00 – Substitution Procedures.
 5. Submit electronically to Architect only in Adobe PDF format. Adobe product only.
- D. Construction Change Directive:
1. Architect may issue a directive, signed by Owner, instructing Contractor to proceed with a change for subsequent inclusion in a Change Order.
 2. Documentation will describe changes in Work and designate method of determining any change to Contract Sum or Contract Time. Promptly execute change.
- E. Change Orders:
1. Format: AIA Document G701 - Change Order.
 2. Execution: Architect will issue Change Orders for signature of parties as provided in Conditions of the Contract. Submit electronically in Adobe PDF format.
 3. Submit electronically in Adobe PDF format.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 01 26 13
REQUESTS FOR INFORMATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes:
 - 1. Requests for Information (RFI's).
- B. Related Sections:
 - 1. Section 01 25 00 - Substitution Procedures.
 - 2. Section 01 26 00 - Contract Modification Procedures.
 - 3. Section 01 33 00 - Submittal Procedures.
 - 4. Section 01 77 00 - Closeout Procedures.

1.2 GENERAL

- A. Request for Information (RFI): Request from Contractor seeking interpretation or clarification of Contract Documents not involving Substitutions or changes to Contract Sum or Contract Time.
- B. RFI's constitute a request for information only.
- C. Do not submit RFI's:
 - 1. To request approval of Substitutions. Reference Section 01 25 00 – Substitution Procedures.
 - 2. To request changes known to include changes to Contract Sum or Contract Time. Reference Section 01 26 00 - Contract Modification Procedures.
 - 3. To request approval of submittals; Reference Section 01 33 00 – Submittal Procedures.
 - 4. To submit Project Record Documents; Reference Section 01 77 00 – Project Closeout.

1.3 SUBMITTAL

- A. Submit RFI's on Contractor's standard form, submit electronically in Adobe PDF format.
- B. All RFI's shall be sent to the Architect through email. It is at the discretion of the Architect if utilization of the Contractors project management software is an acceptable in lieu of email.
- C. Include on each RFI:
 - 1. Name of Contractor.
 - 2. Project name.
 - 3. Date submitted.
 - 4. Sequential RFI number.
 - 5. Applicable Drawing sheet and detail numbers or Specification Section numbers.
 - 6. Date when response information is required to avoid impact on Construction Schedule and Construction Cost.
- D. Review and sign RFI's submitted by Subcontractors, Sub-Subcontractors, or Suppliers prior to submittal to Architect.
- E. Maintain log of RFI's showing RFI number and current status of each RFI.
- F. When RFI's require submittal of drawings, follow submittal procedures specified for Shop Drawings in Section 01 33 00 – Submittal Procedures.
- G. Allow minimum fourteen (14) days for Architect's review and response to each RFI.

END OF SECTION

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SECTION 01 29 00
PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes:
 - 1. Schedule of Values.
 - 2. Applications for Payment.
- B. Related Sections:
 - 1. Section 01 77 00 - Closeout Procedures.

1.2 SCHEDULE OF VALUES

- A. General:
 - 1. Submit a Schedule of Values to Architect at least 20 days prior to submitting first Application for Payment.
 - 2. Upon request of Architect, furnish additional data to support values given that will substantiate their correctness.
 - 3. Approved Schedule of Values will be used as basis for reviewing Contractor's Applications for Payment.
- B. Form and Content:
 - 1. Format: AIA Document G703 - Continuation Sheet of Application and Certification for Payment. Contractor's standard electronic media format.
 - 2. Use Table of Contents of Project Manual as basis of format for listing costs of Work.
 - 3. List installed value of component parts of Work in sufficient detail to serve as basis for computing values for progress payments.
 - 4. Include separate line items for:
 - a. Site mobilization.
 - b. Bonds and insurance.
 - c. Contractor's overhead and profit.
 - 5. For items on which payment will be requested for stored materials, break down value into:
 - a. Cost of materials, delivered and unloaded, with taxes paid.
 - b. Total installed value.
 - 6. For each line item that has a value of more than \$25,000.00, break down costs to list major products or operations under each item.
 - 7. Total of costs listed in Schedule shall equal Contract Sum.
- C. Submit electronically only in Adobe PDF format.
- D. Review and Resubmittal:
 - 1. After initial review by Architect, revise and resubmit if required.
 - 2. Revise and resubmit along with next Application for Payment when a Change Order is issued. List each Change Order as a new line item.

1.3 APPLICATIONS FOR PAYMENT

- A. Preparation:
 - 1. Format: AIA Document G702 - Application and Certification for Payment, supported by AIA Document G703 - Continuation Sheet. Contractor's standard electronic media format.
 - 2. Prepare required information in typewritten format or on electronic media format.

3. Use data from reviewed Schedule of Values. Provide dollar value in each column for each line item representing portion of work performed.
 4. List each authorized Change Order as a separate line item, listing Change Order number and dollar value.
 5. Prepare Application for Final Payment as specified in Section 01 77 00 – Project Closeout.
- B. Waivers of Lien:
1. Along with each Application for Payment, submit waivers of lien from Contractor and each Subcontractor or Sub-subcontractor included on the current month's Application for Payment.
 2. Submit partial waivers on each item for amount requested, prior to deduction of retainage.
 3. For completed items, submit full or final waiver.
- C. Substantiating Data:
1. When Architect requires substantiating information, submit data justifying dollar amounts in question.
 2. Provide one copy of data with cover letter showing Application number and date, and line item number and description.
- D. Submittal:
1. Submit one electronic copy in Adobe PDF format of each Application for Payment.
 2. Payment period: Submit at intervals stipulated in Owner/Contractor Agreement.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 01 31 00

PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes:
 - 1. Project coordination.
 - 2. Coordination drawings.
 - 3. Project meetings.
 - 4. Pre-construction meeting.
 - 5. Progress meetings.
 - 6. Pre-installation meetings.
- B. Related Sections:
 - 1. Section 01 77 00 - Closeout Procedures.

1.2 PROJECT COORDINATION

- A. Submit required project submittals electronically only in Adobe PDF format.
- B. Coordinate scheduling, submittals, and work of various Sections of specifications to assure efficient and orderly sequence of installation of interdependent construction elements.
- C. Verify that utility requirement characteristics of operating equipment are compatible with building utilities. Coordinate work of various Sections having interdependent responsibilities for installing, connecting to, and placing in service such equipment.
- D. Coordinate space requirements and installation of mechanical and electrical items that are indicated diagrammatically on Drawings.
 - 1. Follow routing shown as closely as practical; place runs parallel with building lines.
 - 2. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- E. In finished areas, conceal pipes, ducts, and wiring within construction. Coordinate locations of fixtures and outlets with finish elements.
- F. Coordinate completion and clean-up of work of separate Sections in preparation for Substantial Completion.
- G. After Owner occupancy, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents to minimize disruption of Owner's activities.

1.3 COORDINATION DRAWINGS

- A. Coordination Drawings:
 - 1. Prior to commencement of Work, prepare coordination drawings to define relationship of mechanical, plumbing, fire protection, and electrical components with beams, columns, ceilings and walls.
 - 2. Include plans, elevations, sections, and details required to define relationships between components.
 - 3. Prepare drawings at 1/4 inch = 1'-0" scale for general layout and 3/8 inch = 1'-0" for plans and sections in congested areas including equipment spaces.
 - 4. Submit electronically in Adobe PDF format.
- B. Hold coordination meetings with trades providing structural, mechanical, plumbing, and electrical work.

- C. Resolve conflicts between trades, prepare composite coordination drawings and obtain signatures on original composite coordination Drawings.
- D. When conflicts cannot be resolved:
 - 1. Cease work in areas of conflict and request clarification prior to proceeding.
 - 2. Prepare drawings to define and to indicate proposed solution.
 - 3. Submit drawings for approval when actual measurements and analysis of Drawings and Project Manual indicate that various systems cannot be installed without significant deviation from intent of Contract Documents.
- E. Submit original composite coordination drawings as part of Project Record Documents specified in Section 01 77 00 – Closeout Procedures.

1.4 PROJECT MEETINGS

- A. Schedule and administer preconstruction conference, progress meetings and pre-installation conferences.
- B. Make physical arrangements for meetings; notify involved parties at least 4 days in advance.
- C. Record significant proceedings and decisions at each meeting; reproduce and distribute copies to parties in attendance and others affected by proceedings and decisions made.

1.5 PRECONSTRUCTION MEETING

- A. Schedule within 15 days after date of Notice to Proceed at Contractor's Project field office or at central site convenient to all parties.
- B. Attendance:
 - 1. Contractor.
 - 2. Owner.
 - 3. Architect and principal consultants.
 - 4. Major subcontractors and suppliers as Contractor deems appropriate.
- C. Review and Discuss:
 - 1. Relation and coordination of various parties, and responsible personnel for each party.
 - 2. Use of premises, including office and storage areas, temporary controls, and security procedures.
 - 3. Construction schedule and critical work sequencing.
 - 4. Processing of:
 - a. Contract modifications.
 - b. Shop Drawings, Product Data, and Samples.
 - c. Applications for Payment.
 - d. Substitutions.
 - e. Requests for Information (RFI's).
 - f. Other required submittals.
 - 5. Adequacy of distribution of Contract Documents.
 - 6. Procedures for maintaining contract closeout submittals.
 - 7. Installation and removal of temporary facilities.
 - 8. Notification procedures and extent of testing and inspection services.

1.6 PROGRESS MEETINGS

- A. Schedule bi-weekly progress meetings.
- B. Location: Contractor's Project field office or at a location TBD.
- C. Attendance:

1. Contractor.
2. Owner.
3. Architect and consultants as appropriate to agenda.
4. Subcontractors and suppliers as appropriate to agenda.
5. Others as appropriate to agenda.

D. Review and Discuss:

1. Work progress since previous meeting, including:
 - a. Field observations, deficiencies, conflicts, and problems.
 - b. Progress and completion date.
 - c. Corrective measures needed to maintain quality standards, progress, and completion date.
2. Status of:
 - a. Requests for information.
 - b. Submittals.
 - c. Contract modifications.
3. Coordination between various elements of Work.
4. Maintenance of Project Record Documents.

1.7 PRE-INSTALLATION MEETINGS

- A. Where required in individual specification Section, convene a pre-installation meeting at project site or other designated location.
- B. Require attendance of parties directly affecting or affected by work of the specific Section.
- C. Review conditions of installation, preparation and installation procedures, and coordination with related work.

END OF SECTION

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SECTION 01 32 16
CONSTRUCTION PROGRESS SCHEDULES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes:
 - 1. Schedule Format.
 - 2. Schedule Content.
 - 3. Schedule Submittal.
 - 4. Schedule Distribution.
- B. Related Sections:
 - 1. Section 01 11 00 - Summary of Work: Work sequence.
 - 2. Section 01 29 00 - Payment Procedures.

1.2 SCHEDULE FORMAT

- A. Prepare Progress Schedule as a horizontal bar chart with separate bar for each major portion of Work or operation, identifying first work day of each week.
- B. Sequence of Listings: The chronological order of the start of each item of Work.
- C. Scale and Spacing: To provide space for notations and revisions.
- D. Submit Progress Schedule electronically to Architect only in Adobe PDF.

1.3 SCHEDULE CONTENT

- A. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction.
- B. Identify each item by specification Section number.
- C. Identify work of logically grouped activities.
- D. Provide sub-schedules for each phase of Work identified in Section 01 11 00 – Summary of Work.
- E. Provide sub-schedules to define critical portions of the entire Progress Schedule.
- F. Show accumulated percentage of completion of each item, and total percentage of Work completed, as of the first day of each month.
- G. Provide separate schedule of submittal dates for Shop Drawings, Product Data, and Samples, including:
 - 1. Dates reviewed submittals will be required from Architect.
 - 2. Decision dates for selection of finishes.
 - 3. Delivery dates for Products identified under Allowance.
- H. Coordinate content with Schedule of Values specified in Section 01 29 00 – Payment Procedures.
- I. Revisions:
 - 1. Indicate progress of each activity to date of submittal, and projected completion date of each activity.

- 2. Identify activities modified since previous submittal, major changes in scope, and other identifiable changes.
- J. Provide narrative report to define problem areas, anticipated delays, and impact on Progress Schedule. Report corrective action taken, or proposed, and its effect.

1.4 SCHEDULE SUBMITTAL

- A. Submit initial Progress Schedule within 15 days after date of Notice to Proceed. After review, resubmit required revised data within 10 days.
- B. Submit revised Progress Schedule with each Application for Payment.
- C. Submit electronically in Adobe PDF format.

1.5 SCHEDULE DISTRIBUTION

- A. Distribute copies of approved Progress Schedule to project site file, Subcontractors, suppliers, and other concerned parties.
- B. Instruct recipients to promptly report, in writing, problems anticipated by projections indicated in Progress Schedule.

END OF SECTION

SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes:
 - 1. Submittal procedures.
 - 2. Product data.
 - 3. Shop drawings.
 - 4. Samples.
 - 5. Design data.
 - 6. Test reports.
 - 7. Certificates.
 - 8. Manufacturer's instructions.
 - 9. Manufacturer's field reports.
 - 10. Construction progress schedules.
 - 11. Proposed products list.
 - 12. Erection drawings.
 - 13. Construction photographs.

1.2 SUBMITTAL PROCEDURES

- A. All submittals shall be sent in Adobe PDF format.
- B. Shop drawings shall be submitted electronically in one PDF format file. File name shall contain specification number and product name.
- C. Submittals shall be made to the Architect.
- D. Each submittal shall include a cover sheet with the following information.
 - 1. Submittal Date
 - 2. Specification Section(s)
 - 3. Manufacturer's Representative (Contact Name, address, and telephone number)
 - 4. Contractor (Contact Name, address, and telephone number)
 - 5. Project Name, Project City, Project State, and Project Address.
 - 6. Location where specific product is to be used
- E. Drawings shall bear the stamp of approval of the Contractor as evidence that the drawings have been checked by the Contractor. Any drawings submitted without this stamp of approval will not be considered and will be returned to the Contractor for resubmission.
- F. Submittals must be 100% complete per requirements of each entire corresponding specification section and in one (1) package. Non-complete submittals will be returned to the contractor without comment and stamped "rejected-resubmit". Contractors who knowingly want to submit non-complete submittals or break single system submittals into multiple submittals will be responsible to arrange with Architect, prior to submitting the submittal(s), and to compensate Architect for the extra work involved.
- G. Contractor shall allow 10 working days in schedule for A/E to review submittals. If submittals require an expedited review process, contact Architect prior to submitting the submittal(s) to make the appropriate arrangement.
- H. Submittals requiring resubmission shall have changes made to a previously reviewed submittals denoted with revision clouds and tags identifying those changes.

- I. Mechanical and Electrical Contractors shall include the following:
 - 1. Equipment List:
 - a. A complete equipment list of all components, including the following: Quantity, Manufacturer, Part Number, and Description.
 - b. If the supplier uses different part numbers from those of the actual manufacturer, the actual manufacturer and part numbers as they appear - marked on the shipping box/packages, shall also be identified on this list.
 - 2. Product Data:
 - a. Manufacturer's product data sheets, and equipment description of all system components.
 - b. Data sheets shall be highlighted or suitably marked, so that included items and options are indicated.
 - c. On data sheets that include multiple products, products that are not used shall be crossed out. Product Data Sheets shall be organized, in order, corresponding to the FIRST occurrence of the corresponding item on the equipment list.

1.3 PRODUCT DATA

- A. Product Data: Submit to Architect for review for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents.
- B. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- C. Indicate product utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

1.4 SHOP DRAWINGS

- A. Shop Drawings: Submit to Architect for review for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents.
- B. Indicate special utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- C. When required by individual specification sections, provide shop drawings signed and sealed by professional Engineer responsible for designing components shown on shop drawings.
 - 1. Include signed and sealed calculations to support design.
 - 2. Submit drawings and calculations in form suitable for submission to and approval by authorities having jurisdiction.
 - 3. Make revisions and provide additional information when required by authorities having jurisdiction.
- D. Submit number of copies described in Submittal Procedures article.
- E. Structural and Architectural plans show dimensions and elevations to significant working points. Shop drawing detailers and suppliers are responsible for the determination of all dimensions, pitches, elevations, etc., beyond those noted as necessary to thoroughly detail / fabricate their work. Contact A/E with any discrepancies found.
- F. In no case shall changes be made to work shown or procedure specified on structural plans unless first approved in writing by A/E. Review of shop drawings by A/E does not constitute acceptance of a design change. Proposed changes by contractor must be submitted in RFI format and must be approved in the same manner. Contractor requesting change may be billed on a time and expense basis by A/E for all redesign work, for all new sketches prepared, and for all additional review time related to the changes.
- G. Failure to submit shop drawings shall not relieve the contractor from providing the specified equipment and materials.

1.5 SAMPLES

- A. Samples: Submit to Architect for review for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents.
- B. Submit number of samples specified in individual specification sections; Architect will retain one sample.
- C. Samples for Selection as Specified in Product Sections:
 - 1. Submit to Architect for aesthetic, color, or finish selection.
 - 2. Submit samples of finishes from full range of manufacturers' available colors, in available textures and patterns for Architect selection.
 - 3. When custom color is specified, submit actual sample of custom color for Architect approval.
- D. Submit samples to illustrate functional and aesthetic characteristics of Products with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
- E. Include identification on each sample with full Project information.
- F. Reviewed samples which may be used in the Work are indicated in individual specification sections.
- G. Samples will not be used for testing purposes unless specifically stated in specification section.
- H. After review, produce duplicates and distribute in accordance with SUBMITTAL PROCEDURES article and for record documents purposes described in Section 01 70 00 – Project Closeout.

1.6 DESIGN DATA

- A. Submit for information for limited purpose of assessing conformance with information given and design concept expressed in the Contract Documents.

1.7 TEST REPORTS

- A. Submit for Architect's knowledge.
- B. Submit test reports for information for limited purpose of assessing conformance with information given and design concept expressed in Contract Documents.

1.8 CERTIFICATES

- A. When specified in individual specification Sections, submit certification by manufacturer, installation/application subcontractor, or Contractor to Architect.
- B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- C. Certificates may be recent or previous test results on material or Product, but must be acceptable to Architect.

1.9 MANUFACTURER'S INSTRUCTIONS

- A. When specified in individual specification Sections, submit printed instructions for delivery, storage, assembly, installation, startup, adjusting, and finishing to Architect for delivery to Owner.

- B. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

1.10 MANUFACTURER'S FIELD REPORTS

- A. Submit reports for Architect's knowledge as Contract Administrator or for Owner.
- B. Submit report within 72 hours of observation to Architect for information.
- C. Submit for information for limited purpose of assessing conformance with information given and design concept expressed in Contract Documents.

1.11 CONSTRUCTION PROGRESS SCHEDULES

- A. Submit initial schedules within 15 days after date established in Notice to Proceed. After review, resubmit required revised data within 10 days.
- B. Submit revised Progress Schedules with each Progress Meeting or Application for Payment, but not less than monthly.
- C. Distribute copies of reviewed schedules to Project site file, subcontractors, suppliers, and other concerned parties.
- D. Instruct recipients to promptly report, in writing, problems anticipated by projections indicated in schedules.
- E. Submit computer generated chart with separate line for each major portion of Work or operation, identifying first work day of each week.
- F. Show complete sequence of construction by activity, identifying Work of separate stages and other logically grouped activities. Indicate early and late start, early and late finish, float dates, and duration.
- G. Indicate estimated percentage of completion for each item of Work at each submission.
- H. Submit separate schedule of submittal dates for shop drawings, product data, and samples. Indicate dates reviewed submittals will be required from Architect. Indicate decision dates for selection of finishes.
- I. Indicate delivery dates for Owner furnished products and products identified under Allowances if required.
- J. Revisions to Schedules:
 - 1. Indicate progress of each activity to date of submittal, and projected completion date of each activity.
 - 2. Identify activities modified since previous submittal, major changes in scope, and other identifiable changes.
 - 3. Prepare narrative report to define problem areas, anticipated delays, and impact on Schedule. Report corrective action taken, or proposed, and its effect, including effect of changes on schedules of separate contractors.

1.12 PROPOSED PRODUCTS LIST

- A. Within 15 days after date of Notice to Proceed, submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.
- B. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.

1.13 ERECTION DRAWINGS

- A. Submit drawings for Architect's knowledge.
- B. Submit for information for limited purpose of assessing conformance with information given and design concept expressed in Contract Documents.
- C. Data indicating inappropriate or unacceptable Work may be subject to action by Architect.

1.14 CONSTRUCTION PHOTOGRAPHS

- A. Provide photographs of site and construction throughout exterior progress of Work produced by an experienced photographer, acceptable to Architect.
- B. Submit photographs monthly or to show milestones of Work.
- C. Take three photographs from differing directions for each section of work indicating relative progress of the Work, three days maximum prior to submitting.
- D. Take photographs as evidence of existing project conditions.
- E. Identify each print on front. Identify name of Project, contract number, phase orientation of view, date and time of view, name and address of photographer, and photographer's numbered identification of exposure.
- F. Deliver negatives to Owner with project record documents. Catalog and index negatives in chronological sequence; include typed table of contents

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SECTION 01 40 00
QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. References.
 - 2. Quality assurance and control of installation.
 - 3. Mockups.
 - 4. Manufacturer's field services and reports.
 - 5. Design data and calculations.
 - 6. Test reports and certifications.
 - 7. Manufacturer's installation instructions.

1.2 REFERENCES

- A. For products or workmanship specified by reference to association, trade, or industry standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Should specified reference standards conflict with Contract Documents, request clarification from Architect before proceeding.
- C. Conform to edition of reference standard in effect as of date of Project Manual.
- D. The contractual relationship of the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.3 QUALITY ASSURANCE AND CONTROL OF INSTALLATION

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

1.4 MOCKUPS

- A. Definition:
 - 1. Mockups are field samples constructed, applied, or assembled at the project site for review by the Owner and Architect that illustrate materials, equipment, or workmanship.

- 2. Approved mockups establish the standard of quality by which the Work will be judged.
- B. Construct, apply, or assemble specified items, with related attachment and anchorage devices, flashings, seals, and finishes.
- C. Perform work in accordance with applicable specifications sections.
- D. Erect at project site at location acceptable to Architect. Protect from damage.
- E. Removal:
 - 1. Mockups may remain as part of the Work only when so designated in individual specification sections.
 - 2. Do not remove mockups until removal is approved by Architect or upon Final Completion.
 - 3. Where mockup is not permitted to remain as part of the Work, clear area after removal of mockup has been approved by Architect.

1.5 MANUFACTURERS' FIELD SERVICES AND REPORTS

- A. When specified in individual specification Sections, require material or Product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, or startup of equipment, as applicable, and to initiate instructions when necessary.
- B. Individuals to report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.
- C. Submit report to Architect within 10 days of observation.

1.6 DESIGN DATA AND CALCULATIONS

- A. When specified in individual specification Sections, require material or Product suppliers or manufacturers to provide design data and calculations.
- B. Accuracy of design data and calculations is the responsibility of the Contractor.
- C. When so specified, prepare design data and calculations under the direction of a professional engineer licensed in the state in which the Project is located. Affix engineer's seal to submittals.
- D. Submit electronically in Adobe PDF format.

1.7 TEST REPORTS AND CERTIFICATIONS

- A. When specified in individual specification Sections, require material or Product suppliers or manufacturers to provide test reports and manufacturers' certifications.
- B. Indicate that material or Product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- C. Submittals may be recent or previous test results on material or Product, but must be acceptable to Architect.
- D. Submit electronically in Adobe PDF format.

1.8 MANUFACTURER'S INSTALLATION INSTRUCTIONS

- A. When Contract Documents require that Products be installed in accordance with manufacturer's instructions:

1. Submit manufacturer's most recent printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, as applicable.
 - a. Submit in quantities specified for Product Data.
 - b. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.
 - c. Identify conflicts between manufacturers' instructions and requirements of Contract Documents.
2. Perform installation of Products to comply with requirements of manufacturer's instructions.
3. If installation cannot be performed in accordance with manufacturer's instructions, notify Architect and await instructions.
4. Submit electronically in Adobe PDF format.

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SECTION 01 45 23

TESTING AND INSPECTION SERVICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes:
 - 1. Laboratory selection and payment.
 - 2. Laboratory duties.
 - 3. Contractor's responsibilities.
- B. Related Sections:
 - 1. Individual specifications sections contain specific tests and inspections to be performed.

1.3 REFERENCE STANDARDS

- A. ASTM International (ASTM):
 - 1. ASTM C1077 - Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation.
 - 2. ASTM D3666 - Standard Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials.
 - 3. ASTM D3740 - Standard Practice for Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.
 - 4. ASTM E329 - Standard Specification for Agencies Engaged in Construction Inspection and/or Testing.
 - 5. ASTM E543 - Standard Specification

1.4 QUALITY ASSURANCE

- A. The 2015 International Building Code (IBC), as modified by the State of Wisconsin Chapters SPS 361-366 - Commercial Building Code, governs the requirements for products, materials, components, and systems that are indicated on the Drawings and specified in the Project Manual.
- B. Contractor shall employ and pay for services of an independent testing laboratory to perform specified testing and inspection.
- C. Employment of Testing Laboratory shall in no way relieve Contractor of their obligations to perform work in accordance with Contract Documents.
- D. Refer to the Conditions of the Contract for provisions related to special inspections and testing.
- E. Qualifications of Laboratory:
 - 1. Meet requirements of ASTM C1077, ASTM D3666, ASTM D3740, ASTM E329 and ASTM E543.
 - 2. Authorized and licensed to operate in the State of Wisconsin.

1.5 LABORATORY DUTIES

- A. Cooperate with Architect and Contractor. and provide qualified personnel after due notice.
- B. Perform specified inspections, sampling, and testing of materials and methods of construction:
 - 1. Comply with specified standards.
 - 2. Ascertain compliance or noncompliance of materials with requirements of Contract Documents.
- C. Promptly notify Architect and Contractor of observed irregularities or deficiencies of Work or products.
- D. Promptly submit written report of each test and inspection; submit one copies electronically in Adobe PDF format.
- E. Each report to include:
 - 1. Date issued.
 - 2. Project title and number.
 - 3. Testing Laboratory name, address, and telephone number.
 - 4. Name of Inspector and signature of individual in charge.
 - 5. Date and time of sampling or inspection.
 - 6. Record of temperature and weather conditions.
 - 7. Date of test.
 - 8. Identification of product and specification section.
 - 9. Location of sample or test in project.
 - 10. Type of inspection or test.
 - 11. Results of tests and compliance or noncompliance with Contract Documents.
 - 12. Interpretation of test results when requested by Architect or Contractor.
- F. Perform additional tests when required by Architect.
- G. Laboratory is not authorized to:
 - 1. Release, revoke, alter, or enlarge on requirements of Contract Documents.
 - 2. Approve or accept any portion of work.
 - 3. Perform any duties of Contractor.

1.6 CONTRACTOR'S RESPONSIBILITIES

- A. Cooperate with personnel, provide access to Work, and to manufacturer's operations.
- B. When materials require testing prior to being incorporated into Work, secure and deliver to Laboratory adequate quantities of representative samples of materials proposed to be used.
- C. Furnish copies of product test reports as required.
- D. Furnish incidental labor and facilities:
 - 1. To provide access to work to be tested.
 - 2. To obtain and handle samples at site or at source of product to be tested.
 - 3. To facilitate inspections and tests.
 - 4. For safe storage and curing of test samples.
- E. Notify Laboratory sufficiently in advance of operations to allow for Laboratory assignment of personnel and scheduling of tests.
- F. Make arrangements with Laboratory and pay for additional samples and tests required for Contractor's convenience

END OF SECTION

SECTION 01 50 00
TEMPORARY FACILITIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes:
 - 1. Scope
 - 2. Temporary Field Offices
 - 3. Temporary Stairs, Ladders, Ramps, Runways, Scaffolds
 - 4. Signs
 - 5. Temporary Sanitary Facilities
 - 6. Progress Cleaning

1.2 TEMPORARY ENCLOSURES

- A. Contractor shall provide temporary weathertight enclosures for all exterior openings as soon as walls and roof are built so as to protect work from weather. Windows and other openings shall be closed with approved translucent material.

1.3 TEMPORARY FIELD OFFICES

- A. Contractors shall provide offices for their own use located as agreed upon between various Contractors and as approved by Architect.
- B. When directed, move offices into suitable area in building.
- C. Sheds for storage of materials that may be damaged by weather shall be provided and maintained by Contractor. Sheds shall have raised wood floors.

1.4 TEMPORARY STAIRS, LADDERS, RAMPS, RUNWAYS, SCAFFOLDS

- A. Contractor shall:
 - 1. Provide and maintain temporary stairs, ramps, chutes, runways, etc. as required for proper execution of work by all trades.
 - 2. Erect permanent stair framing as soon as possible. Provide stairs with temporary treads, handrails and shaft protection.
 - 3. Provide exterior and interior scaffolding for and during construction of exterior masonry walls, and allow other Contractors and Sub Contractors to use scaffolds so provided without cost. Sub Contractor and others shall provide their own plank.
- B. Contractors and Sub Contractors requiring scaffolds other than specified shall provide their own and remove on completion of work.
- C. Underlay interior scaffolds with planking to prevent uprights from resting directly on slab.
- D. If any scaffolding or forms collapse during construction, the Contractors are responsible.

1.5 SIGNS

- A. Contractor shall erect one (1) painted sign as approved by Owner, giving following information:

1. Name of Project and Owner
2. Name of Architect
3. Names of General, Plumbing, HVAC and Electrical Contractors

- B. Sign shall be not less than 8'-0" wide x 4'-0" high supported by two (2) 4" x 4" posts with 2" x 4" frame.

1.6 TEMPORARY SANITARY FACILITIES

- A. Contractor shall provide and maintain sanitary, temporary chemical type toilets in sufficient number required for the force employed. Toilets shall be self-contained chemical type. Locate where directed.

1.7 PROGRESS CLEANING

- A. Maintain areas free from waste materials, debris, and rubbish. Maintain site in clean and orderly condition.
- B. Provide containers for collection of waste materials, debris, and rubbish; remove and dispose of offsite as required by construction activities.
- C. Periodically clean interior areas to provide suitable conditions for finish work

END OF SECTION

SECTION 01 60 00
PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes:
 - 1. Products.
 - 2. Transportation and handling.
 - 3. Storage and protection.
 - 4. Reuse of existing materials.
 - 5. Product options.
- B. Related Sections:
 - 1. Section 01 25 00 - Substitution Procedures.

1.2 PRODUCTS

- A. Provide interchangeable components by the same manufacturer for identical items.
- B. Do not use products containing asbestos or other known hazardous materials.
- C. Do not reuse materials and equipment removed from existing construction in completed Work, except as specifically permitted by the Contract Documents.

1.3 TRANSPORTATION AND HANDLING

- A. Coordinate delivery of Products to prevent conflict with Work and adverse conditions at site.
- B. Transport and handle Products in accordance with manufacturer's instructions.
- C. Promptly inspect shipments to ensure that Products comply with requirements of Contract Documents, are undamaged, and quantities are correct.
- D. Provide equipment and personnel to handle products by methods to prevent damage.

1.4 STORAGE AND PROTECTION

- A. Store and protect Products in accordance with manufacturer's instructions with manufacturer's seals and labels intact and legible.
- B. Store Products on site unless prior written approval to store off site has been obtained from Owner.
- C. Store Products subject to damage by elements in weathertight enclosures. Maintain temperature and humidity within ranges required by manufacturer's instructions.
- D. Exterior Storage:
 - 1. Store fabricated Products above ground; prevent soiling and staining.
 - 2. Cover products subject to deterioration with impervious sheet coverings; provide ventilation to prevent condensation.

3. Store loose granular materials in well drained area on solid surfaces; prevent mixing with foreign matter.
- E. Arrange storage areas to permit access for inspection. Periodically inspect stored products to verify that products are undamaged and in acceptable condition.

1.5 PRODUCT OPTIONS

- A. Products specified by reference standard only:
1. Select any Product meeting the specified standard.
 2. Submit Product Data to substantiate compliance of proposed Product with specified requirements.
- B. Products specified by naming two or more acceptable Products: Select any named Product.
- C. Products specified by stating that the Contract Documents are based on a Product by a single manufacturer followed by the statement "Equivalent products by the following manufacturers are acceptable":
1. Select the specified Product or a Product by a named manufacturer having equivalent or superior characteristics to the specified Product and meeting the requirements of the Contract Documents.
 2. If the specified Product is not selected, submit Product Data to substantiate compliance of proposed Product with specified requirements.
 3. The specified Product establishes the required standard of quality.
- D. Products specified by naming one or more Products followed by "or approved substitute" or similar statement:
1. Submit a substitution request under provisions of Section 01 25 00 – Substitution Procedures for Products not listed.
 2. The specified Product establishes the required standard of quality.
- E. Products specified by naming one or more Products or manufacturers followed by the statement "Substitutions: Under provisions of Division 01 – General Requirements:
1. Submit a substitution request under provisions of Section 01 25 00 – Substitution Procedures for Products not listed.
 2. The specified Product establishes the required standard of quality.
- F. Products specified by naming one Product followed by the statement "Substitutions: Not permitted": Substitutions will not be allowed.
- G. Products specified by required performance or attributes, without naming a manufacturer or Product:
1. Select any Product meeting specified requirements.
 2. Submit Product Data to substantiate compliance of proposed Product with specified requirements.

END OF SECTION

SECTION 01 73 00

EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
 - 1. Construction layout.
 - 2. Installation of the Work.
 - 3. Progress cleaning.
 - 4. Starting and adjusting.
 - 5. Protection of installed construction.

1.3 QUALITY ASSURANCE

- A. Manufacturer's Installation Instructions:
 - 1. Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.
 - 1. For projects requiring compliance and construction practices and procedures, use products for patching that comply with sustainable design requirements.
- B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
 - 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examination and Acceptance of Conditions:
 - 1. Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
 - a. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
 - b. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.

- c. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
- B. Written Report:
 - 1. Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
 - a. Description of the Work.
 - b. List of detrimental conditions, including substrates.
 - c. List of unacceptable installation tolerances.
 - d. Recommended corrections.
- C. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Field Measurements:
 - 1. Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- B. Space Requirements:
 - 1. Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- C. Review of Contract Documents and Field Conditions:
 - 1. Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Architect according to requirements in Section 01 31 00 - Project Management and Coordination.

3.3 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
 - 1. Make vertical work plumb and make horizontal work level.
 - 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
 - 3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
 - 4. Maintain minimum headroom clearance of 96 inches in occupied spaces and 90 inches unoccupied spaces.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.
- F. Tools and Equipment: Where possible, select tools or equipment that minimize production of excessive noise levels.

- G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other portions of the Work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
 - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
 - 2. Allow for building movement, including thermal expansion and contraction.
 - 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- J. Repair or remove and replace damaged, defective, or nonconforming Work.
 - 1. Comply with Section 01 77 00 - Closeout Procedures for repairing or removing and replacing defective Work.

3.4 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
 - 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 - 2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F .
 - 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
 - a. Use containers intended for holding waste materials of type to be stored.
 - 4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
 - 1. Remove liquid spills promptly.
 - 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Section 01 50 00 - Temporary Facilities and Controls.

- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- J. Limiting Exposures: Supervise construction operations to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.5 STARTING AND ADJUSTING

- A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- B. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.
- C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- D. Manufacturer's Field Service: Comply with qualification requirements in Section 01 40 00 - Quality Requirements.

3.6 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Protection of Existing Items: Provide protection and ensure that existing items to remain undisturbed by construction are maintained in condition that existed at commencement of the Work.
- C. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION

SECTION 01 77 00
CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Substantial Completion procedures.
 - 2. Final completion procedures.
 - 3. Warranties.
 - 4. Final cleaning.
 - 5. Repair of the Work.
- B. Related Requirements:
 - 1. Section 01 78 23 - Operation and Maintenance Data: Operation and maintenance manual requirements.
 - 2. Section 01 78 39 - Project Record Documents: Record Drawings, Record Specifications, and Record Product Data.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of cleaning agent.
- B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.
- C. Certified List of Incomplete Items: Final submittal at final completion.

1.4 CLOSEOUT SUBMITTALS

- A. Certificates of Release: From authorities having jurisdiction.
- B. Certificate of Insurance: For continuing coverage.

1.5 MAINTENANCE MATERIAL SUBMITTALS

- A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

1.6 SUBSTANTIAL COMPLETION PROCEDURES

- A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.
- B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
 - 1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 - 2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, damage or settlement surveys, property surveys, and similar final record information.
 - 3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 - 4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Architect. Label with manufacturer's name and model number.
 - a. Schedule of Maintenance Material Items: Prepare and submit schedule of maintenance material submittal items, including name and quantity of each item and name and number of related Specification Section. Obtain Architect's signature for receipt of submittals.
 - 5. Submit testing, adjusting, and balancing records.
 - 6. Submit sustainable design submittals not previously submitted.
 - 7. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
- C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
 - 1. Advise Owner of pending insurance changeover requirements.
 - 2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
 - 3. Complete startup and testing of systems and equipment.
 - 4. Perform preventive maintenance on equipment used prior to Substantial Completion.
 - 5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings for Owner reference.
 - 6. Complete final cleaning requirements.
 - 7. Touch up paint and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- D. Punch List Review: Submit a written request for Punch List review to determine Substantial Completion a minimum of 10 days prior to date the Work will be completed and ready for final Punch List review and tests. On receipt of request, Architect will either proceed with Punch List review or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after Punch List review or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.
 - 1. Request a second Punch List review when the Work identified in previous Punch List review was incomplete.
 - 2. Results of the completed Punch List review will form the basis of requirements for final completion.

1.7 FINAL COMPLETION PROCEDURES

- A. Submittals Prior to Final Completion: Before requesting final Punch List review for determining final completion, complete the following:
 - 1. Submit a final Application for Payment according to Section 01 29 00 - Payment Procedures.
 - 2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion Punch List review of items to be completed or corrected, endorsed and dated by Architect.

Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.

3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
 4. Submit final completion photographic documentation.
- B. Punch List Review: Submit a written request for final Punch List review to determine acceptance a minimum of 10 days prior to date the work will be completed and ready for final Punch List review and tests. On receipt of request, Architect will either proceed with Observation review or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after Punch List review or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
1. Request a final Punch List review when the Work identified in previous observations was incomplete, is completed or corrected.

1.8 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
1. Organize list of spaces in sequential order.
 2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
 3. Include the following information at the top of each page:
 - a. Project name.
 - b. Date.
 - c. Name of Architect.
 - d. Name of Contractor.
 - e. Page number.
 4. Submit list of incomplete items in the following format:
 - a. PDF electronic file. Architect will return annotated file.

1.9 SUBMITTAL OF PROJECT WARRANTIES

- A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where warranties are indicated to commence on dates other than date of Substantial Completion, or when delay in submittal of warranties might limit Owner's rights under warranty.
- B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.
- C. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.
- D. Warranty Electronic File: Provide warranties and bonds in PDF format. Assemble complete warranty and bond submittal package into a single electronic PDF file with bookmarks enabling navigation to each item. Provide bookmarked table of contents at beginning of document.
1. Submit on digital media acceptable to Architect.
- E. Warranties in Paper Form:
1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.

- F. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

- A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
 - 1. Complete the following cleaning operations before requesting Observation for certification of Substantial Completion for entire Project or for a designated portion of Project:
 - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - d. Remove snow and ice to provide safe access to building.
 - e. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 - f. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - g. Sweep concrete floors broom clean in unoccupied spaces.
 - h. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.
 - i. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.
 - j. Remove labels that are not permanent.
 - k. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
 - l. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
 - m. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
 - n. Clean ducts, blowers, and coils if units were operated without filters during construction or that display contamination with particulate matter during Punch List review.
 - o. Clean luminaires, lamps, globes, and reflectors to function with full efficiency.
 - p. Leave Project clean and ready for occupancy.
- C. Construction Waste Disposal: Comply with waste disposal requirements in Section 01 50 00 - Temporary Facilities and Controls.

3.2 REPAIR OF THE WORK

- A. Complete repair and restoration operations before requesting Punch List Review for determination of Substantial Completion.
- B. Repair, or remove and replace, defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.
 - 1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
 - 2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that already show evidence of repair or restoration.
 - a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.
 - 3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
 - 4. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

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SECTION 01 78 23

OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
 - 1. Operation and maintenance documentation directory manuals.
 - 2. Emergency manuals.
 - 3. Systems and equipment operation manuals.
 - 4. Systems and equipment maintenance manuals.
 - 5. Product maintenance manuals.
- B. Related Requirements:
 - 1. Section 01 33 00 - Submittal Procedures: submitting copies of submittals for operation and maintenance manuals.

1.3 DEFINITIONS

- A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.
- B. Subsystem: A portion of a system with characteristics similar to a system.

