RFB NO. 317006

CONSTRUCTION DOCUMENTS
PROJECT MANUAL

DANE COUNTY DEPARTMENT OF PUBLIC WORKS,
HIGHWAY AND TRANSPORTATION

PUBLIC WORKS ENGINEERING DIVISION
1919 ALLIANT ENERGY CENTER WAY
MADISON, WISCONSIN 53713

REQUEST FOR BIDS NO. 317006
JAIL MITIGATION UPGRADES
CITY-COUNTY BUILDING
210 MARTIN LUTHER KING JR BLVD
MADISON, WISCONSIN

Due Date / Time: **TUESDAY, MAY 2, 2017 / 2:00 P.M.**

Location: **PUBLIC WORKS OFFICE**

Performance / Payment Bond: **100% OF CONTRACT AMOUNT**

Bid Deposit: **5% OF BID AMOUNT**

FOR INFORMATION ON THIS REQUEST FOR BIDS, PLEASE CONTACT:

SCOTT CARLSON, PROJECT MANAGER
TELEPHONE NO.: 608/266-4179
FAX NO.: 608/267-1533
E-MAIL: CARLSON.SCOTT@COUNTYOFDANE.COM

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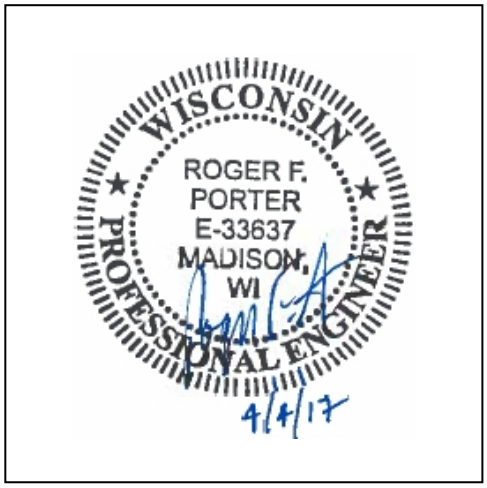
SEALS PAGE

BID NO. 317006
PROJECT: JAIL MITIGATION UPGRADES
CITY- COUNTY BUILDING

ARCHITECT
I hereby certify that this drawing, specification or report was prepared by me or under my direct supervision and that I am a duly Registered Architect under the laws of the State of Wisconsin.

Jan David Horsfall - Registration No. A-5860
Dated: April 4, 2017

HVAC ENGINEER
I hereby certify that this drawing, specification or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Wisconsin.

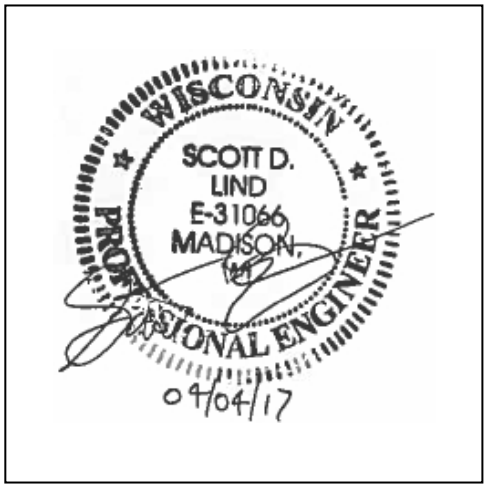


Roger Porter - Registration No. E-33637-006
Dated: April 4, 2017

SEALS PAGE

BID NO. 317006
PROJECT: JAIL MITIGATION UPGRADES
CITY- COUNTY BUILDING

ELECTRICAL ENGINEER
I hereby certify that this drawing, specification or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Wisconsin.



Scott Lind - Registration No. E-31066

Dated: April 4, 2017

SECTION 00 01 10 - TABLE OF CONTENTS FOR RFB NO. 317006

DIVISION 23 - HEATING, VENTILATING AND AIR CONDITIONING (HVAC)

23 05 00 - Common Work Results for HVAC
23 05 13 - Common Moter Requirements for HVAC Equipment
23 05 53 - Identification for HVAC Piping and Equipment
23 05 93 - Testing, Adjusting, and Balancingfor HVAC
23 06 00 - HVAC Air Duct Cleaning
23 09 93 - Sequence of Operations for HVAC Controls
23 31 13 - Metal Ducts
23 33 00 - Air Duct Accessories
23 34 23 - HVAC Power Ventilators

DIVISION 26 - ELECTRICAL

26 01 00 - Common Work Requirements for Electrical
26 05 19 - Low-Voltage Electrical Power Conductors and Cables
26 05 26 - Grounding and Bonding for Electrical Systems
26 05 29 - Hangers and Supports for Electrical Systems
26 05 33 - Raceways and Boxes for Electrical Systems
26 28 13 - Fuses
26 28 16 - Enclosed Switches and Circuit Breakers

DIVISION 28 - ELECTRONIC SAFETY AND SECURITY

28 31 00 - Fire Alarm and Detection System

DRAWINGS

Plot drawings on 30" x 42" (ARCH E1), paper for correct scale or size.