1.4 CLOSEOUT SUBMITTALS

- A. Submit operation and maintenance manuals indicated. Provide content for each manual as specified in individual Specification Sections, and as reviewed and approved at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.
 - 1. Architect will comment on whether content of operation and maintenance submittals is acceptable.
 - 2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.
- B. Format: Submit operation and maintenance manuals in the following format:
 - 1. Submit on digital media acceptable to Architect and send by email to Architect. Enable reviewer comments on draft submittals.
- C. Initial Manual Submittal: Submit draft copy of each manual at least 30 days before commencing demonstration and training. Architect will comment on whether general scope and content of manual are acceptable.
- D. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 15 days before commencing demonstration and training. Architect will return copy with comments.
 - 1. Correct or revise each manual to comply with Architect's comments. Submit copies of each corrected manual within 15 days of receipt of Architect's comments and prior to commencing demonstration and training.

- E. Comply with Section 01 77 00 - Closeout Procedures for schedule for submitting operation and maintenance documentation.

1.5 FORMAT OF OPERATION AND MAINTENANCE MANUALS

- A. For each manual type required.
 - 1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.
 - 2. File Names and Bookmarks: Bookmark individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel on opening file.
- B. Manuals, Paper Copy: Submit manuals in the form of hard-copy, bound and labeled volumes.
 - 1. Binders: Heavy-duty, three-ring, vinyl-covered, [loose-leaf] [post-type] binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
 - a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
 - b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name,[and] subject matter of contents[, and indicate Specification Section number on bottom of spine]. Indicate volume number for multiple-volume sets.
 - 2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section of the manual. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
 - 3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software storage media for computerized electronic equipment. Enclose title pages and directories in clear plastic sleeves.
 - 4. Supplementary Text: Prepared on 8-1/2-by-11-inch white bond paper.
 - 5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
 - a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
 - b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

1.6 REQUIREMENTS FOR EMERGENCY, OPERATION, AND MAINTENANCE MANUALS

- A. Organization of Manuals: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
 - 1. Title page.
 - 2. Table of contents.
 - 3. Manual contents.
- B. Title Page: Include the following information:
 - 1. Subject matter included in manual.
 - 2. Name and address of Project.
 - 3. Name and address of Owner.
 - 4. Date of submittal.
 - 5. Name and contact information for Contractor.

6. Name and contact information for Construction Manager.
 7. Name and contact information for Architect.
 8. Name and contact information for Commissioning Authority.
 9. Names and contact information for major consultants to the Architect that designed the systems contained in the manuals.
 10. Cross-reference to related systems in other operation and maintenance manuals.
- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.
- D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
- E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

1.7 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY MANUAL

- A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to emergency, operation, and maintenance manuals. List items and their location to facilitate ready access to desired information. Include the following:
1. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.
 2. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.
 3. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.

1.8 EMERGENCY MANUALS

- A. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.
- B. Content: Organize manual into a separate section for each of the following:
1. Type of emergency.
 2. Emergency instructions.
 3. Emergency procedures.
- C. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:
1. Fire.
 2. Flood.
 3. Gas leak.
 4. Water leak.
 5. Power failure.
 6. Water outage.
 7. System, subsystem, or equipment failure.
 8. Chemical release or spill.
- D. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.

- E. Emergency Procedures: Include the following, as applicable:
 - 1. Instructions on stopping.
 - 2. Shutdown instructions for each type of emergency.
 - 3. Operating instructions for conditions outside normal operating limits.
 - 4. Required sequences for electric or electronic systems.
 - 5. Special operating instructions and procedures.

1.9 SYSTEMS AND EQUIPMENT OPERATION MANUALS

- A. Systems and Equipment Operation Manual: Assemble a complete set of data indicating operation of each system, subsystem, and piece of equipment not part of a system. Include information required for daily operation and management, operating standards, and routine and special operating procedures.
 - 1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
 - 2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.
- B. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
 - 1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.
 - 2. Performance and design criteria if Contractor has delegated design responsibility.
 - 3. Operating standards.
 - 4. Operating procedures.
 - 5. Operating logs.
 - 6. Wiring diagrams.
 - 7. Control diagrams.
 - 8. Piped system diagrams.
 - 9. Precautions against improper use.
 - 10. License requirements including inspection and renewal dates.
- C. Descriptions: Include the following:
 - 1. Product name and model number. Use designations for products indicated on Contract Documents.
 - 2. Manufacturer's name.
 - 3. Equipment identification with serial number of each component.
 - 4. Equipment function.
 - 5. Operating characteristics.
 - 6. Limiting conditions.
 - 7. Performance curves.
 - 8. Engineering data and tests.
 - 9. Complete nomenclature and number of replacement parts.
- D. Operating Procedures: Include the following, as applicable:
 - 1. Startup procedures.
 - 2. Equipment or system break-in procedures.
 - 3. Routine and normal operating instructions.
 - 4. Regulation and control procedures.
 - 5. Instructions on stopping.
 - 6. Normal shutdown instructions.
 - 7. Seasonal and weekend operating instructions.
 - 8. Required sequences for electric or electronic systems.
 - 9. Special operating instructions and procedures.
- E. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.
- F. Piped Systems: Diagram piping as installed, and identify color coding where required for identification.

1.10 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

- A. Systems and Equipment Maintenance Manuals: Assemble a complete set of data indicating maintenance of each system, subsystem, and piece of equipment not part of a system. Include manufacturers' maintenance documentation, preventive maintenance procedures and frequency, repair procedures, wiring and systems diagrams, lists of spare parts, and warranty information.
 - 1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
 - 2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.
- B. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranties and bonds as described below.
- C. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.
- D. Manufacturers' Maintenance Documentation: Include the following information for each component part or piece of equipment:
 - 1. Standard maintenance instructions and bulletins; include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
 - a. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
 - 2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
 - 3. Identification and nomenclature of parts and components.
 - 4. List of items recommended to be stocked as spare parts.
- E. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
 - 1. Test and inspection instructions.
 - 2. Troubleshooting guide.
 - 3. Precautions against improper maintenance.
 - 4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 - 5. Aligning, adjusting, and checking instructions.
 - 6. Demonstration and training video recording, if available.
- F. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
 - 1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
 - 2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.
- G. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
- H. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.

- I. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
 - 1. Include procedures to follow and required notifications for warranty claims.
- J. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.
 - 1. Do not use original project record documents as part of maintenance manuals.

1.11 PRODUCT MAINTENANCE MANUALS

- A. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- B. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- C. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.
- D. Product Information: Include the following, as applicable:
 - 1. Product name and model number.
 - 2. Manufacturer's name.
 - 3. Color, pattern, and texture.
 - 4. Material and chemical composition.
 - 5. Reordering information for specially manufactured products.
- E. Maintenance Procedures: Include manufacturer's written recommendations and the following:
 - 1. Inspection procedures.
 - 2. Types of cleaning agents to be used and methods of cleaning.
 - 3. List of cleaning agents and methods of cleaning detrimental to product.
 - 4. Schedule for routine cleaning and maintenance.
 - 5. Repair instructions.
- F. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- G. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
 - 1. Include procedures to follow and required notifications for warranty claims.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 01 78 39

PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for project record documents, including the following:
 - 1. Record Drawings.
 - 2. Record Specifications.
 - 3. Record Product Data.
 - 4. Miscellaneous Record Submittals.
- B. Related Requirements:
 - 1. Section 01 77 00 - Closeout Procedures for general closeout procedures.
 - 2. Section 01 78 23 - Operation and Maintenance Data for operation and maintenance manual requirements.

1.3 CLOSEOUT SUBMITTALS

- A. Record Drawings: Comply with the following:
 - 1. Number of Copies: Submit one set(s) of marked-up record prints.
 - 2. Number of Copies: Submit copies of Record Drawings as follows:
 - a. Initial Submittal:
 - 1) Submit one paper-copy set(s) of marked-up record prints.
 - 2) Submit PDF electronic files of scanned record prints and one of file prints.
 - 3) Submit record digital data files and one set(s) of plots.
 - 4) Architect will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.
 - b. Final Submittal:
 - 1) Submit three paper-copy set(s) of marked-up record prints.
 - 2) Submit PDF electronic files of scanned record prints and three set(s) of prints.
 - 3) Print each drawing, whether or not changes and additional information were recorded.
 - c. Final Submittal:
 - 1) Submit one paper-copy set(s) of marked-up record prints.
 - 2) Submit record digital data files and three set(s) of record digital data file plots.
 - 3) Plot each drawing file, whether or not changes and additional information were recorded.
- B. Record Specifications: Submit annotated PDF electronic files of Project's Specifications, including addenda and contract modifications.
- C. Record Product Data: Submit annotated PDF electronic files and directories of each submittal.
 - 1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.

- D. Miscellaneous Record Submittals: See other Specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. Submit annotated PDF electronic files and directories of each submittal.
- E. Reports: Submit written report weekly indicating items incorporated into project record documents concurrent with progress of the Work, including revisions, concealed conditions, field changes, product selections, and other notations incorporated.

1.4 RECORD DRAWINGS

- A. Record Drawings: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.
 - 1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.
 - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - b. Accurately record information in an acceptable drawing technique.
 - c. Record data as soon as possible after obtaining it.
 - d. Record and check the markup before enclosing concealed installations.
 - e. Cross-reference record prints to corresponding photographic documentation.
 - 2. Content: Types of items requiring marking include, but are not limited to, the following:
 - a. Dimensional changes to Drawings.
 - b. Revisions to details shown on Drawings.
 - c. Depths of foundations.
 - d. Revisions to routing of piping and conduits.
 - e. Revisions to electrical circuitry.
 - f. Actual equipment locations.
 - g. Duct size and routing.
 - h. Locations of concealed internal utilities.
 - i. Changes made by Change Order or Work Change Directive.
 - j. Changes made following Architect's written orders.
 - k. Details not on the original Contract Drawings.
 - l. Field records for variable and concealed conditions.
 - m. Record information on the Work that is shown only schematically.
 - 3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
 - 4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
 - 5. Mark important additional information that was either shown schematically or omitted from original Drawings.
 - 6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record prints with Architect. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:
 - 1. Format: Same digital data software program, version, and operating system as the original Contract Drawings.
 - 2. Format: DWG, Microsoft Windows operating system.
 - 3. Format: Annotated PDF electronic file with comment function enabled.
 - 4. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.
 - 5. Refer instances of uncertainty to Architect for resolution.
 - 6. Architect will furnish Contractor with one set of digital data files of the Contract Drawings for use in recording information.
 - a. See Section 01 31 00 - Project Management and Coordination for requirements related to use of Architect's digital data files.
 - b. Architect will provide data file layer information. Record markups in separate layers.

- C. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
 - 1. Record Prints: Organize record prints into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
 - 2. Format: Annotated PDF electronic file with comment function enabled.
 - 3. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.
 - 4. Identification: As follows:
 - a. Project name.
 - b. Date.
 - c. Designation "PROJECT RECORD DRAWINGS."
 - d. Name of Architect.
 - e. Name of Contractor.

1.5 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
 - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 - 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
 - 3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
 - 4. For each principal product, indicate whether record Product Data has been submitted in operation and maintenance manuals instead of submitted as record Product Data.
 - 5. Note related Change Orders, Record Product Data, and Record Drawings where applicable.
- B. Format: Submit record Specifications as annotated PDF electronic file.

1.6 RECORD PRODUCT DATA

- A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.
- B. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
 - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 - 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
 - 3. Note related Change Orders, Record Specifications, and Record Drawings where applicable.
- C. Format: Submit record Product Data as annotated PDF electronic file.
 - 1. Include record Product Data directory organized by Specification Section number and title, electronically linked to each item of record Product Data.

1.7 MISCELLANEOUS RECORD SUBMITTALS

- A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.
- B. Format: Submit miscellaneous record submittals as PDF electronic file of marked-up miscellaneous record submittals.

1. Include miscellaneous record submittals directory organized by Specification Section number and title, electronically linked to each item of miscellaneous record submittals.

1.8 MAINTENANCE OF RECORD DOCUMENTS

- A. Maintenance of Record Documents: Store record documents in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Architect's reference during normal working hours.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 02 41 16
SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes:
 - 1. Labor and materials required to complete selective demolition
- B. Related Sections: 02 41 18 – Building Demolition

1.3 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and methods needed for proper performance of the work of this Section.
- B. Condition of Premises:
 - 1. Bidders shall visit site and examine building as to type of construction and its condition.
 - 2. Accept premises as found. Owner assumes no responsibility for condition of buildings on site or continuation of condition existing at time of Invitation to Bid or thereafter.
 - 3. Assume risk regarding damage or loss whether by reason of fire, theft or other casualty or happening to specified building after notification of acceptance of proposal. No such damage or loss shall relieve Contractor from contract obligation to complete work
- C. Regulatory Requirements:
 - 1. Conform to applicable code for demolition work, safety of structure, and dust control.
 - 2. Obtain required permits from authorities.
 - 3. Notify affected utility companies before starting work and comply with their requirements.
 - 4. Conform to applicable codes when hazardous or contaminated materials are discovered.
 - 5. Do not disable or disrupt building fire or life safety systems without prior written notice to Owner.

1.4 SUBMITTALS

- A. Schedule of items and materials to be salvaged. Identify procedures for disassembly.
 - 1. Coordinate with Solid Waste Management Plan. Identify materials to be recycled. Identify materials to be salvaged for reuse on site and off site.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Lead Based Paint:
 - 1. Conform with OSHA and EPA recommended worker safety requirements when removing lead based paint or material bearing lead based paint or material contaminated with lead by the demolition process. Contractor's attention is directed to the Occupational Safety and Health Act (OSHA) in general and particularly to 29 CFR 1910 (LEAD STANDARD) and to CFR 1926 (LEAD EXPOSURE IN THE CONSTRUCTION INDUSTRY). For OSHA compliance and regulation interpretations, contractors may contact the area OSHA office for this project. [Milwaukee, telephone (414) 297-3315; Appleton, telephone (414) 734-4521; Eau Claire, telephone (715) 832-9019]. Dispose of refuse containing lead based paint or contaminated with lead by the demolition process in conformance with State of Wisconsin Hazardous Waste Regulations set forth by the Department of Natural Resources and in conformance with OSHA and EPA recommended worker safety requirements.
- B. Remove and dispose of appliances and other items that may contain refrigerants in accordance with governmental agencies having jurisdiction. Appliances and other items that may contain refrigerants include, but are not limited to, refrigerators, freezers, dehumidifiers and portable or central air conditioners.
- C. Remove and legally dispose of mercury-containing materials including fluorescent, high-pressure sodium, mercury vapor, metal halide light bulbs, and thermostats containing a liquid filled capsule. PCB-containing materials including capacitors, ballasts, and transformers where the component is contained within a metal jacket and does not have a specific, legible label stating no PCBs are present.
 - 1. Freon Removal and Disposal:
 - a. The handling of Freon containing appliances is subject to all applicable state and federal mandates and regulations. The Contractor shall be responsible for the identification and removal and disposal of the material in accordance with applicable regulations. All costs associated with said removal and disposal shall be considered incidental and shall be included in the lump sum bid for demolition.
 - 2. PCB and Mercury Removal and Disposal:
 - a. The handling of any fluorescent lighting fixtures and ballasts containing PCB or mercury is subject to all applicable state and federal mandates and regulations. The Contractor shall be responsible for the removal and disposal of the material in accordance with applicable regulations. All costs associated with said removal and disposal shall be considered incidental and shall be included in the lump sum bid for demolition.

PART 2 - PRODUCTS

2.1 DEMOLITION MATERIALS

- A. Concrete: Crush demolished concrete to reclaim aggregate. Grade aggregate and use as sub-base material under future parking lots. Neutralize alkalinity if planting above.
- B. Brick/Concrete Masonry: Crush units for use as sub-base material under future parking lots. Up to 25% crushed brick may be added to recycled concrete aggregate and crushed rock blends in pavement sub-base applications, subject to approval of civil engineer.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protection:
 - 1. Provide protection for all shrubs, trees lawns, landscape work, adjacent buildings and equipment, walks and drives and adjacent streets, both on and off property which are to remain.
 - 2. Provide, erect and maintain all fences, planking, bracing, lights, barricades, warning signs and guards necessary for protection of streets, sidewalks, landscaping, adjoining properties, employees and public.
 - 3. Do not interfere with operations of adjacent buildings, and maintain free, safe passage to and from same.
 - 4. Repair damage done to Owner's or other's property, on or off premises by reason of required work.
 - 5. Remove all protection when work is complete and when authorized to do so by the Architect
 - 6. Erect temporary partitions, barricades, warning devices, and controls.
 - 7. Provide protective coverings, shoring, bracing, and supports for construction designated to remain.
 - 8. Temporarily or permanently disconnect utilities as required.
- B. Dust Barriers:
 - 1. The Contractor shall at all times conduct operations in a manner to exclude dust and elements from occupied portions of existing building.
 - a. Provide dust tight enclosures consisting of 2 x 4 wood studs spaced 16" o/c with top and bottom wood plates. Dust barrier shall be 1/2", C (plugged)-D Grade plywood. Fasten dust barrier to studs with nails, screws or staples. Dust barrier shall be placed on existing room side. C-grade side shall face occupied areas.
 - b. Provide dust tight enclosures consisting of 2 x 4 wood studs spaced 16" o/c with top and bottom wood plates. Dust barrier shall be 4 mil polyethylene sheet. Fasten dust barrier to studs with staples. Dust barrier shall be on existing room side.
- C. HVAC Filters:
 - 1. Provide filters for HVAC system grilles to prevent dust and other contaminants from migrating to occupied areas of building by means of the HVAC system. Coordinate with Division

3.2 MAINTAINING TRAFFIC

- A. Do not close or obstruct streets, sidewalks, alleys or passageways without permit. Do not store materials in streets, alleys or passageways.
- B. Conduct operations with minimum interference with roads, streets, driveways, alleys, sidewalks and other facilities
- C. Maintain access for emergency vehicles at all times.

3.3 DEMOLITION

- A. Prepare and follow an organized plan for selective demolition and removal of items.
 - 1. Do not disturb tunnels, conduits and vaults until such time that utilities they serve have been re routed
 - 2. In all activities, comply with pertinent regulations of governmental agencies having jurisdiction.
- B. General:
 - 1. Minimize noise and spread of dirt and dust.
 - 2. Assign work to trades skilled in procedures involved.
 - 3. Personal property and equipment will remain property of Owner, and will be moved by this Contractor at the direction of the Owner.
 - 4. By careful study of the Contract Documents, determine the location and extent of demolition to be performed. Carefully identify limits of selective demolition.

5. Prepare and follow an organized plan for demolition and removal of items. Carry out demolition work in accordance with sequence as established and coordinated with Owner.
 - a. In all activities, comply with pertinent regulations of governmental agencies having jurisdiction.
6. Remove existing construction to extent indicated and as necessary to join new work to existing. Do not remove more than is necessary to allow for new construction.
7. Do not damage work designated to remain.
8. Execute work in an orderly and careful manner with due consideration for building occupants and the public.
9. Carefully remove items to be salvaged for reuse without damaging the items and store where directed. Package, wrap or provide other means of protection for items to prevent damage and loss of parts during period of storage. Salvage demolished concrete, brick and concrete masonry units and crush for reuse as sub-base for future parking lot in proportions approved by civil engineer.
10. Unless noted to be salvaged, demolished materials shall be considered to be property of the Contractor and shall be completely removed from the job site.

3.4 UTILITY LINES

- A. Shut off, cap and otherwise protect existing public utility lines in accordance with the requirements of the public agency or utility having jurisdiction.
- B. Sewer and water servicing buildings to be demolished will be disconnected, sealed and capped by Plumbing Contractor.
- C. Remove live water taps servicing buildings as per rules and regulations of authorities having jurisdiction. Contractor will be permitted to leave one (1) water tap open for use during demolition and shut off when demolition is complete.
- D. Disconnect electric, telephone and other wires as per rules and regulations of utilities. Until acceptance, maintain and preserve utilities traversing premises.
- E. Have gas turned off at existing valves under supervision of utility company.
- F. Protect and support active utilities designated to remain. Post warning signs showing location and type of utility and type of hazard.
- G. Seal storm or sanitary sewers leading from buildings to be demolished. Seal and cap connections to sewers leading from buildings as per rules and regulations of authorities having jurisdiction.

3.5 REPLACEMENTS

- A. In the event of demolition of items not scheduled to be demolished, promptly replace such items to the approval of the Architect at no additional cost to the Owner.

3.6 FILLING OF EXCAVATION

- A. Fill excavations level with adjoining grades and compact.
- B. Any fill required shall be clean soil, free from large rocks, debris, etc.

3.7 DEBRIS

- A. Demolished materials which are not scheduled to be salvaged and reinstalled or returned to Owner shall be considered to be property of the Contractor and shall be removed from the site.

- B. Provide containers for collection of demolished materials, debris and rubbish.
- C. All materials, rubbish and debris shall be promptly removed from the building and from the premises as it accumulates.
- D. Whenever possible recycle demolition waste.
- E. Transport and dispose all demolition waste in accordance with local, state, and federal guidelines.
- F. Do not store materials or permit debris to accumulate on site.
- G. If Contractor fails to remove debris promptly, Architect reserves the right to have it removed at Contractor's expense.

3.8 CLEANING

- A. At the end of each workday, the Contractor shall clean sidewalks, streets, and private property of any debris caused by the demolition operation.
- B. Upon completion of work, remove all tools, materials, apparatus and rubbish.
- C. Leave premises, neat, clean and orderly.

END OF SECTION

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SECTION 06 10 00

ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Wood blocking, cants, and nailers.
 - 2. Wood furring and grounds.
 - 3. Wood sleepers.
 - 4. Plywood backing panels.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
 - 1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
 - 2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include physical properties of treated materials based on testing by a qualified independent testing agency.
 - 3. For fire-retardant treatments, include physical properties of treated lumber both before and after exposure to elevated temperatures, based on testing by a qualified independent testing agency according to ASTM D5664.
 - 4. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.

1.4 INFORMATIONAL SUBMITTALS

- A. Material Certificates: For dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by the ALSC Board of Review.
- B. Evaluation Reports: For the following, from ICC-ES:
 - 1. Wood-preservative-treated wood.
 - 2. Fire-retardant-treated wood.
 - 3. Power-driven fasteners.
 - 4. Post-installed anchors.
 - 5. Metal framing anchors.

1.5 QUALITY ASSURANCE

- A. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Stack wood products flat with spacers beneath and between each bundle to provide air circulation. Protect wood products from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

- A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, comply with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Grade lumber by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
 - 1. Factory mark each piece of lumber with grade stamp of grading agency.
 - 2. For exposed lumber indicated to receive a stained or natural finish, mark grade stamp on end or back of each piece or omit grade stamp and provide certificates of grade compliance issued by grading agency.
 - 3. Dress lumber, S4S, unless otherwise indicated.
- B. Maximum Moisture Content of Lumber: 15 percent for 2-inch nominal thickness or less; 19 percent for more than 2-inch nominal thickness, unless otherwise indicated.
- C. Engineered Wood Products: Acceptable to authorities having jurisdiction and for which current model code research or evaluation reports exist that show compliance with building code in effect for Project.
 - 1. Allowable design stresses, as published by manufacturer, shall meet or exceed those indicated. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.

2.2 FIRE-RETARDANT-TREATED MATERIALS

- A. General: Where fire-retardant-treated materials are indicated, materials shall comply with requirements in this article, that are acceptable to authorities having jurisdiction, and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.
- B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Products with a flame-spread index of 25 or less when tested according to ASTM E84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet beyond the centerline of the burners at any time during the test.
 - 1. Treatment shall not promote corrosion of metal fasteners.
 - 2. Exterior Type: Treated materials shall comply with requirements specified above for fire-retardant-treated lumber and plywood by pressure process after being subjected to accelerated weathering according to ASTM D 2898. Use for exterior locations and where indicated.
 - 3. Interior Type A: Treated materials shall have a moisture content of 28 percent or less when tested according to ASTM D 3201 at 92 percent relative humidity. Use where exterior type is not indicated.

4. Design Value Adjustment Factors: Treated lumber shall be tested according to ASTM D5664 and design value adjustment factors shall be calculated according to ASTM D6841.
- C. Kiln-dry lumber after treatment to maximum moisture content of 19 percent.
 - D. Identify fire-retardant-treated wood with appropriate classification marking of qualified testing agency.
 1. For exposed lumber indicated to receive a stained or natural finish, mark end or back of each piece.
 - E. For exposed items indicated to receive a stained or natural finish, chemical formulations shall not bleed through, contain colorants, or otherwise adversely affect finishes.
 - F. Application: Treat all rough carpentry unless otherwise indicated.
 1. Concealed blocking.
 2. Framing for non-load-bearing partitions.
 3. Framing for non-load-bearing exterior walls.
 4. Plywood backing panels.

2.3 MISCELLANEOUS LUMBER

- A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
 1. Blocking.
 2. Nailers.
 3. Rooftop equipment bases and support curbs.
 4. Cants.
 5. Furring.
 6. Grounds.
- B. Concealed Boards: 19 percent maximum moisture content and any of the following species and grades:
 1. Mixed Southern Pine or Southern Pine; No. 2 Grade; SPIB.
 2. Hem-Fir or Hem-Fir (North); Construction or No. 2 Common grade; NLGA, WCLIB, or WWPA.
 3. Northern Species; No. 2 Common grade; NLGA.
- C. For blocking not used for attachment of other construction, Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.
- D. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.
- E. For furring strips for installing plywood or hardboard paneling, select boards with no knots capable of producing bent-over nails and damage to paneling.

2.4 PLYWOOD BACKING PANELS

- A. Equipment Backing Panels: Plywood, DOC PS 1, Exposure 1, C-D Plugged or fire-retardant treated, in thickness indicated or, if not indicated, not less than 3/4-inch nominal thickness.

2.5 FASTENERS

- A. General: Fasteners shall be of size and type indicated and shall comply with requirements specified in this article for material and manufacture.
 1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners of Type 304 Stainless Steel.

- B. Nails, Brads, and Staples: ASTM F1667.
- C. Power-Driven Fasteners: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.

2.6 MISCELLANEOUS MATERIALS

- A. Sill-Sealer Gaskets: Closed-cell neoprene foam, 1/4 inch thick, selected from manufacturer's standard widths to suit width of sill members indicated.
- B. Flexible Flashing: Composite, self-adhesive, flashing product consisting of a pliable, butyl rubber or rubberized-asphalt compound, bonded to a high-density polyethylene film, aluminum foil, or spunbonded polyolefin to produce an overall thickness of not less than 0.025 inch.
- C. Adhesives for Gluing Furring and Sleepers to Concrete or Masonry: Formulation complying with ASTM D3498 that is approved for use indicated by adhesive manufacturer.
- D. Water-Repellent Preservative: NWWDA-tested and -accepted formulation containing 3-iodo-2-propynyl butyl carbamate, combined with an insecticide containing chloropyrifos as its active ingredient.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Framing Standard: Comply with AF and PA WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.
- B. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry accurately to other construction. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.
- C. Install plywood backing panels by fastening to studs; coordinate locations with utilities requiring backing panels. Install fire-retardant-treated plywood backing panels with classification marking of testing agency exposed to view.
- D. Install shear wall panels to comply with manufacturer's written instructions.
- E. Install metal framing anchors to comply with manufacturer's written instructions. Install fasteners through each fastener hole.
- F. Install sill sealer gasket to form continuous seal between sill plates and foundation walls.
- G. Do not splice structural members between supports unless otherwise indicated.
- H. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.
 - 1. Provide metal clips for fastening gypsum board or lath at corners and intersections where framing or blocking does not provide a surface for fastening edges of panels. Space clips not more than 16 inches o.c.
- I. Provide fire blocking in furred spaces, stud spaces, and other concealed cavities as indicated and as follows:
 - 1. Fire block furred spaces of walls, at each floor level, at ceiling, and at not more than 96 inches o.c. with solid wood blocking or noncombustible materials accurately fitted to close furred spaces.

2. Fire block concealed spaces of wood-framed walls and partitions at each floor level, at ceiling line of top story, and at not more than 96 inches o.c. Where fire blocking is not inherent in framing system used, provide closely fitted solid wood blocks of same width as framing members and 2-inch nominal thickness.
 3. Fire block concealed spaces between floor sleepers with same material as sleepers to limit concealed spaces to not more than 100 sq. ft. and to solidly fill space below partitions.
 4. Fire block concealed spaces behind combustible cornices and exterior trim at not more than 20 feet o.c.
- J. Sort and select lumber so that natural characteristics do not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
- K. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
1. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code (IBC).
 2. Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments," in ICC's International Residential Code for One- and Two-Family Dwellings.
 3. ICC-ES evaluation report for fastener.
- L. Use steel common nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood. Drive nails snug but do not countersink nail heads unless otherwise indicated.
- M. For exposed work, arrange fasteners in straight rows parallel with edges of members, with fasteners evenly spaced, and with adjacent rows staggered.
1. Comply with approved fastener patterns where applicable.
 2. Use finishing nails unless otherwise indicated. Countersink nail heads and fill holes with wood filler.
 3. Use common nails unless otherwise indicated. Drive nails snug but do not countersink nail heads.

3.2 WOOD BLOCKING, AND NAILER INSTALLATION

- A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.
- B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.
- C. Provide permanent grounds of dressed, pressure-preservative-treated, key-beveled lumber not less than 1-1/2 inches wide and of thickness required to bring face of ground to exact thickness of finish material. Remove temporary grounds when no longer required.

3.3 WOOD FURRING INSTALLATION

- A. Install level and plumb with closure strips at edges and openings. Shim with wood as required for tolerance of finish work.
- B. Furring to Receive Plywood or Hardboard Paneling: Install 1-by-3-inch nominal size furring horizontally at 24 inches o.c.
- C. Furring to Receive Gypsum Board: Install 1-by-2-inch nominal size furring vertically at 16 inches o.c.

3.4 PROTECTION

- A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.
- B. Protect rough carpentry from weather. If, despite protection, rough carpentry becomes wet enough that moisture content exceeds that specified, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION

SECTION 06 20 00
FINISH CARPENTRY

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Work Included:
Labor and materials required to complete rough and finish carpentry work.
- B. Related Work Specified Elsewhere:
 - 1. Section 06 40 00 - Millwork
 - 2. Section 08 71 00 - Door Hardware
 - 3. Section 09 90 00 - Painting and Finishing

1.2 QUALITY ASSURANCE

- A. Grading:
 - 1. Lumber herein referred to shall conform to the American Lumber Standards, Simplified Practice Recommendations, R-16 latest edition.
 - 2. Grades shall conform to the grading rules of the Manufacturer's Association under whose rules the lumbers is produced.
- B. Lumber shall be kiln-dried and well-seasoned.
- C. All softwood plywood to conform to latest Product Standard, PS-1.
- D. Wood Preservative Treatment:
 - 1. Work shall be performed at a plant properly equipped to pressure treat wood with an arsenic and chromium-free wood preservative and which has been licensed by AWPB to pressure treat lumber and plywood under the AWPI Quality Control Program.
- E. Fire Retardant Treatment:
 - 1. Definition:
 - a. Wood that has been pressure impregnated with approved fire retardant chemicals in accordance with generally accepted standards for pressure treatment so that it has a flame spread rating of 25 or less with no evidence of significant progressive combustion when tested for 30 minutes duration under the Standard Test Method for Fire Hazard Classification of Building Materials of Underwriter's Laboratories, Inc. (UL 723, NFPA 225, ASTM E84).
 - b. Each piece of wood shall bear an Underwriter's Laboratories, Inc. label indicating compliance with the performance requirements of fire retardant wood.
 - c. Perform fire retardant treatment at a plant that has been qualified to treat wood in accordance with procedures as outlined by Underwriter's Laboratories, Inc. (UL)
- F. Reference Standards:
 - 1. ASTM International (ASTM):
 - a. ASTM A36 – Standard Specification for Carbon Structural Steel
 - b. ASTM A153 – Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
 - c. ASTM A307 – Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength
 - d. ASTM E84 – Standard Test Method for Surface Burning Characteristics of Building Materials
 - 2. APA – Engineered Wood Association.

3. AWWPA – American Wood Protection Association:
 - a. AWWPA-U1 – Use Category System: User Specification for Treated Wood.
4. AWPI – American Wood Preservers Institute.
5. EWA - Engineered Wood Association, "Residential & Commercial Design/Construction Guide", latest edition.
6. NFPA – National Fire Protection Association
 - a. NFPA 225 – Standard Method of Test of Surface Burning Characteristics of Building Materials
7. Underwriters Laboratories (UL):
 - a. UL 723 – Standard for Test for Surface Burning Characteristics of Building Materials

1.3 PRODUCT DELIVERY, HANDLING AND STORAGE

- A. Receive, check, store, give receipt for and be responsible for all finish hardware furnished under another section.
- B. Present Master Keys to Architect immediately upon receipt of hardware by contractor.

PART 2 - PRODUCTS

2.1 GRADE STAMPS

- A. Identify lumber by grade stamp.
- B. Identify plywood as to species, grade and glue type by the stamp of the Engineered Wood Association (APA).
- C. Identify other materials of this Section by the appropriate stamp of an approved agency.

2.2 MATERIALS

- A. Lumber: Provide materials in the quantities needed for the Work and meeting or exceeding the following standards of quality unless noted otherwise on Drawings. Refer to Structural Drawings.
 1. Wood blocking and nailers, 2" to 4" thick and up to 4" wide shall be Hem-Fir or SPF (South), stud grade up to 10' lengths, Construction or No. 2 Grade over 10' lengths.
 2. Nailing strips, blocking, furring, etc., 2" to 4" thick, 6" and wider, shall be Hem-Fir or SPF (South), stud grade up to 10' lengths, Construction or No. 2 Grade over 10' lengths.
- B. Plywood: All plywood unless otherwise specified, shall be softwood plywood fabricated with no added formaldehyde.
- C. Rough Hardware:
 1. Provide nails, spikes, bolts, nuts, washers, metal connectors, screws, etc., as required to complete work of this Section.
 2. All fasteners in contact with preservative treated lumber shall be stainless steel or polymer-coated fasteners shown to have a high corrosion resistance to the specified treated lumber, or zinc coated fasteners meeting or exceeding requirements for ASTM A 153 Class D.
 3. Steel Items:
 - a. Comply with ASTM A 7 or ASTM A 36.
 - b. Use galvanized items at exterior locations.
 4. Lag Bolts: Comply with Federal Spec. FF-B-561.
 5. Nails:
 - a. Use common except as otherwise noted.

- b. Comply with Federal Spec. FF-N-1.
- 6. Bolts: ASTM A307 with maximum thread length equal to 2 times bolt diameter plus 1/2".
- D. Fire Retardant Treatment; Where required, treat lumber in accordance with AWPA U1:
 - 1. Interior locations: Category UCFA - Fire Retardant/Interior.
 - 2. Each piece of wood shall bear an Underwriter's Laboratories, Inc. label indicating compliance with the performance requirements for fire retardant wood.
- F. Brackets and Standards for wall storage shelving
 - 1. K&V "No. 87" Extra Heavy Duty Standards
 - 2. K&V "No. 187" Extra heavy Duty brackets.
 - 3. Widths as required by shelves.
- G. Coat Hooks: Aluminum coat hooks, Clear anodized finish.
 - 1. Peter Pepper Products, Inc., Compton, CA, "2001AL"
 - 2. Raymond Engineering, Inc., "#988
 - 3. Emco Specialty Products, Kansas City, KS, "Model D10"
- H. Provide other materials, not specified, but required to complete rough and finish carpentry work.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Follow AWS (Architectural Woodwork Standards, 2nd Edition, Appendix B, Article 12 recommendations for acclimation of wood trim to site conditions prior to installation.
- B. Allow millwork a minimum of 72 hours to come to equilibrium on site prior to installation. Allow factory finished woodwork a minimum of one (1) week to acclimatize to site conditions. Relative humidity shall not be less than 25% or more than 55% under normal conditions. Relative humidity during time of installation shall remain within the range to be maintained during occupancy.

3.2 INSTALLATION

- A. Workmanship:
 - 1. Finish work shall be erected plumb, true, square and in accord with Drawings.
 - 2. Scribing, mitering and joining shall be done accurately and neatly. Intersecting molds at interior corners shall be coped.
 - 3. Drill holes in hardwoods for nails.
 - 4. Finish work shall be blind nailed as far as possible. Surface nails shall be set. Work shall be securely nailed to studs, nailing blocks, etc.
 - 5. Touch up finishing work specified in this Section after installation of woodwork. Fill nail holes with matching filler where exposed.
- B. Provide blocking as required for installation of plumbing fixtures, window and door frames, built-in furniture and all other items requiring blocking.
- C. Wood Doors:
 - 1. Handle doors in accordance with recommendations of WDMA I.S. 1-A, "Care and Installation at Job Site."
 - 2. Condition doors to average temperature and humidity in area of installation for not less than 48 hours prior to installation. Store doors per recommendations of WDMA I.S. 1-A, "Care and Installation at Job Site."
 - 3. Install in neat manner, free from hammer or tool marks, open joints or slivers.

4. Set plumb, level, square and true. Install work after building humidity is at acceptable level.
 5. Remove and replace all doors found to be warped, twisted, bowed, or otherwise damaged. Do not install doors which cannot be properly fitted to frames.
 6. Adjust prefinished doors and hardware and other moving or operating parts to function smoothly and correctly.
 7. Provide protection for doors as soon as doors are hung and until area is free of construction traffic.
- D. Woodwork attached to masonry, tile or other hard surfaces shall be secured with screws or expansion bolts to provide a rigid, permanent support. Countersink screws and bolts and plug holes where exposed.
- E. Hardware:
1. Install hardware in accordance with manufacturer's directions so it operates easily, quietly and properly.
 2. Fit hardware for doors so they will close without forcing and so as to prevent any rattle.
 3. Make hardware cuts true and neat.
- F. Shelving:
1. Space standards for storage shelving 16" o/c using fasteners recommended by standard manufacturer. Install brackets and shelving and secure shelving in place with appropriate fastener.
- G. Casework:
1. Install architectural cabinets in accordance with AWS (Architectural Woodwork Standards), Section 10, Rule 6.1.12.
 2. Install cabinets plumb and level with all joints tight.
 3. Shim cabinets as required and trim with molding to match cabinets.
 4. When screw attachment is used, countersink screws and conceal with self-adhesive plastic cap or use chrome head screws with grommet washers.
 5. Install hardware and miscellaneous accessories as required.
 6. Clean cabinets and leave in proper operating order with all doors, shelves and drawers aligned and plumb.
 7. Install countertops in accordance with AWS (Architectural Woodwork Standards), Section 11, Rule 6.1

END OF SECTION

SECTION 06 40 00

MILLWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes:
 - 1. Labor and materials required to complete millwork including wood moldings and trim, custom plastic laminate casework, plastic laminate countertops and all other millwork.
- B. Related Sections:
 - 1. Section 06 10 00 - Rough Carpentry
 - 2. Section 06 20 00 - Finish Carpentry
 - 3. Section 06 61 00 - Solid Surfacing Material Fabrications

1.3 QUALITY ASSURANCE

- A. Grading: Lumber herein referred to shall conform to American Lumber Standards, Simplified Practice Recommendation R 16, latest edition. Grades shall conform to the grading rules of the Manufacturer's Association under whose rules the lumber is produced.
- B. Seasoning: All lumber for interior finish shall be kiln dried to a moisture content not to exceed 10 percent.
- C. Compressed Particle Board shall conform to requirements of AWS Section 4, Article 1.2.31.3 and ANSI A208.1.
- D. Laminated Plastic decorative surfacing shall be NEMA quality melamine surfaced laminated plastic sheet.
- E. Millwork shall conform to requirements for Custom Grade work as defined in Architectural Woodwork Standards, 2nd edition, as published by Architectural Woodwork Institute.
- F. This grade shall be considered as the minimum requirement. Contractor shall adhere to additional requirements of this Specification even though they may exceed the requirements of the specified AWS grade.
- G. Millworker shall have a reputation for doing satisfactory work on time and have successfully completed projects of similar size and comparable work.
- H. The 2015 International Building Code (IBC), as modified by the State of Wisconsin Chapters SPS 361-366 - Commercial Building Code, governs the requirements for products, materials, components, and systems that are indicated on the Drawings and specified in the Project Manual.

1.4 SUBMITTALS

- A. Submittals for this specification section must be 100% complete and in one (1) package.

1. Only the actual samples required shall be allowed as a separate submittal.
 2. Non- complete submittals will be returned to the contractor without comment and stamped "rejected-resubmit".
- B. Submit the following:
1. Samples of plastic laminate in color and pattern scheduled.
 2. Submit sample of PVC edge banding to Architect and receive approval for finish and color prior to fabricating plastic laminate work.
 3. Shop drawings in sufficient detail to show fabrication, installation, anchorage and interface of the work of this Section with the work of adjacent trades.
 4. Samples of cabinet hardware proposed to be used in the required finish.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Moisture in building and storage conditions must be suitable to receive millwork before delivery is made. Heat will be required in cold or humid weather. Coordinate with Section 06 09 00.
- B. Follow AWS Appendix B, Article 12 recommendations for acclimation of wood trim to site conditions prior to installation. Allow millwork a minimum of 72 hours to come to equilibrium on site prior to installation. Allow factory finished woodwork a minimum of one (1) week to acclimatize to site conditions. Relative humidity shall not be less than 25% or more than 55% under normal conditions.
- C. Relative humidity during time of installation shall remain within the range to be maintained during occupancy.
- D. All materials shall be protected and kept under cover both in transit and at the job site.

PART 2 - PRODUCTS

2.1 MILLWORK LUMBER

- A. Millwork Lumber:
1. All interior millwork lumber shall be Grade I Hard Maple, "Select White". (No heartwood permitted).
 2. Millwork lumber scheduled to receive painted finish shall be closed grain hardwood, of quality suitable for opaque finish.
 3. Where Schedule calls for a varnished finish, materials shall be free from black or streaked pieces, wild grain or strong contrasts in color.
- B. Wood Cabinet Materials:
1. Stiles and rails shall be of solid stock.
 2. Other face materials shall be hardwood plywood lumber.
 3. Thickness and grade of members shall conform to AWS Section 10 requirements for Custom Grade Cabinets.
- C. Plywood:
1. Plywood veneers for transparent finish shall be AWS 4.2a.14.2 Grade A Plain Sliced Hard Maple, "Select White".
 2. Plywood veneers for surfaces scheduled to be painted shall be medium density overlay (MDO).
- D. Compressed Particle Board: Fabricated of virgin wood flakes bonded with urea type resins into smooth surfaced, dimensionally stable panels, medium density unless otherwise noted. Conform to requirements of AWS 1.2.31.3.

- E. Medium Density Fiberboard (MDF): Composite panel product consisting of cellulosic fibers combined with a synthetic resin or other suitable bonding system and joined together under heat and pressure. Product shall meet or exceed the performance property requirements of ANSI A208-1 or 2.

2.2 LAMINATED PLASTICS

- A. Decorative plastic surfacing shall be melamine surfaced laminated plastic sheet General Purpose Grade and Post Forming Grade as required..
 - 1. Formica
 - 2. Nevamar
 - 3. Wilsonart
 - 4. Pionite
- B. Colors and patterns as selected by Architect. See Color and Material Schedule for selections.
- C. Backing panels shall be of similar material and thickness, but without decorative facing.
- D. Cabinet Liner: Low pressure melamine product consisting of decorative paper sheet saturated in melamine resin and thermally fused into the board under heat and pressure creating a molecular bond with the particle board substrate.
 - 1. Masonite "MCP Brand"
 - 2. Fiberesin
 - 3. Panolam Industries, "Panolam"
 - 4. approved equal
- E. PVC Edge Banding:
 - 1. Edges of doors and drawer front: 3mm
 - 2. Edges of case body members: 1mm
 - 3. Edges of shelves: 1mm (4 sides)

2.3 HIGH PERFORMANCE WOOD VENEER

- A. Genuine wood veneers with a protective melamine resin wear layer fused with phenolic resin impregnated kraft sheets under heat and pressure resulting in a scratch and abrasion resistant surface preserving the character and texture of the wood.
 - 1. - Lamin-Art "Veneer-Art"
 - 2. - approved equal

2.4 HARDWARE

- A. Adjustable Shelf Supports: Multiple holes with steel pins.
- B. Drawer Slides for Light and Medium Duty Drawers:
 - 1. Drawers 24" wide or less: All ball bearing, rail mount, full extension slides, hold-in detent, with a 100 lb./pr. load rating and progressive movement. Clear zinc finish.
 - a. Accuride "Model 7432"
 - b. Hafele
 - c. KV
 - d. Fulterer, "FR 5043"
 - e. Other manufacturers as approved by the Architect.
 - 2. Full Extension ball bearing slide for drawers up to 16" wide. Load Rating: 100 lb. Clear zinc finish.
 - a. Accuride "3832EC-Easy Close"
 - b. Knap & Vogt (KV), "8450FM" (Drawer width up to 24")
 - c. Grass, "Zargen Metal Drawer System".
 - d. Other manufacturers as approved by the Architect.

3. Full Extension ball bearing slide for drawers between 25" and 30" wide. Fully concealed undermount. Load Rating: 100 lb. Clear zinc finish.
 - a. Accuride, "3132EC Eclipse Easy Close"
 - b. Other manufacturers as approved by the Architect.

- C. Drawer Slides for Heavy Duty Drawers:
 1. Drawers 42" wide or less: All ball bearing, rail/bracket mount, full extension + 1 in. over travel slides, hold-in detent, with a 200 lb./pr. load rating. Clear zinc finish.
 - a. Accuride "Model 3640A"
 - b. Hafele
 - c. KV
 - d. Fulterer, "FR 5210"
 - e. Grass, "Zargen Metal Drawer System".
 - f. Other manufacturers as approved by the Architect.

- D. Pencil Drawer Slides: Minimum 45 lb. rating.
 1. Accuride "Model 2006" or KV "Model 8250"

- E. Hinges: Concealed casework hinge. Hinge shall be mortised in door only and shall be completely concealed when door is closed.
 1. Blum Clip 170, self-closing 170 degree opening.
 2. Grass 3903, self closing, 165 degree opening.
 3. Other manufacturers as approved by the Architect.

- F. Soft Close Cabinet Door Hinge:
 1. Soft close feature, silent door closing action integrated into the hinge cup. When cabinet door is closed, the hinge prevents door from slamming shut.
 - a. Blum, "BLUMotion" Hinge
 - b. Grass, "TEC Soft-Close" Hinge.
 - c. Other manufacturers as approved by the Architect.

- G. Door and Drawer Pulls: Zinc handle with brushed nickel finish. 96mm long extending 12mm from cabinet face.
 1. Hafele 109.72.601
 2. Amerock BP53003G10
 3. Hickory Hardware PA0221-SN
 4. Other Manufacturers as approved by the Architect.

- H. Cabinet False Front Clips: Hardware Resources 800-463-0660. - False Front Clip Item No. FFC11BLK and False Front Clip Roller/spacer Item No. FFS11
 1. Hafele Keku Push-on Fittings

- I. Locks: Comp X National Lock Company or Best Locks "Cylinder Cam Lock". Each lock furnished with three (3) non duplicate keys. Master key locks as required by Owner. At pairs of doors provide lock for each door, allowing each door to operate independently from the other door.

- J. Magnetic Locks:
 1. For casework in Children's areas, Cabinet Lock Security System with 5 Locks and 2 Keys.
 2. Locks are installed on the inside of the cabinet and only the special magnetic key opens each of the locks.
 3. To open the cabinet, hold the magnetic key against the cabinet door to disengage the lock.
 4. Provide unlocking device that allows a disabling of the lock so cabinets can be opened without the key.
 - a. Rev-A-Shelf, "RAL-101-1".
 - b. Other manufacturers as approved by the Architect.

- K. Counter Brackets: 1/8" steel, exceeding 1000 lb. load limit. Sizes as indicated on drawings or as required by counter size. Powder coat finish in color as selected by Architect from manufacturer's standard colors. Reversible.

1. A&M Hardware, Inc., Manheim, PA, 888-647-0200, "Steel Work Station Brackets"
 2. approved equal
- L. Cable Grommets: Round plastic grommets liner to fit in 2" hole. 1-7/8" opening. Provide unit with cover where required. Color as selected by Architect from manufacturer's standard colors.
1. Doug Mockett & Company, Inc., 800-523-1269 "Model TG1" (liner) and "Model TG" (liner with fliptop cap)
 2. Other manufacturers as approved by the Architect.
- M. Stainless Steel Trash Chute Grommet Liner: One-piece countertop trash chutes manufactured of stainless steel with a highly polished lip flange. Size: 8 5/8" overall diameter; 7 7/8" inside diameter; 2" deep to fit 8" diameter hole. Tolerance: +/- 1/16".
1. Doug Mockett & Company, Inc., 800-523-1269 "Model TM2B".
 2. Other manufacturers as approved by the Architect.
- N. Gate Spring Pivot Hinge: Includes an exterior tension adjustment which can be adjusted after the hinge is applied. The 4007 RB Series attachments are applied to the surface of the frame and the box is applied to the bottom surface of the gate. However, in the 4007MRB Series, the box is mortised into the bottom of the gate. Specify MRB for mortised box and reverse brackets; specify RB for reverse brackets only. Anti-friction Bearings. Finish 26D.
1. McKinney/ASSA ABLOY., 800-346-7707 "Model 4007MRB or 4007RB as required".
 2. approved equal

2.5 WORKMANSHIP AND ASSEMBLY

- A. Assemble work at the mill insofar as practical and deliver to the job ready for erection. Fabricate work in accord with measurements taken at the job.
- B. Workmanship shall be in accordance with AWI Standards for Custom Grade millwork.
- C. Make joints neatly and carefully with surfaces straight and clean. Sand wood surfaces with grain and remove machine marks. Eliminate cross scratches.
- D. Do scribing, mitering and joining accurately and neatly to conform to details.

2.6 FRAMES AND TRIM

- A. Interior frames: Thickness shown on Drawings by full width of partitions with heads housed into jambs.
- B. Interior Trim: All trim shall conform to details and shall be of wood species specified.
 1. Wood Stair handrails shall be of specified wood accurately shaped to detail and made in as long sections as possible. Handrail fabrication shall conform to requirements of AWI Section 800.
 2. Finish: Factory finish conforming to AWS, System 5, Conversion Varnish, Premium Grade.

2.7 CABINET WORK

- A. Wood and Plastic laminate cabinet construction shall conform to applicable Architectural Woodwork Quality Standards Section 10 - Casework. Cabinets shall be flush overlay type unless otherwise shown on Drawings.
- B. Fabricator of all cabinets shall be experienced fabricator with facilities capable of producing work of the type specified.
- C. In addition to the requirements for custom grade work, apply .020 phenolic backer sheet to drawer bottoms of cabinet work.

- D. The grain of wood veneers and wood grain laminates shall run vertically on doors and drawer fronts as required for custom grade work in AWS Section 10, Article 1.2.19.2.2, Custom Grade, "DOORS, DRAWER FRONTS, and FALSE FRONTS shall run and match VERTICALLY within each cabinet unit."
- E. Wood grain of wood veneer and wood laminate valances located above cabinets shall also run vertically to match cabinet door and drawer fronts.

2.8 WOOD CABINET WORK

- A. All exposed surfaces of wood cabinets shall be scraped and sanded as required by specified quality standards so that no marks of any kind are visible in any light.
- B. Thickness of materials, joinery, and other construction standards as dictated by AWS standards for Custom Grade work.
- C. Finish: Factory finish conforming to AWS, System 5, Conversion Varnish, Premium Grade.

2.9 LAMINATED PLASTIC WORK

- A. Adhesives: Rigid or flexible adhesives.
- B. VOC Free, neoprene-based contact adhesive developed for bonding high pressure laminate to particleboard, approved by plastic laminate manufacturer.
- C. Low-VOC FS MMM-A-125C, Type II, water and mold-resistant. Use ASTM D3110, dry-use type for laminating and finger jointing members, certified in accordance with ASTM C57 and complying with required VOC regulations.
- D. Fabrication:
 - 1. Plastic laminate shall be laminated to particleboard or MDF substrate using adhesive and laminating method acceptable to laminate manufacturer.
 - 2. Exposed edges of drawers, and doors shall be banded with 3mm PVC edge banding match to plastic laminate machine applied with waterproof hot melt adhesive. Edges of case body members shall be edged with 1mm PVC edge banding. All exposed and unexposed edges of all cabinet shelving shall be banded with 1mm PVC edge banding.
 - 3. Exposed cabinet interior surfaces shall be laminated with low pressure melamine cabinet liner.
 - 4. All drawer bottoms shall have .020 phenolic backer sheet.
 - 5. All unexposed surfaces such as cabinet backs, bases and wall ends shall be balanced with .020 phenolic backing sheet.

2.10 PLASTIC LAMINATED COUNTERTOPS

- A. Core material shall be 3/4" thick medium density particleboard. Minimum weight 40 lbs. per cubic foot.
- B. Countertops shall be fabricated in single length up to 12'-0". Countertops over 12'-0" shall have minimum number of hairline joints. Ends of sections shall be carefully fitted and securely joined.
- C. Make all cut-outs for sinks, electrical appliances, service outlets, etc.
- D. Rout all exposed edges smooth, sharp and clean.
- E. Provide .020" phenolic backer balancing sheet.

2.11 PLASTIC LAMINATE STORAGE SHELVING

- A. 3/4" medium density particleboard laminated both sides with General Purpose Grade plastic laminate. Edges shall be 1mm PVC edge banding matched to plastic laminate, machine applied with waterproof hot melt adhesive, all four sides.

2.12 FACTORY FINISHING

- A. To the greatest extent practical, architectural woodwork shall be prefinished at the fabrication shop.
- B. Preparations for Finishing:
 - 1. Comply with referenced quality standard for sanding, filling countersunk fasteners, sealing concealed surfaces and similar preparations for finishing architectural woodwork, as applicable to each unit of work.
 - 2. Backpriming:
 - a. Apply one coat of sealer or primer compatible with finish coats to concealed surfaces of woodwork, including backs of trim, cabinets, paneling and ornamental work.
 - b. Concealed surfaces of plastic laminate clad woodwork do not require backpriming when surfaced with plastic laminate.
- C. Transparent Finish: Comply with requirements indicated below for grade, finish system, staining and sheen with sheen measured on a 60-degree gloss meter per ASTM D523.
 - 1. AWS Section 500, System 5, Conversion Varnish, Premium Grade

PART 3 - EXECUTION

Not Applicable

END OF SECTION

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SECTION 06 61 00

SOLID SURFACING MATERIAL FABRICATIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes:
 - 1. Furnish and install solid surfacing material fabrications
- B. Related Sections:
 - 1. Section 06 10 00 - Rough Carpentry
 - 2. Section 06 40 00 – Millwork.

1.3 REFERENCES

- A. Applicable Standards:
 - 1. American National Standards Institute (ANSI) Z124.3 and Z124.6.
 - 2. American Society for Testing and Materials (ASTM) D638, D790, D785, D696, D256 (Method A), D3029, D1499, G21, G22, D570, E84, D2863, D495, D149, D150 and D257.
 - 3. Architectural Woodwork Standards, Edition 1,
 - 4. Section 4 (Sheet Products), Article 4 (Rules) 4.2k (Solid Surface Material)

1.4 SUBMITTALS

- A. Submittals for this specification section must be 100% complete and in one (1) package.
 - 1. Only the actual samples required shall be allowed as a separate submittal.
 - 2. Non- complete submittals will be returned to the contractor without comment and stamped "rejected-resubmit".
- B. Shop drawings: Indicate dimensions, component sizes, fabrication details, attachment provisions and coordination requirements with adjacent work.
- C. Samples: Submit minimum 2" x 2" samples. Samples shall be of sufficient size to indicate full range of color and pattern variation. Approved samples will be retained as standards for work.
- D. Product data: Indicate product description, fabrication information and compliance with specified performance requirements.
- E. Maintenance data: Submit manufacturer's care and maintenance data, including repair and cleaning instructions. Include in project close-out documents.

1.5 QUALITY ASSURANCE

- A. Allowable Tolerances:
 - 1. Variation in component size: 1/8-inch.

- 2. Location of openings: 1/8-inch from indicated location.
 - B. The 2015 International Building Code (IBC), as modified by the State of Wisconsin Chapters SPS 361-366 - Commercial Building Code, governs the requirements for products, materials, components, and systems that are indicated on the Drawings and specified in the Project Manual.
- 1.6 **DELIVERY, STORAGE, AND HANDLING**
- A. Do not deliver components to project site until areas are ready for installation. Store components indoors.
 - B. Handle materials to prevent damage to finished surfaces. Provide protective coverings for finished installations to prevent damage or staining for duration of project.
- 1.7 **WARRANTY**
- A. Manufacturer shall warrant solid surfacing material to be free from defects in materials and workmanship for a period of ten (10) years from date of final completion of Project.

PART 2 - PRODUCTS

2.1 SOLID SURFACING MATERIAL FABRICATIONS

- A. Basis of Design:
 - 1. Dupont "Corian" Refer to Color and Materials Schedule
- B. Other approved manufacturers which meet the requirements of this Specification are:
 - 1. Formica Solid Surfacing
 - 2. WilsonArt Solid Surfacing
 - 3. Avonite
 - 4. LG Hausys
 - 5. Other manufacturers as approved by the Architect.
- C. Material: Homogenous filled acrylic; not coated, laminated or of composite construction; meeting ANSI Z124.3 & .6, Type six, and Fed. Spec. WW-P-541E/GEN.
 - 1. Superficial damage to a depth of 0.010" shall be repairable by sanding and polishing.
- D. Countertops with sinks: 1/2" thick countertop of solid polymer; edge details as shown on Drawings, complete with "hard" seam submount sink. Provide backsplash of size shown on Drawings. Consult with Architect if size is not shown. Sink shall be same color and pattern as countertop, unless otherwise noted in Color and Material Schedule.
- E. Restroom countertops with integral "hard" seamed submount bowls: 1/2" thick countertop of solid polymer; edge details as shown on Drawings, complete with undermount bowl. Submount bowls shall be same color and pattern as lavatory tops, unless otherwise noted in Color and Material Schedule.

2.2 ACCESSORY PRODUCTS

- A. Joint Adhesive: Manufacturer's standard two-part adhesive kit to create inconspicuous, non-porous joints, with a chemical bond.
- B. Panel Adhesive: Manufacturer's standard neoprene-based panel adhesive meeting ANSI A 136.1-1967 U.L. listed.

- C. Sealant: Manufacturer's standard mildew-resistant, FDA/U.L. recognized silicone sealant in matching color or clear formulations.

2.3 **FABRICATION**

- A. Fabrication to be performed by a fabricator/installer certified by the manufacturer.
- B. Fabricate components in shop to sizes and shapes indicated, in accordance with manufacturer's instructions and approved Shop Drawings.
- C. Form joints between components using manufacturer's standard joint adhesive. Joints shall be inconspicuous in appearance and without voids. Attach 2" wide reinforcing strip of solid polymer under each joint. Fabricate with coved backsplash and sidesplash, unless otherwise shown.
- D. Mount sinks and bowl to countertops and lavatories with a "hard" seam submount where the edge of the deck and the sink are flush and the sink is attached to the deck with joint adhesive.
- E. Provide holes and cutouts for mounting of sinks and bath accessories.
- F. Rout and finish component edges to a smooth, uniform finish. Rout cutouts, then sand edges smooth. Repair or reject defective or inaccurate work.
- G. Finish: Surfaces shall have uniform matte finish with a gloss rating of 5 - 20.
- H. Allowable Tolerances:
 - 1. Maximum variation in size: 1/8 inch.
 - 2. Maximum variation in location of openings: 1/8 inch from indicated location.

PART 3 - EXECUTION

3.1 **INSTALLATION**

- A. Install components plumb and level, in accordance with approved shop drawings and product installation details.
- B. Form field joints using manufacturer's recommended adhesive, with joints inconspicuous in finished work. Keep components and hands clean when making joints.
- C. Coved backsplashes and sidesplashes:
 - 1. Provide coved backsplashes and sidesplashes at all walls and adjacent millwork.
 - 2. Fabricate radius cove at intersection of counters with backsplashes to dimensions shown on the drawings.
 - 3. Adhere to countertops using manufacturer's standard color-matched Joint Adhesive.
- D. Integral sinks/vanities:
 - 1. Provide solid surface materials bowls and/or lavatories sinks with overflows in locations shown on the drawings.
 - 2. Secure sinks and lavatory bowls to tops using manufacturer's recommended sealant, adhesive and mounting hardware to maintain warranty.
- E. Keep components and hands clean during installation. Remove adhesives, sealants and other stains. Components shall be clean on Date of Substantial Completion.
- F. Protect surfaces from damage until Date of Substantial Completion. Repair or replace damaged work that cannot be repaired to Architect's satisfaction.

- G. Provide manufacturer's care and maintenance manuals and information, review maintenance procedures and warranty with Owner or Owner's representative upon completion of project.

END OF SECTION

SECTION 07 21 00
BUILDING INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes:
 - 1. Labor and materials required to furnish and install thermal insulation and acoustical insulation, including vapor retarders and all fasteners and accessories required for a complete and proper installation.
- B. Related Sections:
 - 1. Section 07 84 00 - Firestopping
 - 2. Section 09 21 16 - Gypsum Board Assemblies

1.3 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- B. HCFC-Free insulation is defined as environmentally friendly, with Zero Global Warming, Zero Ozone Depletion (ODP) as in compliance with the US EPA requirements of January 1, 2003 requirement to eliminate production of HCFC 141b.
- C. Long Term Thermal Resistance (LTTR) R-values are determined in accordance with CAN/ULC-S770, a 15 year time-weighted average value adopted by U.S. isocyanurate manufacturers on January 1, 2003.
- D. The 2015 International Building Code (IBC), as modified by the State of Wisconsin Chapters SPS 361-366 - Commercial Building Code, governs the requirements for products, materials, components, and systems that are indicated on the Drawings and specified in the Project Manual.

1.4 ENVIRONMENTAL CONDITIONS

- A. When using fibrous insulation, provide adequate ventilation during and immediately after installation to alleviate problems associated with released fibers and dust.

1.5 SUBMITTALS

- A. Submittals for this specification section must be 100% complete and in one (1) package.
 - 1. Only the actual samples required shall be allowed as a separate submittal.
 - 2. Non- complete submittals will be returned to the contractor without comment and stamped "rejected-resubmit".
 - 3. Contractors who knowingly want to submit non-complete submittals or break single system submittals into multiple submittals will be responsible to arrange with Architect, prior to submitting the submittal(s), and to compensate Architect for the extra work involved

- B. Submittals for Review:
 - 1. Product Data: Indicate product composition and performance characteristics.
- C. Quality Control Submittals:
 - 1. Certificates of Compliance: Certification from an independent testing laboratory that insulation meets fire hazard classification requirements

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Materials shall be products of recognized manufacturers as approved by Architect.
- B. Batt Insulation: Mineral or glass wool, ASTM C 665-84 Type II, faced on one (1) side with vapor retarder.
- C. Batt Insulation: Low density fiber glass or mineral wool batts, ASTM C 665-84 Type I, without vapor retarder.
 - 1. Thermal resistance:
 - a. 3-1/2 inches thick: R-value of 11.00.
 - b. 3-5/8 inches thick: R-value of 13.00.
 - c. 6-1/4 inches thick: R-value of 19.00.
 - d. 6-1/2 inches thick: R-value of 22.0.
 - e. 8-1/2 inches thick: R-value of 25.0.
 - f. 9 inches thick: R-value of 26.0.
 - g. 10 inches thick: R-value of 30.00.
 - h. 12 inches thick: R-value of 38.00.
 - 2. Approved Manufacturers:
 - a. Owens Corning Thermafiber, Wabash, IN, (888)-834-2371, "Thermafiber FS-15",
 - b. Roxul, "CurtainRock", Milton, ON, (800)-265-6878
- D. Glass mineral wool Insulation:
 - 1. Meet ASTM C 665 Type 1
 - 2. Unfaced batts made from sand-and minimum 50% post-consumer recycled bottle glass. Binder shall be bio-based and contain no phenol, formaldehyde, acrylics or artificial colors.
 - 3. Non-combustible when tested in accordance with ASTM E 136.
 - 4. Surface Burning Characteristics: Maximum flame spread of 25, maximum smoke developed of 50, when tested in accordance with ASTM E 84.
 - 5. Approved Manufacturers:
 - a. Knauf Insulation "EcoBatt" Glass Mineral Wool thermal insulation
- E. Where batt insulation is not covered by gypsum board in plenum spaces, provide Type III, Class A foil-faced batt insulation to comply with flame spread rating of not over 25 and smoke developed rating of not over 50 when tested in accordance with ASTM E 84.
 - 1. CertainTeed, "CertaPro FSK-25"
 - 2. Owens Corning, "Flame Spread 25"
 - 3. Guardian Fiberglass, "FSK 25"
- F. Exposed rigid insulation in plenum spaces shall be a glass fiber-reinforced polyisocyanurate foam core faced with nominal 1.25 mil embossed white acrylic coated aluminum on one side and 1.25 mil embossed aluminum on the other. It can be installed exposed to the interior without a thermal barrier.
 - 1. Insulation shall have a flame spread rating not greater than 25 and smoke developed rating of not greater than 50 when tested in accordance with ASTM E84.
 - a. Dow, "Thermax Light Duty" Insulation and Joint Tape.
 - b. approved equal
- G. Rigid Insulation: Extruded polystyrene insulation board conforming to ASTM C 578, Type X, 1.30 lbs./cu.ft. density. CFC (chlorofluorocarbons) free. 5% recycled content. Insulation shall not contain fully

halogenated chlorofluorocarbons regulated by the United Nations Environmental Program (UNEP) in the Montreal Protocol and other relevant regulations.

1. Dow "Styrofoam"
 2. Owens Corning, "Foamular"
 3. DiversiFoam Products, "CertiFoam"
 4. Pactiv Building Products, "GreenGuard"
- H. Vapor Retarder:
1. Full weight 6 mil polyethylene conforming to ASTM D4397 with maximum permeance rating of 0.13 perm.
- I. Vapor Retarder Tape:
1. Pressure sensitive tape of type recommended by vapor retarder manufacturer for sealing joints and penetrations in vapor retarder.
- J. Acoustical Insulation: Paperless spun mineral fiber mat or fiberglass batt meeting requirements of ASTM C 665 84.
1. Thermafiber, "ThermaTech"
 2. Owens Corning "Sound Attenuation Batts"
 3. CertainTeed "NoiseReducer Sound Attenuation Batts"
 4. Knauf, "Quiet Therm"
 5. Johns Manville, "Sound Control Batts"
- K. Sound Control Insulation: For use in plenum areas.
1. Formaldehyde-free, acoustical fiber glass insulation made of long, resilient glass fibers bonded with an acrylic thermosetting binder, wrapped in perforated plastic film that does not act as a vapor-retarder. ASTM E 84 Flame Spread 25 or less, Smoke Developed 50 or less.
 - a. Johns Manville, "ConfortTherm"
 - b. approved equal

2.2 ACCESSORIES

- A. Tape: Minimum 2 inches wide, pressure sensitive, foil faced, waterproof.
- B. Fasteners: Hot-dip galvanized steel staples, nails, type best suited to application, minimum 5/8 inch penetration into framing.
- C. Impale Fasteners: Steel impaling fasteners on metal base with lock washers, length to suit insulation thickness.
- D. Wire Mesh: Hexagonal steel wire, galvanized.
- E. Adhesive: (updated 07/10/08)
1. For attachment of polystyrene insulation to masonry. Adhesive shall be compatible with polystyrene foam board.
 - a. PL Adhesives "PL 300" Foam Board Adhesive
 - b. BASF "Sonneborn 200 Adhesive"
 - c. H.B. Fuller, "MaxBond"
 - d. Liquid Nails "LN-601"

PART 3 - EXECUTION

3.1 INSTALLATION AND WORKMANSHIP

- A. General:
1. Cooperate with workers whose work precedes or follows insulation work to permit orderly procedure in executing work of this section.

2. Friction fit batts securely between studs. Butt ends of blankets closely together. Place insulation around plumbing and heating pipes, etc. Completely fill all voids and spaces without excessively compressing insulation.
 3. Insulate all corners, pockets, voids, offsets, architectural features, etc. to secure complete continuous insulation of the entire space.
 4. Fasten insulation in place in a neat manner in accordance with manufacturer's recommended patterns and spacing.
 5. Attic Rafter Vent: Remove all loose debris from above soffit vent. Place vent between roof trusses in such a manner to prevent insulation from obstructing soffit vent. Staple flange and center valley every 10" to underside of roof deck with coated roof staples, (maximum 3/8").
- B. Vapor Retarder:
1. The integrity of a vapor retarder is critical to its performance. Punctures, tears and other discontinuities, negate its effectiveness in preventing diffusion of water vapor.
 2. Install vapor retarder on warm side of insulation. Vapor retarder shall be continuous at all corners, pockets, voids, offsets; window heads, jambs and sills; electrical boxes, architectural features, etc. to ensure complete barrier preventing water vapor from entering wall cavity. Seal joints, penetrations and other holes with suitable caulks, sealants and tapes. Seal edges of vapor retarder to adjacent surfaces.
 3. Extend vapor retarder to extremities of areas to be protected from vapor transmission. Secure in place with adhesives or other anchorage system. Extend vapor retarder to cover miscellaneous voids in insulated substrates, including those filled with loose fiber insulation.
 4. Seal vertical joints in vapor retarders over framing by lapping not less than 2 wall studs. Firmly attach vapor retarders to framing at top, end and bottom edges; at perimeter of wall openings and at lap joints. Use mechanical fasteners or adhesive recommended by vapor retarder manufacturer. Space fasteners 16 inches o/c.
 5. Seal overlapping joints in vapor retarders with adhesives or vapor retarder tape according to vapor retarder manufacturer's instructions. Seal butt joints and fastener penetrations with vapor retarder tape. Locate all joints over framing members or other solid substrates.
 6. Seal joints caused by pipes, conduits, electrical boxes and similar items penetrating vapor retarders with vapor retarder tape to create an airtight seal between penetrating objects and vapor retarder.
 - a. Seal vapor retarders to window and curtain wall framing at all openings to create an airtight seal between window or curtain wall framing and vapor retarder.
 7. Repair any tears or punctures in vapor retarders immediately before concealment by other work. Cover with vapor retarder tape or another layer of vapor retarder.
- C. Install Sound Attenuation insulation in stud cavities of partitions. Friction fit securely between studs. Butt ends of batts closely together and fill all voids.
- D. Install Fire Rated Sound Attenuation insulation in stud cavities of sound-rated partitions, and where required to achieve fire-rated design. Friction fit securely between studs. Butt ends of batts closely together and fill all voids.
- E. Install Sound Attenuation insulation in stud cavities of sound rated partitions. Install fire rated sound attenuation insulation in stud cavities of fire rated partitions. Friction fit securely between studs. Butt ends of batts closely together. Place insulation around plumbing and heating pipes, etc. Completely fill all voids and spaces without excessively compressing insulation.
- F. Spray Foam Insulation Sealant: Install around window and door perimeter using "PRO Series" foam dispensing guns in accordance with manufacturer's installation instructions.
- G. Correcting Work: Upon completion and at times when other Contractors are covering insulation, correct any loose, sagging compressed or otherwise damaged insulation and ensure that all insulation covered is in proper condition.

END OF SECTION

SECTION 07 84 00

FIRESTOPPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes:
 - 1. Penetrations for the passage of duct, cable, cable tray, conduit, piping, electrical busways and raceways through fire-rated vertical barriers (walls and partitions), horizontal barriers (floor/ceiling assemblies) and vertical service shaft walls and partitions.
 - 2. Openings between structurally separate sections of wall or floors.
 - 3. Gaps between the tops of walls and ceilings or roof assemblies.
 - 4. Expansion joints in walls and floors.
 - 5. Openings around structural members which penetrate floors or walls.

1.3 REFERENCE STANDARDS

- A. National Fire Protection Association (NFPA)
 - 1. NFPA 101 (Life Safety Code)
- B. American Society For Testing and Materials Standards (ASTM):
 - 1. ASTM E84: Standard Test Method for Surface Burning Characteristics of Building Materials).
 - 2. ASTM E814: Standard Test Method for Fire Tests of Through-Penetration Firestops.
 - 3. ASTM E1966: Test Method for Resistance of Building Joint Systems.
 - 4. ASTM E1399: Test Method for Cyclic Movement and Measuring Minimum and Maximum Joint Width.
 - 5. ASTM E119: Methods of Fire Tests of Building Construction and Materials.
 - 6. ASTM E2174: Standard Practice for On-Site Inspection of Installed Fire Stop.
 - 7. ASTM E2307: Standard Test Method for Determining the Fire Endurance of Perimeter Fire Barrier Systems Using the Intermediate-Scale, Multi Story Test Apparatus (ISMA).
 - 8. ASTM E2393-04: Standard Practice for On-Site Inspection of Installed Fire Resistive Joint Systems and Perimeter Fire Barriers.
- C. Underwriters Laboratories (UL):
 - 1. UL Qualified Firestop Contractor Program.
 - 2. UL 263: Fire Tests of Building Construction and Materials.
 - 3. UL 723: Surface Burning Characteristics of Building Materials.
 - 4. UL 1479: Fire Tests of Through-Penetration Fire Stops.
 - 5. UL 2079: Tests for Fire Resistance of Building Joint Systems.
- D. UL Fire Resistance Directory -Volume 2:
 - 1. Through-Penetration Firestop Devices (XHJI).
 - 2. Fire Resistive Ratings (BXUV).
 - 3. Through-Penetration Firestop Systems (XHEZ).
 - 4. Fill, Void, or Cavity Material (XHHW).

1.4 DEFINITIONS

- A. Firestopping: The use of a material or combination of materials in a fire-rated structure (wall or floor) where it has been breached, so as to restore the integrity of the fire rating on that wall or floor.
- B. System: The use of a specific firestop material or combination of materials in conjunction with a specific wall or floor construction type and a specific penetrant(s).
- C. Barrier: Any bearing or non-bearing wall or floor that has an hourly fire and smoke rating.
- D. Through-penetration: Any penetration of a fire-rated wall or floor that completely breaches the barrier.
- E. Membrane-penetration: Any penetration in a fire-rated wall or floor/roof-ceiling assembly that breaches only one side of the barrier.
- F. Fire Resistive/Construction Joint: Any gap, joint, or opening, whether static or dynamic, between two fire rated barriers including where the top of a wall meets a floor; wall edge to wall edge applications; floor edge to floor edge configurations; floor edge to wall.
- G. Perimeter Barrier: Any gap, joint, or opening, whether static or dynamic, between a fire rated floor assembly and an exterior wall assembly.
- H. Approved Testing Agencies: Not limited to: Underwriters Laboratory (UL), Factory Mutual (FM), Warnock Hersey, and Omega Point Laboratory (OPL).

1.5 PERFORMANCE REQUIREMENTS

- A. Penetrations: Provide through-penetration and membrane-penetration firestop systems that are produced and installed to resist the spread of fire, passage of smoke and other hot gases according to requirements indicated, to restore the original fire-resistance rating of assembly penetrated.
 - 1. Provide and install complete penetration firestopping systems that have been tested and approved by nationally accepted testing agencies per ASTM E814 or UL 1479 fire tests in a configuration that is representative of field conditions.
 - 2. F-Rated Systems: Provide firestop systems with F-ratings indicated, as determined per ASTM E814 or UL 1479, but not less than one (1) hour or the fire resistance rating of the assembly being penetrated.
 - 3. T-Rated Systems: Provide firestop systems with T-ratings indicated, as well as F-ratings, as determined per ASTM E814 or UL 1479, where required by the Building Code.
 - 4. L- Rated Systems: Provide firestop systems with L- ratings less than 5cfm/sf.
 - 5. W-Rated systems: Provide firestop systems that are resistant to water. For piping penetrations for plumbing and wet-pipe sprinkler systems, provide moisture-resistant through-penetration firestop systems.
 - 6. For penetrations involving non-metallic, CPVC, PVC, or plastic piping, tubing or conduit, provide firestop systems that are chemically compatible in accordance with Manufacturer requirements.
 - 7. For penetrations involving insulated piping, provide firestop systems not requiring removal of insulation.
 - 8. For penetrations involving fire or fire/smoke dampers, only firestop products approved by the damper manufacturer shall be installed in accordance with the damper installation instructions.
- B. Fire Resistive Joints: Provide joint systems with fire resistance assembly ratings indicated, as determined by UL 2079 (ASTM E1399 and E1966), but not less than the fire resistance assembly rating of the construction in which the joint occurs. Firestopping assemblies must be capable of withstanding anticipated movements for the installed field conditions.
 - 1. For firestopping assemblies exposed to view, traffic, moisture, and physical damage, provide products that after curing do not deteriorate when exposed to these conditions both during and after construction.
 - 2. For floor penetrations exposed to possible loading and traffic, provide firestop systems capable of supporting floor loads involved either by installing floor plates or by other means, as specified by the Architect.

3. L- Rated Systems: Provide firestop systems with L- ratings less than 5cfm/sf.
- C. Firestopping products shall have flame spread ratings less than 25 and smoke-developed ratings less than 450, as determined per ASTM E 84. Note: Firestop products installed in plenum spaces shall have a smoke developed rating less than 50.

1.6 QUALITY ASSURANCE

- A. Firestop System installation must meet requirements of ASTM E814 or UL 1479 tested assemblies that provide a fire rating equal to that of construction being penetrated.
- B. Proposed firestop materials shall conform to applicable governing codes having local jurisdiction.
- C. Firestopping system shall have an F rating and a T rating of not less than 1 hour, but not less than the required rating of the floor penetrated. Exception: Floor penetrations contained and located within the cavity of a wall do not require a T Rating.
- D. For those firestop applications that exist for which no UL tested system is available through any manufacturer, a manufacturer's engineering judgment derived from similar UL system designs or other tests will be submitted to local authorities having jurisdiction for their review and approval prior to installation.
- E. Installer Qualifications:
 1. Manufacturer trained and approved installer who has specialized in the installation of work similar to that required for this project.
- F. The 2015 International Building Code (IBC), as modified by the State of Wisconsin Chapters SPS 361-366 - Commercial Building Code, governs the requirements for products, materials, components, and systems that are indicated on the Drawings and specified in the Project Manual.

1.7 SUBMITTALS

- A. Submittals for this specification section must be 100% complete and in one (1) package.
 1. Only the actual samples required shall be allowed as a separate submittal.
 2. Non- complete submittals will be returned to the contractor without comment and stamped "rejected-resubmit".
 3. Contractors who knowingly want to submit non-complete submittals or break single system submittals into multiple submittals will be responsible to arrange with Architect, prior to submitting the submittal(s), and to compensate Architect for the extra work involved
- B. Submit the following:
 1. Materials list of items proposed to be provided in this Section.
 2. Installer qualifications.
 3. Manufacturer's literature, data, and installation instructions for types of firestopping and smoke stopping used.
 4. List of FM, UL or WH classification number of systems installed.
 5. Submit certificates from manufacturer attesting that firestopping materials comply with the specified requirements.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver firestopping products to Project site in original, unopened containers or packages with intact and legible manufacturer's labels identifying product and manufacturer, date of manufacture/expiration, lot number, listing agency's classification marking, and mixing instructions for multi-component materials.

- B. Store and handle materials per manufacturer's instructions to prevent deterioration or damage due to moisture, temperature changes, contaminants, or other causes.
- C. All firestop materials shall be installed prior to expiration date.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Approved Manufacturers:
 - 1. Hilti Construction Chemicals, Inc., Tulsa OK
 - 2. 3M Fire Protection Products, St. Paul, MN
 - 3. Nelson Firestop Products, Tulsa, OK
 - 4. Specified Technologies, Inc.
 - 5. Tremco, Inc., Cleveland, OH
 - 6. United States Gypsum Company, Chicago, IL
 - 7. W.R. Grace, "Flamesafe"

2.2 MATERIALS AND FINISHES

- A. Use only firestop products that have been UL 1479 or ASTM E-814 tested for specific fire rated construction conditions conforming to construction assembly type, penetrating item type, annular space requirements and fire rating involved for each separate instance.
- B. For penetrations by non-combustible items including steel pipe, copper pipe, rigid steel conduit and electrical metallic tubing (EMT), the following materials are acceptable.
 - 1. Hilti: FS-One Intumescent Firestop Sealant
 - 2. 3M: Fire Barrier CP25 WB+
 - 3. Nelson: CLK Firestop Sealant
 - 4. Nelson: FSP Firestop Putty
 - 5. Tremco: Fire-Shield, Tremstop IA, Tremstop Acrylic
 - 6. USG: Firecode Compound
- C. For fire-rated construction joints and other gaps, the following material is acceptable.
 - 1. Hilti: CP 601s Elastomeric Firestop Sealant
 - 2. Nelson: CLK
 - 3. Specified Technologies: PEN 300.
 - 4. 3M: Fire Barrier Silicone
 - 5. Tremco: Tremstop Acrylic, Dymeric 240/240FC, THC-900.
 - 6. USG: Firecode Compound
- D. For penetrations by combustible items (penetrants consumed by high heat and flame) including insulated metal pipe, PVC jacketed, flexible cable or cable bundles and plastic pipe (closed piping systems), the following material is acceptable:
 - 1. Hilti: FS-ONE Intumescent Firestop Sealant
 - 2. 3M: Fire Barrier CP25 WB+
 - 3. 3M: Fire Barrier FS-195+ Wrap/Strip
 - 4. Nelson: PCS Pipe Choke System, FSP Firestop Putty and WRS Wrap Strip
 - 5. Tremco: Tremstop IA, Tremstop Wrapstrip, Tremstop Devices, Fyre-Can
- E. For penetrations by combustible plastic Pipe (open piping systems) the following materials are acceptable:
 - 1. Specified Technologies: SpecSeal SSC Collars
- F. For large size/complex penetrations made to accommodate cable trays, multiple steel and copper pipes, electrical busways or raceways, the following material is acceptable.:

1. Hilti CP 637 Firestop Mortar
 2. 3M Fire Barrier CS-195+ Composite Sheet
 3. Nelson: CMP Firestop Compound, PLW Firestop Pillow and CPS
 4. USG: Firecode Compound
 5. Tremco: Tremstop IA, Tremstop Fire Putty, Tremstop Pillows, Fyre Shield, Fyre-Sil
- G. For Openings between structurally separate sections of walls and floors and top of walls:
1. Specified Technologies "PEN 300 Silicone Joint Sealant"
- H. Provide a firestop system with an "F" rating as determined by UL 1479 or ASTM E814 which is equal to the time rating of construction being penetrated.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Examine areas and conditions under which work is to be performed and identify conditions detrimental to proper and timely completion of firestopping work.
1. Verify penetrations are properly sized and in suitable condition for application of materials.
 2. Surfaces to which firestop materials will be applied shall be free of dirt, grease, oil, rust, laitance, release agents, water repellents and other substances which may affect proper adhesion.
 3. Provide masking and temporary covering to prevent soiling of adjacent surfaces by firestopping materials.
 4. Comply with manufacturer's recommendations for temperature and humidity conditions, before, during and after installation of firestopping.
 5. Do not proceed until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Regulatory Requirements: Install firestop materials in accordance with published "Through-Penetration Firestop Systems" in UL Fire Resistance Directory.
- B. Manufacturer's Instructions: Comply with manufacturer's instructions for installation of through-penetration materials.
1. Seal all holes or voids made by penetrations to ensure an air and water resistant seal.
 2. Consult with mechanical engineer, project manager prior to installation of UL firestop systems that might hamper the performance of fire dampers as it pertains to duct work.
 3. Protect materials from damage on surfaces subjected to traffic.