CD01 - Cover Drawing
A001 - Abbreviations, Symbols and Notes
A002 - Code Plans
A003 - Staging Plans
A004 - Phasing Plans
A101A - Sixth Floor Plan - East
A101B - Sixth Floor Plan - West
A102A - Seventh Floor Plan - East
A102B - Seventh Floor Plan - West
A401 - Enlarged Plans
A501 - Details
A601 - Door Schedule
A602 - Door Schedule

M001 - Mechanical Notes & Symbols
M101 - Mechanical Plans

E001 - Electrical Notes & Symbols
E100 - Electrical Plans
E101 - Electrical Plans
E102 - Electrical Plans

EXISTING DRAWINGS - FOR REFERENCE ONLY

1. Court House and City Hall (Original Building) - dated 12/22/1954
   M14 - Sixth Floor Plan-East
   M15 - Seventh Floor Plan-East

2. Air Conditioning CCB - No date
   19 - Penthouse

3. City-County Building Vertical Expansion - dated 02/01/1983
   9.15 - Sixth Floor Plan-East HVAC
   9.16 - Sixth Floor Plan-West HVAC
   9.17 - Seventh Floor Plan-East HVAC
   9.18 - Seventh Floor Plan-West HVAC
   9.19 - Penthouse Floor-West HVAC

4. HVAC Modification 6th & 7th Floors - dated 05/08/2000
   CCB-0 - Partial 6th Floor Plan
   CCB-1 - Partial 7th Floor Plan
   M1-1 - Penthouse Sections
   M1-2 - Partial Penthouse Floor Plan
   M2-0 - Equipment Schedules
   M2-1 - Equiupment Schedules
   M3-0 - Details

END OF SECTION

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SECTION 00 11 16 - INVITATION TO BID

Dane County Public Works, Highway & Transportation Dept., 1919 Alliant Energy Center Way, Madison, WI 53713, will receive sealed Bids until:

2:00 P.M., TUESDAY, MAY 2, 2017

REQUEST FOR BIDS NO. 317006

JAIL MITIGATION UPGRADES

CITY-COUNTY BUILDING

210 MARTIN LUTHER JR. BLVD.

MADISON, WISCONSIN

Dane County is inviting Bids for construction services for a variety of upgrades including the replacement of certain detention locking mechanisms, doors & windows. There are also modifications in the mechanical & electrical systems. Only firms with capabilities, experience & expertise in these type of projects should obtain this Request for Bids document & submit Bids.

Request for Bids document may be obtained after **2:00 p.m. on April 4, 2017** by downloading it from countyofdane.com/pwbids. Please call Scott Carlson, Project Manager, at 608/266-4179, or our office at 608/266-4018, for any questions or additional information.

All Bidders must be a registered vendor with Dane County & pay an annual registration fee & must be pre-qualified as a Best Value Contractor before award of Contract. Complete Vendor Registration Form at danepurchasing.com/Account/Login? or obtain one by calling 608/266-4131. Complete Pre-qualification Application for Contractors at countyofdane.com/pwht/BVC_Application.aspx or obtain one by calling 608/266-4029.

A pre-bid facility tour will be held April 25, 2017 at 11:00 a.m. at the City-County Building, starting in the main lobby. All prime bidders & subcontractors bidding on Divisions 11 & 23 work are required to attend this mandatory tour in order to bid on the Work. All other subcontractors are strongly encouraged to attend this tour. Background Check Forms must be submitted by April 14, 2017 & are mandatory for all who would tour the facility.

PUBLISH: APRIL 4 & 11, 2017 - WISCONSIN STATE JOURNAL

APRIL 4 & 11, 2017 - THE DAILY REPORTER

SECTION 00 21 13 - INSTRUCTIONS TO BIDDERS

TABLE OF CONTENTS

1. GENERAL

A. Before submitting Bid, bidder shall thoroughly examine all Construction Documents. Successful Bidder shall be required to provide all the Work that is shown on Drawings, set forth in Specifications, or reasonably implied as necessary to complete Contract for this project.

B. Bidder shall visit site to become acquainted with adjacent areas, means of approach to site, conditions of actual site and facilities for delivering, storing, placing, and handling of materials and equipment.

C. Pre-bid meeting is scheduled on April 25, 2017 at 11:00 a.m., City-County Building, 210 Martin Luther King Jr. Blvd., Madison, WI, starting in main lobby. Attendance by all prime bidders & subcontractors bidding on Divisions 11 & 23 work is mandatory. Other subcontractors to bidders are strongly encouraged to attend. Background Check Forms must be submitted by April 14, 2017 & are mandatory for all who would tour the facility.