3.3 FIELD QUALITY CONTROL

- A. Examine sealed penetration areas to ensure proper installation before concealing or enclosing areas.
- B. Keep areas of work accessible until inspection by applicable code authorities.
- C. Perform under this Section patching and repairing of firestopping caused by cutting or penetrating of existing firestop systems already installed by other trades.

3.4 ADJUSTMENT AND CLEANING

- A. Remove equipment, materials and debris, leaving area in undamaged, clean condition.

- B. Clean all surfaces adjacent to sealed holes and joints to be free of excess firestop materials and soiling as work progresses.

END OF SECTION

SECTION 07 90 00

CAULKING AND SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. All sealant and caulking materials and their application, wherever required for complete installation of building materials or systems, unless otherwise noted.
 - a. Exterior Sealing: Clean out, caulk and seal exterior joints at the following locations.
 - 1) Metal air intakes and louvers
 - 2) Items projecting through or against walls or floors; building expansion joints
 - 3) Door and window frames, including lintels
 - 4) Building control joints.
 - 5) Joint between gravel stop drip edge and wall and coping drip edge and wall.
 - 6) Other locations where sealing is required by material or product manufacturers.
 - b. Interior Sealants:
 - 1) Metal to masonry and metal to gypsum board at metal frames caulked with paintable sealant.
 - 2) Joint between windows and window stools
 - 3) Joint between plumbing fixtures and adjacent surfaces.
 - 4) Building control joints.
 - 5) All other locations where caulking is required by material and product manufacturers even though not specifically mentioned herein.
- B. Related Sections:
 - 1. Section 07 84 00 - Firestopping Smoke Sealant and Fire Rated Sealant at Gypsum Board Partitions.
 - 2. Section 09 21 16 - Gypsum Board Assemblies: Acoustical Sealant at Gypsum Board Partitions
 - 3. Section 03 45 00 - Sealing Joints between Precast Concrete Wall Panels

1.3 REFERENCE STANDARDS

- A. ASTM International (ASTM):
 - 1. ASTM C612 - Standard Specification for Mineral Fiber Block and Board Thermal Insulation
 - 2. ASTM C717 - Standard Terminology of Building Seals and Sealants
 - 3. ASTM C1330 - Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid-Applied Sealants
 - 4. ASTM C834 - Standard Specification for Latex Sealants
 - 5. ASTM C920 - Standard Specification for Elastomeric Joint Sealants
 - 6. ASTM C1193 - Standard Guide for Use of Joint Sealants
 - 7. ASTM C1248 - Standard Test Method for Staining of Porous Substrate by Joint Sealants

1.4 QUALITY ASSURANCE

- A. The 2015 International Building Code (IBC), as modified by the State of Wisconsin Chapters SPS 361-366 - Commercial Building Code, governs the requirements for products, materials, components, and systems that are indicated on the Drawings and specified in the Project Manual.
- B. Installer Qualifications: An experienced Installer who has specialized in installing joint sealants similar in material, design, and extent to those indicated for this Project and whose work has resulted in joint-sealant installations with a record of successful in-service performance.
- C. All sealants in contact with exterior insulation and finish system shall be approved for use with the system by EIFS Manufacturer.
- D. Coordinate work with Section 04 20 00 - Unit Masonry regarding placement and sealing of control joints.
- E. Mockups: Before installing, apply joint sealants to a designated mockup to verify selections made under sample Submittals and to demonstrate aesthetic effects and qualities of materials and execution.
- F. Perform work in accordance with ASTM C1193, "Standard Guide for Use of Joint Sealants", and Sealant, Waterproofing & Restoration Institute (SWR Institute), "Sealants: The Professional's Guide."
- G. Sealants in contact with marble, limestone, sandstone, granite and other porous substrates shall pass ASTM C1248 – "Standard Test Method for Staining of Porous Substrate by Joint Sealants".

1.5 SUBMITTALS

- A. Submittals for this specification section must be 100% complete and in one (1) package.
 - 1. Only the actual samples required shall be allowed as a separate submittal.
 - 2. Non- complete submittals will be returned to the contractor without comment and stamped "rejected-resubmit".
 - 3. Contractors who knowingly want to submit non-complete submittals or break single system submittals into multiple submittals will be responsible to arrange with Architect, prior to submitting the submittal(s), and to compensate Architect for the extra work involved
- B. Submit the following:
 - 1. Materials list of items proposed to be furnished under this Section.
 - 2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements.
 - 3. Cured samples of exposed sealants for each color where required to match adjacent material.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in sealed containers with Manufacturer's name, type, grade and date of Manufacture clearly shown on each package.
- B. Store materials in a cool, dry, covered or shaded area assigned exclusively to this contractor so as to protect them from damage, contamination and premature aging.

1.7 JOB CONDITIONS

- A. Environmental Requirements: Do not apply sealants when surfaces are frosty, damp or wet or when temperatures are below 40 degrees F with out written approval from sealant manufacturer.

- B. Joint-Substrate Conditions: Do not proceed with installation of joint sealants until contaminants capable of interfering with adhesion are removed from joint substrates.

1.8 SITE ENVIRONMENTAL PROCEDURES

- A. Indoor Air Quality:
 - 1. Temporary ventilation: Provide temporary ventilation during work of this Section.
 - 2. Coordinate interior application of joint sealants with interior finishes schedule.

1.9 DEFINITIONS:

- A. Definitions of terms in accordance with ASTM C717 and as specified.
- B. Back up Rod: A type of sealant backing.
- C. Bond Breakers: A type of sealant backing.
- D. Filler: A sealant backing used behind a back-up rod.

1.10 GUARANTEE

- A. All work in this Section shall be guaranteed to be free from defects in materials and workmanship for a period of five (5) years from date of final completion of project.
- B. Silicone Sealants shall be warranted for stain resistance and structural properties for a period of twenty (20) years from date of final completion of Project.
- C. Repair or replace all such defective work and all other work damaged as a result of defective caulking and sealing work, which becomes defective during term of this guarantee.
- D. Following will be considered defective work:
 - 1. Discoloration of sealant or materials to which sealant is applied.
 - 2. Improper bonding to surfaces to which sealant is applied.
 - 3. Cracking, checking and discoloration of sealant.

PART 2 - PRODUCTS

2.1 MATERIALS AND FINISHES

- A. General Purpose Interior caulk: Acrylic emulsion latex; ASTM C834, Type OP, Grade NF single component, paintable.
 - 1. Color: Colors as selected.
 - 2. Applications: Use for:
 - a. Interior wall and ceiling control joints.
 - b. Joints between door and window frames and wall surfaces.
 - c. Other interior joints for which no other type of sealant is indicated.
- B. General Purpose Interior Sealant: Acrylic emulsion latex; ASTM C834, Type OP, Grade NF single component, paintable.
 - 1. Color: Colors as selected.
 - 2. Applications: Use for:

- a. Interior wall and ceiling control joints.
 - b. Joints between door and window frames and wall surfaces.
 - c. Other interior joints for which no other type of sealant is indicated.
- C. Sealants for use with porous materials and for joints between porous and non-porous materials shall be one (1) part moisture curing polyurethane sealant or one (1) part neutral cure 100% silicone sealant, factory mixed and packed in cartridges ready for use without stirring, thinning or other preparation. Products shall conform to Federal Specification TT-S-00230C, Type II, Class A or ASTM C920.
 - 1. Dow Corning, "790"
 - 2. Tremco, "Dymonic"
 - 3. Sonneborn, "Sonolastic NP 1"
 - 4. Pecora, Dynatrol"
 - 5. Other Manufacturer as approved by Architect
- D. Sealants for use with non-porous materials shall be silicone sealant factory mixed and packed in cartridges ready for use without stirring or other preparation. Products shall conform to ASTM C920, Type S, Grade NS, Class 50.
 - 1. Dow Corning, "No. 791, 795 or 756 SMS"
 - 2. GE "Silpruf"
 - 3. Tremco, "Spectrem 3"
 - 4. Other Manufacturer as approved by Architect
- E. Sealing compound for horizontal surfaces: Polyurethane joint sealant for slab-on-grade control and construction joints required for all exposed concrete including interior vehicle and parking and maintenance areas, exterior construction and parking maintenance areas, exterior construction and parking structures, except industrial floors where epoxy joint filler is required. Provide backer rod as required by Manufacturer.
 - 1. Tremco, "THC-900" (level surfaces)
 - 2. Tremco, "Vulkem 245SL"
 - 3. Tremco, "THC-901" (sloped surfaces)
 - 4. Sika, "Sikaflex 2CSL"
 - 5. Euclid Chemical, "Eucolastic II"
 - 6. BASF, "Sonolastic SL2"
 - 7. Other Manufacturer as approved by Architect
- F. Sealing compound for control joints and construction joints and for repairing random cracking in horizontal concrete surfaces in industrial floors subject to heavy fork lift or steel wheeled traffic shall be 100% solids, flexible, two component, rapid curing polyurea elastomer joint filler of sufficient strength to protect vertical edges of concrete from spalling under extreme loading.
 - 1. VersaFlex Incorporated, "VersaFlex SL/75"
 - 2. Master Builders Technology, "Masterfill 300i"
 - 3. Euclid Chemical Company, "Euco QWIKjoint"
 - 4. Other Manufacturer as approved by Architect
- G. Paintable Sealant: Sealants for use at interior metal frames and other interior surfaces scheduled to be painted: Siliconized latex sealant or 100% silicone sealant, permitting surface to be painted after curing, meeting requirements of ASTM C834, Type OP, Grade NF single component, paintable.
 - 1. Tremco, "Tremflex 834"
 - 2. Pecora, "AC-20 + Silicone"
 - 3. BASF, "Sonolac"
 - 4. Sherwin-Williams, "Powerhouse"
 - 5. Other Manufacturer as approved by Architect
- H. Sealing compound for sealing joints between plumbing fixtures and adjacent surfaces: Mildew resistant, silicone sanitary sealant. Products shall meet requirements of Federal Specification TT-S-001543, Class A or ASTM C920, Type S, Grade NS, Class 25, Use NT.
 - 1. Dow Corning "786 Mildew Resistant Silicone Sealant"
 - 2. GE (Momentive) "SCS 1700 Silicone Sanitary Sealant"
 - 3. BASF, "Sonolastic Omniplus"

4. Pecora, "898 Silicone"
 5. Tremco, "Tremsil 200"
 6. Sherwin-Williams, "White Lightning 100% Silicon Rubber"
 7. Other Manufacturer as approved by Architect
- I. Colors: Colors for each sealant installation will be selected by the Contractor from standard colors normally available from the specified Manufacturers subject to Architect approval.
 - J. Primer: Made by Manufacturer of sealant applied in accordance with Manufacturer's instructions.
 - K. Solvent Cleaner: as recommended by sealant Manufacturer.
 - L. Provide other materials, not specifically described, but required for a complete and proper installation, as selected by the Contractor, subject to approval of Architect.

2.2 JOINT SEALANT BACKING

- A. General: Provide sealant backings of material and type that are non-staining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant Manufacturer based on field experience and laboratory testing.
- B. Cylindrical Sealant Back-up Rod: ASTM C1330, of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:
- C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant Manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure.

2.3 FILLER FOR BACK-UP ROD

- A. Definition: Sealant backing used behind a back-up rod.
- B. Material: Mineral fiber board: ASTM C612, Class 1.
- C. Thickness same as joint width.
- D. Depth to fill void completely behind back-up rod.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

- A. Examine the areas and conditions under which work of this Section will be performed. Report to General Contractor any conditions which may adversely affect installation or performance of caulking and sealants. Do not start application of sealants until such conditions have been corrected.

3.2 ENVIRONMENTAL CONDITIONS

- A. Provide increased ventilation during interior sealant application.
- B. Provide off-gassing period prior to building occupancy.

3.3 PREPARATORY WORK

- A. Prepare joints in accordance with sealant manufacturer's instructions
- B. Clean surfaces of joint to receive caulking or sealants leaving joint dry to the touch, free from frost, moisture, grease, oil, wax, lacquer paint, or other foreign matter that would tend to destroy or impair adhesion.
 - 1. Clean porous joint substrate surfaces to produce a clean, sound substrate capable of developing optimum bond with joint sealants.
 - 2. Remove laitance and form-release agents from concrete.
 - 3. Remove loose particles remaining from above cleaning. Porous joint surfaces include the following:
 - a. Concrete.
 - b. Masonry.
 - c. Unglazed surfaces of ceramic tile.
- C. Clean non-porous surfaces with cleaners that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.
 - 1. Metal.
 - 2. Glass.
 - 3. Porcelain enamel.
 - 4. Glazed surfaces of ceramic tile

3.4 BACKING INSTALLATION:

- A. The minimum width and depth of any sealant application shall be 1/4" by 1/4". The depth of sealant may be equal to the width of joints that are less than 1/2" wide. For joints ranging from 1/2" to 1" wide, the sealant depth shall be approximately one-half of the joint width.
- B. Where joint backing is required, insert backer material into the joint cavity. Do not apply sealant directly against mortar in a joint.
- C. Where deep joints occur, install filler to fill space behind the back-up rod and position the rod at proper depth.
- D. Install back-up rod, without puncturing the material.
- E. Where space for back-up rod does not exist, install bond breaker tape strip at bottom (or back) of joint so sealant bonds only to two opposing surfaces.
- F. Take all necessary steps to prevent three sided adhesion of sealants.

3.5 APPLICATION

- A. Prior to start of installation, verify that the required proportion of joint width to depth has been secured.
- B. Prime all surfaces. Apply primer to all joints to be sealed. Follow manufacturer's instructions regarding application and number of coats.
- C. EIFS Systems: Apply coat of Manufacturer's color primer in joint. EIFS finish will not be returned into joint. Allow color primer to dry minimum 24 hours prior to application of sealant primer. Color of EIFS primer shall match EIFS Finish color.
- D. Application of Sealant:
 - 1. For application of sealants, follow requirements of ASTM C1193 unless specified otherwise.
 - 2. Apply sealant by means of a pressure gun with nozzle diameter equal to width of joint.

3. Firmly press sealant into joint to ensure complete wetting of bonding surface and obtain good adhesion.
 4. Apply sealant in accordance with Manufacturer's instructions and tool to a concave surface.
 5. Where practical, mask joints and do not remove tape until joint has been tooled and initial cure has taken place.
- E. Expansion Joints and Control Joints:
1. Seal all exterior and interior expansion joints in clay masonry and control joints in concrete masonry. If expansion or control joints are not shown or noted on Drawings, consult with Architect and masonry contractor regarding placement and spacing of joints. Coordinate work with Section 04 20 00 - Unit Masonry.
 2. Install backer rod and seal with specified sealant.
 3. In brick masonry, joint sealant shall match color of brick.

3.6 CLEANING

- A. Clean adjacent materials which have been soiled and leave work in a neat, clean condition.

END OF SECTION

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SECTION 07 92 16
SECURITY SEALANT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Furnish and apply security sealant at joints at the following locations in detention areas:
 - a. Perimeters of frames at walls in secure areas.
 - b. Joint between wall and ceiling.
 - c. Gaps between metal items and walls.
 - d. All plumbing fixtures between fixture and walls and floors.

1.3 QUALITY ASSURANCE

- A. The 2015 International Building Code (IBC), as modified by the State of Wisconsin Chapters SPS 361-366 - Commercial Building Code, governs the requirements for products, materials, components, and systems that are indicated on the Drawings and specified in the Project Manual.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Security sealant shall conform to ASTM C881 Type III, Grade 3, Class B & C.

2.2 MANUFACTURERS:

- A. Approved Manufacturers:
 - 1. BASF Construction Chemicals, "MasterEmaco ADH 1490 or ADH 327"
 - 2. Euclid Chemical Company, "Flexocrete Gel"
 - 3. Permagile "I-215 HM Gel"
 - 4. Sikadur "31 Hi-Mod Gel"
- B. At joints of 1/8" or less: Gibson-Homans "Crackcrete" is acceptable in addition to products specified herein.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Comply with manufacturer's instructions and recommendations for preparation of substrate and handling and installation of security sealant.

- B. Completely fill all joints, voids, pockets, etc. Finish exposed surfaces smooth.
- C. Remove and reapply incorrectly applied sealant. Remove spilled sealant and restore surfaces to original condition.

END OF SECTION

SECTION 08 11 13
HOLLOW METAL FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes:
1. Provide and installation of hollow metal doors and frames.
- B. Related Sections:
1. Section 08 71 00 - Door Hardware.

1.3 REFERENCES

- A. American National Standards Institute (ANSI)/Steel Door Institute (SDI):
1. ANSI A250.3 - Test Procedure and Acceptance Criteria for Factory Applied Finished Painted Steel for Steel Doors and Frames.
 2. ANSI A250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames, Frame Anchors and Hardware Reinforcing.
 3. ANSI A250.8 - Recommended Specifications for Standard Steel Doors and Frames.
 4. ANSI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames.
 5. ANSI A250.11 - Recommended Erection Instructions for Steel Frames.
- B. ASTM International (ASTM):
1. ASTM A653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process.
 2. ASTM A924 - Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.
 3. ASTM A1008 - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.
 4. ASTM C518 - Standard Test Method for Steady State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
 5. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass
 6. ASTM E413 - Classification for Rating Sound Insulation.
- C. National Fire Protection Association (NFPA) 80 - Standard for Fire Doors and Fire Windows.
- D. Steel Door Institute (SDI) 117 - Manufacturing Tolerances for Standard Steel Doors and Frames.
- E. Underwriters Laboratories (UL):
1. UL 10B - Standard for Fire Tests of Door Assemblies.
 2. UL10C - Standard for Positive Pressure Fire Tests of Door Assemblies.

1.4 SUBMITTALS

- A. Submittals for this specification section must be 100% complete and in one (1) package.
 - 1. Only the actual samples required shall be allowed as a separate submittal.
 - 2. Non- complete submittals will be returned to the contractor without comment and stamped "rejected-resubmit".
 - 3. Contractors who knowingly want to submit non-complete submittals or break single system submittals into multiple submittals will be responsible to arrange with Architect, prior to submitting the submittal(s), and to compensate Architect for the extra work involved
- B. Submittals for Review:
 - 1. Shop Drawings: Show locations, elevations, dimensions, model designations, fire, thermal and acoustical ratings, preparation for hardware, and anchoring details.
 - 2. Product Data: Show elevations, dimensions, gages of metal, hardware reinforcing gages and locations, and anchor types.
- C. Quality Control Submittals:
 - 1. Certificates of Compliance: Certification that products furnished comply with ANSI/SDI A250.3, ANSI/SDI 250.4, and ANSI/SDI A250.10.

1.5 QUALITY ASSURANCE

- A. The 2015 International Building Code (IBC), as modified by the State of Wisconsin COMM Chapter 62, governs the requirements for products, materials, components, and systems that are indicated on the Drawings and specified in the Project Manual.
- B. Doors: ANSI/SDI A250.8.
 - 1. Grade: II - Heavy Duty.
 - 2. Model: 1 - Full Flush.
- C. Frames: ANSI/SDI A250.8, Grade II - Heavy Duty.
- D. Fire Door and Frame Construction: Conform to UL 10B.
- E. Installed Fire Rated Door and Frame Assemblies: Conform to NFPA 80.
- F. Acoustic Door and Frame Assemblies: Minimum STC rating of 35, measured in accordance with ASTM E413.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Ship door frames with removable angle spreader; do not remove until frame is installed.
- B. Store doors upright in protected, dry area, off ground or floor, with at least 1/4 inch space between individual units.
- C. Do not cover with non vented coverings that create excessive humidity.
- D. Remove wet coverings immediately.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturers:
 - 1. Ceco Door. (www.cecodoor.com)
 - 2. Curries. (www.curries.com)
 - 3. Pioneer Industries, Inc. (www.pioneerindustries.com)
 - 4. Steelcraft. (www.steelcraft.com)
 - 5. Other manufacturers as approved by Architect.

2.2 MATERIALS

- A. Steel Sheet:
 - 1. ASTM A1008, cold rolled.
- B. Galvanized Steel Sheet:
 - 1. ASTM A653, hot dipped, Structural Quality, Class G40 galvanized.
- C. Door Core:
 - 1. Interior fire-rated and non-fire rated doors: Resin impregnated fibrous honeycomb.

2.3 ACCESSORIES

- A. Primer: Zinc rich type.

2.4 FABRICATION

- A. Fabricate doors and frames in accordance with ANSI/SDI A250.8.
- B. Doors:
 - 1. Fabricate from minimum 18 gage sheets.
 - 2. Close top and bottom edges of doors with steel channel, minimum 16 gage, extending full width of door, and spot welded to both faces, with top channel flush and bottom channel recessed.
 - 3. Fabricate vertical door edges as vertical seam edge filled, dressed smooth, intermittently welded seams, edge filled, dressed smooth, or continuously welded seam, dressed smooth.
- C. Frames:
 - 1. Fabricate from minimum 16 gage sheets.
 - 2. Close corner joints tight with trim faces mitered and face welded, full profile welded, or continuously welded and ground smooth.
 - 3. Anchors:
 - a. Provide one anchor at each jamb for each 30 inches of door height.
 - b. Design anchors to provide positive fastenings to adjacent construction.
 - c. Provide one floor anchor welded to each jamb.
- D. Accurately form to required sizes and profiles.
- E. Grind and dress exposed welds to form smooth, flush surfaces.
- F. Do not use metallic filler to conceal manufacturing defects.
- G. Fabricate with internal reinforcement for hardware identified on Drawings; weld in place.

- H. Glazing Stops:
 - 1. Manufacturer's standard, screw on type with mitered corners.
- I. Clear Tempered Glass: ASTM C1048, Type 1 transparent flat, Class 1 clear, Quality q3 glazing select, Kind FT fully tempered.
- J. Design Clearances:
 - 1. Between door and frame: Maximum 1/8 inch.
 - 2. Between meeting edges of pairs of doors:
 - a. Non-fire rated doors: 3/16 inch plus or minus 1/16 inch.
 - b. Fire-rated doors: 1/8 inch plus or minus 1/16 inch.
 - 3. Undercut:
 - a. Non-fire rated doors: Maximum 3/4 inch.
 - b. Fire-rated doors: Comply with NFPA 80.
 - 4. Between face of door and stop: 1/16 to 3/32 inch.
- K. Manufacturing Tolerances: In accordance with SDI-117.
- L. Fire-Resistance-Rated Glazing: See Section 08 88 00 – Glass and Glazing.

2.5 FINISHES

- A. Dress tool marks and surface imperfections to smooth surfaces.
- B. Clean and chemically treat steel surfaces.
- C. Touch up damaged metallic coatings.
- D. Apply manufacturer's standard rust inhibiting primer paint, air-dried or baked on, meeting requirements of ANSI/SDI A250.10.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install doors and frames in accordance with ANSI/SDI A250.11.
- B. Set plumb and level.
- C. Secure to adjacent construction using fastener type best suited to application.
- D. Factory install glass and glazing.

3.2 ADJUSTING

- A. Touch up minor scratches and abrasions in primer paint to match factory finish.

END OF SECTION

SECTION 08 14 00
FLUSH WOOD DOORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes:
 - 1. Solid-core flush wood doors:
 - a. Wood-veneer faces; factory pre-fitting, pre-machining for hardware, detailing, and factory pre-finishing.
 - b. Coat Hooks.
- B. Related Sections:
 - 1. Section 08 11 13 - Hollow Metal Frames.
 - 2. Section 08 71 00 – Door Hardware.

1.3 REFERENCE STANDARDS

- A. WDMA IS 1A - Window and Door Manufacturers Association (WDMA)
- B. AWI – Architectural Woodwork Standards of the Architectural Woodwork Institute (AWI)
- C. NFPA 80 - Fire Doors and Windows
- D. NFPA 252 - Standard Methods of Fire Tests for Door Assemblies
- E. Underwriters' Laboratories - UL 10B (neutral pressure) and UL 10C (positive pressure) - Fire Tests of Door Assemblies
- F. Intertek ITS (Warnock Hersey) - Certification Listings for Fire Doors
- G. ASTM E90 - Measurement of Airborne Sound Transmission Loss of Building Partitions

1.4 QUALITY ASSURANCE

- A. The 2015 International Building Code (IBC), as modified by the State of Wisconsin Chapters SPS 361-366 - Commercial Building Code, governs the requirements for products, materials, components, and systems that are indicated on the Drawings and specified in the Project Manual.
- B. Manufacturer: Company specializing in manufacturing products specified in Section with a minimum of five years documented experience. All doors shall be supplied through one Company.
- C. Quality Standard: Doors to comply with WDMA I.S. 1-A, Premium Grade.
- D. Fire Ratings Compliance: Fire-rated wood doors to comply with NFPA-80 requirements according to building code standards having local jurisdiction.

- E. Label Certification: All doors requiring fire-rating will carry either UL or ITS (Warnock Hersey) label. Manufacturer's certification labels may be used for door size variations if approved by AHJ (Authority Having Jurisdiction).

1.5 SUBMITTALS

- A. Product Data: Submit door manufacturer's product construction data, hardware attachment performance data, specifications and installation instructions for each type of wood door, including details of core and edge construction, trim for lite openings and similar components.
- B. Warranty: Submit sample of manufacturer's door warranty.
- C. Shop Drawings: Provide the following information:
 - 1. Door type.
 - 2. Door size.
 - 3. Fire Rating:
 - a. Neutral pressure - UL 10B/UBC43-2 or 7-2-94.
 - b. Positive pressure - UL 10C/UBC7-2-97.
 - 4. Hardware types and locations.
 - 5. Hardware blocking requirements and location.
 - 6. Vision panel or louver cutout size and location.
 - 7. Prefinish system type and approved color(s).
- D. Samples:
 - 1. Color samples for factory pre-finishing. Manufacturer shall submit samples of not less than 4" x 6" size of representative veneer or paintable surface, with sample date indicated.
 - 2. Construction samples. Corner sections with door faces, edges, and core representative of the specified door type(s). Corner samples to be not less than 6" x 6"

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store and protect doors in accordance with manufacturer's recommendations and WDMA. Following are general guidelines. For more specific information refer to WDMA's Appendix Section "Care and Installation at Job Site."
- B. Store doors flat and off the floor on a level surface in a dry, well-ventilated building. Do not store on edge. Protect doors from dirt, water and abuse.
- C. Protect unfinished doors from exposure to light (artificial or natural) after delivery.
- D. Do not subject interior doors to extremes in either heat or humidity. HVAC systems shall be operational and balanced, providing a temperature range of 50 to 90 degrees Fahrenheit and 30% to 50% relative humidity.
- E. When handling doors, always lift and carry. Do not drag across other doors or surfaces. Handle with clean hands or gloves.
- F. Each door shall be marked on top rail with opening number

1.7 WARRANTY

- A. Doors shall be warranted by the manufacturer to be free of manufacturing defects for the life of the original installation.
- B. Warranty shall provide for repair or replacement of the door as originally furnished. Manufacturer shall elect to repair or replace defective door(s), and will assume reasonable costs associated with same.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Non-Fire-Rated Flush Doors:

1. Construct using WDMA Five (5) Ply construction, using Hot Press method for laminating door materials. Stiles and rails must be securely bonded to the core and then abrasively planed prior to veneering.
2. Core:
 - a. Particleboard Core (PC-5) to comply with ANSI Standard. A208.1 LD-2, with screw holding power of 125 lbs., modulus of rupture of 800 psi, modulus of elasticity of 150,000 psi and density of 30-35 lbs. per cubic foot. Structural Composite Lumber Core (SCLC-5): (Full Lite Doors). Engineered hardwood composite. Material shall comply with WDMA minimum performance levels for interior applications with screw holding power of 540 lbs., modulus of rupture of 6,500 psi, modulus of elasticity of 1,300,000 psi and density of 38 lbs. per cubic foot.
3. Crossbands shall be wood-based minimum 1/16-inch thick. Laminate crossbands and face veneers to the core with Type 2 interior use glue using the Hot Press process. Extend crossbands the full width of the door. Minimum properties include internal bond of 100 psi and density of 50 lbs. per cubic foot.
4. Stiles: Hardwood, one piece, laminated or veneered. Constructions with laminated edges may use structural composite lumber as an inner stile component.
 - a. Matching - Same species as face veneer.
5. Rails: Solid wood, structural composite lumber meeting the minimum requirements of WDMA.
6. Hardware Blocking: Minimum 5-inch top rail and 5-inch bottom rail for specialized hardware or undercutting flexibility.
7. Reinforce top and/or bottom rails to eliminate the need for through-bolting when installing closers or holders.
8. Screws must penetrate doors a minimum of 1-1/2"
9. Pair and Set Match:
 - a. For openings with more than one door, door faces shall be pair or set matched. This includes doors separated by a mullion.

B. Fire-Rated Doors:

1. Construct using WDMA Five (5) Ply construction, using Hot Press method for laminating door materials.
 - a. Fire Rating Specified: See Door and Frame Schedule.
 - b. Category A Positive Pressure openings shall have all the intumescent required for compliance contained within the door and require no additional installation of intumescent strips.
 - c. Positive Pressure Category A
2. Core:
 - a. Particleboard Core (1/3 hour rated doors only):
 - 1) Comply with ANSI Stnd. A208.1 LD-2 with screw holding power of 125 lbs., modulus of rupture of 800 psi, modulus of elasticity of 150,000 psi and density of 30-32 lbs. per cubic foot.
 - 2) Mineral Core (Rating higher than 1/3 hour): Non-combustible mineral composite material.
3. Crossbands: Wood-based composites of a minimum thickness of 1/16". Crossbands and face veneers shall be laminated to the core with Type 2 interior use glue using the Hot Press process. Crossbands must extend the full width of the door. Minimum properties include internal bond 100 psi and density of 50 lbs. per cubic foot.
4. Stiles - Provide manufacturer's standard laminated edge construction with improved screw-holding capability and split resistance. Both inner and outer stiles shall not contain salt treating.
 - a. Matching - Same species as face veneer.
5. Rails - Solid wood or other material contained in manufacturer's fire door approvals.
6. Hardware Blocking: Minimum 5" top rail for specialized hardware and 5" bottom rail for specialized hardware or undercutting flexibility and/or blocking for lockset installation.
7. Reinforce top and/or bottom rails to eliminate the need for through-bolting when installing closers or holders.

- a. Note: Screws must penetrate doors a minimum of 1-1/2"
8. Pair and Set Match: For openings with more than one door, door faces shall be pair or set matched. This includes doors separated by a mullion.

2.2 DOOR FABRICATION

- A. Factory-prefit and bevel doors (3 degrees) to suit frame sizes indicated, with 3/16-inch prefit in width, + 0"/- 1/32", tolerances. Prefit top of door 1/8" +1/16"/-0", and undercut 1/2-inch from top of decorative floor covering. For fire-rated doors comply with NFPA 80 for prefits and undercuts.
- B. Factory pre-machine doors for hardware that is not surface applied. Locations and hole patterns to comply with specified hardware requirements as per NFPA 80 standards for doors specified; and to maintain door manufacturer's warranty.
 1. Specific locations for hardware will be coordinated between frame and door manufacturers.
 2. Specific hardware preps will be per hardware schedule(s) provided. Hardware preps to be neatly and cleanly squared as required per hardware templates.
 3. Metal astragals and channels to be supplied where fire-ratings will not allow metal-free edge(s).
- C. Factory Preparation for Light Openings and Louvers - Cut and trim openings through doors to comply with NFPA 80 requirements where indicated; and to maintain door manufacturer's warranty.
 1. Wood beads and wood louvers to be compatible with face veneer. Profiles and installation per door manufacturer's standard(s).
- D. Hat and Coat Hooks: Satin stainless steel. 2-inch x 2-inch Flange. Hook 1-inch W, 6 1/2 inches H; projects 3-3/16 inches from wall. Concealed wall plate.
 1. Bobrick, "No. B-6827"
 2. Bradley, "Model 9134"
 3. American Specialties, "Model 7382-S"
 4. A&J Washroom Accessories, "Model UX116-SF"
 5. Other manufacturers as approved by Architect.

2.3 VENEER-FACED DOORS FOR TRANSPARENT FINISH

- A. Interior Solid-Core Doors:
 1. Grade: Premium, with Grade A faces.
 2. Species: Select camel elm, no heartwood.
 3. Cut: Quartered
 4. Match between Veneer Leaves: Book match.
 5. Assembly of Veneer Leaves on Door Faces: Balanced.
 6. Transom Match: Continuous match.
 7. Exposed Vertical and Top Edges: Applied wood edges of same species as faces.
 8. Core: Structural composite lumber.
 9. Construction: Five plies. Stiles and rails are bonded to core, then entire unit is abrasive planed before veneering. Faces are bonded to core using a hot press.
 10. WDMA I.S.1-A Performance Grade: Heavy Duty.

2.4 FACTORY FINISHING

- A. Finish Location:
 1. Factory Finishing – All doors to receive a factory finish to meet or exceed WDMA I.S. 1A TR-6 – Catalyzed Polyurethane.
 2. Color tone to be selected by Architect. Submit 12" x 12" sample of proposed finish and receive Architect approval of sample prior to finishing doors.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Confirm that frames comply with type, size, location and swing requirements and that they are installed plumb and square.
- B. Inspect doors for any damage, manufacturing defects or prefinish inconsistency, e.g. wrong color or poor finish.
- C. If frames and doors pass inspections (see A and B above), proceed to installation. Notify Construction Manager if there are any issues in either frames or doors. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Installation of wood doors to comply with WDMA IS 1A, specific door manufacturer's specific instructions, and NFPA 80.

3.3 ADJUSTING AND PROTECTING

- A. After installation of door in frame, operate door to ensure that the door swings freely and that all hardware functions correctly. If not, make adjustments as required to provide an operable opening.
- B. If required, protect doors following installation from damage that may occur as a result of project completion.

END OF SECTION

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SECTION 08 71 00

DOOR HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes:
 - 1. All finish hardware required to completely equip building.
 - 2. All finish screws, washers, nuts, bolts and other accessories required for proper installation of hardware.
 - 3. Special details, templates and instructions to other contractors as may be required. Samples; complete schedule and marking. Note: Refer to other Sections for hardware by others.

1.3 CONTRACTOR PERFORMANCE

- A. Furnish and deliver all hardware, including accessories, required for doors, as scheduled. If not scheduled, furnish hardware equal to that specified for similar location as far as practical.
- B. Hardware Contractor shall become familiar with other branches of specification to determine what hardware is excluded from this section.
- C. Provide template or non-template hardware as required by door and jamb construction. Furnish wood or machine screws or thru bolts as required by those furnishing items to which hardware is to be applied.
- D. Cooperate with contractors and others with regard to application of hardware. Make occasional inspections to verify that items are properly used, in correct location, and master key system is maintained. Report improper application of hardware to Architect.
- E. Deliver hardware only after detailed schedule, keying diagram and samples have been approved by Architect.
- F. Hardware in metal jambs: Reinforcing and cover boxes will be provided with metal jambs.
- G. Locks having bolts or latches engaging with mullions or jambs of hollow metal construction shall have box type strikes.

1.4 QUALITY ASSURANCE

- A. The 2015 International Building Code (IBC), as modified by the State of Wisconsin Chapters SPS 361-366 - Commercial Building Code, governs the requirements for products, materials, components, and systems that are indicated on the Drawings and specified in the Project Manual.
- B. Hardware shall be as specified. No substitutions will be considered.

1.5 SUBMITTALS

- A. Samples:
 - 1. Samples requested shall be submitted to Architect for approval. Approved samples, of proper finish, will be delivered to job for ultimate use. Otherwise, samples will be returned to contractor upon completion.
 - 2. Installed materials shall be equal in all respects to approved samples.
- B. Schedule:
 - 1. Before ordering hardware, submit three (3) copies of complete Hardware Schedule to Architect for approval in vertical format. After approval, submit five (5) copies.
 - 2. Successful bidder shall check specified schedule against latest revised plans when making up schedule for approval.
 - 3. Schedule each door separately and, where practical, item numbers will be same as door numbers and in consecutive sequence.

1.6 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver hardware to carpenter, or hollow metal contractors, or to respective shops of other contractors as directed.
- B. Consult with carpenter, hollow metal and other contractors and follow their directions regarding manner, sequence and time of delivery and obtain receipt.
- C. Responsibility for safekeeping after delivery rests with trade to whom hardware was delivered.

1.7 KEYING

- A. Key locks in sets or subsets, master key and grand master key as directed by Owner and architect. After award of contract, hardware supplier shall confer with Owner and Architect to determine keying system. After this conference, submit keying diagram in duplicate for Architect's records. Furnish three (3) master keys and three (3) grand master keys. Master and grand master keys shall be delivered in a sealed container directly to the Architect.
- B. Tag each key mark with item or plan door number.
- C. Keys: Furnish three (3) change keys with each lock. Two (2) change keys shall be shipped to key cabinet manufacturer for installation in cabinet. Keys shall be properly marked in key gathering envelopes.
- D. Furnish a Telkee, Inc. key control system of capacity required, plus 20% blank spaces for future keys.
 - 1. System shall be complete with component parts, including key tags, perforated receipt forms, brass receipt holders, visible card index folder, illustrated instructions and part manual.
 - 2. Key cabinet manufacturer shall set up the visible key control system consisting of typing the three way card index and tagging all keys on permanent and temporary tags.
 - 3. Direct representative of manufacturer shall see that personnel assigned to make equipment ready for operation are fully instructed in the system. Representative shall contact Architect for name of personnel to be instructed.

1.8 GUARANTEE

- A. All work in this Section shall be guaranteed to be free from defects in materials and workmanship for a period of one (1) year from date of final completion of project.

PART 2 - PRODUCTS

2.1 FINISHES AND MATERIALS

- A. Hardware finishes shall be US26D Satin Chrome and US32D Satin Stainless Steel.
- B. Materials shall be the following. Provide with the finish designated in parenthesis ().
 - 1. Knobs Locks and Latches Bronze with (US26D/626) Finish.
 - 2. Door Closers: Interior Sprayed Aluminum (689).
 - 3. Door Butts – Non-ferrous for exterior and wet areas with (US26D/626) finish. Ferrous for other doors with (US26D/652) Finish.

2.2 LOCKS, AND LATCHES

- A. Shall Schlage L9000 03B Design w/ removable lock core.
- B. Locks are Mortise to match existing.
- C. Backset shall be 2 3/4" for all locks, latches and dead locks. Strikes shall be box type with wide enough lip projection to protect door frame but not to exceed 3/16" beyond face of frame.
- D. All locks and cylinders shall be of one manufacturer and shall have not less than six (6) pins.
- E. Furnish rim or mortise cylinders as required for overhead doors, folding doors, wire gates and partitions, special interior doors and coiling doors.
- F. Lock function legend: As noted in Hardware groups at the end of this Section
 - Office MR116 (E)
 - Passage closets, conference, MR148 (C)
 - Storerooms, janitor closets, mechanical/electrical areas, MR115 (S)
 - Private toilets MR276 (P)
 - Passage MR126 (L)
 - Communicating MR137 (X)

Note: Verify at key meeting all lock functions with owner prior to ordering locks.
Letters in () indicated lock function as noted in hardware groups.

2.3 BUTT HINGES

- A. Shall be PBB, McKinney or Bommer ball bearing, non-rising loose pin, flat button tip, unless otherwise specified.
- B. Provide 1-1/2 pair butts per door for doors up to 7'-6" in height. Doors over 7'-6" in height shall have two (2) pairs of butts.
- C. Furnish UL approved butts on labeled doors.
- D. Continuous gear hinges to be Select Hinge.

2.4 DOOR CLOSERS

- A. Shall be Norton, or LCN of proper size as described in manufacturer's schedule of sizes.

- B. Where parallel arm or weather strip is specified, closers shall be one size larger than manufacturer's recommendations.
- C. Closers shall have key adjusting device. Furnish six adjusting keys.
- D. Mount to provide maximum opening permitted by building construction or equipment, and note on this schedule this maximum swing per location for other trades involved in reinforcement or installation.
- E. Closers shall be of cast aluminum or cast iron, of full rack and pinion construction, including two speed closing adjustment, adjustable hydraulic back check and fully adjustable spring power plus reversible shoe feature, of type listed in schedule. Closer fluid shall be "all weather" type not subject to normal temperature changes.
- F. All doors closers shall be similar in design and appearance to those listed in the schedule, so far as possible, and shall be of one manufacturer. Furnish special arms and applications as indicated in hardware schedule or as dictated by structural conditions or local code requirements.
- G. Door closers at labeled fire doors shall bear UL approval. Provide thru bolts for mineral core doors.
- H. Where more than one door occurs in an opening, equip each door with closer, unless otherwise noted.
- I. ADA Automatic Openers: As specified in hardware groups. Coordinate installation and operation of opener and switches with electrical contractor.

2.5 FINAL ADJUSTMENTS AND CHECKING

- A. All locks and latches:
 - 1. Properly lubricate with lock lubricant.
 - 2. Check, test and adjust all moving parts to insure free, smooth operation.
- B. Door closers and holders:
 - 1. Lubricate as specified above.
 - 2. Check, test and adjust.
 - 3. Final adjustments by factory representative to meet building conditions after building is in use.

2.6 HARDWARE SCHEDULE

- A. HG1:
 - 1. Butts
 - 2. Electric Lock MR199EU
 - 3. Closer 4010/4110/4110cush
 - 4. Stop
 - 5. Power Transfer PT1000
 - 6. Door Position Switch IDPS-1
 - 7. Card Reader by others
 - 8. Connection by Division 26
 - 9. Operational Description: Door Normally Closed and Locked; unlocked at times programmed by Owner. Free Egress Allowed at All Times. Outside Access by Card Reader, Which Will Shunt The Alarm And Unlock Electric Lock
- B. HG4
 - 1. Butts
 - 2. Lock
 - 3. Stop
- C. Refer to Specification Section 06 40 00 – Millwork for further information regarding the Courtroom gateway hardware.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Verify that doors and frames are ready to receive work and dimensions are as indicated on Shop Drawings.
- B. Start of installation indicated acceptance of existing conditions.

3.2 INSTALLATION

- A. Install hardware in accordance with manufacturer's instructions.
- B. Use the templates provided by hardware item manufacturer per BHMA standards.
- C. Conform to ANSI A117.1 for positioning requirements for the handicapped.

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SECTION 09 21 16
GYSPUM BOARD ASSEMBLIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes:
 - 1. Labor and materials required to complete drywall construction including metal stud partition system, ceiling suspension system, furring channels, gypsum board and fasteners and accessories required for a complete and proper installation.
- B. Related Sections:
 - 1. Section 07 21 00 - Building Insulation.
 - 2. Section 08 11 00 - Hollow Metal Frames.
 - 3. Section 09 90 00 - Painting and Finishing.

1.3 REFERENCE STANDARDS

- A. ASTM C645 – Standard Specification for Nonstructural Steel Framing Members.
- B. ASTM C754 – Installation of Steel Framing Members to Receive Screw-Attached Gypsum Board.
- C. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board.
- D. ASTM C1047 – Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base
- E. ASTM C1396 – Standard Specification for Gypsum Board.
- F. ASTM C1178- Standard Specification for Coated Glass Mat Water-resistant Gypsum Backing Panel
- G. ASTM C1766 - Standard Specification for Factory Laminated Gypsum Panel Products
- H. ASTM D3273 – Standard Test Method for Resistance to Growth of Mold on the surface of Interior Coatings in an Environmental Chamber.
- I. Gypsum Association GA-201 - "Using Gypsum Board For Walls and Ceilings".
- J. Gypsum Association GA-214 - "Recommended Levels of Gypsum Board Finish".
- K. Gypsum Association GA-216 - "Recommended Specifications for the Application and Finishing of Gypsum Board".
- L. Wherever a fire-resistance classification is indicated for walls or partitions, provide metal studs and accessories of type tested and listed for construction indicated.
- M. Fire-Test-Response Characteristics: For fire resistance rated assemblies that incorporate non-load bearing steel framing, provide materials and construction identical to those tested in assembly indicated

according to ASTM E119 by an independent testing laboratory. Products used in the assembly shall carry a classification label from the testing laboratory.

- N. Mock-ups:
 - 1. Install mock-up using approved gypsum products, including fasteners and related accessories per manufacturer's current printed instructions and recommendations.
 - a. Mock-up size: 10 feet by 10 feet.
 - b. Mockup for each level of exposed gypsum board finish.
 - c. Mock-up may remain as part of the work.

1.4 ALTERATIONS

- A. Where new work connects with existing, this Contractor shall do all necessary cutting, fitting and patching and removal of existing work in Contractor's line as required to make satisfactory connection with the work of this Section and leave entire work in a finished and acceptable condition. Surface finish of new gypsum board shall match adjacent existing gypsum board.

1.5 QUALITY ASSURANCE

- A. The 2015 International Building Code (IBC), as modified by the State of Wisconsin Chapters SPS 361-366 - Commercial Building Code, governs the requirements for products, materials, components, and systems that are indicated on the Drawings and specified in the Project Manual.

1.6 SUBMITTALS

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Storage and Handling:
 - 1. Deliver all materials in original packages, containers or bundles bearing the brand names of manufacturer.
 - 2. Store materials inside, level, under cover. Keep dry. Protect from weather, other elements and damage from construction operations and other causes.
 - 3. Handle gypsum board to prevent damage to edges, ends or surfaces. Protect metal accessories and trim from being bent or damaged.
 - 4. Steel framing and related accessories shall be stored and handled in accordance with AISI "Code of Standard Practice".
- B. Comply with requirements of gypsum board application standards and recommendations of gypsum board manufacturer for environmental conditions before, during and after application of gypsum board.
- C. Do not start any gypsum board work until building is enclosed.
- D. Cold Weather Protection: When outdoor temperature is below 50°F, maintain building working temperature of not less than 50°F for a period of 48 hours prior to, during and following application of gypsum board and joint treatment materials or bonding of adhesives.
- E. Ventilation: Ventilate building spaces as required to remove excess moisture that would prevent drying of joint treatment material immediately after its application.

1.8 WARRANTY

- A. All work under this section shall be guaranteed to be free from fastener popping, ridging and other faulty workmanship for a period of one (1) year from date of final completion of project. Evidence of same shall be remedied at no cost to Owner.

PART 2 - PRODUCTS

2.1 MATERIALS AND FINISHES

- A. Metal Studs:
 - 1. Cold-formed, galvanized steel C-studs, in conformance with AISI Specifications for Design of Cold-formed Steel Structural Members, 25 gauge for standard framing, in widths as called for on drawings, complete with floor and ceiling runners.
 - 2. Use 20 gauge studs at walls scheduled to receive tile backer board and ceramic tile finish and where abuse resistant gypsum will be applied.
 - 3. Use 16 gauge studs where lead lined gypsum board is scheduled.
 - 4. Provide studs of heavier gauge, as required, by wall heights. Stud depth, gauge and spacing shall be as required for 5 PSF interior wind load for all partitions based on L/240 deflection criteria using the stud properties alone.
- B. Protective coating: G40 or equivalent for interior dry areas and G60 or equivalent for interior wet areas per ASTM A1003.
 - 1. Approved Manufacturers:
 - a. MarinoWare
 - b. Clark Dietrich Building Systems
 - c. Other manufacturers as approved by the Architect.
 - 2. Subject to compliance with requirements, Clark Dietrich "ProSTUD" Framing (25 gauge equivalent) (20 gauge equivalent) may be used.
- C. Non-Load Bearing Steel Framing, General:
 - 1. Framing members, General comply with ASTM C754 for conditions indicated. Protective coating: G40 or equivalent per ASTM A1003.
 - 2. Approved Manufacturers:
 - a. ClarkDietrich Building Systems, "ProSTUD and ProTRAK" Framing
- D. Runner Track: Same gauge as studs, unless otherwise noted.
- E. Sill Sealer: Plymouth Foam's polyseal Foam sill plate sealer made from a lightweight polyethylene foam.
 - 1. Plymouth Foam, Plymouth WI, "Polyseal Foam Sill Plate Sealer"
 - 2. Owens Corning, FoamSealR™
 - 3. Other manufacturers as approved by the Architect.
- F. Channels:
 - 1. Furring Channels for Ceiling and Walls:
 - a. Cold-formed galvanized steel in conformance with AISI Specifications for Design of Cold-formed Steel Structural Members. Designed for screw attachment. Face width 1 3/8". Depth as indicated on Drawings.
 - b. Provide necessary galvanized wire attachment clips.
 - c. Subject to compliance with requirements, provide ClarkDietrich "ProSTUD" (25 gauge-equivalent) (20 gauge equivalent).
 - 2. Resilient Channels:
 - a. USG, "RC-1"
 - b. Gold Bond
 - c. ClarkDietrich Building Systems; "Resilient Channel RC Deluxe"
 - d. Other manufacturers as approved by the Architect.
- G. Deflection Clips:
 - 1. Slotted angle clips for installation in interior head-of-wall partitions to provide positive attachment to web of stud.
 - a. Clark Dietrich Building Systems, "Fast Top Clip" (FTC) ClipExpress
 - b. The Steel Network, Inc., Raleigh, NC, (888) 474-4876 "VertiClip SLD" or "VertiTrack VTD".
 - c. Brady Construction Innovations, Inc., Sacramento, CA, "Sliptrack Systems"
 - d. Other manufacturers as approved by the Architect.
- H. Hanger wire shall be No. 8 gauge galvanized, soft annealed.

- I. Sheet Metal Backing:
 - 1. ANSI/ASTM D645, 26 gauge, galvanized sheet metal flat stock.
- J. Grid Suspension System for Ceilings: ASTM C645, direct-hung system composed of main beams and cross-furring members that interlock.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Armstrong World Industries, Inc.; Drywall Grid Systems.
 - b. Chicago Metallic Corporation; Drywall Furring System.
 - c. USG Corporation; Drywall Suspension System.
 - d. Other manufacturers as approved by the Architect.
- K. Gypsum wallboard shall have eased radial edges and conform to F.S. SS L 30C and ASTM C1396.
 - 1. Recycled Content:
 - a. Paper: 100% post-consumer recycled content.
 - b. Gypsum: Post-industrial and post-consumer recycled gypsum. Use highest percentage readily available.
 - c. Synthetic Gypsum: Minimum 95% recycled content.
- L. Standard Gypsum Board:
 - 1. 5/8" thick by length sufficient to eliminate end joints up to 16'0" long, maximum. Select panel sizes to minimize waste
 - a. USG, "Type SW"
 - b. Gold Bond, "Sta Smooth"
 - c. Georgia-Pacific
 - d. CertainTeed Gypsum
 - e. Other manufacturers as approved by the Architect.
- M. Fire Rated Board: 5/8" thick, Type X:
 - 1. USG "Fire Code"
 - 2. Gold Bond "Fire Shield"
 - 3. Georgia-Pacific
 - 4. CertainTeed, "Type X"
 - 5. Fire Rated Gypsum Board: 5/8" thick UL Classified "Type C" gypsum board with additives that enhance the integrity of the core under fire exposure. Comply with Type X, requirements.
 - a. USG, "Firecode C"
 - b. National Gypsum Gold Bond, "Fire-Shield® C" Gypsum Board.
 - c. CertainTeed, "Type C"
 - d. Temple-Inland, "Type TG-C"
 - e. Other manufacturers as approved by the Architect.
- N. Screws:
 - 1. Fasteners: Self-drilling, self-tapping screws; steel, complying with ASTM C1513; galvanized coating, plated or oil-phosphate coated complying with ASTM B 633 as needed for required corrosion resistance
 - a. 1-inch drywall screw, Type S, bugle head for steel studs and furring.
 - b. Use 1-1/4" screws for attaching sound board. Use 1-1/4" Type W for wood studs and furring.
 - c. Use screws with corrosion resistant coating in wet areas.
 - 2. Cement Board: Corrosion resistant, 8 gauge wafer heads with countersinking ribs and self-drilling points 1-1/4" long.
- O. Adhesive:
 - 1. For laminating gypsum board to gypsum board and gypsum board to masonry shall be an adhesive approved by manufacturer of gypsum drywall products.
 - a. USG "Durabond" Setting Type Joint Compound or other approved products manufactured by Gold Bond.
- P. Control Joints:
 - 1. Dietrich Metal Framing "093 Control Joint".
 - 2. Trim-Tex Architectural Reveals.

- Q. Architectural Reveals: Rigid Vinyl Reveals.
1. Trim-Tex
- R. Reveal Control Joints: Two piece extruded aluminum reveal with one compression seal to act as a control joint allowing 3/16" of movement.
1. Fry Reglet Control Joint:
 - a. 1/4" reveal "DRM-50-25 2-PC"
 - b. 1/2" reveal "DRM-50-50 2-PC"
 - c. 3/4" reveal "DRM-50-75 2-PC"
 - d. 1-1/2" reveal "DRM-150 2-PC"
- S. Reveal Control Joints: Three piece extruded aluminum reveal with two compression seals to act as a control joint allowing 3/16" of movement.
1. Fry Reglet Control Joint
 - a. 1/2" reveal "DRM-50-50 3-PC"
 - b. 3/4" reveal "DRM-50-75 3-PC"
 - c. 1" reveal "DRM-50-100 3-PC"
 - d. 1-1/2" reveal "DRM-150 3-PC"
- T. Reveal Base: Use at bottom of wall to form recessed base.
1. Depth: 5/8-inch.
 2. Recess height: 6 inches
 3. Extruded Aluminum Alloy 6063 T5. Clear anodized finish.
 - a. Fry Reglet "DRMB-625-600"
- U. Accessories:
1. Galvanized steel accessories as manufactured by Clark-Dietrich or approved equal.
 2. 100% vinyl trim accessories as manufactured by Trim-Tex, Inc., Lincolnwood, IL, 60712-2508; 800-874-2333
 3. PVC as manufactured by Plastic Components, Inc.
 4. Tape-on profiles as manufactured by Beadex Manufacturing Co., Inc., Auburn, WA and Clark-Dietrich.
 5. Tape-on Paper Faced Corner Trim:
 - a. Beadex, "B1 Series"
 - b. ClarkDietrich Paper-faced Metal Products
 6. Paper-Plastic-Paper Copolymer Corner Trim
 - a. CertainTeed Corner Systems "NO-COAT Structural Laminate Drywall Corner Trim" "AQUABEAD Water-Activated Drywall Corners", "LEVELLINE Corner Trim"
- V. Joint Tape and Compound:
1. Provide joint reinforcing tape and cement as approved by gypsum board manufacturer.
 2. Use fiberglass tape with mold resistant gypsum board. Joint compounds for use with mold-resistant gypsum board shall be cement based or cement-like material based Setting-Type compounds and pass ASTM D3273 with a score of 10.
- W. Partition Top Joint Filler:
1. Non Fire Rated Partitions: Sponge neoprene or PVC, rectangular, 1" less than width of wall, 3/8" thick.
 2. Fire Rated Partitions: See Section 07 84 00 – Firestopping.
- X. Joint reinforcing tape and cement shall be of same manufacturer as gypsum wallboard. Tape shall be paper tape. Fiberglass tape not permitted.
- Y. Lime compound. All purpose joint and texturing compound containing inert fillers and natural binders. Pre-mixed compounds shall be free of antifreeze, vinyl adhesives, preservatives, biocides and other slow releasing compound
- Z. Sealants:
1. Acoustical sealant: Flexible synthetic rubber sealant.
 - a. Tremco, "Acoustical Sealant"
 - b. Pecora, "BA-98" Acoustical Sealant

- c. USG, "Sheetrock Brand Acoustical Sealant"
- 2. General Purpose Sealant: Single component polyurethane sealant.
 - a. Tremco "Dymonic"
 - b. Pecora, "Dynatrol I"
 - c. BASF, "Sonolastic NP 1"

PART 3 - EXECUTION

3.1 INSPECTION

- A. Drywall Installation:
 - 1. Examine and inspect materials to which gypsum wallboard is to be applied.
 - 2. Report to General Contractor any conditions which will adversely affect installation, appearance or performance of drywall construction. Do not start drywall construction until such conditions have been corrected.
 - 3. Defects due to installation on misaligned framing or other defective substrate will be responsibility of work under this section of specifications and shall be corrected without cost to Owner.

3.2 SITE ENVIRONMENTAL PROCEDURES

- A. Indoor Air Quality:
 - 1. Temporary ventilation: Provide temporary ventilation for work of this Section.

3.3 METAL STUD INSTALLATION

- A. Metal Studs: Install steel studs in strict accordance with AISI "Standard for Cold-Formed Steel Framing – General Provisions". Comply with manufacturer's recommendation and procedures described in ASTM C754 to secure a sound and plumb installation. Cut all framing components squarely for attachment to perpendicular members, or as required for an angular fit against abutting members. Hold members positively in place until properly fastened.
- B. Erection:
 - 1. Align runner tracks accurately according to partition layout and secure to floor with power driven anchors, spaced not over 24" o/c and to structure above with suitable fasteners spaced not to exceed 16" o/c. Install concrete anchors only after full compressive strength has been achieved. Butt all track joints. Securely anchor abutting pieces of track to a common structural element, or splice together.
 - 2. Place sill sealer beneath floor runner track.
 - 3. Before placing floor and ceiling runners for partitions containing sound attenuation insulation, apply two (2) 3/8" diameter beads of acoustical sealant to floor and ceiling runners and end studs, including those used at partition intersections with dissimilar wall construction, to provide air-tight seal.
 - 4. Place studs vertically in runner track spaced 16" o/c unless otherwise indicated on Drawings. Align and plumb studs, and securely attach to the flanges or webs of both upper and lower tracks.
 - 5. Where partition is fire or smoke rated, extend to structure above with firestopping treatment. See Section 07 84 00
 - 6. Partitions separating individual departments from common corridors, individual departments from each other and all toilet room partitions shall extend full height from floor to bottom of deck above.
 - 7. Do not hang metal studs supporting gypsum walls and/or soffits from metal roof deck. Provide sub-framing to transfer loads to the structure which supports the metal deck. Alternatively, provide calculations stamped by a professional engineer that the connections and metal deck are adequate.
 - 8. Where studs extend to roof structure, provide slip joint to permit roof deflection. Follow manufacturer's installation instructions for system used.
 - 9. Partitions which end above ceiling line and do not continue to roof or floor structure above shall be braced to structure as required to provide a rigid and stable installation.

10. Provide double studs at exterior corners and at door and borrowed light openings. Studs located adjacent to door and window frames, partition intersections and corners shall be anchored to runner flanges with metal stud crimper. Provide studs 2" from inside corners.
11. Provide studs at both sides of control joints.
12. Provide solid backing at 45 degree outside corners to avoid "floating end joints" in gypsum board.
13. Provide horizontal blocking between studs at the ceiling line when full-height partitions are incorporated.
14. Nest lapped studs a minimum of 8" and secure with at least one (1) fastening per stud flange.
15. Securely anchor metal studs to jamb and head anchor clips of door or borrowed light frame with bolt or screw attachment.
16. Over door and top and bottom of borrowed light frames, install runner track cut and fit between studs with web flange bent at each end securely fastened with one (1) fastener per flange.
17. Align stud openings to facilitate running of wires and conduit.
18. Reinforce stud partitions and provide additional metal studs as required for installation of wall cabinets, wall mounted equipment, wall mounted mechanical and electrical fixtures, accessories, shelves and shelf standards. Provide 16 gauge steel plate to span minimum of 3 studs for installation of mirrors, toilet accessories and grab bars.

3.4 CEILING AND WALL FURRING

- A. Suspended Ceilings:
 1. Suspend 1 1/2" runner channels spaced 4'-0" o/c from structure with hanger wires spaced 4'-0" o/c. Do not suspend channels or any other ceiling framing from metal deck. Provide additional steel attached to structural steel as required for installation of ceiling suspension system.
 2. Attach furring channels to runner channels with wire clips, and space 24" o/c.
- B. Wall Furring Channels: Apply vertically to wall, spaced 24" o/c, and attach with hammer set or power activated stud fasteners or concrete stub nails, spaced 24" o/c and staggered on alternate wing flanges. Place asphalt felt protection strip between each furring channel and wall.
- C. Resilient Channels:
 1. Position resilient channel at right angles to studs, space 16" o/c and attach to stud flanges with 3/8" screws through holes in channel mounting flange. Install channels with mounting flange down. Channel may be inverted at floor to accommodate attachment of base, if required. Locate channels 2" from floor and within 6" of ceiling. Extend channels into all corners and attach to corner framing. Cantilever channel ends no more than 6". Splice channel by nesting directly over stud and screw attach through both flanges. Reinforce with screws located at both ends of splice.

3.5 GYPSUM BOARD INSTALLATION

- A. General:
 1. Erect gypsum board in strict accordance with "Recommended Specifications for the Application and Finishing of Gypsum Board", GA-216, as published by Gypsum Association, 1603 Orrington Avenue, Evanston, Illinois 60201.
 2. Lay out panels to minimize waste. Reuse cutoffs whenever feasible.
- B. Cutting: Cut gypsum board using industry standard methods as recommended by gypsum board manufacturer. Where board meets projecting surfaces, it shall be neatly scribed. Cut abuse resistant gypsum board using methods recommended by manufacturer.
- C. Sound Board Installation:
 1. Apply vertically to framing. All joints shall be over framing. Fasten with specified screws at 16" o/c at edges and intermediately.
- D. Gypsum Sheathing:
 1. Fasten fiberglass faced gypsum board sheathing to structural studs with 1" or 1-1/4" minimum #6 "Type S or S-12" wafer or bugle head, self-tapping corrosion resistant screws spaced maximum of 8" o/c around perimeter where there is framing support and 8" o/c along intermediate framing

in field of the board. Locate fasteners at least 3/8" away from panel edges and ends. Tape all joints.

E. Sheet Metal Backing:

1. For reinforcing gypsum board wall in areas subject to abuse. Provide where required, Prior to placement of gypsum board, install specified sheet metal backing from floor to a height of 4'-0" above finish floor. Lap all vertical joints at studs and fasten securely. Horizontal lap joints are not permitted.

F. Placing:

1. Ceilings: Install ceiling boards in the direction that will minimize the number of end-butt joints. Stagger end joints at least one foot.
2. Walls: Apply gypsum board vertically or horizontally, at Contractor's option, providing sheet lengths that will minimize end joints. When applying over sound board base, offset gypsum board joints 16" from sound board joints. Do not align gypsum board joints with sound board joints.
3. Bring boards in contact with each other but do not force into place.
4. Make end joints on framing members or between framing members with backblocking. Metal backed tape may be used in place of backblocking.
5. Stagger joints on opposite sides of partitions.
6. Do not locate joints to align with edges of openings unless a control joint is installed
7. Apply panels at fire-rated assemblies as required by design assembly.
8. At deflection compensating head tracks, cut panels 1/2 inch short of structure at head; do not secure panels to top runner channel.
9. Use tile backer board in all locations where ceramic tile wall surfacing is scheduled.
10. Terminate gypsum board 1/4" above floor.

G. Drive screws not less than 3/8" from ends or edges to provide uniform dimple not over 1/32" deep.

1. Ceilings: Apply gypsum board to metal channels with screws. Space screws 12" o/c at all supports and at abutting ends.
2. Walls: Apply gypsum board to metal studs with screws spaced 12" o/c in field and along vertical edges.
3. Apply gypsum board to wood studs with 1-1/4" "Type W" screws spaced 16" o/c, maximum, for walls.
4. Screws attaching gypsum board to resilient channels shall not fall directly over a stud. Screw length shall be gypsum board depth plus 3/8".

H. Nailing:

1. Apply wallboard to wood studs with nails spaced 3/8" from edges and ends, spaced 8" o/c.
2. Hold board in firm contact with nailing member while nails are being driven. Nail from center toward ends and edges.
3. Drive nails home with heads slightly below surface in dimple formed by driving tool. Do not break paper face. Remove improperly driven nails.

I. Sealing: Follow requirements of ASTM C919 to seal all cut-outs and intersections with the adjoining construction.

1. Use acoustical sealant for walls containing sound attenuation insulation.
2. Use firestopping sealants for sealing smoke partitions, smoke barriers and fire rated partitions. Conform to requirements of Section 07 84 00 – Firestopping.
3. Partition intersections: Seal edges of face layer of gypsum board abutting intersecting partitions, before taping and finishing or application of joint reinforcing.
4. Openings: Apply sealant around all cut-outs to seal openings of electrical boxes, ducts, pipes and similar penetrations. To seal electrical boxes, seal sides and backs.
5. Control Joints: Before control joints are installed, apply sealant in back of control joint to reduce flanking path for sound through control joint.

J. Accessories:

1. General: Use the same fasteners to anchor trim accessory flanges as required to fasten gypsum board to the supports.
2. Install corner beads on all exterior corners, attached with suitable fasteners spaced 9" o/c on both sides in one (1) length up to stock length. Follow manufacturer's installation instruction for tape-on corner beads.

3. Install metal trim over face layer of wallboard. Attach with suitable fasteners spaced 9" o/c in one (1) length up to stock length.
- K. Control Joints:
1. Install control joints at ceilings:
 - a. At maximum 30 feet on center.
 - b. Where ceiling framing or furring changes direction.
 - c. At irregular intersections, such as at I, T, L or U-joints.
 2. Install control joints at walls and partitions:
 - a. At changes in backup material.
 - b. At maximum 30 feet on center.
 - c. At irregular intersections, such as at I, T, L or U-joints.
 - d. Provide a sealant joint where a gypsum wall abuts exposed concrete or masonry.
- L. Gypsum Board Finish:
1. Note: In additions and renovations, gypsum board finish shall match finish on existing gypsum board partitions and ceilings.
 2. General: Apply treatment at gypsum board joints, flanges of trim accessories, penetrations, fastener heads and surface defects. Prefill open joints and rounded or beveled edges using type of compound recommended by gypsum board manufacturer.
 3. Mix compounds in accordance with manufacturer's instructions.
 4. Pre Filling: All "V" grooves formed by eased edges of wallboard shall be filled flush with taper and all excess compound wiped clean, leaving flat joint ready for taping.
 5. Apply compound to joints and corners in strict accordance with directions of wallboard manufacturer.
 6. Levels of Gypsum Board Finish: Conform to requirements of Gypsum Association Publication GA-214.
 7. Level 1 Finish: Plenum areas above ceilings, attics and other concealed areas.
 - a. Joints: Tape set in joint compound.
 - b. Interior Angles: Tape set in joint compound.
 - c. Surface: Tool marks and ridges acceptable. Surface free of excess joint compound.
 8. Level 2 Finish: Surfaces to receive tile finish.
 - a. Joints: Tape embedded in joint compound and wiped with a joint knife, leaving a thin coat of compound over tape.
 - b. Interior Angles: Tape embedded in joint compound and wiped with a joint knife, leaving a thin coat of compound over tape.
 - c. Accessories: Shall be covered by one separate coat of joint compound.
 - d. Fasteners: Shall be covered by one separate coat of joint compound.
 - e. Surface: Surface shall be free of excess joint compound., Tool marks and ridges acceptable. Joint compound applied over the body of the tape at the time of tape embedment shall be considered a separate coat of joint compound and shall satisfy the conditions of this level.
 9. Level 4 Finish: All exposed gypsum board with paper face.
 - a. Joints: Tape embedded in joint compound and wiped with a joint knife, leaving a thin coat of compound over tape, then cover with two (2) separate coats of joint compound.
 - b. Interior Angles: Tape embedded in joint compound and wiped with a joint knife, leaving a thin coat of compound over tape, then cover with one (1) separate coat of joint compound.
 - c. Accessories: Cover by three (3) separate coats of joint compound.
 - d. Fasteners: Cover by three (3) separate coats of joint compound.
 - e. Surface: Joint compound shall be smooth and free of tool marks and ridges.
 10. Level 5 Finish: Areas where severe lighting conditions exist such as windows or doors at the end of a corridor. Use in areas where exposed Mold Resistant glass matt-faced Gypsum Board is used.
 - a. Exposed ceiling, soffit, or wall areas abutting window mullions, skylights, or receiving direct indoor lighting.
 - b. Wall-board scheduled to be finished with semi-gloss, gloss, epoxy paint, or high build glazed coating.
 - c. Fiberglass coated glass mat, both faces.
 - d. Long hallways or corridors.
 - e. Atriums, Lobbies, Auditoriums and similar large spaces
 - f. Joints: Tape embedded in joint compound and wiped with a joint knife, leaving a thin coat of compound over tape, then cover with two (2) separate coats of joint compound.

- g. Interior Angles: Tape embedded in joint compound and wiped with a joint knife, leaving a thin coat of compound over tape, then cover with one (1) separate coat of joint compound.
- h. Accessories: Cover by three (3) separate coats of joint compound.
- i. Fasteners: Cover by three (3) separate coats of joint compound.
- j. Surface: Apply a thin skim coat of joint compound, or a material manufactured especially for this purpose to the entire surface. The surface shall be smooth and free of tool marks and ridges.

3.6 PARTITION IDENTIFICATION

- A. Identify partitions indicated on Drawings as having a required fire or smoke rating.
 - 1. Location: Maximum 12-ft. on center, both sides of partition, above ceiling line.
 - 2. Above access panels in hard ceiling.
 - 3. Label size, font and type: Building standards
 - 4. Colors and Symbols: Building standards
 - 5. Provide a line denoting where two different wall types come together with each wall type labeled on its appropriate side of the line.

3.7 CLEANING

- A. Remove all excess materials, debris, cartons, containers, etc. from premises as work progresses and immediately after completion of work.

3.8 WASTE MANAGEMENT PLAN

- A. Separate clean waste gypsum products from contaminants for recycling. Do not include wood, plastic, metal, asphalt-impregnated gypsum board or any gypsum board coated with glass fiber, vinyl, paint or other finish. Place in designated area and protect from moisture and contamination.
- B. Recycle clean waste gypsum products.
 - 1. Return to gypsum board manufacturer.
 - 2. Pulverize and apply on-site as soil amendment in accordance with landscape specifications. Do not use products containing glass fiber. Protect granular material from moisture.
- C. Separate metal waste in accordance with the Waste Management Plan and place in designated areas for recycling or reuse.

3.9 PROTECTION OF WORK

- A. Provide protection that ensures gypsum drywall work will remain without damage or deterioration at time of substantial completion.

END OF SECTION

SECTION 09 50 05

ACOUSTICAL CEILING PANELS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes:
 - 1. Acoustical ceiling panels.
 - 2. Exposed grid suspension system.
 - 3. Wire hangers, fasteners, main runners, cross tees, and wall angle moldings.
 - 4. Perimeter trim.
- B. Related Sections:
 - 1. Division 23 – Heating, Ventilation and Air Conditioning.
 - 2. Division 26 – Electrical.

1.3 REFERENCE STANDARDS

- A. ASTM International(ASTM):
 - 1. ASTM A1008 - Standard Specification for Steel, Sheet, Cold Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.
 - 2. ASTM A641 - Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.
 - 3. ASTM A653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process.
 - 4. ASTM C423 - Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.
 - 5. ASTM C635 - Standard Specification for Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.
 - 6. ASTM C636 - Recommended Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels.
 - 7. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.
 - 8. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
 - 9. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Material.
- B. Armstrong Fire Guard Products:
 - 1. ASTM E580 - Installation of Metal Suspension Systems in Areas Requiring Moderate Seismic Restraint.
 - 2. ASTM E1111 - Standard Test Method for Measuring the Interzone Attenuation of Ceilings Systems.
 - 3. ASTM E1414 - Standard Test Method for Airborne Sound Attenuation Between Rooms Sharing a Common Ceiling Plenum.
 - 4. ASTM E1264 - Classification for Acoustical Ceiling Products.
- C. International Building Code (Current Edition).
- D. ASHRAE Standard 62.1, Ventilation for Acceptable Indoor Air Quality.
- E. NFPA 70 National Electrical Code.

- F. ASCE 7 American Society of Civil Engineers, Minimum Design Loads for Buildings and Other Structures.
- G. International Code Council-Evaluation Services - AC 156 Acceptance Criteria for Seismic Qualification Testing of Non-structural Components.
- H. International Code Council-Evaluation Services Report - Seismic Engineer Report
- I. ESR 1308 - Armstrong Suspension Systems.
- J. International Association of Plumbing and Mechanical Officials - Seismic Engineer Report
- K. 0244 - Armstrong Single Span Suspension System.

1.4 QUALITY ASSURANCE

- A. Single-Source Responsibility: Provide acoustical panel units and grid components by a single manufacturer.
 - 1. Fire Performance Characteristics: Identify acoustical ceiling components with appropriate markings of applicable testing and inspecting organization.
 - 2. Surface Burning Characteristics: As follows, tested in accordance with ASTM E84 and complying with ASTM E1264 Classification.
 - 3. Fire Resistance: As follows tested in accordance with ASTM E119 and listed in the appropriate floor or roof design in the Underwriters Laboratories Fire Resistance Directory.
- B. Acoustical Panels:
 - 1. 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.
 - 2. 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.
- C. Coordination of Work:
 - 1. 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.
- D. The 2015 International Building Code (IBC), as modified by the State of Wisconsin Chapters SPS 361-366 - Commercial Building Code, governs the requirements for products, materials, components, and systems that are indicated on the Drawings and specified in the Project Manual.

1.5 SUBMITTALS

- A. Product Data: Submit manufacturer's technical data for each type of acoustical ceiling unit and suspension system required.
- B. Samples: Minimum 6-inch x 6-inch samples of specified acoustical panel; 8-inch long samples of exposed wall molding and suspension system, including main runner and 4-foot cross tees.
- C. Shop Drawings: Layout and details of acoustical ceilings show locations of items that are to be coordinated with, or supported by the ceilings.
- D. 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.

- E. If the material supplied by the acoustical subcontractor does not have an Underwriter's Laboratory classification of acoustical performance on every carton, subcontractor shall be required to send material from every production run appearing on the job to an independent or NVLAP approved laboratory for testing, at the architect's or owner's discretion. All products not conforming to manufacturer's current published values must be removed, disposed of and replaced with complying product at the expense of the Contractor performing the work.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. 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.
- B. Before installing acoustical ceiling units, permit them to reach room temperature and a stabilized moisture content.
- C. Handle acoustical ceiling units carefully to avoid chipping edges or damaged units in any way.

1.7 PROJECT CONDITIONS

- A. Space Enclosure:
 - 1. Standard Ceilings: Do not install interior ceilings until space is enclosed and weatherproof; wet work in place is completed and nominally dry; work above ceilings is complete; and ambient conditions of temperature and humidity are continuously maintained at values near those intended for final occupancy. Building areas to receive ceilings shall be free of construction dust and debris.

1.8 WARRANTY

- A. Acoustical Panel: Submit a written warranty executed by the manufacturer, agreeing to repair or replace panels that fail within the warranty period. Failures include, but are not limited to the following:
 - 1. Acoustical Panels: Sagging and warping.
 - 2. Grid System: Rusting and manufacturer's defects.
- B. Warranty Period:
 - 1. Acoustical panels: One (1) year from date of substantial completion.
 - 2. Grid: One (1) year from date of substantial completion.
- C. The Warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under the requirements of the Contract Documents.

1.9 MAINTENANCE

- A. Extra Materials: Deliver extra materials to Owner. Furnish extra materials described below that match products installed. Packaged with protective covering for storage and identified with appropriate labels.
 - 1. Acoustical Ceiling Units: Furnish quantity of full-size units equal to 5.0 percent of amount installed.
 - 2. Exposed Suspension System Components: Furnish quantity of each exposed suspension component equal to 2.0 percent of amount installed.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Approved Manufacturers:
 - 1. Ceiling Panels, Suspension Systems, Perimeter Systems:
 - a. Armstrong World Industries, Inc.

2.2 ACOUSTICAL CEILING UNITS

- A. Acoustical Panels Type ACT-2
 - 1. Refer to the Color and Material Schedule
- B. Alternates:
 - 1. Prior Approval:
 - a. Unless otherwise provided for in the Contract documents, proposed product substitutions may be submitted no later than (10) working days prior to the date established for receipt of bids.
 - b. Acceptability of a proposed substitution is contingent upon the Architect's review of the proposal for acceptability and approved products will be set forth by the Addenda.
 - c. If included in a Bid are substitute products that have not been approved by Addenda, the specified products shall be provided without additional compensation.
 - 2. Submittals that do not provide adequate data for the product evaluation will not be considered.
 - 3. The proposed substitution must meet all requirements of this section, including but not necessarily limited to, the following: Single source materials suppliers; Underwriters' Laboratories' Classified Acoustical performance; Panel design, size, composition, color, and finish; Suspension system component profiles and sizes; Compliance with the referenced standards.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. 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.

3.2 PREPARATION

- A. 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.
- B. Coordination: Furnish layouts for preset inserts, clips, and other ceiling anchors whose installation is specified in other sections.
 - 1. Furnish concrete inserts and similar devices to other trades for installation well in advance of time needed for coordination of other work.

3.3 INSTALLATION

- A. Follow manufacturer installation instructions.

- B. 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.
- C. Suspend main beam from overhead construction with hanger wires spaced 4 foot on center along the length of the main runner. Install hanger wires plumb and straight.
- D. Install wall moldings at intersection of suspended ceiling and vertical surfaces. Miter corners where wall moldings intersect or install corner caps.
- E. For reveal edge panels: Cut and reveal or rabbet edges of ceiling panels at border areas and vertical surfaces.
- F. Install acoustical panels in coordination with suspended system, with edges resting on flanges of main runner and cross tees. Cut and fit panels neatly against abutting surfaces. Support edges by wall moldings.

3.4 ADJUSTING AND CLEANING

- A. Replace damaged and broken panels.
- B. Clean exposed surfaces of acoustical ceilings, including trim, edge moldings, and suspension members. Comply with 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.
- C. Before disposing of ceilings, contact the Armstrong Recycling Center at 877-276-7876, select option #1 then #8 to review with a consultant the condition and location of building where the ceilings will be removed. The consultant will verify the condition of the material and that it meets the Armstrong requirements for recycling. The Armstrong consultant will provide assistance to facilitate the recycle of the ceiling.

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SECTION 09 65 13
RESILIENT VINYL BASE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes:
 - 1. Furnish and install vinyl cove base.
- B. Related Sections:
 - 1. Section 09 21 16 - Gypsum Board Assemblies

1.3 REFERENCE STANDARDS

1.4 QUALITY ASSURANCE

- A. The 2015 International Building Code (IBC), as modified by the State of Wisconsin COMM Chapter 62, governs the requirements for products, materials, components, and systems that are indicated on the Drawings and specified in the Project Manual.
- B. Standards: Products shall meet the following requirements:
 - 1. Vinyl Base: ASTM F-1861, Type TV, Group 1 (solid).

1.5 SUBMITTALS

- A. Submit the following:
 - 1. Manufacturer's specifications and other data needed to prove compliance with the specified requirements.
 - 2. Samples of each scheduled item, color and pattern for Architect approval.

1.6 JOB CONDITIONS

- A. Maintain 70 degrees F. or over at least 48 hours prior to installation, during installation and 48 hours after installation. Maintain a minimum temperature of 55 degrees F. thereafter.
- B. Provide adequate light levels to install materials and as required to inspect work.

1.7 EXTRA STOCK

- A. Deliver to the Owner for use in future modification, an extra stock of approximately five percent (5%) of each color and pattern for each material installed under this Section, packaging each type of material separately, distinctly marked, and adequately protected against deterioration.

PART 2 - PRODUCTS

2.1 MATERIALS AND FINISHES

- A. General: Only first quality products of make and type specified shall be furnished.
 - 1. Color selections are indicated in Color and Material Schedule. Colors must be equal to those scheduled.
- B. Vinyl Base: 4" high by 1/8" thick molded vinyl base, conforming to ASTM F-1861, Type TV, Group 1 (solid) Color as scheduled.
 - 1. Manufactured from a homogeneous composition of polyvinyl chloride (PVC).
 - 2. ASTM E 648, Standard Test Method for Critical Radiant Flux of 0.45 watts/cm2 or greater, Class I.
 - 3. ASTM E 84, Standard Test Method for Surface Burning Characteristics of Building Materials, Class B, Smoke <450.
 - 4. Flexibility: Does not crack, break, or show any signs of fatigue when bent around a 1 1/4" diameter cylinder when tested according to ASTM F 137 Standard Test Method for Flexibility of Resilient Flooring Materials protocols.
 - 5. Color Stability: Meets or exceeds ASTM F 1861 requirements for color stability when tested to ASTM F 1515 Standard Test Method for Measuring Light Stability of Resilient Flooring protocols.
 - 6. Contains at least 14% pre consumer recycled content.
 - 7. Phthalate free except for recycled materials.
 - 8. Approved Manufacturers:
 - a. Johnsonite (basis of design)
 - b. Or equal products, sizes and colors by the following:
 - 1) Roppe
 - 2) VPI
 - 3) Flexco
- C. Adhesive: VOC compliant adhesive as recommended by base manufacturer.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient wall base.
- B. Fill cracks, holes, and depressions in substrates to produce a uniform and smooth substrate.
- C. Move resilient base and installation materials into spaces where they will be installed at least 48 hours in advance of installation.
- D. Clean substrates to be covered by resilient products immediately before installation. Remove dust and other contaminants which may interfere with adhesion to substrate.