D. Failure to visit site or failure to examine any and all Construction Documents will in no way relieve successful Bidder from necessity of furnishing any necessary materials or equipment, or performing any work, that may be required to complete the Work in accordance with Drawings and Specifications. Neglect of above requirements will not be accepted as reason for delay in the Work or additional compensation.

2. DRAWINGS AND SPECIFICATIONS

A. Drawings and Specifications that form part of this Contract, as stated in Article 1 of General Conditions of Contact, are enumerated in Document Index of these Construction Documents.

B. Complete sets of Drawings and Specifications for all trades will be available to all Bidders, irrespective of category of work to be bid on, in order that all Bidders may be familiar with work of other trades as they affect their bid.

3. INTERPRETATION

A. No verbal explanation or instructions will be given in regard to meaning of Drawings or Specifications before Bid Due Date. Bidders shall bring inadequacies, omissions or conflicts to Owner or Architect / Engineer's attention at least ten (10) calendar days before Bid Due Date. Prompt clarification will be available to all bidders by Addendum.

B. Failure to so request clarification or interpretation of Drawings and Specifications will not relieve successful Bidder of responsibility. Signing of Contract will be considered as implicitly denoting that Contractor has thorough understanding of scope of the Work and comprehension of Construction Documents.

C. Owner or Architect / Engineer will not be responsible for verbal instructions.

4. QUALIFICATIONS OF BIDDER (CONTRACTOR AND SUBCONTRACTOR)

A. Before award of Contract can be approved, Owner shall be satisfied that Bidder involved meets following requirements:

1. Has completed at least one (1) project of at least fifty percent (50%) of size or value of Division of work being bid and type of work completed is similar to that being bid. If greater magnitude of experience is deemed necessary, other than size or value of work, such requirements will be described in appropriate section of Specifications.

2. Maintains permanent place of business.

3. Can be bonded for terms of proposed Contract.

4. Has record of satisfactorily completing past projects and Division 11 & Division 23 subcontractors shall each supply list of no more than three (3) most recent, similar projects, with architect or engineer's and owner's names, addresses and telephone numbers for each project. Submit to Public Works Project Engineer with Bid. Criteria which will be considered in determining satisfactory completion of projects by bidder will include:

    a. Completed contracts in accordance with drawings and specifications.
    b. Diligently pursued execution of work and completed contracts according to established time schedule unless Owner grants extensions.
    c. Fulfilled guarantee requirements of construction documents.
    d. Is not presently on ineligible list maintained by County's Department of Administration for noncompliance with equal employment opportunities and affirmative action requirements.
    e. Authorized to conduct business in Wisconsin. By submitting Bid, bidder warrants that it has: complied with all necessary requirements to do business in State of

Wisconsin; that persons executing contract on its behalf are authorized to do so; and, if corporation, that name and address of bidder's registered agent are as set forth in Contract. Bidder shall notify Owner immediately, in writing, of any change in its registered agent, their address, and bidder's legal status. For partnership, term "registered agent" shall mean general partner.

B. County's Public Works Project Engineer will make such investigations as are deemed necessary to determine ability of bidder to perform the Work, and bidder shall furnish to County's Public Works Project Engineer or designee all such information and data for this purpose as County's Public Works Project Engineer may request. Owner reserves right to reject Bid if evidence submitted by, or investigation of, bidder fails to satisfy Owner that bidder is responsible and qualified to carry out obligations of Contract and to complete the Work contemplated therein.

5. BID GUARANTEE

A. Bank certified check, cashier's check or Bid Bond, payable to County in amount not less than five percent (5%) of maximum bid, shall accompany each Bid as guarantee that if Bid is accepted, Bidder will execute and return proposed Contract and Performance and Payment Bonds within ten (10) business days after being notified of acceptance of Bid. Company issuing bonds must be licensed to do business in Wisconsin.

B. Any bid, which is not accompanied by bid guarantee, will be considered "No Bid" and will not be read at Bid Due Date.

C. If successful Bidder so delivers Contract, Certificate of Insurance, and Performance and Payment Bonds, check will be returned to Bidder. In case Bidder fails to deliver such Contract, insurance, and bond, amount of bid guarantee will be forfeited to County as liquidated damages.

D. All checks tendered as bid guarantee, except those of three (3) lowest qualified, responsible bidders, will be returned to their makers within three (3) business days after Bid Due Date. All such retained checks will be returned immediately upon signing of Contract and Performance and Payment Bonds by successful Bidder.