3.2 RESILIENT BASE INSTALLATION

- A. Comply with manufacturer's written instructions for installing resilient base.
- B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.

- C. Install resilient base in lengths as long as practicable without gaps at seams and with tops of adjacent pieces aligned.
- D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.
- E. Do not stretch resilient base during installation.
- F. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient wall base with manufacturer's recommended adhesive filler material.
- G. Preformed corners: Install preformed corners if available before installing straight pieces.
- H. Job-formed corners:
 - 1. Outside corners: Form by bending without producing discoloration (whitening) at bends.
 - 2. Inside corners: Butt one piece to corner then scribe next piece to fit.

3.3 CLEANING AND PROTECTION

- A. Comply with manufacturer's written instructions for cleaning and protection of resilient products.
- B. Perform the following operations immediately after completing resilient product installation:
 - 1. Remove adhesive and other blemishes from exposed surfaces.
 - 2. Clean surfaces to remove marks and soil.
- C. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.

END OF SECTION

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SECTION 09 68 13

CARPET TILE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes:
 - 1. Furnish and install carpet tiles including all accessories and components required for a complete and proper installation.
- B. Related Sections:
 - 1. See Section 09 68 00 for recycling, VOC requirements and other LEED requirements for carpet.
 - 2. Section 09 69 00 Access Floor System

1.3 REFERENCE STANDARDS

1.4 QUALITY ASSURANCE

- A. The 2015 International Building Code (IBC), as modified by the State of Wisconsin COMM Chapter 62, governs the requirements for products, materials, components, and systems that are indicated on the Drawings and specified in the Project Manual.
- B. Carpet shall be installed by an individual with Certified Flooring Contractors (CFI) minimum C-II (Commercial II) certification from the International Certified Floorcovering Installers Association.
- C. Standards:
 - 1. ASTM F 2170: Standard Test Method for Determining Relative Humidity in Concrete Floors.

1.5 SUBMITTALS

- A. Submittals for this specification section must be 100% complete and in one (1) package.
 - 1. Only the actual samples required shall be allowed as a separate submittal.
 - 2. Non- complete submittals will be returned to the contractor without comment and stamped "rejected-resubmit".
 - 3. Contractors who knowingly want to submit non-complete submittals or break single system submittals into multiple submittals will be responsible to arrange with Architect, prior to submitting the submittal(s), and to compensate Architect for the extra work involved
- B. Furnish to Owner for approval, samples of all materials specified before proceeding with all work.
- C. Furnish eight (8) copies of approved testing laboratories report stating that carpet passes Flooring Radiant Panel Test (ASTM E 648) with a Critical Radiant Flux of (.22) (.45) watts/cm2 or greater.

1.6 WARRANTY

- A. All work in this section shall be guaranteed to be free from defects in materials and workmanship for a period of one (1) year from date of substantial completion of project.

1.7 MAINTENANCE INSTRUCTIONS

- A. Prepare and present Owner with suitable maintenance manual.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Carpet: See Color and Material Schedule for manufacturer, pattern and color.
- B. Additional Materials: Provide and deliver to Owner three (3) percent overrun of each carpet pattern for future repairs.
- C. Adhesive: VOC compliant release adhesive as approved by carpet manufacturer.
- D. Edge Moldings and Transition Strips: 100% homopolymer vinyl moldings, transition strips and reducers of types and sizes as required. Colors as selected by Architect from manufacturer's standard colors.
 - 1. Johnsonite
 - 2. Mercer Products Company, Inc.
 - 3. Roppe Corporation
- E. Patching Compound: For patching holes and cracks in concrete floors.
 - 1. Lev-L-Astic
 - 2. Fixall
 - 3. Armstrong 5-180
 - 4. Webpatch
 - 5. Ardex K-15
- F. Moisture Mitigation System: Low viscosity, high penetrating, two-part 100% solids epoxy product designed to reduce moisture vapor emission rates from 20 lbs. per 1,000 ft² per 24 hours to a rate of ≤ 3 lbs. per 1,000 ft² per 24 hours from damp concrete.
 - 1. Chapco, 800-621-0220 "Defender"
 - 2. Ardex "MC Rapid"
 - 3. KOSTER VAP I® 2000 UFS
 - 4. USG Durock RH-100 Moisture Vapor Reducer
 - 5. approved equal
- G. The following rolled product which meets the requirements of this specification is also approved:
 - 1. GCP Applied Technologies, "VersaShield"

PART 3 - EXECUTION

3.1 INSPECTION

- A. Moisture Mitigation System:
 - 1. The flooring contractor shall include in its bid, the moisture mitigation system under all specified products of this section as an allowance. If it is found that the floor does not need a moisture mitigation system, it will be removed from the project by change order. Therefore, contractor shall

also provide a unit price per square foot for the removal of the installation of the moisture mitigation system on new and existing concrete floors scheduled to receive a floor finish covering.

- B. Inspect substrate prior to installation and notify Building Works Contractor of any conditions in substrate which may adversely affect installation, performance or appearance of carpet tile. Do not start installation until such conditions have been corrected. Start of installation shall indicate acceptance of substrate and acceptance of responsibility for carpet tile installation.
- C. Check dimensions and other conditions in the field and be responsible for proper fitting of carpet in all areas.
- D. Delay installation until surrounding work has been completed.
- E. Coordinate work with access floor system manufacturer.

3.2 SITE ENVIRONMENTAL PROCEDURES

- A. Indoor Air Quality:
 - 1. Temporary ventilation: Ventilate products prior to installation. Remove from packaging and ventilate in a secure, dry, well-ventilated space free from strong contaminant sources and residues. Provide a temperature range of 60 degrees F minimum to 90 degree F maximum continuously for minimum 72 hours. Do not ventilate within limits of Work unless otherwise approved by Architect.
 - 2. Immediately after installation, clean carpet thoroughly with a high-efficiency particulate air (HEPA) filtration vacuum

3.3 PREPARATION

- A. Clean substrate; remove loose and foreign matter that could impede adhesion or performance of flooring.
- B. Fill cracks, voids, and depressions with leveling compound.
- C. Grind ridges and high spots smooth.
- D. Perform moisture condition test in each area no less than six (6) weeks prior to flooring installation. Conduct tests in accordance with requirements of ASTM F2170. Conduct three tests for areas up to 1,000 sq. ft. and one additional test for each additional 1,000 sq. ft. of flooring. Moisture condition shall be within the limits allowed by flooring manufacturer. Do not proceed with work until results of moisture condition tests are acceptable.
 - 1. Note: The flooring contractor shall include in its bid the cost to provide an effective moisture suppression system to be used if moisture level of concrete exceeds manufacturers limitations. This system will only be utilized if stringent moisture levels are not meet. Credit will be provided to owner if moisture suppression system is not utilized.
 - 2. Flooring Contractor shall have right of refusal to start installation of flooring if concrete moisture exceeds levels approved by flooring and adhesive manufacturers.
- E. Bond Test: Conduct bond test to determine compatibility of resilient flooring adhesives to concrete floors. Follow test procedure recommended by adhesive and carpet tile manufacturers. Result must fall within limits established by flooring manufacturer.
- F. Determine that concrete alkalinity falls within the allowable readings on the PH scale as determined by the adhesive and carpet tile manufacturers.
- G. Coordinate installation requirements with access floor manufacturer when installed on access flooring.

3.4 CARPET TILE INSTALLATION

- A. Install in accordance with CRI Carpet Installation Standards, latest edition.
- B. Install carpet tile [and adhesive] in accordance with manufacturers' instructions.
- C. Blend carpet tiles from different cartons to ensure minimal variation in color match.
- D. Lay out each room or area to minimize tiles less than one half size.
- E. Cut tile clean. Fit tiles tight to intersection with vertical surfaces without gaps.
- F. Lay carpet tile to pattern indicated in Color and Material Schedule.
- G. Locate change of color or pattern between rooms under door centerline.
- H. Fully adhere carpet tiles to substrate.

3.5 ADJUSTMENTS AND CLEANING

- A. On completion of work, remove from site all cuttings, clippings, wrappings, cartons, etc. and leave premises clean and in a neat manner.
- B. Clean entire carpet as recommended by manufacturer before final acceptance.
- C. Protect carpet from construction traffic with Surface Shields, "Carpet Shield" protective film or similar product

END OF SECTION

SECTION 09 90 00
PAINTING AND FINISHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes:
1. Labor and materials required to complete painting work.
 2. Complete painting and finishing of exposed surfaces of wood, gypsum board, plaster, concrete block, unfinished metal and other surfaces throughout interior and exterior of building, unless otherwise noted.
 3. Complete painting of all areas of existing building where alterations occur. (See Room Finish Schedule).
 4. Furnish tools, ladders, scaffolding and other equipment necessary for completion of work.
 5. Examine specifications for various other trades. Become familiar with their provisions regarding their painting. Paint or finish surfaces that are left unfinished by requirements of other sections.
 6. Fill nail holes in factory finished millwork.
- B. Related Sections:
1. Section 06 40 00 – Millwork
 2. Section 08 14 00 - FlushWood Doors
 3. Section 09 21 16 – Gypsumboard Assemblies

1.3 QUALITY ASSURANCE

- A. Use skilled workers trained and experienced in the necessary crafts who are familiar with the specified requirements and the methods needed to perform the work of this Section.
- B. Volatile Organic Compound content of materials shall be compliant with requirements of the governmental agency having jurisdiction.
- C. Painting materials shall have identifying labels.
- D. Paint Coordination:
1. Provide finish coats which are compatible with the prime coats used.
 2. Provide barrier coats over incompatible primers or remove the primer and reprime as required.
 3. Notify General Contractor, in writing, of anticipated problems in using the specified coating systems over prime coatings supplied under other sections.
- E. The 2015 International Building Code (IBC), as modified by the State of Wisconsin Chapters SPS 361-366 - Commercial Building Code, governs the requirements for products, materials, components, and systems that are indicated on the Drawings and specified in the Project Manual.

1.4 SUBMITTALS

- A. Prior to beginning work, submit to Architect for approval four (4) 8" x 10" color finish samples clearly identified with paint and code from Color and Material Schedule.

1. Revise and resubmit each sample, as requested, until the required gloss, color and texture is achieved. Such samples, when approved, will become standards of color and finish for accepting or rejecting the work of this Section.
 2. Architect's stamp of approval will be needed before work proceeds.
- B. Immediately after award of Contract, submit brand names and manufacturer's name of each product intended to be used.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to building, in original containers with seals unbroken. Use materials as they come from container. Do not reduce or intermix unless specifically called for in manufacturer's instructions.
- B. Storage: A space will be designated for storage of paint materials and tools. Protect storage space floor from damage. Keep paints covered at all times.

1.6 JOB CONDITION

- A. Temperatures:
1. Exterior: Do not apply paint in damp, rainy weather or when temperature is below 35 degrees F.
 2. Interior: Do not apply paint or varnish when temperature is below 60 degrees F. or when satisfactory results cannot be obtained due to high humidity or excessive temperatures.

1.7 EXTRA STOCK

- A. Upon completion of the work of this Section, deliver to the Owner an extra stock equaling 5% of each color, type and gloss of paint used in the Work, tightly sealing each container and clearly labeling with contents and location where used. Minimum quantity: 1 quart.

1.8 DEFINITION

- A. Standard coating terms, as defined in ASTM D16 - Standard Terminology Relating to Paint, Varnish, Lacquer and Related Products, apply to this Section.
- B. Gloss/Sheen Ratings: Paint gloss shall be defined as the sheen rating of applied paint, in accordance with the following Master Painters Institute values:

Gloss Level	Description	Units @ 60 degrees	Units @ 85 degrees
G1	Matte or Flat finish	0 to 5	10 max.
G2	Velvet finish	0 to 10	10 to 35
G3	Eggshell finish	10 to 25	10 to 35
G4	Satin finish	20 to 35	35 min.
G5	Semi-Gloss finish	35 to 70	
G6	Gloss finish	70 to 85	
G7	High-Gloss finish	> 85	

1.9 MOCK-UP

- A. Prepare and paint a designated room to the requirements specified herein, using a specified paint or coating in the specified colors, gloss / sheen, textures and workmanship for Architect review and approval. When approved, finished surfaces within room shall become the standard of finish quality and workmanship for similar on-site work.
- B. Prepare and paint a designated room to the requirements specified herein for Architect review and approval of gloss, textures and workmanship. When approved, finished surfaces shall become the standard of quality and workmanship for paint finishes throughout the project.

1.10 GUARANTEE

- A. Work and materials in this section shall be guaranteed to be free from defects for a period of one (1) year from date of final completion of project.
- B. Any defects, not due to or caused by faulty construction or materials furnished or performed by other crafts, but due to defective materials and workmanship in painting and finishing, shall be repaired and corrected by Painting Contractor without cost to Owner.

1.11 WASTE MANAGEMENT AND DISPOSAL (LEED)

- A. Paint, stain and wood preservative finishes and related materials (thinners, solvents, etc.) are regarded as hazardous products and are subject to regulations for disposal. Obtain information on these controls from government departments having jurisdiction.
- B. All waste materials shall be separated and recycled. Where paint recycling is available, collect waste paint by type and provide for delivery to recycling or collection facility. Materials that cannot be reused shall be treated as hazardous waste and disposed of in an appropriate manner.
- C. Place materials defined as hazardous or toxic waste in containers or areas designated for hazardous waste.
- D. To reduce the amount of contaminants entering waterways, sanitary/storm drain systems or into the ground the following procedures shall be strictly adhered to:
 - 1. Retain cleaning water for water based materials to allow sediments to be filtered out. Do not clean equipment using free draining water.
 - 2. Retain cleaners, thinners, solvents and excess paint and place in designated containers and ensure proper disposal.
 - 3. Return solvent and oil soaked rags used during painting operations for contaminant recovery, proper disposal, or appropriate cleaning and laundering.
 - 4. Dispose of contaminants in an approved legal manner in accordance with hazardous waste regulations.
 - 5. Empty paint cans are to be dry prior to disposal or recycling.
 - 6. Close and tightly seal partly used cans of materials and store protected in well ventilated fire safe area at moderate temperature.
 - 7. Set aside and protect surplus and uncontaminated finish materials not required by the Owner and deliver or arrange collection for verifiable re use or re-manufacturing.

PART 2 - PRODUCTS

2.1 FINISH PRODUCTS

- A. Architect Approved Materials: Following manufacturer's materials have been approved. Each container shall bear specific brand name or number as listed.

- B. Interior Varnish: To match building standard.
- C. Interior Wood Stain: To match building standard
- D. Drywall Primer/Sealer:
 - 1. U.S. Gypsum "Sheetrock First Coat"
 - 2. Gold Bond, "Drywall Primer"
 - 3. PPG Paints, "Speedhide Zero VOC 6-4900XI, Latex Sealer"
 - 4. Hallman/Lindsay, #227 "Wall Prep Pro Latex Wall Primer".
 - 5. Diamond Vogel, "DU1520 Interior PVA Primer/Surfacer".
 - 6. Sherwin-Williams "Promar 200 B28W02600"
 - 7. Benjamin Moore, "#216 FirstCoat"
- E. Latex Eggshell Enamel Paint:
 - 1. Pratt and Lambert, "Aqua Satin".
 - 2. PPG Paints, "Speedhide Zero VOC 6-4310XI, Eggshell Finish"
 - 3. Sherwin Williams, ProMar 200 Zero VOC Interior Latex Eg-Shel, B20 Series." B9 Series".
 - 4. Benjamin Moore, "Regal AquaVelvet" Latex Eggshell Enamel 319
 - 5. Hallman/Lindsay, "Pro Kote Latex Eggshell Enamel #284.
 - 6. Diamond Vogel, #DE-1530, "DE Series Permacryl Interior Eggshell Enamel".
- F. Latex Satin Enamel Paint:
 - 1. Pratt and Lambert, "Accolade Interior Satin Enamel Z/F4700 Series.
 - 2. PPG Paints, "Speedhide Zero VOC 6-4410XI, Satin Finish"
 - 3. Sherwin Williams, ProMar 200 Zero VOC Interior Latex Semi-Gloss, B31 Series.
 - 4. Diamond Vogel, "Permacryl Interior Satin Latex Enamel DS Series"
 - 5. Benjamin Moore, "Regal Select" Pearl (550)
 - 6. Hallman/Lindsay, #294, "Pro Kote Eco" Latex Satin Enamel.
 - 7. Diamond Vogel, #DS-1530, "DS Series Permacryl Interior Satin Latex Enamel"

PART 3 - EXECUTION

3.1 INSPECTION

- A. Before starting work, inspect surfaces to be painted or decorated and report to General Contractor any conditions which will adversely affect application or performance of paint and finish systems. Do not start work until such conditions have been corrected.
- B. Commencing of work by Contractor indicates acceptance of surfaces.

3.2 PREPARATION OF SURFACES

- A. All spaces shall be broom clean prior to starting and surfaces to be painted shall be dry.
- B. Before painting, remove dust, dirt, plaster, grease and other extraneous matter which would affect finish work. Foreign matter on surfaces, left by other trades, will be removed by others.
- C. Clean dirty or greasy metal surfaces before applying materials. Remove rust and scale and clean surfaces before painting. Follow paint manufacturer's recommendations for substrate preparation.
- D. Where shop coats of paint have been marred, clean and touch up with metal primer.
- E. Field Finished Wood Doors – Touch up if required:
 - 1. Proper procedures are critical to ensure satisfactory results. Additional preparatory work is required and shall be in compliance with WDMA Industry Standards IS 1A. (For additional

information see WDMA Publication How To Store, Handle, Finish, Install and Maintain Wood Doors to ensure proper compliance with finishing requirements.)

2. Doors should not be considered ready for finishing when initially received. Before finishing, remove all handling marks, raised grain, scuffs, burnishes and other undesirable blemishes by block sanding all surfaces in a horizontal position with 120, 150 or 180 grit sandpaper. Solid core flush doors, due to their weight, naturally compress the face veneer grain while in the stack. Therefore, sanding of the overall surface will be required to open the veneer grain to receive a field applied finish evenly. To avoid cross grain scratches, sand with the grain.
- F. Wood Surfaces (site finished – if required):
1. Do not consider as ready for finishing as received. Before applying any finish, thoroughly block-sand or belt-sand exposed faces with 100 to 150 grit sandpaper in order to remove scuffs, scratches, burnishes, raised grain, handling marks and effects of exposure to moisture.
 2. Fill nail holes and cracks.
- G. Sand woodwork and metal doors, frames and trim between coats. Remove all residue prior to application of next coat.

3.3 PREPARATION OF EXISTING SURFACES

- A. Wherever existing finish is badly checked, cracked, alligatored, peeling or in generally poor condition, remove old finish entirely.
- B. Plaster and Gypsum Board: Wash surfaces and rinse. Remove soil and grease. Remove loose, blistered or otherwise defective paint. Smooth and feather edges. Cut out and properly patch cracks. Glaze unevenness so that surface will be smooth.
- C. Wash varnished woodwork. Where woodwork is in very poor condition, remove finish entirely and prepare for finishing as new woodwork.

3.4 MATERIALS PREPARATION

- A. General:
1. Mix and prepare paint materials in strict accordance with the manufacturer's recommendations.
 2. When materials are not in use, store in tightly covered containers.
 3. Maintain containers used in storage, mixing and application of paint in a clean condition, free from foreign materials and residue.

3.5 PROTECTION

- A. Protect work of other trades against damage or injury of materials, tools or utensils used.
- B. Mask, cover and protect adjacent surfaces against spatter and overspray.

3.6 APPLICATION

- A. Work shall be done by skilled mechanics in a manner applied so as to be free from sags, runs, crawls or other defects.
- B. When materials are brush applied, apply evenly with clean brushes, best suited for the type of material being applied. When using a roller, use type of cover best suited for materials used and surface texture.

- C. Thoroughly mix paints, especially heavily pigmented paints, before application and at regular intervals during application to insure uniform distribution of pigment throughout application and consistent appearance and performance of finished surfaces.
- D. Before applying succeeding coats, make sure primers and undercoats are dry and performing the function for which they are intended.
- E. Varnish Coats:
 - 1. Between all coats, sand lightly when preceding coat is thoroughly dry. Remove sanding residue prior to application of next coat.
- F. Hardware:
 - 1. Coordinate painting and finishing with carpenter's work so that final finish is applied before final placement of finish hardware.
 - 2. Hardware already in place which needs to be removed to allow finishing will be responsibility of Contractor who installed hardware.
- G. Fixtures, Covers, Grilles
 - 1. Coordinate painting and finishing work with that of other trades in order to complete painting of areas affected before final placement of fixtures, grilles and other finish covers.
 - 2. Removal or replacement of such items already installed to allow for proper finishing will be responsibility of Contractor who installed them.

3.7 SURFACES TO BE PAINTED AND TYPES OF FINISHES

- A. Verify with Architect all stopping and starting points for colors and finishes before work proceeds and paints are ordered.
- B. Field finish all metals, including grilles, louvers and vents to match wall color or ceiling color on which they occur, unless otherwise noted in Finish Schedule.
- C. "Exposed surfaces" means areas visible when all permanent fixtures are in place in rooms or areas scheduled to be painted.
- D. Interior Surfaces:
 - 1. Existing Woodwork:
 - a. One (1) coat satin varnish, except where finish is badly worn, remove old finish and finish same as specified for new work.
 - 2. Drywall:
 - a. One (1) coat primer.
 - b. Two (2) coats latex flat or satin enamel paint as scheduled.
 - 3. Existing Walls and Ceilings:
 - a. Prime all patched areas and apply same finish coats as specified for new work.
 - 4. Unexposed miscellaneous ferrous metal fabrications.
 - a. Reprime corroded and abraded items with compatible primer leaving no exposed corrosion.
 - 5. Exposed structural steel and miscellaneous ferrous metal items:
 - a. Touch-up corroded and abraded areas on factory primed items leaving no exposed rust.
 - b. One (1) coat metal primer for items not already primed.
 - c. Two (2) coats interior satin enamel
 - 6. Metal Work: Including, but not limited to, exposed convectors, access panels, metal doors and frames, stair rails, stringers, wire partitions and doors, fire extinguisher cabinets, structural steel, metal furniture not having a factory applied finish coat:
 - a. One (1) coat gloss enamel
 - b. One (1) coat satin enamel
 - 7. Exposed insulated and bare metal ductwork in rooms and areas scheduled to be painted:
 - a. Two (2) coats of paint corresponding to adjacent wall surfaces.

- b. Insulated ductwork to receive one (1) additional coat of sealer prior to application of finish coats.
 - 8. Piping: Exposed insulated and bare heating, plumbing and other mechanical piping of all types, including copper in finished and unfinished areas of building.
 - a. Two (2) coats of paint corresponding to adjacent wall surfaces, or as directed.
 - b. Insulated piping to receive one (1) additional coat of sealer prior to application of finish coats.
- E. After installation, fill all nail holes in factory finished woodwork.
- F. Projection Screen Paint:
 - 1. Prepare substrate.
 - 2. Spray apply two light coats in accordance with manufacturer's application instructions.

3.8 CLEANING

- A. At close of each working day, collect all wiping rags and waste materials and remove from building.
- B. Upon completion of work, remove all staging scaffolding and containers from site.
- C. Remove all paint where spilled, splashed or spattered.

END OF SECTION

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SECTION 11 17 00
BULLET RESISTANT BARRIER SYSTEM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes:
 - 1. Furnish and transparent bullet resistant barrier system including glass and glazing, installation clips and all components and accessories required for a complete and proper installation.
- B. Related Sections:
 - 1. Section 10 46 41 – Bullet Resistant Fiberglass Sheet

1.3 REFERENCE STANDARDS

- A. The publications below form a part of this specification:
 - 1. Underwriters Laboratory UL 752 11th Edition Standard for Bullet Resisting Equipment dated Sept 5, 2005
- B. American Society For Testing And Materials
 - 1. ASTM E119-00a Standard Test for ONE HOUR FIRE RATING of building construction and materials.

1.4 QUALITY ASSURANCE

- A. The 2015 International Building Code (IBC), as modified by the State of Wisconsin Chapters SPS 361-366 - Commercial Building Code, governs the requirements for products, materials, components, and systems that are indicated on the Drawings and specified in the Project Manual.
- B. Barrier system shall meet requirements of UL Level 1 (medium power small arms) 9mm weapons.

1.5 SUBMITTALS

- A. Materials list of items proposed to be provided in this Section.
- B. Manufacturer's specifications, UL test results and other data needed to prove compliance with the specified requirements.
- C. Shop Drawings in sufficient detail to show fabrication, installation, anchorage and interface of the work of this Section with the work of adjacent trades.
- D. Submit sample of bullet resistant glazing material proposed to be used.

PART 2 - PRODUCTS

2.1 TELLER WINDOWS

- A. Approved Manufacturers:
 - 1. C.R. Laurence, Los Angeles, CA, "CRL PBS-1 Transparent Bullet Resistant Barrier System"
 - 2. North American Bulletproof, "NATL Series"
 - 3. Protective Structures, LTD.
 - 4. Pacific BulletProof Co., Anaheim, CA, (888) 358.2309
 - 5. Other manufacturers as approved by the Architect.
- B. Visually open, bandit resistant teller window system fabricated from polycarbonate laminate or polycarbonate/glass laminate with flat edges. Provide mar-resistant coating on exposed surfaces of polycarbonate.
 - 1. Barrier system shall meet requirements of UL Level 1 (medium power small arms) 9mm weapons.
 - 2. Barrier system shall allow natural voice passage without the use of microphones or voice ports.
 - 3. Provide 12" x 12" recessed stainless steel non-ricochet bullet resistant deal tray. Coordinate opening for deal tray with countertop manufacturer.
- C. Mounting Clamps, spacers and channels shall be brushed stainless steel.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Inspect areas into which teller window system is to be installed and report to General Contractor any conditions which will adversely affect installation or performance of system.

3.2 INSTALLATION

- A. Install bullet resistant barrier system in accordance with manufacturer's installation instructions.

END OF SECTION

SECTION 28 46 00

SECURITY SYSTEM GENERAL REQUIREMENTS

PART 1 - GENERAL

1.1 SCOPE

- A. The work to be performed by the Security Electronics Contractor (SEC) under the specifications of Section 28 shall include the following:
 - 1. Section 28 46 10 Sequencing of Security Electronics Work
 - 2. Section 28 46 20 Security System Control and Monitoring
 - 3. Section 28 46 50 Card Access System
 - 4. Section 28 46 60 Duress Alarm System
 - 5. Section 28 46 80 Video Surveillance System

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other applicable Division 01, 8, 11, 26, 28 Specification Sections, apply to this Section.

1.3 BIDDER QUALIFICATIONS

- A. A single SEC shall perform the entire work of this section. The contractor shall be regularly contracted for the installation, service, and maintenance of highly integrated control and monitoring systems as listed in Section 28 46 00

1.4 QUALIFICATION REQUIREMENTS

- 1. The SEC shall meet the following qualifications:
 - a. Capability to provide all systems with full compliance of this specification along with compliance of system manufacturer's guidelines.
 - b. Has been actively engaged in the design, installation, and maintenance of the systems specified herein for a minimum of 15 years.
 - c. Shall provide, upon request, and list of 5 projects of similar value and scope for the project being bid completed within the last 5 years.
 - d. Have and maintain a physical corporate location within 50 miles of the project site.
- 2. Pre-approved SEC's:
 - a. SGTS, Inc. – Madison, WI

1.5 SUBMITTALS

- A. Sets of completed shop drawings shall be provided for approval prior to ordering any equipment in accordance with Division 1 requirements. All security system drawings specifically developed for this project (i.e. panel layout, point-to-point wiring, record, conduit/wire, schematic, rack layouts, etc.) shall be developed utilizing AutoCAD 2014. It shall be submitted as an electronic copy of the drawings and equipment data sheets in the format as outlined herein. These submittal shall be:
 - 1. A compiled PDF document identified with digital tabs for each specification section.

2. A complete equipment list of all components shall be located first under the separate heading of each specification section.
3. Each section shall include manufacturers catalog specification cuts and descriptive literature on all security system components outlined in Section 28 46 00 of these specifications. Each component shall be clearly identified should a datasheet contain multiple equipment listings.
4. Fabrication drawings of all security system component panels and equipment racks as outlined in Section 28 46 00 of these specifications.
5. The Engineer and Owner reserves the right to make changes to descriptive information, touch screen layouts and nomenclature during shop drawing review without incurring any additional cost. The Owner in addition to the Engineer prior to fabrication will approve all final submittals.
6. Schematic drawings and point-to-point wiring diagrams of all circuits for all systems from the field and panel mounted devices to the associated termination points. The diagrams shall show wiring of components and all connections to be made.
7. Rack layouts of all equipment mounted in wall or freestanding equipment racks.
8. Camera mounting details specific to location and point by point termination drawings for all video surveillance equipment.
9. Wiring diagrams of the actual electric locks, electric door operators, gate operators, door position indicator and jamb switches being provided for the project.

1.6 COORDINATION SUBMITTAL

- A. Division 26 Electrical Contractor prior to installation of any conduit is to submit for review and approval a conduit installation drawing/s, indicating all equipment and device locations with proposed conduit size, routing, cabling, pull box and junction box locations. Division 28 SEC is to provide a Security Electronics Cable and Conduit Fill Schedule based on NEC 40% fill with a listing of cables to be segregated by system type per these documents and conduit to Division 26 Electrical Contractor for coordination and development of these drawings.

1.7 WORK IN OTHER SECTIONS

- A. The division of responsibility regarding work to be done by the Division 26 Electrical Contractor and work to be done by the Division 28 SEC shall be in accordance with the following:
- B. The following work shall be the responsibility of the Division 28 SEC:
 1. Coordination of doorframes and hardware with Division 8 equipment that is associated with the security control system.
 2. Preparation of SEC shop drawings, maintenance manuals, wiring diagrams and other submittals required by the individual SS system specification sections.
 3. Furnishing and installation of control panels, equipment racks, PC touch screen controllers, relay boards, processing units, sound/intercom amplifiers, video equipment, power supplies and other major control or communication equipment associated with the SS. Refer to the systems drawings which identify the various field devices, terminal cabinets, and control panels provided by the SEC.
 4. Termination of all field devices including electric locks, door operators, door position indicator and jamb switches and key switches, pushbuttons, intercoms, call buttons, card access controls, duress alarm devices, cameras and monitors, etc. which comprise the security control system at the head end equipment of all systems.
 5. Furnishing and installation of all cabling for security systems comprised in Division 28.
 6. Cables shall be identified at both ends with system identifications and location identifications. Utilize a color scheme of wiring, which will identify the intended use of each conductor on systems with multiple single strand conductors (i.e. door controls). Refer to Section 26 0553 for Electrical Identification requirements.

7. In coordinating the Division 28 SEC work with the Division 26 Electrical Contractor, the SEC shall bear in mind that the wiring and conduit requirements called for in the construction documents are based on the requirements of a single manufacturer and may or may not be adequate for the equipment being furnished. The conduit and wiring indicated on the drawings or in the specifications shall be considered minimum requirements. Additional wiring, conduit, or other work required due to the use of different manufacturers or as dictated by the SEC for complete systems shall be arranged and paid for by the Division 28 SEC.
 8. Tests, balancing, trouble shooting, adjustments and other similar work as may be required to insure complete operating SEC systems. Actual work shall be performed by the SEC per manufacturer's recommendations and a industry standard.
 9. All security system training sessions required by these specifications.
 10. All warranty work associated with the building security system.
 11. Any other work associated with the SS systems, which due to its technical nature shall logically be performed by the SEC.
- C. The following work shall be the responsibility of the Division 26 Electrical Contractor:
1. Coordination of door frames and hardware and the required conduit entries thereto.
 2. Provide conduits, raceways and cable tray for the various security electronics systems listed in Specification Section 28 46 00 through Section 28 46 80.
 3. Refer to the security electronics equipment room layouts which depict the equipment to be furnished and installed by Division 26 Electrical Contractor..

PART 2 – PRODUCTS

2.1 PRODUCT SUNSETTING

- A. In the event that a manufacturer declares a product, including software, following approval of submittals, the SEC shall propose and alternative solution that meets all technical requirements and support will be provided to the end user.
- B. The SEC shall not submit any product, including software, with a published End-of-Life date within one year submittal date.

2.2 EQUIPMENT STANDARDS

- A. All products being supplied shall be new and unused unless specifically approved by the Engineer.
- B. Temperature Ratings: All indoor components shall be rated for full operation in the conditions of their final installation locations
- C. Relays: Light duty relays shall be rated for 10 amps at 120 volts. All relays shall be DIN rail mounted and individually fused with lighted indications.
- D. Terminal blocks: all terminal blocks shall be DIN rail mounted and rated for 30 amps at 600 volts.
- E. Power Supplies: All DC power supplies shall be regulated power supplies sized for the required operation. Power fluctuation shall not exceed +/- 10%.
- F. Surge Protection: All line supply circuits shall be protected by in-line surge control devices. Fuses shall not be acceptable for use as surge protection. All equipment panels shall be connected to building ground or reference ground bar by an insulated minimum 6 awg cable.

PART 3 – EXECUTION

3.1 CABLING AND TERMINATIONS

- A. Cabling shall be continuous and without splicing from the field devices to the head end receiving equipment.
- B. All system cabling shall be color coded with labeling/coding as dictated by the SEC and approved by the Engineer.

- C. The SEC shall provide all ancillary cabling required for a complete and operational system. This includes, but is not limited to: patch cords, video signal cables, power cords, video signal cords.

3.2 FIELD DEVICE INSTALLATION:

- A. Field devices shown on floor drawings are indicated as wall, desk, or frame mounted. Devices associated with section 28 shall be finally located by the SEC at locations most convenient for staff regularly engaged with the operation of the system. Multiple devices mounted at a single door location shall be mounted horizontally adjacent to each other.

3.3 ACCEPTANCE TESTING

- A. The SEC shall be responsible for the testing and commissioning of the following systems
 1. Security System Control and Monitoring
 2. Card Access System
 3. Duress Alarm System
 4. Video Surveillance System
- B. All acceptance testing and commissioning test sheets shall be included in project closeout documentation

3.4 WARRANTY

- A. Refer to Division 1 requirements
- B. During the warranty period, the SEC shall provide quarterly visits to the site to resolve minor issues that have occurred since the last visit.
- C. Emergency visits for critical system errors shall occur for the entirety of the warranty period at no additional cost to the owner.

END OF SECTION

SECTION 28 46 10

SEQUENCING OF SECURITY ELECTRONICS WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 JOB CONDITIONS

- A. The existing buildings security alarm, communication and video surveillance systems shall remain in service during construction. Outages and interruptions in these systems shall be held to a minimum and shall be done at a time convenient to the Owner. The time of all outages shall be scheduled with the Owner and all other trades affected by the outage at least ten working days in advance. All work shall be scheduled at periods and times acceptable to the Owner.

1.3 COORDINATION WITH OWNER

- A. The Owner realizes the difficult nature in replacing the systems and maintaining security operations and will cooperate with the Contractor in accommodating system outages. The Security Contractor is responsible for producing a schedule of events with his subcontractors, the Owner and Engineer to establish a sequence by which system replacement can be done with as little disruption as possible. The schedule of events shall include the following:
 - 1. Area or areas affected by the scheduled event.
 - 2. Systems affected by the event.
 - 3. Time duration for the event.
- B. The Security Contractor shall attempt to keep system outages confined to individual systems where possible and confined to individual areas. The Security Contractor along with the Owner and Engineer will work closely to establish a priority list identifying which systems can be disconnected and at what times during the day.
- C. In coordinating the installation of new systems to replace the existing, the Owner will make arrangements for one or more of the following:
 - 1. The addition of staff to secure areas where systems may be turned off.
 - 2. Supply radios to contractor staff to maintain security communications.

PART 2 - PRODUCTS

2.1 NOT USED

PART 3 - EXECUTION

3.1 REMOVAL

- A. Provide temporary wiring to any system that is to remain in operation during system replacement and whose power would be interrupted as a result of replacement.

- B. Remove electrical and security equipment released from service as a result of system replacement or as indicated on drawings.
- C. Do not reuse removed electrical and security equipment except if specifically directed on the drawings.
- D. Where the plans require existing equipment to be removed or relocated, removal shall include all equipment associated with the device. Associated equipment shall include but not be limited to power supplies, relays, interface boards, de-energized conductors, etc. In instances where a device is removed but active conductors remain in the backbox and the box is mounted in a wall which is remaining, the backbox may remain and a blank coverplate provided. If removal of the box is specifically indicated on the plans the active conductors shall be intercepted at convenient, accessible locations and rerouted to allow existing box to be removed.

3.2 DISPOSAL

- A. Dispose of equipment that is removed unless specifically indicated on the drawings.
- B. Raceway, conductors, and supporting devices shall become the property of Rock County Courthouse and shall be removed from the site and disposed of by the Contractor.
- C. The Contractor shall review the systems with the Owner to determine the status of all other equipment to be removed during system replacement. All equipment that is to be salvaged for reuse by the Owner shall be removed by the Contractor and transported to a owner designated storage area on the site. The Owner shall be responsible for removal of salvaged equipment from the storage area.
- D. Contractor, at his option, may install new conductors in existing raceways provided that the raceways are in place and are properly sized and supported. Existing conduits that are removed from their existing location shall not be reinstalled.
- E. Cables in conduit to be abandoned and not reused will be removed from the conduit, conduit shall remain. Cables abandoned and not reused located exposed above ceilings shall be removed.

END OF SECTION

SECTION 28 46 20

SECURITY SYSTEM CONTROL AND MONITORING

PART 1 - GENERAL

1.1 SCOPE

- A. This section describes the requirements for the personal computer graphic controllers (security touch screens) and programmable logic controllers (PLC's) to be located in the building. The touch screens with their associated PC's and PLC controllers shall provide the integrated micro processing backbone for the "Security Control System" referred to in these specifications and drawings as the Security Electronics System (SES).
- B. The programmable logic controllers along with the associated power supplies, relays and input/output interfaces, amplifiers and intercom relays are located in equipment racks in the buildings, i.e. PLC-A.
- C. The security control system includes control panels with remote input/output PLC communication modules and relays for door control, voice communication, EMNS and fire alarm annunciation circuits.
- D. Control functions to be initiated by the SES system are described elsewhere in these specifications and on the drawings. Functions to be controlled by the SES include, but are not limited to:
 - 1. Door Monitoring
 - 2. Interface between electric door locks and touch screens.
 - 3. Interface between Video Surveillance System alarm inputs and monitors outputs.
 - 4. Interface between touch screens.
 - 5. Interface between duress alarms and touch screens.
 - 6. Other controls as described elsewhere in these documents.
- E. The Contractor shall provide all labor and materials necessary to provide a dedicated security network utilizing new cable to provide a complete and working system. All equipment, cables and related hardware shall be furnished, installed, tested, labeled, and documented by the Contractor as specified.
- F. Basic Electrical Requirements are applicable to all Division 28 sections. This section includes information common to two or more technical specification sections or items that are of a general nature, not conveniently fitting into other technical sections. Included in this section are the following topics:
- G. The SEC Contractor as described in Section 28 46 00 shall provide all work and equipment described in this Section.

1.2 RELATED WORK

- A. Section 28 46 00 – Security System General Requirements
- B. Section 28 46 10 – Sequencing of Security Electronics Work
- C. Section 28 46 50 – Card Access System
- D. Section 28 46 60 – Duress Alarm System
- E. Section 28 46 80 – Video Surveillance System

1.3 SUBMITTALS

- A. Prepare submittals in accord with the requirements of specification section 28 46 00 and include the following information:
 - 1. Security System Shop Drawings. Provide shop drawings that contain the following minimum requirements:
 - a. Floor plan drawings showing all equipment and device locations with proposed conduit wiring, pullbox and junction box locations.
 - b. Fabrication drawings of all security system component panels and equipment as outlined for all security systems identified under Section 28 46 00.
 - c. Wiring diagrams of the actual electric locks, door position indicator and jamb switches being provided for the project.
- B. Manufacturers catalog specification cuts and printed descriptive literature on all security system components outlined in this specification. Each component shall be clearly identified where cut sheets have multiple equipment listings.

- C. Uninterruptible power supply calculations for coordination of load with rack and desktop mounted UPS's provided by Div. 28 as required

1.4 REGULATORY REFERENCES

- A. All work and materials shall conform in every detail to the rules and requirements of the National Fire Protection Association, the Wisconsin Electrical Code and present manufacturing standards.
- B. All materials shall be listed by UL and shall bear the UL label. If UL has no published standards for a particular item, then other national independent testing standards shall apply
- C. and such items shall bear those labels. Where UL has an applicable system listing and label, the entire system shall be so labeled.
- D. Other applicable standards are as follows:
 - 1. ANSI/IEEE C2 - National Electrical Safety Code
 - 2. NFPA 70-2005 - National Electrical Code
 - 3. TIA/EIA Standards 568-B, 606A
 - 4. IEEE 802.3 Standards for Ethernet

PART 2 - PRODUCTS

2.1 GENERAL FUNCTIONAL DESCRIPTION

- A. The security system shall control and monitor all security functions of the facility. Additionally, stored programming within the PLC shall operationally perform all user control requests and alarming. Touch screens shall be integrated to the PLC's and allow the user to control, monitor and display all security system devices. Included in the system shall be robust data archiving and report generation of security system activities.
- B. Alarm conditions, communication failure or CPU failures shall not affect other PLC's or Touch screens on the network.
- C. Design of the security system shall be as an open architecture Supervisory, Control and Data Acquisition (SCADA) system. The system shall be comprised of standard off-the-shelf components manufactured for multiple industrial automation applications. Proprietary security components, systems or software shall not be acceptable.
- D. All control and monitoring logic and any system management programming shall be programmed within the touch screen software program and not within any encrypted or DLL (Dynamic Link Libraries) applications. If it is determined that the SEC Contractor used these methods, the software program shall be completely redeveloped with non-proprietary programming methods at the SEC Contractors expense.

2.2 PERSONAL COMPUTER GRAPHIC CONTROLLER SOFTWARE (TOUCHSCREEN)

- A. The touch screen software shall be a standard off-the-shelf SCADA system that is distributed worldwide for such automation systems. The touch screen software manufacturer shall have produced a product line of SCADA related software for at least ten years. The touch screen manufacturer must provide Internet support of its products including on-line software updates and technical support.
- B. The software shall be supplied as a complete package. No additional software should be required to configure or run all the features of the system. Systems comprising a collection of software from various manufactures (other than the computer operating system) will not be considered.
- C. The software shall be a 64-bit packaged product operating on the Microsoft Windows 10 platform. The software shall exhibit strong compliance with Microsoft's Windows Open Systems Architecture (WOSA) standards, such as in its use of dialog boxes and menus.

- D. All configuration changes shall be capable of being made on-line, while the system is operating. Data definitions, operator displays, etc. shall be capable of being modified, added or deleted without having to interrupt the data acquisition.
- E. Documentation - The system shall provide complete user documentation, including examples of how to operate the various modules within the system. The documentation must be in electronic format, HTML based with the ability to search for topics by keyword or search or specific text.
- F. An on-line "help" facility, based upon Windows standard Hypertext, shall provide useful, context-sensitive information on the operation of the package.
- G. Approved Manufacturers (Windows 10 version for each):
1. Existing Wonderware 2017
 2. No Equal
- H. Data Handling Capabilities
1. No programming, compiling or linking shall be required to configure the system. The database tags must be configurable on-line. The process database containing the current value of the data, or tag list, shall be memory-resident and of a design that is appropriate for real-time monitoring and control functions.
 2. The software shall provide pre-emptive multitasking to ensure that common Windows actions do not interfere with I/O communications, processing of data, alarming, and the integrity of the real-time and historical data. These common Windows actions include moving a window with a mouse, opening a file, accessing the hard disk, or printing a graphic display. The software shall be written fully 64-bit so that it runs native in the Windows 10 operating system. Emulation using 16-bit software code is not permitted.
- I. Database Tag Configuration
1. Various input/output hardware assignments, as well as processing functions, shall be assigned to named tags or "function blocks". Multiple tags can be tied together to perform more complex functions. During the configuration process, the program shall be capable of checking the tag structures for correct linkages, appropriate names, and so on.
 2. The scan-processing program shall also be capable of detecting and handling configuration errors at run-time. Any errors encountered shall generate messages to the user.
 3. The user shall be able to perform tag configuration (adding, modifying, deleting, and viewing) in several ways, as follows:
 - a. Directly from the graphics editor, so that tags can be configured as graphics are developed.
 - b. Via an interactive spreadsheet-style database builder program that uses a fill-in-the-blank menu methodology. The database builder program shall provide the following editing functions:
 - 1) Cut/Copy/Paste tags
 - 2) Duplicate tags
 - 3) Generate multiple tags from a given pattern
 - 4) Sort tags
 - 5) Query tags
 - 6) Display tags in user-configurable formats
 - c. Via the importation of a CSV text file developed in another program as input for tag creation. The database builder program shall also be able to export the current tag listing for modification by the external program.
 4. For methods 2 and 3 above, the development of the database tags shall be completely independent of the creation of graphics displays. Use of a programming language, such as Visual Basic, C or a C-like language, shall not be required.
 5. The database has to allow for editing from a graphic editor, from within the building of a graphic operator screen, or from within a VBA script. The database editing must be able to be accessed locally or across the network. A node shall have the ability to edit a database on another node while online.
- J. Database Tag Types

1. Functions shall be available in the database to support the following tag types:
 - a. Analog Input
 - b. Analog Output
 - c. Boolean Logic, the operators must include:
 - 1) OR
 - 2) AND
 - 3) EQUAL
 - 4) NOT EQUAL
 - 5) NOT
 - 6) XOR
 - 7) NAND
 - 8) parentheses
 - d. Digital Input
 - e. Digital Output
 - f. Text - This function reads or writes text of up to eighty (80) characters from or to a device.
 - g. Timer - This tag performs a counting operation. It counts in either the up or down direction, from a pre-set value to a target value. Upon reaching the target or time-out condition, a contact may be closed. This tag also supports conditional next block processing. It shall time up to one (1) year. The timer may be started, stopped, reset or resumed based on a sensed condition or operator command.
 - h. Totalizer - This tag-type maintains a floating point total for values passed to it from other database tags.
- K. Tag Attributes
1. Each tag will have a tag name of up to 30 characters. The name shall be alphanumeric. All other application programs will use this tagname as their sole reference to the data element assigned.
 2. For tags assigned to actual hardware points, they shall also contain fields for: Hardware device name, Hardware address, Hardware specific parameters and Signal conditioning requirements.
- L. I/O Device Communications
1. The system must support communication with a variety of external input/output (I/O) devices. The devices that can be interfaced to the system must include: Programmable logic controllers, Intelligent single-loop controllers, Card access readers, Analog-to-digital converters and Remote I/O. The system must be capable of supporting up to four (4) different types of device communications drivers and up to eight (8) serial ports simultaneously.
- M. Driver Configuration
1. The communications driver shall be configurable on-line. When supported by the I/O device (typically programmable controllers), block transfers (the ability to acquire multiple variables in one communications request) must be provided. The block sizes and poll times must be individually adjustable by the user. Supported block transfer times vary depending upon the I/O device, but shall be able to run as fast as the I/O device can transfer data. Alternatively, exception-based processing may be optionally selected. In some cases, the vendor may provide support for the use of unsolicited messages, if supported by the I/O device.
 2. The hardware address format that the user enters at configuration time will correspond with the address format employed by the I/O hardware vendor. The use of Microsoft Windows Dynamic Data Exchange (DDE) for device communications shall be supported by the vendor. However, the use of DDE shall be limited to communications with low-throughput devices, such as barcode readers and scales. It shall not be permitted for use with PLC's or other similar devices. A DLL or OPC Server will be used for PLC communication.
- N. Diagnostics
1. The system will provide a diagnostic program capable of running on-line or off-line that can monitor message rates from the communication program. The diagnostic will display the number of new messages, retries, time-outs, and any occurrences of error.
 2. For serial drivers, a built-in datascope shall be provided. This datascope function shall allow the user to observe the messages being sent between the computer and the I/O device.
 3. Include the requirements and operational characteristics for a hardware and software solution whose purpose is to provide a "more than reasonably" secure connection between the owner

provided network connection and the security network. The security network shall include the Ethernet-based PLC System communications and graphical user interface (GUI) control system communications. The Secure Gateway System (SGS) includes:

- a. Firewall Appliance(s)
- b. Remote support accessibility
4. Provide all labor, equipment, materials, and supervision to install, program, calibrate, adjust, document, and test the total system as required herein and on the drawings.
5. Provide a full integrated and seamless Secure Gateway System, offering a "more than reasonably" secure network against unauthorized access from outside the security intranet.
6. The Secure Gateway System shall have the following system features and software requirements to allow for security, remote support, and future flexibility.
 - a. Using a firewall appliance the SGS shall prohibit all traffic from entering the security network from the owner network, the Internet, or any other networks. This shall include prohibiting VPN connections.
 - b. The SGS shall provide for security from unauthorized access to the SMS and shall prevent direct access to other parts of the Security Automation System including PLCs and Graphical User Interface Stations.
 - c. When connected to the Internet for the purposes of remote support, the SGS shall allow for authorized access to the SMS via an SSL connection using 128-bit or greater encryption.
 - d. The SGS shall have additional security features such intrusion detection, IP address filtering, denial of service filtering, and IP address lockout.
 - e. The SGS shall provide detailed auditing and logging.
 - f. The SGS hardware and software shall be upgradeable to allow for changes in protection technologies.
 - g. The owner shall be responsible for upgrades, training, and support after the warranty period.
7. Provide all necessary equipment for an operational SGS, consisting of, but not limited to the following. Note: Hubs, switches and routers alone shall not be acceptable.
 - a. VPN / Firewall Appliance minimum requirements
 - 1) 8-Port Fast Ethernet Switch (at least 2 PoE)
 - 2) Unlimited Users
 - 3) 3 VLANs
 - 4) SSL and IPSec VPN
 - 5) 3DES/AES Encryption
 - 6) At least 150 Mbps Firewall Throughput
 - 7) At least 100 Mbps VPN Throughput
 - 8) At least 10,000 Concurrent Sessions
 - 9) At least 25 IPsec VPN Clients
 - 10) Active Standby and Redundant ISP Support
 - 11) Network Address Translation (NAT)
 - 12) Port Address Translation (PAT)
 - 13) RADIUS and LDAP Support
 - 14) Terminal and Web Based Administration
 - 15) FIPS 140-2 Level 2 Certification
8. All access to County LAN must be pre-approved with County IT prior to construction.

O. Stand-alone Operation

1. The software shall be capable of performing all desired functions, data acquisition, graphics, alarming, reporting, etc.

P. Graphics Capabilities

1. The graphics package must provide a means of creating and displaying color object- oriented graphic displays that will be used by the operator to monitor and control the process. Real-time values being read from the field devices shall be capable of being displayed in a variety of user-configurable formats.
2. Graphic displays shall be standard Microsoft Windows files and shall be able to be stored on the system disk, a floppy diskette, virtual (RAM) disk or file server, based on user- entered selections. There shall be no limit (other than physical disk size) to the number of displays that can be developed and accessed on-line.

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Security System Control and Monitoring

3. The development and runtime graphics packages must both be multi-document architecture applications.
4. Support for displays larger than the size of the monitor shall be provided. If used, scroll bars shall be provided to allow the user to move to other areas of the display.
5. The graphic screens need to be based on objects and not individual pixels. The object graphics will consist of an image and image attributes, such as size, color, and position that will define the properties of the object. The user will use tools; menus and dialog boxes to change object properties. An object is defined as anything that can be created with drawing tools from within the package or an image imported into the package. All properties, events, and methods of the object must be exposed to the system.

Q. Graphic Creation

1. The system shall provide an interactive object-oriented editor or workspace that allows creation of graphic displays using a pointing device (for example, a mouse).
2. A facility shall be provided that quickly toggles, via a mouse click or hot-key, between the graphic building and graphic runtime modes to speed display animation verification during the development process.
3. The software must be designed with the ability to make changes to the graphics while the system is running. Shutting down the system shall not be required to make changes.
4. Browser -Once an object is created, the object needs to automatically be placed on a tree similar to the browser in Microsoft's Internet Explorer.
5. Properties Window - A properties window, exposing all properties for an object must live on the workspace. The properties window must support edit functions for any object selected. Object Duplication - Object properties must be passed when an object is copied. Copying should be able to occur from the tree browser or workspace. All properties must be passed on to the duplicated object and the name properties must automatically get changed.
6. Tile & Cascade - Graphic screens that are opened in configuration mode must support tiling and cascading. Tiling must have horizontal and vertical support and no overlapping when the graphic screens are viewed in the manor. The only limit on the number of graphic screens opened at one time is by the amount of Ram in the PC. Cascading is defined as a method to staggered pictures so they can be selected from their title bar.
7. Graphic Sizing - Size will be based on logical units; not pixels and any logical unit may be used. Graphic screen design at one resolution must be able to run at a different resolution. A full screen option as well as the ability to add sizing borders to any graphic screen must be supported. Also graphic screens must have an option to enable the screen to always be on top and a title bar enabled / disabled option.
8. Active X Support -The graphic screens must be an active X document and have the ability to have third party active X OCX, controls dropped in. The system must be capable of containing any control that is placed onto a graphic screen.
9. If a third party control crashes or misbehaves the system must be able to shut down the control while the graphic screen, system and PC remains running. Running third party controls out of the process is not a suitable requirement for the protection.
10. Touch screens to display Owner provided door/room names and numbers. SEC to coordinate with Owner.

R. Color Support

1. The graphics package shall provide support for an unlimited choice of colors with 256 colors supported at any one time. The user shall have the ability to create, save, and restore custom color palettes. Each color must have an associated so users can selected from the color the name of the color.

S. Graphic Toolbox

1. The system must provide configurable toolboxes that the graphics developer can customize as to what tools it contains and their position in the toolboxes.
2. The Toolboxes must be a Window where its shape, size and location can easily be changed with the mouse.
3. Toolboxes shall contain a method, like the ToolTips within Microsoft Word, to describe the function of each tool when the mouse cursor is positioned on a particular tool.

4. Once configured, the state of the toolboxes shall be automatically saved when the drawing session is completed. It shall be returned to that same condition when the next drawing session is started.
 5. Users must have the ability to define their own buttons.
- T. Graphic Animation
1. Each display must have the ability to dynamically update elements in the picture. Defining the method for dynamic update shall be determined by a point and click operation.
 2. A pre-defined list of dynamic link elements that shall include the following:
 - a. Data Link - Displays alphanumeric values (numeric values may be displayed in whole number/decimal or scientific notation)
 - b. Time Link - Displays current time
 - c. Date Link - Displays current date
 - d. System Information Link - Displays diagnostic information
 - e. Alarm Summary Link - Displays current alarm information
 - f. Pushbutton Link - Executes a Command Language script
 - g. Multi-pen Chart Link - see below
 - h. OLE objects - Display a third part OLE object
- U. Graphic Refresh Rate
1. The refresh rate shall be user-definable on a per object basis with the fastest rate being fifty (50) milliseconds, although it is recognized that achieving this performance is dependent upon the overall system configuration.
- V. Reusing Graphic Objects
1. A method shall be provided for allowing graphics objects or groups of objects to be re-used easily. It shall allow the developer to insert native language prompts that request appropriate tag or other animation information whenever the object or grouped object is reused in another graphic display. These objects, either single or grouped, shall be intelligent, Windows wizard-like objects, so that it is possible, for example, to have a single prompt request and substitute:
 - a. A single tag name into multiple dynamic properties within the object
 - b. Multiple attributes (current value, high alarm limit, tag name, etc.) from a single tag into multiple dynamic properties within the object
 - c. Text into the object
 - d. Parameters within command language sequences
 2. A library of these objects shall be included with the standard product.
- W. Support Microsoft Excel and Word Documents
1. Microsoft Excel and Word documents must be able to live within a graphic screen. The documents will run within the graphic, not as an external call. The Microsoft Excel or Word toolbars will get inserted as part of the graphic toolbars for editing.
- X. Documenting Graphic Displays
1. Printing of graphic displays in color and black and white shall be supported via the standard Microsoft Windows 10 Print Manager in both the graphics development and runtime environments.
- Y. Operator Entry Methods
1. There shall be provided a flexible, Microsoft Windows 10 standard methodology of operator interaction with the system.
- Z. Operator Action Tracking
1. The system shall print a descriptive message with a time stamp and user ID on the alarm printer or to an alarm file (if so configured) whenever any of the following events occur:
 - a. Alarm acknowledgment
 - b. Data entry into a tag
 - c. Reloading a database file
 - d. Saving a database file
 - e. Restarting the system

- AA. Multimedia Capability
 - 1. Support for standard Windows 10 multimedia capabilities, including audio and video, shall be provided.

- BB. Alarm Message Handling
 - 1. The system shall be capable of detecting alarm conditions based on the states and values of the various sensed variables. The alarm conditions shall be detected even if the variables causing alarms are not currently on the display. Alarms will be used to report potentially harmful security situations requiring a response. Typically when a process value exceeds the pre-defined limits.
 - 2. Alarm Types
 - a. Analog input or alarm variables shall have the following alarm types:
 - 1) High
 - 2) Low
 - 3) Time rate-of-change
 - 4) Bad input from I/O
 - 5) Alarm Disable
 - 6) Off Scan
 - 7) Deadband
 - b. Digital input variables shall have the following alarm types:
 - 1) None
 - 2) Change of state
 - 3) Open
 - 4) Close

- CC. Alarm Priorities and Filters
 - 1. The system shall support at least 3 alarm priorities for each alarm type: High, Medium and Low. A filtering mechanism shall be provided so that the operator can adjust the system alarm priority. The handling shall be as follows:
 - a. If priority level is: Then messages will be sent to alarm destinations for tags with:
 - 1) Low High, medium, and low alarm priorities
 - 2) Medium High and medium alarm priorities
 - 3) High High alarm priorities
 - 2. Special alarm messages (such as I/O failure) shall be non-maskable and shall always print.
 - 3. Messages
 - 4. Messaging enabling and disabling must be controlled at the block level. The system must be able to send messages based on the following events.
 - a. An operator
 - b. A Process Database Event Occurs
 - c. A system-Level event occurs
 - 5. In addition to alarms, the following type of blocks must be able to generate messages that report to any transactions to and from the hardware:
 - a. Digital Input
 - b. Digital Output
 - c. Digital Register
 - d. Analog Output
 - e. Analog Register
 - f. Text

- DD. System Messages
 - 1. System messages are messages that will provide information about completed tasks and errors. System Messages will be occur on:
 - a. A database finishes loading.
 - b. The state of a network session changes.
 - c. An I/O/ driver detects an error.
 - d. Start-ups.
 - e. Database block errors.
 - f. Run-time or system errors.
 - 2. System errors will be viewed by a pop up message viewer. The viewer should allow users the following configuration:

- a. Show all entries or just new ones.
- b. Maximize on next new entry.
- c. Clear, and exit.
- d. Disable the viewer from popping up.

EE. Alarm Areas

- 1. In order to logically divide a process into smaller units, the system shall allow for unlimited, named individual alarm areas to be defined. These alarm areas must be definable on an individual tag level. All alarm areas must be accessible by each tag and the system must support multiple alarm areas per tag.
- 2. Alarm areas are used to determine which destinations receive each alarm. The method of alarm distribution over a network must be session-based in order to guarantee alarm distribution and reception. Broadcasting of alarms on the network shall not be permitted.
- 3. Each alarm block must be able to support an area where you can associate a graphic screen for the alarm.

FF. Alarm Destinations

- 1. The system shall provide a means for placing an alarm message in one or more of the following locations:
 - a. Alarm summary display
 - b. Alarm printer
 - c. Alarm message file on disk
 - d. Alarm history window (first-in, first-out scrolling window on the display)
- 2. The system shall allow either COM1, COM2, LPT1 or LPT2 to be the alarm printer. The use of multiple alarm printers shall be supported to allow routing of alarms from different alarm areas to different printers.
- 3. Alarm messages shall be independently user-configurable as to what information is provided and its sequence within the message. The following shall be available choices:
 - a. Time of the alarm
 - b. Name of the tag causing the alarm
 - c. Alarm condition code
 - d. Engineering units value when the alarm occurred
 - e. Descriptor text assigned to the tag
 - f. Engineering units of the tag
 - g. Directly to a relational database
- 4. Also, the user shall be able to specify the length of the alarm queue for each destination.

GG. Time Stamping

- 1. A time stamp must be included with every alarm or message. This time stamp will indicate the time and date that the alarm or message was generated. Time stamping must be supported from the local computer time, OPC server time, or process hardware's clock

HH. Alarm Notification and Acknowledgment

- 1. When a new alarm condition is detected, an alarm message will be generated.
- 2. If the alarm condition code text for the block is on the current display, then the text will flash until the alarm is acknowledged. Alarm acknowledgment will be performed from the operator's keyboard or with the mouse and shall require no more than one keystroke or mouse click.
- 3. The system must be capable of "freezing" the highest alarm status value on the display until acknowledgment is made. Once acknowledgment is made, the system will display the current alarm status text.
- 4. The software shall provide built-in capabilities to support the following:
 - a. Remote acknowledgment. This shall allow, for example, a button to be depressed by the operator, which closes a digital tag and acknowledges one or more alarm conditions, as configured by the user.
 - b. Alarm suspension. This shall allow the user to specify digital tags, that when closed, cause alarms not to be generated for one or more alarm conditions. This is useful, for example, during the start-up phase of a project to avoid nuisance alarms.
 - c. Re-alarm time. This shall allow the system to re-generate an alarm after a user-configurable amount of time, should the alarm condition still exist.

- d. Delay time. This shall allow the user to specify a period of time for which an alarm condition must remain before an alarm is generated. This is useful, for example, if certain actions may cause a temporary, but acceptable, fluctuation beyond alarm limits and the generation of alarms is not desired.
 - e. Close contact on alarm. This shall allow the user to specify digital tags that become closed when certain alarm conditions occur. These contacts can then be used to take actions, such as sounding a horn or initiating a sequence of instructions. Also, the user can specify the conditions under which these digital tags are re-opened, including the following:
 - 1) When the alarm is acknowledged
 - 2) When the alarm is cleared
 - 3) When the alarm is acknowledged and cleared
 - 4) Never (it must be re-opened by a different function)
 - 5. Messages shall be able to be designated as "events-only". These will be distributed to alarm destinations, but shall not require acknowledgment.
- II. Alarm Summary Display
- 1. The system must offer an alarm summary display as a pre-defined, customizable, OCX, dynamic link within the graphics package. This alarm summary display must show a list of the pending alarms in the system. As new alarms are detected, entries are made to the display list. As the alarm conditions clear, the entries are removed from the list.
 - 2. In addition to being able to configure the placement of the information (tag name, current value, descriptor, time of alarm, and alarm status), the user shall be able to specify the color codes to be used to indicate the various alarm conditions.
 - 3. Alarms can be acknowledged from the alarm summary display either individually (by clicking on an alarm acknowledgment field) or for all alarms in the queue.
 - 4. The alarm summary display must provide sorting and filtering capabilities. The user shall be able to filter on node name, alarm area(s), alarm status and alarm priority. The user must be able to sort on time, tag, alarm area, alarm priority and alarm status. The user must be able to display field or fields about the alarm block in a column format and do complex filtering.
- JJ. Archiving and Reporting
- 1. The system must provide a facility for automatically collecting, storing and recalling data. Recalled data will be made available to a report generation program and to user-written programs.
- KK. Data Access
- 1. The system shall provide an open architecture that allows interaction with other programs. It must provide a mechanism for other programs to access individual data elements and fields (such as the high alarm limit of an analog input) within data elements in real time. File transfer mechanics is not acceptable; the access must be direct to the memory-resident database.

2.3 PERSONAL COMPUTER GRAPHIC CONTROLLER HARDWARE

- A. Each touch screen shall be comprised of a personal computer system. Provide a tower type floor mounted case. The touch screen shall also be simultaneously mouse driven. The hardware configuration shall be in accordance to the touch screen software manufacturer recommendations, the performance requirements and minimum hardware requirements outlined herein:
 - 1. Hard disk Storage: Sized to accommodate touch screen software including: runtime and development programming, project files, operating system, utility files and database configuration files. Additionally, the disk shall be sized to allow for one gigabyte (1Gb) of database archive storage.
 - 2. Hard disk back-up capabilities: Removable media, CD's sized to back-up the complete hard disk with no more than three media (i.e. 3 CD's). User accessible back-up and retrieval software.
 - 3. Compact Disk Drive: Speed as required by touch screen software manufacturer.
 - 4. PLC interface hardware: Hardware capable of interfacing touch screen to corresponding PLC using copper media and operating at a minimum data communications speed of 56K bits/sec.
 - 5. Random Access Memory (RAM): Sufficient memory to ensure instant access and display of user interface screens, 2 gigabytes minimum. (It shall take less than 1 second to display a screen and update all screen parameters when switching between views).

6. Communication Ports: As necessary to support all functions of the touch screen. Printing shall be via a parallel port. Minimum of one parallel and two serial ports.
7. Graphics microprocessor: SVGA and a 100% IBM-compatible, 24-bit, Pixel resolution to be 1024X768 with a minimum of 256 colors displayed concurrently.
8. Sound card: High-resolution sound card to provide stereo sound annunciation to external speakers.
9. External speakers.
10. Desktop microphone with push-to-talk switch.
11. Monitor: Touch screens shall be of the analog capacitive technology with 1024 touch points resolution. Linearity shall be less than +/- 1% error with a drift offset of no worse than +/- .5% anywhere on the screen.
12. Point Device: The system shall include a heavy-duty optical mouse such that the operator may choose between operation through the touch screen or the mouse. Both shall be active at all times.
13. Keyboard

2.4 SPECIFIC GRAPHIC REPRESENTATIONS

- A. With all systems as described in this specification and in the function in their normal state, the graphic floor plans and icon functions shall be neutral gray. Each touch screen floor plan layouts shall be graphically represented to depict the operator's actual position on the floor plan. Each screen will also include descriptive nomenclature to describe areas of the floor plans such as "MAINTENANCE", "ADMINISTRATION", etc. to assist the operator in orienting themselves to the physical location.
- B. For multi-story facilities provide an arrow on the screens to take you from lower level to upper level and from upper level to lower level.
- C. Screens will be reviewed for layout in software pre-review process specified elsewhere in this specification.

2.5 USER INTERFACE SCREENS – GLOBAL FUNCTIONS

- A. The following functions shall be incorporated into each touch screen:
- B. CLOCK
 1. Each touch screen shall display the time of day in one corner of the screen. The clock shall have the ability to display 12 or 24-hour format, user selectable throughout the systems utilities function.
- C. Door Maintenance
 1. Selecting this icon shall display the door cycle dialog box, which shall contain a list of all doors in the maintenance group. Each door will have its cycle operation counted and stored. A door cycle alarm will be generated when a door reaches its cycle limit. The door must be reset in the maintenance program at this time, or it will continue to alarm at each door cycle. The door cycle quantity alarm shall be user selectable. The SS Contractor shall set the initial quantity based upon the recommendation of the actual locks to be installed. The following functions shall be provided:
- D. Alarm Summary Screen
 1. Each touch screen shall have the ability of switching to a touch screen specific alarm summary screen. All alarms specific to that touch screen shall be displayed on the alarm summary screen. Alarms shall be color coded according to the state and priority of the alarm including; acknowledged alarms, unacknowledged alarms and alarms that have returned to normal state but not yet cleared from the screen. Each alarm received shall; display an alarm message (text string up to 131 characters long) fully describing the nature of the alarm and its specific location, time/date of the alarm and sound an audible alarm. Acknowledgment of an alarm will require the

user to individually select the displayed alarm with the touch screen pointing device (i.e. group acknowledgement will not be allowed).

- E. Digitized Voice
 - 1. The system shall incorporate digitized voice software and hardware to integrate with the graphic controller so that all operator actions, system warnings, system emergencies, and other pertinent information are announced to the operator through an audio card operating on the PC's bus.

2.6 FUNCTION DESCRIPTIONS

- A. The graphic controllers are only an operator interface to the system. No control logic is allowed in the graphic computer. All control logic is to be through the PLC. Graphic controllers must be able to control the same points and be able to be integrated into the same control system.
- B. FUNCTIONS - The graphic controllers consist of a combination of annunciate and function icons. The icons are:
 - 1. DOOR CONTROL
 - 2. DOOR CONTROL INDICATORS
 - 3. GROUP UNLOCK
 - 4. HOLD OPEN
 - 5. STAFF ACCESS
 - 6. ISOLATE DOOR
 - 7. SIGNAL CALL
 - 8. VIDEO
 - 9. STATUS AND NAVIGATION MAP
 - 10. PENDING LIST
 - 11. SILENCE
 - 12. RESET
 - 13. LOG ON/OFF
 - 14. DOOR NUMBER DISPLAY
 - 15. WORKFLOW
- C. Function icons shall operate as follows:
 - 1. DOOR CONTROL
 - a. Selecting the DOOR icon without a menu active will result in the act of locking (electric or pneumatic locks) or closing (electrically or pneumatically operated sliding) the door. UNLOCK, HOLD OPEN, STOP and ISOLATE are menu functions that act with two keystrokes to make the door operate. Two-keystroke operation for unlocking a door is critical so that doors cannot accidentally be unlocked. The keystrokes required for opening an overhead, sliding, or swinging door is the same. The officer will first select the UNLOCK icon in the DOOR CONTROL menu area which will cause the digital voice message to announce "unlock"; then within 3 seconds, select the DOOR icon on the touch screen at the location of the door and the digital voice message will announce the actual name of the door as defined by the owner. The door will become unlocked. Other doors may be commanded to become unlocked by selecting other DOOR icons within 3 seconds of the first. After 3 seconds of no icon DOOR selections, or when another menu function is selected, or the RESET icon is selected, the UNLOCK (or other command) cancels. After the door has unlocked for a specified amount of time, it will then relock automatically.
 - b. To stop the motion of a sliding, or overhead, door, the officer will select the STOP icon and the DOOR location icon.
 - c. Logic shall be included in the PLC program so that sliding doors must be secured for enough time or the activation to open the sliding door has sufficient amount of time to avoid a switch bounce problem. This time duration must have the ability to be adjusted through software.
 - 2. DOOR CONTROL INDICATORS
 - a. Each door control door control icon shall have a graphical representation of the door. If the door is a swing type door it shall depict the door swing open or closed. If it is a sliding type door it shall depict the door as secure, mid-travel or fully open.

- b. There shall be separate and distinct graphic representations using a combination of icon movements and/or color changes according to the following conditions:
 - 1) Door is closed and secured (normally gray/gray).
 - 2) Door is powered open but the lock status switch, bolt position switch and the door position switch are still indicating the door is secure (red/white).
 - 3) Door is shown open when the door is powered and opened (red/red).
 - 4) Door is shown open when the door is not powered but is open (gray/red).
 - 5) Door is violated or manually mechanically opened (flashing red/flashing red)
 - c. Detailed explanations shall be included in the shop drawing submittal for review of this function.
 - d. The SMS shall record all group unlock, relock or alarm activities.
 - 3. **GROUP UNLOCK**
 - a. There will be an individual GROUP UNLOCK icon for each housing pod or sub-pod. Group unlock may apply to swing doors or sliding doors. Selecting the GROUP UNLOCK icon is a two-icon operation for unlocking (opening) a group of doors. Two- icon function is critical so that groups of doors cannot accidentally be unlocked. The officer will first select the UNLOCK icon in the DOOR CONTROL menu area which will cause the digital voice message to announce "unlock"; then within 3 seconds, select the GROUP UNLOCK icon on the graphic at the location of the pod or sub- pod, the digital voice message will announce the actual name of the pod or sub-pod as defined by the owner. The doors will unlock all cells in the associated pod or sub- pod, three at a time at three seconds intervals. Other pods or sub-pods may be commanded to be group unlocked by selecting other GROUP UNLOCK icons within 3 seconds of the previous. After 3 seconds of no icon GROUP UNLOCK selections, or when another menu function is selected, or the RESET icon is selected, the GROUP UNLOCK cancels. After the doors have unlocked for a specified amount of time, it will then relock automatically.
 - b. Individual doors can be bypassed for this function by using the ISOLATE DOOR FUNCTION described below.
 - c. Logic shall be included in the PLC program so that sliding doors must be secured for a sufficient amount of time or the activation to open the sliding door has sufficient amount of time to avoid a switch bounce problem. This time duration must have the ability to be adjusted through software.
 - d. The SMS shall record all group unlock activities.
 - 4. **HOLD OPEN**
 - a. This feature will unlock the door and keep it electrically unlocked until the officer selects the DOOR icon only which will relock the door and return it to normal operation. Other doors can be selected for HOLD OPEN within 3 seconds of the first selection. After 3 seconds of no selections the HOLD OPEN command cancels. When in the HOLD OPEN function an "X" will be placed though the icon to alert the operator of this condition.
 - b. The SMS shall record all doors in the hold open position and return to normal.
 - 5. **STAFF ACCESS**
 - a. Doors with electrically operated keyswitches or card readers for local staff control in addition to being controlled by the touch screen can be enabled or disabled at the scheduled touch screen. The key switch or card reader is enabled when the operator first selects STAFF ACCESS and then selects the door icon within 3 seconds. Other doors can be selected for staff access within 3 seconds of the first selection. After 3 seconds of no selections the staff access command cancels. In the enabled condition, for swing doors, the key switch is turned to the right, momentarily; the associated door unlocks and then relocks after 3 seconds. For sliding doors, the key switch is turned left (to close) right (to open). When the door location is selected for staff access, the door icon will have a graphic representation of a key symbol through it. Violations shall continue to be annunciated as described in door control indicators above. Repeating the process will reverse the condition.
 - b. The SMS shall record all doors in the staff access positions and return to normal.
 - 6. **ISOLATE DOOR**
 - a. Electrically controlled doors, or doors that are also controlled by field mounted local card readers, key switches or pushbuttons can be isolated such that they cannot be opened from the local card reader, key switch or pushbutton. The officer first selects ISOLATE DOOR and then selects the DOOR icon depicting the door to isolate. Other doors may be commanded to become isolated by selecting other DOOR icon within 3 seconds of the

- first. After 3 seconds of no isolate door selections, the ISOLATE command cancels. Repeating the process on an isolated door reverses the condition and returns the door to normal.
- b. The DOOR icon will have a yellow "X" marked through it indicating that the door cannot be unlocked by the local device. Violations and the door status representation will still be shown.
 - c. Attempting to unlock an isolated door will cause the digital voice to announce, "Function not allowed. Door is isolated."
 - d. The SMS shall record all isolated door positions and return to normal.
7. SIGNAL CALL
- a. This function is used to draw the operator attention to a door location where no intercom or video exists. Each location will be graphically displayed by an icon depicting a program bell. When not active the icon is gray. When the call button is depressed at the remote location, the icon shall flash green and an audible bell tone shall sound at the touch screen station. The icon can be silenced by selecting SILENCE function, which will turn the icon solid green. The icon is returned to normal by RESET function.
8. VIDEO
- a. Each camera icon shall include the camera number as designated on the drawings or as required by the termination equipment. PTZ camera icons shall include either a set of arrows indicating the cameras ability to pan or include the designation "PTZ" to distinguish controllable cameras differently than fixed cameras.
 - b. This function is independent of the communications icon function and requires a separate matrix output.
 - c. Establishing video communications from the control panel is accomplished by selecting the VIDEO icon. Selecting the VIDEO icon on the graphic panel at the location of the camera will cause the icon to be solid blue and the camera image to be displayed on a VIDEO SELECTION MONITOR. Selecting that VIDEO icon again will cancel the video and return the icon to its gray state. Selecting a different VIDEO icon will cause that camera to be active and will cancel any others cameras that are active.
 - d. Operation of PTZ cameras is accomplished through the desktop video controller.
 - e. The SMS shall record all video selection activities.
9. STATUS AND NAVIGATION MAP
- a. A portion of each screen (approximately 4" wide by 2" high without obstructing the floor plan) shall be allocated and used for the purpose of making screen movement tasks easy for the operator. This window shall contain the whole building and be located on every screen. All screens shall be accessible with one touch of the site plan such that any screen can be accessed from any other screen with just one touch of a screen's outlined area on the site plan. Each control screen shall be graphically outlined on the depicted map.
 - b. Selecting an outlined area of the site plan shall cause the touch screen controller to go directly to the screen that controls the touched area. The area on the site plan that represents the current screen shall be highlighted in white so that the operator knows exactly what screen is active in relation to the whole facility. A distinctive audible sound shall annunciate when this action is performed. The other areas shall be gray unless pending calls or alarms are active.
 - c. When calls are pending from areas other than the current screen, and these calls are defined to be answered at a particular touch screen station, then the area of the call shall flash green and gray on the site plan. If both an alarm and a pending call are active at the same time in an area, then the respective area shall flash red and green.
 - d. When alarms are active from areas other than the current screen, then the area of the alarm shall flash red and gray on the site plan. If both an alarm and a pending call are active at the same time in an area, then the respective area shall flash red and green.
 - e. Touch screens are allowed access to only certain screens. The site plan shall display the current user's available screens in contrast with the whole site plan. Selecting the inaccessible parts of the site plan shall result in a message and the digital voice stating "Access not allowed. Enter a password for access."
10. PENDING LIST
- a. The list of 5 incoming pending calls designated for the particular touch screen station shall show the owner-assigned text names for the oldest 5 pending calls that have not been answered and in the order that they were initiated. As a call is answered, it shall be

- removed from the list and the list shall be automatically updated with any new incoming calls. Calls can be answered out of sequence if desired by the operator.
11. SILENCE
 - a. Selecting this icon will silence the audible annunciators used to indicate a violated door, staff station request, or any other alarm. The SS shall record to disk all panel silence activities.
 12. RESET
 - a. Selecting this icon will cancel any door violation condition and/or any active menu. RESET does not affect communications calls. The SS shall record to disk all panel- reset activities.
 13. LOG ON/OFF
 - a. Activation of a touch screen location shall occur using a card reader and valid card. The cards shall be the same cards as assigned to operators for the Card Access System described in Section 17463 – Card Access System. Attempting to log on by presenting a card to a touch screen that is already active shall result in a voice announcement “TOUCH SCREEN ACTIVE”.
 - b. Presenting a valid card for a non-active touch screen shall cause a graphic representation of a standard PC keyboard to appear on top of the graphically displayed area. The user is to key in their login password. The login identification of the user logged into the touch screen shall be displayed next to the digital clock on the touch screen. In addition, all touch screens shall display the users logged on at each touch screen in the SS. Establishing, changing and maintaining user logins and passwords are functions performed by users identified as supervisors.
 - c. To log off the operator selects their login identification on the screen which creates a pop-up window with a “YES” or “NO” icon. Selecting the YES icon logs the operator off the system.
 - d. Each log on attempt (valid or not valid) and log off shall be recorded to the SMS.
 14. DOOR NUMBER DISPLAY
 - a. The touch screens shall have the ability to display either the architectural assigned door numbers or the Owner’s assigned door numbers. This function will be accessible from the SYSTEM UTILITIES FUNCTION. The selection of door number preference will be controlled globally so that all touch screens display the selected preference.
 15. WORKFLOW
 - a. There shall be workflow instructions that are presented to the operator when an event is displayed on the GUI monitor.
 - b. These workflow instructions can be tied to any even to the Touch Screen.
 - c. These workflow instructions can be created and modified using the Touch Screen software.

2.7 TOUCH SCREEN SECURITY MANAGEMENT

- A. The touch screen software shall provide a user-based security system. Each touch screen must allow for the creation of users with certain rights and/or privileges. These rights must include the ability to run any combination or all of the applications in the touch screen system. The ability to allow or disallow user access to control devices or switch into selective screens shall be supported.
- B. As part of the touch screen development, the proposed security structure shall be presented to the Owner for review and approval. Security structuring and format for each individual touch screen shall be presented. The Owner reserves the right to change security levels during the touch screen development stage.
 1. The touch screen security management system must support a tie to Windows 10 security.
 2. When user-based security is enabled, an audit trail will be generated in the system that will tag every operator action with a user identification (ID) and shall be stored to the touch screen database.
 3. Systems that use a level-based security methodology shall not be acceptable.
 4. The following functions must be supported within the security application:
 - a. Enable/Disable user-based security
 - b. Define users, passwords and login names
 - c. Define groups to which users may belong

- d. Define security path(s)
- e. Define user and/or group rights/privileges
- f. Define security area names
- g. Define system auto-start user
- 5. The ability to "lock" an operator or other user into the runtime graphics environment shall be provided. Specifically, disabling any combination of the following shall be supported:
 - a. Starting other applications.
 - b. Switching to other applications that may be running.
 - c. Exiting from the system.
 - d. Restarting the computer using <Ctrl><Alt><Delete>.
 - e. Opening unauthorized graphic screens.
 - f. Closing the current graphic screens.
 - g. Using the system menu.
 - h. Switching to the configuration environment.
 - i. Accessing the system tree.
- 6. The system shall allow for a login timeout setting for each user account. This variable setting will logout an operator when the time interval expires.
- 7. The system shall support manual login and logout as well as automatic login.

2.8 PROGRAMMABLE LOGIC CONTROLLERS (PLC'S)

A. ACCEPTABLE MANUFACTURERS

- 1. Omron
- 2. No approved Equal

B. GENERAL

- 1. High reliability, integration of functionality, software flexibility and ease of maintenance shall be the primary criteria for PLC system selection. To achieve this end the following specification shall be strictly adhered to.
- 2. Each PLC shall be a standard industrial grade product designed for high reliability. The PLC shall be manufactured by a company that has produced a product line of compatible PLC's for at least fifteen years
- 3. The PLC manufacturer must guarantee the availability of spare parts for a period of 10 years.
- 4. The PLC's shall be configured as direct digital controllers without dependency on a central processing unit or central software package. Loss of communications to and from the communications network shall in no way affect the operation of the local graphic controller associated with its local PLC. Failure or loss of any PLC shall not affect the operation of any other PLC.
- 5. The PLC CPUs shall be software based utilizing RAM and EEPROM such that any future changes in alarm reporting, interlock schedules or control functions will be accomplished by a software change only not requiring any rewiring or addition of equipment. Software flexibility is mandatory, discrete circuit door control is not acceptable.
- 6. PLC output boards shall not be allowed to directly drive electric locks, sliding doors or any other function with either a surge current or continuous duty current or more than 500 milli- amps. Output boards shall drive relays as described herein.
- 7. Each monitored swing door shall have two separate and distinct monitored points. Monitoring a swing door with a single secure/unsecure point is unacceptable. Swing doors with electric locks shall be monitored for separate points for lock bolt status and for door position status.
- 8. Initiation of unlocking/locking, opening/closing or doors shall have maximum time duration of 1 second, from time of initiation from the control panel or graphic controller to movement of the door device. This time duration shall appear to be imperceptible by the operator.
- 9. All PLC to PLC communication shall utilize a fiber optic backbone.
- 10. All PLC's shall communicate with the Security Control System (SS) and touch screen. All PLC operations and I/O states shall be continuously communicated to the associated touch screen.
- 11. Provide programmable logic controllers (PLC's) sized to accommodate the inputs/outputs and functional operations required at each of the following locations:

2.9 MECHANICAL RELAYS

- A. Light duty relays and similar devices shall have dust covers which protect against fouling by dust or other material which may adversely affect their normal operation. All mechanical plug-in relays shall be equal to Potter-Brumfield KUP Series with contact rated 10 amps. All relays shall be of the plug-in type with LED status indication and individual fuses. Relays for control of motor-operated locks and sliding doors shall be horsepower rated for the device it controls.
- B. Relays shall be DIN-rail mounted for easy replacement and shall be individually fused with LED indicator showing the status of each relay. In the group, gang or emergency release modes of operation the relays shall be controlled by the local PLC such that no more than three doors are operated at a time on a single circuit and the doors shall be released or closed in groups of size in three second intervals; this function is to be automatic and controlled via the PLC.
 - 1. Relays for control of motor-operated locks and sliding doors shall be horsepower rated for the device it controls.
 - 2. Relays for intercom control shall be hermetically sealed designed for audio circuits
 - 3. Relays interfaced to control AC power circuits shall be rated 20 ampere at 120 or 277 VAC and MOV protected to prevent induction currents.
 - 4. Relays for telephone control circuits shall be four-pole. Coordinate requirements with Owner's telephone system vendor. These relays shall be located in the PLC equipment racks.
 - 5. Use of electronic control boards for door control unacceptable.

2.10 DOOR CONTROL POWER SUPPLIES

- A. Provide regulated DC power supplies for the control and operation of electro-magnetic locks, electric strikes, detention pneumatic and/or motor-operated and electric solenoid locks. Power supplies shall be 120 volt AC input and 24 volt DC output, Class II, with a maximum +/- 10% voltage fluctuation.
- B. Coordinate and verify all lock power requirements with Division 08 for the actual hardware manufacturer being supplied. Power supplies shall be sized as recommended by the manufacturer with 10% spare capacity at each door control power supply location.
- C. Where the functional requirements dictate that one control function (emergency group release) is to open multiple doors, the opening (as for electrically operated doors) or unlocking (as for electrically operated door locks) of doors shall be sequentially staggered at a maximum of three at a time so as to minimize the power supply required for the electric locks or operators.

2.11 MISCELLANEOUS POWER SUPPLIES

- A. Miscellaneous plug-in power supplies shall be strapped to their receptacle with tie-wraps or secured to the receptacle cover plate if the power supply includes a mounting tab with screw. This is to prevent the power supply from loosening over time or from being accidentally disconnected.

2.12 LOCAL PUSHBUTTON DOOR CONTROL

- A. Selected doors with local pushbutton door control as indicated on the Drawings and scheduled will be interfaced to the PLC controller as a valid input. This input will unlock the door and prevent an alarm condition to occur at the monitoring touch screen/s.
 - 1. Wall mounted: Basis of Design – Quam CIB2
 - 2. Desk Mounted: Basis of Design – SDC 15-2

2.13 LIGHTNING PROTECTION

- A. All communications and data equipment control, sensor and data cabling shall be protected against induced surges. Surge protection shall be provided on all circuit ends that meet the IEEE 772 surge withstand capability test and the electrical transient tests as established in UL 365-1985. Fuses shall not be used for surge protection.
- B. All power connections including low voltage power supplies and direct-wired or plug-in 120VAC power connections for all system components shall be equipped with lightning suppression devices. All communications, data and power lightning devices shall be bonded to building grounding system in accordance with Article 250 of the National Electrical Code.
- C. Provide a dedicated no. 6 AWG insulated ground copper conductor from building ground to all security equipment rooms, security control equipment panels and control rooms. Connect all lightning protection devices and security equipment non-current carrying metal parts to grounding conductor in accordance with Article 250 of the National Electrical Code.

PART 3 - EXECUTION

3.1 INSPECTION AND INSTALLATION

- A. Contractor shall furnish and install all cables, connectors and equipment as shown on drawings and as specified.
- B. Refer to Project Drawings that indicate the equipment location within each building.
- C. It is the contractor's responsibility to survey the site and include all necessary costs to perform the installation as specified.
- D. Beginning installation means contractor accepts existing conditions.
- E. Where unacceptable conditions are found, the Contractor shall bring this to the attention of the construction supervisor immediately. A written resolution will follow to determine the appropriate action to be taken.
- F. If any installed cable is kinked to a radius less than recommended dimension the contractor shall replace it at no additional cost to the project.
- G. The system will be tested and documented upon completion of the installation as defined in the Section below.

3.2 TESTING AND ACCEPTANCE

- A. This Contractor shall conduct tests to determine system conformance to requirements of this specification. Tests shall be conducted in the presence of the Engineer or his authorized representative who may suspend or discontinue the tests at any time performance is considered unsatisfactory. Resumption of testing will cover untested elements and any replaced elements. This contractor shall furnish test instruments and equipment of the accuracy necessary to perform the test. Arrangements for testing must be made with the Engineer at least two weeks before the proposed testing date. The institution's technician shall also be present during testing.
- B. Testing shall verify function and operation of all relays, switches, door locks and indicator lights for proper function including the verification of all interlock, emergency group release and staggered release sequencing.

- C. Contractor shall maintain a running list of all doors determined to be mechanically defect in operation. Submit list to the General Contractor, the Div. 11 - Detention Equipment Contractor and the Security Electronics Consultant.
- D. The SEC shall visually inspect all equipment to insure that they are complete and conform to the requirements defined herein. The contractor shall provide the Engineer with a written certification that this inspection has been made
- E. The SEC shall conduct acceptance testing according to a schedule coordinated with the Owner. Representatives of the Owner may be in attendance to witness the test procedures. The contractor shall provide a minimum of one (1) week advance notice to the Engineer as to allow for such participation. The notification shall include a written description of the proposed conduct of the tests including copies of blank test result sheets to be used.
- F. IMPORTANT: Failure to provide the above information shall be grounds for the Owner/Engineer to reject all Documentation of Results on related testing and to require a repeat of the affected test.
- G. Tests related to connected equipment of others shall only be done with the permission and presence of others involved.
- H. Should it be found by the Engineer that the materials or any portion thereof furnished and installed under this contract fail to comply with the specifications and drawings, with the respect or regard to the quality, amount of value of materials, appliances or labor used in the work, it shall be rejected and replaced by the Contractor and all work distributed by changes necessitated in consequence of said defects or imperfections shall be made good at the Contractor's expense.

3.3 DOCUMENTATION

- A. Upon completion of the installation, the contractor shall provide 3 full Documentation Sets to the Engineer for approval. Documentation shall include the items detailed below.
- B. Connection matrix showing fiber strands used to activate LAN on existing cable plant
- C. All documentation, including hard copy and electronic forms shall become the property of the County.

3.4 WARRANTY

- A. The SEC shall guarantee all materials, equipment, etc. for 1 year from date of substantial completion of this work. This guarantee shall include all labor, material and travel time. See Division 01 - GENERAL CONDITIONS, and Division 00 - GENERAL REQUIREMENTS - Guarantee Documents for further requirements.

3.5 WIRING

- A. All wiring shall be in accordance with the requirements set forth in Division 26
- B. All power wiring for 24 volt or 120 volt sliding door gates, doors or locks shall have a green equipment ground conductor.
- C. All wiring for status indicators of electric locks and the control and status of pneumatic doors shall utilize 18 AWG multi-conductor cable under a common outer jacket and shall be installed in common raceways and equipment's enclosures with other conductors for locking devices within the limitations defined by Article 725-15 of the National Electrical Code for Class 2.

- D. Wiring for electro-mechanical lock control shall be No. 18 AWG-CU minimum.
- E. All conductors shall be stranded copper.

END OF SECTION

SECTION 28 46 50
CARD ACCESS SYSTEM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 RELATED WORK

- A. Section 28 46 00 – Security System General Requirements
- B. Section 28 46 10 – Sequencing of Security Electronics Work
- C. Section 28 46 50 – Card Access System
- D. Section 28 46 60 – Duress Alarm System
- E. Section 28 46 80 – Video Surveillance System

1.3 SUBMITTALS

- A. Prepare submittals in accord with the requirements of specification Section 28 46 00 and include the following information:
 - 1. Manufacturers catalog specification cuts and printed descriptive literature on all components outlined in this specification. Each component shall be clearly identified with options marked or highlighted.

1.4 QUALITY ASSURANCE

- A. The 2015 International Building Code (IBC), as modified by the State of Wisconsin Chapters SPS 361-366 - Commercial Building Code, governs the requirements for products, materials, components, and systems that are indicated on the Drawings and specified in the Project Manual.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. The card access system is to be an extension of the existing Rock County Premisys Pro system installed in other County buildings

2.2 HARDWARE

- A. Two-Reader Controller
 - 1. The Two-Reader Controller shall be of a distributed database design and provide access control, alarm monitoring and time zone control for both access to and egress from selected areas. The Two-Reader Controller shall process all data transmitted to and from the I/O boards connected to it. The controller shall use 12 VDC for power and be intended for use in low voltage, Class 2 circuits only.
 - 2. Incorporated on the Two-Reader Controller shall be memory as follows: 1 MB SRAM for transactions and new card information; 16 MB non-volatile flash memory for card and system information; 16 MB SDRAM for system firmware and database storage for the application. A 3-volt lithium coin cell shall provide SRAM and clock backup.

3. Two-way communications between the controller and the host computer shall be via a primary Ethernet 10/100Base-T interface or the optional serial RS-232 port. The Ethernet port and a serial port for RS-232 connections shall be built-in on the controller. When Ethernet is the connection means, the number of controllers possible in a system shall be limited only by the network capacity and bandwidth. When using RS-232 connections the system shall allow one controller per computer port. Communication between the controller and host shall be selectable from among the baud rates 2400, 9600, 19,200, 38,400 and 115,200.
4. The Two-Reader Controller shall provide two reader ports built into the controller. Such reader ports shall support up to two (2) reading devices of the same or different technologies.
5. The Two-Reader Controller shall be connectable to a variety of system I/O boards that act as interfaces between the controller and auxiliary access-control and door hardware such as locks, input devices and switches. These I/O boards shall include reader boards, input boards and output boards, as well as multiplexer boards. All communications lines to I/O boards shall be supervised in the system, and transactions shall be provided in the system to alert the operator of offline or disconnect statuses. Communications between any controller and its I/O boards shall be via serial RS-485 and/or TCP/IP over Ethernet. It shall be possible to connect up to 32 I/O boards to a single Two-Reader Controller. It shall also be possible for each Two-Reader Controller to receive input from a maximum of 64 readers, including readers connected to the two reader ports built into the controller. Communication between the controller and I/O boards shall be selectable from among the baud rates 2400, 9600, 19,200 and 38,400.
6. The Two-Reader Controller shall be capable of providing redundant communications to the host computer for use in the event that the primary Ethernet connection to the host is lost. The serial RS-232 interface serves as the means for redundant communication.
7. Any controller within the network of controllers shall have an address that is different from any other on the same port of the PC. The Two-Reader Controller's address shall be selected by means of a configuration Web page stored on the Two-Reader Controller and accessed through a Web browser using a default IP address.
8. The Two-Reader Controller shall provide eight (8) supervised inputs for use as door-position inputs, request-to-exit inputs etc. The states of the inputs shall be as follows: normally open; normally closed; 1 K normal, 2 K active; and 2 K normal, 1 K active. It additionally shall be possible to set the debounce and hold times for each input on the board. It shall be possible to set all input configuration via the system software.
9. Held-open times – the time during which a door may be held open without generating a system alarm – for inputs on the board assigned as door-position points shall be software-selectable in two-second increments between 2 and 65,534 seconds.
10. All input points shall have a corresponding LED on the board that indicates the state of the point.
11. The Two-Reader Controller shall also provide two Form-C, noninductive relay outputs for door-lock control or alarm signaling. Control of the relays shall be software-assignable to be triggered by card presentations, time zones and/or other system actions. The contact ratings shall be 5 A at 30 VDC. The relays shall be configurable for normal (relay energized when “on”) or inverted (relay de-energized when “on”) action. Pulse time of a relay used as a door-lock relay shall be software-selectable between 1 and 255 seconds.
12. It shall be possible via the system software to link an input or relay on the Two-Reader Controller to cause an action on any other relay in the system and to select the action that a linked relay will take when the triggering input or relay is activated.
13. The Two-Reader Controller shall have a dedicated input point for optional connection to a controller enclosure tamper switch and another dedicated input point for optional connection to a power-loss monitoring device. Systems requiring use of one of the available system input points for this monitoring shall be unacceptable.
14. The system shall allow the incorporation of a rechargeable battery as part of the power supply to provide full functionality for the controller, system communications and board-powered readers in the event of a power failure.
15. Two-Reader Controllers shall be housed in heavy-gauge steel enclosures with hinged front doors. Conduit knockouts shall be available on sides and backs of the enclosures.

B. Two-Reader Board

1. The Two-Reader board shall be connected to a system controller and act as an interface between this controller and any of a variety of readers that can read ABA-formatted data or Wiegand®-formatted data from smart cards, proximity cards, magnetic-stripe cards, bar-coded cards or

- cards possessing a combination of these technologies. The board shall also be capable of supporting tri-stated LED control and buzzer control.
2. The Two-Reader board shall support up to two (2) reading devices of the same or different technologies, the type being selectable through the application software. Systems that are unable to use readers of different technologies on the same board or require a change in software, firmware or "other" interface devices shall be unacceptable.
 3. The Two-Reader board shall use quick-disconnect terminal blocks for all interconnections to the interface. The Two-Reader board shall be intended for use in low voltage, Class 2 circuits only.
 4. The Two-Reader board shall communicate to a controller via a two-wire RS-485 interface, which shall allow multi-drop communication on a single bus of up to 4,000 feet (1,200 m). It shall be possible to connect up to 64 I/O boards, of which any number can be Two-Reader boards, to a single IP Controller described in this specification, or up to 32 I/O boards, of which any number can be Two-Reader boards, to a single Two-Reader Controller described in this specification. All communications lines shall be supervised in the system, and transactions shall be provided in the system to alert the operator of offline or disconnect statuses. Provision to set end-of-line (EOL) resistance for the board itself shall be built into the board should this resistance be needed.
 5. Each Two-Reader board shall be uniquely addressable by the user through the settings of a dual in-line package (DIP) switch on the board. In addition, this DIP switch shall be used to select the baud rate of communication with the controller.
 6. All two-reader boards shall be housed in heavy-gauge steel enclosures with hinged front doors. Conduit knockouts shall be available on sides and backs of the enclosures.
 7. The Two-Reader board shall provide sensor monitoring via its eight (8) supervised inputs, which can be used as door-position inputs, request-to-exit inputs and for other purposes. The states of the inputs shall be as follows: normally open; normally closed; 1 K normal, 2 K active; and 2 K normal, 1 K active. It additionally shall be possible to set the debounce and hold times for each input on the board. It shall be possible to set all input configuration via the system software.
 8. Held-open times – the time during which a door may be held open without generating a system alarm – for inputs on the board assigned as door-position points shall be software-selectable in two-second increments between 2 and 65,534 seconds.
 9. Each input point shall have a corresponding LED on the board that indicates the state of the point.
 10. It shall be possible via the system software to link any input or relay on the Two-Reader board to cause an action on any other relay in the system and to select the action that the linked relay will take when the triggering input or relay is activated.
 11. When using the two readers on the same door, for example, to provide antipassback capability, it shall be possible to assign a single input point on the board as the door-position point shunted by either reader connected to the board. It shall also be possible to assign a single relay on the board as the door-lock relay controlled by either reader.
 12. The Two-Reader board shall also provide six Form-C, non-inductive contact relays with ratings of 5 A at 28 VDC for optional use in controlling door locks, alarm signals or other devices. Control of the relays shall be software-assignable to be triggered by a reading device, cardholder, time zone and/or other system actions. The relays shall be configurable for normal (relay energized when "on") or inverted (relay de-energized when "on") action. Pulse time of a relay used as a door-lock relay shall be software-selectable between 1 and 255 seconds.
 13. It shall also be possible to define the response desired for each relay when communications go offline between the Two-Reader board and the controller: The relay shall be active, the relay shall be inactive, or the relay shall maintain its status at the moment communications are lost. Each relay shall have a corresponding LED on the board that indicates when the relay is energized.
 14. The Two-Reader board shall also provide two digital inputs for optional use to indicate tamper and power fault status.
 15. It shall be possible via the system software to link any relay on the Two-Reader board to cause an action on any other relay on the same board or on any other board wired to the same controller and to select the action that the linked relay will take when the triggering relay is activated.
 16. The Two-Reader board shall accept 12 VDC for power. It shall be possible to select the input voltage to be passed through the board to the reader, with a maximum of 125 mA available per reader port. The power selection shall be made via a jumper on the board and shall apply to both reader ports.
 17. The Two-Reader board shall have a dedicated input point for optional connection to an enclosure tamper switch and another dedicated input point for optional connection to a power-loss

monitoring device. Systems requiring use of one of the available input points on the Two-Reader board for this monitoring shall be unacceptable.

C. Input Board

1. The Input Board shall be connected to a system controller and provide sensor monitoring and output control via its 16 supervised inputs. The states of the inputs shall be as follows: normally open; normally closed; 1 K normal, 2 K active; and 2 K normal, 1 K active. It additionally shall be possible to set the debounce and hold times for each input on the board. Each input point shall have a corresponding LED on the board that indicates the state of the point.
2. The Input Board shall also provide two Form-C contact relays for optional use in controlling door strikes or other devices. Control of the relays shall be software-assignable to be triggered by system actions. Pulse time of the relays shall be software-selectable between 1 and 255 seconds, inclusive.
3. It shall be possible via the system software to link any input or relay on the Input Board to cause an action on any other relay in the system and to select the action that a linked relay will take when the triggering input or relay is activated.
4. All interconnections to the interface shall be via quick-disconnect terminal blocks. The Input Board shall be intended for use in low voltage, Class 2 circuits only.
5. The Input Board shall communicate to a controller via a two-wire RS-485 interface, which shall allow multi-drop communication on a single bus of up to 4,000 feet (1,200 m). It shall be possible to connect up to 64 I/O boards, all or some of which can be input boards, to a single IP controller described in the specification, or up to 32 I/O boards, all or some of which can be input boards, to a single Two-Reader controller described in the specification. All communications lines shall be supervised in the system, and transactions shall be provided in the system to alert the operator of offline or disconnect statuses. Provision to set end-of-line (EOL) resistance for the inputs 1 through 16 and for the board itself shall be built into the board should this resistance be needed.
6. Each input board shall be uniquely addressable by the user through the settings of a dual in-line package (DIP) switch on the board. In addition, this DIP switch shall be used to select the baud rate of communication with the controller.
7. All input boards shall be housed in heavy-gauge steel enclosures with hinged front doors. Conduit knockouts shall be available on sides and backs of the enclosures.
8. The Input Board shall accept 12 VDC for power.
9. The Input Board shall have a dedicated input point for optional connection to an enclosure tamper switch and another dedicated input point for optional connection to a power-loss monitoring device. Systems requiring use of one of the available input points on the Input Board for this monitoring shall be unacceptable.

D. Output Board

1. The Output Board shall be connected to a system controller and provide output control via 16 Form-C, noninductive relays with ratings of 5 A at 28 VDC. The relays shall be configurable for normal (relay energized when "on") or inverted (relay de-energized when "on") action. It shall also be possible to define the response desired for each relay when communications go offline between the Output Board and the controller: The relay shall be active, the relay shall be inactive, or the relay shall maintain its status at the moment communications go offline. Each relay shall have a corresponding LED on the board that indicates when the relay is energized.
2. Control of the relays shall be software-assignable to be triggered by a reading device, cardholder, time zone and/or other system actions. The relays shall be configurable for normal (relay energized when "on") or inverted (relay de-energized when "on") action. Pulse time of the relays shall be software-selectable between 1 and 255 seconds, inclusive.
3. It shall be possible via the system software to link any relay on the Output Board to cause an action on any other relay in the system and to select the action that a linked relay will take when the triggering input or relay is activated.
4. All interconnections to the Output Board shall be via quick-disconnect terminal blocks. The Output Board shall be intended for use in low voltage, Class 2 circuits only.
5. The Output Board shall communicate to a controller via a two-wire RS-485 interface, which shall allow multi-drop communication on a single bus of up to 4,000 feet (1,200 m). It shall be possible to connect up to 64 I/O boards, all or some of which can be output boards, to a single IP Controller described in the specification, or up to 32 I/O boards, all or some of which can be output boards, to a single Two-Reader Controller described in the specification. All communications shall be supervised in the system, and transactions shall be provided in the system to alert the operator of offline or disconnect statuses.

6. Each Output Board shall be uniquely addressable by the user through the settings of a dual in-line package (DIP) switch on the board. In addition, this DIP switch shall be used to select the baud rate of communication with the controller
7. All output boards shall be housed in heavy-gauge steel enclosures with hinged front doors. Conduit knockouts shall be available on sides and backs of the enclosures.
8. The Output Board shall accept 12 VDC for power.
9. The Output Board shall have a dedicated input point for optional connection to an enclosure tamper switch and another dedicated input point for optional connection to a power-loss monitoring device. Systems requiring use of one of the available input points on the Output Board for this monitoring shall be unacceptable.
10. Provision to set end-of-line (EOL) resistance for the board itself shall be built into the board should this resistance be needed.

2.3 CARD READERS

A. Manufacturers

1. The manufacturers named herein shall be regularly involved in the design, manufacture or distribution of products specified in this document.
2. All products shall be listed by the manufacturer for their intended purpose.
3. Products manufactured or distributed by IDenticard Systems, Inc., a Brady Worldwide company, shall constitute the minimum type and quality of equipment to be installed.
4. The authorized representative of the manufacturer of the major equipment, such as controllers, shall be responsible for the satisfactory installation of the complete system.
5. The contractor shall provide, from the acceptable manufacturer's current product lines, equipment and components that comply with the requirements of these specifications. Equipment or components that do not provide the performance and features required by these specifications are not acceptable, regardless of manufacturer.

B. HID® multiCLASS SE Readers

1. The readers shall operate at 13.56 MHz at 13.56 MHz and 125 KHz in the same reader device, and shall operate across a voltage range of five volts direct current (5 VDC) to sixteen volts direct current (16 VDC) . The readers shall be manufactured with at least 10.5% of recycled content.
2. The readers shall support multiple technologies (iCLASS® Seos™ and iCLASS SE® credential platforms, standard iCLASS, MIFARE®, and MIFARE DESFire® EV1) and shall utilize Open Supervised Device Protocol (OSDP) for secure, bidirectional communication. The readers shall provide simultaneous support for 125kHz HID Prox®, Indala®, AWID and EM4102, and shall be FIPS 201 compliant.
3. The readers shall provide an operating reading distance from .5 inches (1.3 centimeters) to 3.5 inches (8.6 centimeters) depending on reader model and credential used.

PART 3 - EXECUTION

3.1 INSPECTION

- A. All wiring shall be tested for continuity, shorts and grounds before the system is activated.
- B. All test equipment, instruments, tools and labor required to conduct the tests shall be made available by the installing contractor.
- C. The system, including all its sequence of operations, shall be demonstrated to the Owner and his representative. In the event the system does not operate properly, the test shall be terminated. Corrections shall be made, and the testing procedure shall be repeated until it is acceptable to the Owner and his representatives.
- D. At the final test and inspection, a factory-trained representative of the system manufacturer shall demonstrate that the system functions properly in accordance with these specifications. The

representative shall provide technical supervision, and shall participate during all of the testing for the system.

- E. A letter from the Contractor shall be provided to certify that the system is installed entirely in accordance with the system manufacturer's recommendations and within the limitations of the required listings and approvals, that all system hardware and software has been visually inspected and functionally tested by a manufacturer's certified representative, and that the system is in proper working order.

3.2 INSTALLATION

- A. The Contractor shall coordinate with the County IT Department for interface with their LAN system as required.
- B. The Contractor shall carefully follow the instructions in the manufacturers' Installation Manual to ensure all steps have been taken to provide a reliable, easy to operate system.
- C. The Contractor shall coordinate with the Architectural Hardware consultant to interface with all electric locks.
- D. The Contractor shall perform all work as indicated in the drawings and specifications.
- E. The Contractor shall install the appropriate cable from the I/O boards to readers, door contacts, request-to-exit devices, and electric locks at each door.
- F. All communications cables shall be kept away from power circuits.
- G. The Contractor shall install the power supply(s) for electric locks in locations where they cannot interfere with other operations.
- H. The Contractor shall also execute adequate testing of the system to ensure proper operation.

END OF SECTION

SECTION 28 46 60
DURESS ALARM SYSTEM

PART 1 - GENERAL

1.1 SCOPE

- A. This system interfaces with the security control system to perform the designed functions utilizing inputs and outputs of the PLC's.
- B. Provide all labor, equipment, materials, and supervision to install, program, calibrate, adjust, document, and test the total system as required herein and on the drawings.
- C. All equipment described in this section shall be provided by the Security Contractor as described in Section 28 46 00.
- D. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 RELATED WORK

- A. All applicable sections associated with Division 1, 26 and 28:

1.3 QUALITY ASSURANCE

- A. The 2015 International Building Code (IBC), as modified by the State of Wisconsin Chapters SPS 361-366 - Commercial Building Code, governs the requirements for products, materials, components, and systems that are indicated on the Drawings and specified in the Project Manual.

PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION

- A. The duress alarm system consists of the following:
 - 1. Hardwired wall mounted pushbuttons
 - 2. Hardwired under desk/counter lever action devices
- B. Refer to drawings for locations
- C. Annunciation of the system occurs as alarming icons on the security touchscreens at Master Control. Each button/lever activator shall be individually depicted.

2.2 HARDWIRED DEVICES

- 1. Concealed desk mount – desk mount devices shall be installed in a concealed manner to not alert the general population that a duress alarm has been triggered.
 - a. Manufacturer:
 - 1) Sentrol 3045

PART 3 - EXECUTION

3.1 INSPECTION

- A. Prior to installation , the security contractor shall verify exact placement of all devices and coordinate location requirements with the Division 26 contractor.

3.2 INSTALLATION

- A. For hardwired devices at desk locations, provide a single gang box mounted at 18" a.f.f. with 3/8" trade size center hole and allow for 6' of flexible conduit for connection to underside of desk.
- B. All devices shall be installed with security fasteners in accordance with the specification.

END OF SECTION

SECTION 28 46 80

VIDEO SURVEILLANCE SYSTEM

PART 1 - GENERAL

1.1 SCOPE

- A. This section describes the products and execution requirements relating to furnishing and installing a complete Video Surveillance System (VSS). The VSS shall be inclusive of all related sub-systems required to provide the storage, monitoring and transport of the images/data acquired from the cameras located with Rock County Courthouse. Active and passive equipment shall be provided as required to complete the system.
- B. The SEC as described in Section 28 46 00 shall provide all work and equipment described in this Section.
- C. Applicable provisions of Division 01 shall govern the Work of this Section.
- D. SEC Contractor is to provide and install a complete and working VSS. All equipment, cables and related hardware shall be furnished, installed, tested, labeled, and documented by the SEC Contractor, as detailed in the following sections.
- E. The SEC Contractor shall furnish all materials, labor and any engineering services necessary to provide complete and professionally installed systems in excellent working order as described herein. Laborers shall be specialized and experienced in security installations of type and size described in the Contract Documents.
- F. This installation shall provide cameras, monitors and equipment at the locations indicated on the Drawings, and as required for a fully functional VSS. All associated cabling must be provided and included in the SEC Contractor's proposal. The Drawings provided show the design intent and are to be used as a guide for installation.
- G. The SEC Contractor shall provide any additional items not specifically mentioned herein, necessary to meet system requirements as specified, without claim for additional payment. Such items may include hardware, transformers, control modules, and other devices for proper installation, interface, integration, and functionality.
- H. Basic Electrical Requirements are applicable to all Division 28 sections. This section includes information common to two or more technical specification sections or items that are of a general nature, not conveniently fitting into other technical sections.
- I. Basic System Requirements;
 - 1. H.264 for Live Viewing and Recording
 - 2. 1080p Resolution – Digital Cameras
 - 3. Camera Live View at 30 ips
 - 4. Recorded Video at 15 ips
 - 5. NVR shall Record Video 24/7 for 120 Days
 - 6. NVR shall have Raid 5 for Recovery Hard Drive Loss
- J. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 RELATED WORK

- A. Section 28 46 00 – Security System General Requirements
- B. Section 28 46 10 – Sequencing of Security Electronics Work
- C. Section 28 46 50 – Card Access System
- D. Section 28 46 60 – Duress Alarm System

- E. Section 28 46 80 – Video Surveillance System

1.3 REGULATORY REFERENCES

- A. All work and materials shall conform in every detail to the rules and requirements of the National Fire Protection Association, the Wisconsin Electrical Code and present manufacturing standards.
- B. All materials shall be listed by UL and shall bear the UL label. If UL has no published standards for a particular item, then other national independent testing standards shall apply and such items shall bear those labels. Where UL has an applicable system listing and label, the entire system shall be so labeled.
- C. Other applicable standards are as follows:
 - 1. ANSI/IEEE C2 - National Electrical Safety Code
 - 2. NFPA 70-2005 - National Electrical Code
 - 3. IEEE 802.3 Standards for Ethernet

1.4 WORK SEQUENCE

- A. During the construction period, coordinate schedule and operations with Rock County Facilities Management and Rock County Sheriff's Department.

1.5 SUBMITTALS

- A. Prepare submittals in accord with the requirements of specification Section 28 46 00 and include the following information:
 - 1. Manufacturers catalog specification cuts and printed descriptive literature on all components outlined in this specification. Each component shall be clearly identified with options marked or highlighted

PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION

- A. Refer to drawings for camera locations and types
- B. Operator controls shall consist of desktop workstations with standard keyboard and mouse

2.2 TOUCH SCREEN CALL-UP

- A. Multiplexed monitors shall be interfaced with the touchscreen door control and monitoring workstations to allow for camera callup with a camera icon is selected on the touchscreen monitor.

2.3 VIDEO MANAGEMENT SOFTWARE

- A. This system shall be an expansion of the existing BVMS Pro system currently installed in the Rock County Courthouse. System shall be upgraded to most current version at time of system commissioning.

2.4 NVR ARCHIVING MODULAR SERVER STORAGE EXPANSION (RACK MOUNTED)

- A. Manufacturers:

1. HP

B. Minimum Requirements:

1. Capacity as required for SAS hot swappable hard disks sized as required in conjunction with NVR Archiving Server units as required for the storage of up to 64 cameras at 15fps with a 1080p digital resolution (4CIF 704x576 analog resolution) for 120 days per camera input plus 25% expansion per unit.
2. The NVR shall be sized to accommodate 120 days of usable (not net) storage at 1080P, 15FPS, using a data rate of 2300kbps assuming 50% motion. For PTZ cameras operating at 4CIF (704x480) the assumptions should be 800kbps, 15fps, using a data rate of 800kbps assuming 50% motion."
3. License agreement for all applicable software.
4. Redundancy
 - a. The unit shall support a fault tolerant hard drive and redundant database architecture through the utilization of a Redundant Array of Independent Disks (RAID). It shall allow for normal operations with minimal downtime to occur in the event that the database server fails.
 - b. The Contractor shall furnish and install a level 5 SCSI RAID, hot swappable. The RAID unit shall provide data striping at the byte level and also stripe error correction information with excellent performance and good fault tolerance. The Contractor shall supply hard drives where required via SCSI format.
 - c. The system shall support a redundant array of multiple independent hard disk drives RAID that provide high performance and fault tolerance. The RAID array shall appear to the host computer as a single storage unit.
 - d. RAID level 5 includes disk striping at the block level and parity. The administrator shall be able to replace the failed drive without taking the security system down. The array software shall rebuild the lost data from parity information stored on the other drives in the array.
 - e. Provide RAID management software for physical and logical supervision of the RAID Subsystem. The RAID management software shall, at a minimum, report logical disk errors, Physical disk errors, Power supply failures, over temperature, SCSI interface failure.
5. Clone computers built by the Contractor shall not be acceptable. Computers shall be fully compatible and endorsed by Video Management Software provider.

2.5 REMOTE WORKSTATION

A. Workstations

1. Manufacturers:
 - a. HP
 - b. Dell
2. Minimum requirements:
 - a. 3.33 GHz processor with 16GB of RAM.
 - b. Two (2) serial ports.
 - c. 10/100/1000 MBPS Ethernet NIC.
 - d. DVD/CD-read/write drive.
 - e. 1TB hard disk storage
 - f. Up to (3) 2.5 inch SATA solid state drives 0.9TB
 - g. License agreement for all applicable software.
 - h. Video card with VGA, HDMI, DVI output connector
 - i. 1GB – PCI Express 2.0 x 16 low profile DVI
 - j. Mouse.
 - k. Full function keyboard.
 - l. Audio sound card and speakers.
3. Video surveillance client software shall be installed on the unit.
4. Clone computers built by the Contractor shall not be acceptable. Computers shall be fully compatible and endorsed by the Video Management Software provider.
5. Provide patch cords as required for network connection to local switch, video VGA, mouse and keyboard.

B. MONITORS

1. Color flat panel TFT/LCD monitor with swivel base for horizontal and vertical viewing adjustment, on screen display for setup and adjustment of monitor parameters and built-in power supply. The monitors shall have a protective glass filter.
2. MONITOR (size as scheduled)
 - a. Viewable image size: 23", 27" or 52" (nominal)
 - b. Aspect ratio: 16 x 9
 - c. Pixel Pitch: 0.294mm
 - d. Interface: Digital
 - e. Resolution: 1080p
 - f. Brightness: 300cd/m2
 - g. Display Colors: 16.7 million
 - h. Response Time: 8ms
 - i. Viewing angle: 120H X 110V
3. SEC to provide monitors with HDMI input

2.6 CAMERA TYPE A

- A. The multi-sensor adjustable dome network camera shall be outdoor (IP66) and vandal rated (IK10) and
- B. The Vandal resistant 1080P HD camera shall have a microSD card slot that uses standard; offthe-shelf microSD (SDHC and SDXC) cards for local storage (up to 2 TB) and be enclosed in a cast-aluminum housing with an aluminum trim ring and a clear polycarbonate dome bubble (with UV blocking anti-scratch coating) and a hardened inner liner and be capable of operating in an indoor or an outdoor environment.
- C. Image Sensor: 1/2.7-inch CMOS HD image sensor.
- D. Lens: 3-9mm motorized automatic zoom and focus (remote varifocal), super resolution lenses with an advanced iris design.
- E. Overall IP Delay: Min. 120 ms, Max. 240 ms
- F. Dynamic Range: 120 dB
- G. Audio
 1. Standard:
 - a. AAC
 - b. G.711, 8 kHz sampling rate
 - c. L16, 16 kHz sampling rate
 - d. Signal-to-Noise Ratio: >50 dB
 - e. Audio Streaming: Full duplex / Half duplex
- H. Light sensitivity (based on 3100K, Scene Reflectivity 89%, 30 IRE)
 1. Starlight mode:
 - a. Color: 0.0075 lx
 - b. Monochrome: 0.0011 lx
 2. HDR mode:
 - a. Color: 0.044lx
 - b. Monochrome: 0.015 lx
- I. Content-based Imaging Technology (C-BIT) and Intelligent Dynamic Noise Reduction (iDNR) technology to reduce the bitrate and storage requirements by removing noise artifacts.
- J. Resolution: 1920 x 1080 pixels (HD 1080p) at 60 ips with a 16:9 image format, 1280 x 960 pixels (HD 960p) at 30 ips with a 4:3 image format, 1280 x 720 pixels (HD 720p) at 30 ips with a 16:9 image format and D1 resolution of 704 x 480 pixels at 30 ips with a 4:3 image format.
- K. Network:

1. Protocols: IPv4, IPv6, UDP, TCP, HTTP, HTTPS, RTP, IGMP V2/V3, ICMP, RTSP, FTP, Telnet, ARP, DHCP, SNTP, SNMP (V1, MIB-II), 802.1x, SMTP, iSCSI, UPnP (SSDP)
 2. Encryption: TLS 1.0, SSL, AES (optional)
 3. Ethernet: STP, 10/100 Base-T, auto-sensing, half/full duplex, RJ45
 4. PoE Supply: IEEE 802.3at Type-2 compliant
- L. Connectivity:
1. ONVIF Profile S
 2. Auto-MDIX
- M. Edge Essential Video Analytics:
1. Configurations:
 - a. Silent VCA/Profile1/2/Scheduled/Event Triggered
 2. Alarm Rules (combinable):
 - a. Any object / Object in field / Line Crossing / Enter/Leave field / Loitering / Follow Route / Idle/remove object / Counting / Occupancy / Crowd Density estimation / Condition change / Similarity search
- N. Environmental:
1. Operating Temperature: -30°C to +50°C (-22°F to 122°F) Cold Start Temperature: -20°C (-4°F)
 2. Operating Humidity: 5% to 93% relative humidity
 3. Water/Dust Protection: IP66 and NEMA Type 4X
 4. Impact Protection: IK10
- O. Model:
1. Bosch NIN-63023-A3 series
- P. Accessories:
1. Include all necessary accessories to facilitate installation of camera in mounting surface and location.

PART 3 - EXECUTION

3.1 INSTALLATION REQUIREMENTS

- A. SEC Contractor shall furnish and install all cables, connectors and equipment as shown on drawings and as specified.
- B. Refer to Project Drawings that indicate the equipment location within the building.
- C. It is the SEC Contractor's responsibility to survey the site and include all necessary costs to perform the installation as specified.
- D. Beginning installation means SEC Contractor accepts existing conditions.
- E. Where unacceptable conditions are found, the SEC Contractor shall bring this to the attention of the construction supervisor immediately. A written resolution will follow to determine the appropriate action to be taken.
- F. The system will be tested and documented upon completion of the installation as specified.

3.2 INSTALLATION

- A. All cameras and monitors are to be installed as per the manufacturer requirements.
- B. Verify with Owner the camera descriptions to be displayed on each monitor.

- C. All camera locations shall be reviewed with the Engineer and Owner for the intended view of each camera prior to installation.
- D. Inspect areas to receive camera to insure suitability of application. Contact Engineer for any conflict that may present itself.
- E. Cameras installed within the ceiling tile or grid shall be provided with appropriate reinforcement, as recommended by the camera manufacturer (for integrated housing/camera/lens units) or by the housing manufacturer (for component systems, where the housing, camera, and lens are separate units). Under no circumstances shall such cameras be suspended from the ceiling tile material alone. Sagging ceiling tiles, caused by the improperly supported weight of such cameras shall be unacceptable.
- F. Brackets used for ceiling or wall mount of monitors shall be installed within strict conformance with the bracket manufacturer's instructions.

3.3 ADJUSTMENT

- A. All camera views shall be reviewed by the Owner and Engineer and adjusted as required by the Contractor to the approval of both.

3.4 SYSTEM PROGRAMMING

- A. The Contractor shall provide all system setup and programming of all system control equipment.

3.5 IDENTIFICATION

- A. Cables associated with cameras, servers, and workstations shall be clearly and permanently labeled with which they are associated.

END OF SECTION