6. WITHDRAWAL OF BIDS

A. Bids may be withdrawn by written request received from bidder or authorized representative thereof prior to time fixed for Bid Due Date, without prejudice to right of bidder to file new Bid. Withdrawn Bids will be returned unopened. Negligence on part of bidder in preparing their Bid confers no right for withdrawal of Bid after it has been opened.

B. No Bid may be withdrawn for period of sixty (60) calendar days after Bid Due Date.

C. If Bid contains error, omission or mistake, bidder may limit liability to amount of bidder's guarantee by giving written Notice of Intent not to execute Contract to Owner within seventy-two (72) hours of Bid Due Date.

7. CONTRACT FORM

A. Sample copy of contract that successful Bidder will be required to enter into is included in these Construction Documents and bidders are required to familiarize themselves with all conditions contained therein.

8. CONTRACT INTERESTS BY COUNTY PUBLIC OFFICIALS

A. In accordance with Wisconsin Statute 946.13, county official may not bid for or enter into any contract involving receipts or disbursements of more than $15,000.00 in a year, in which they have private pecuniary interest, direct or indirect if at same time they are authorized to take official action with respect to making of this Contract. Any contract entered into in violation of this Statute is void and County incurs no liability thereon. This subsection does not affect application and enforcement of Wisconsin Statute 946.13 by state prosecutors in criminal courts of this state.

9. EMERGING SMALL BUSINESS PROVISIONS

A. **Emerging Small Business Definition.** For purposes of this provision, ESB is defined as:

1. Independent business concern that has been in business minimum of one year;

2. Business located in State of Wisconsin;

3. Business comprised of less than twenty-five (25) employees;

4. Business must not have gross sales in excess of three million dollars ($3,000,000.00) over past three years; and

5. Business does not have history of failing to complete projects.

B. **Emerging Small Business (ESB) Involvement.** Bidder shall make good faith effort to award minimum of ten percent (10%) of the Work to ESBs. Bidder shall submit report to Dane County Contract Compliance Officer within ten (10) business days of Bid Due Date demonstrating such efforts. Good faith efforts means significant contact with ESBs for purposes of soliciting bids from them. Failure to make or demonstrate good faith efforts will be grounds for disqualification.

C. **Emerging Small Business Report.** Emerging Small Business Enterprise Report is to be submitted by Bidder in separate envelope marked “Emerging Small Business Report”. This report is due by 2:00 p.m. following specified ten (10) business days after Bid Due Date. Bidder who fails to submit Emerging Small Business Report shall be deemed not responsive.

D. **ESB Goal.** Goal of this project is ten percent (10%) ESB participation. ESB utilizations are shown as percentage of total Bid. If Bidder meets or exceeds specified goal, Bidder is only required to submit Form A - Certification, and Form B - Involvement. Goal shall be met if Bidder qualifies as ESB.

E. **Report Contents.** Following award of Contract, Bidder shall submit copies of executed contracts for all Emerging Small Businesses. Emerging Small Business Report shall consist of these:

1. Form A - Certification;

2. Form B - Involvement;

3. Form C - Contacts;

4. Form D - Certification Statement (if appropriate); and

5. Supportive documentation (i.e., copies of correspondence, telephone logs, copies of advertisements).

F. ESB Listing. Bidders may solicit bids from this ESB listing: pdf.countyofdane.com/commissions/2013-2015_Targeted_Business_Directory.pdf.

G. **ESB Certification.** All contractors, subcontractors and suppliers seeking ESB certification must complete and submit Emerging Small Business Report to Dane County Contract Compliance Program.

H. **Certification Statement.** If ESB firm has not been certified by County as ESB prior to submittal of this Bid, ESB Report cannot be used to fulfill ESB goal for this project unless firm provides "Form D - Certification Statement". Certification statement must be completed and signed by ESB firm.

I. **Questions.** Questions concerning Emerging Small Business provisions shall be directed to:

Dane County Contract Compliance Officer
City-County Building, Room 421
210 Martin Luther King, Jr. Blvd.
Madison, WI 53703
608/266-5623

J. **Substituting ESBs.** In event of any significant changes in subcontract arrangements or if need arises to substitute ESBs, Bidder shall report such proposed changes to Contract Compliance Officer to making any official changes and request authorization to substitute ESB firm. Bidder further agrees to make every possible effort to replace ESB firm with another qualified ESB firm.

K. **Good Faith Efforts.** Good faith efforts can be demonstrated by meeting all of these obligations:

1. Selecting portions of the Work to be performed by ESBs in order to increase likelihood of meeting ESB goal including, where appropriate, breaking down Contract into smaller units to facilitate ESB participation.

2. Advertising in general circulation, trade associations and women / minority focus media concerning subcontracting opportunities.

3. Providing written notices to reasonable number of specific ESBs that their interest in Contract was being solicited in sufficient time to allow ESBs to participate effectively.

4. Following up on initial solicitations of interest by contacting ESBs within five (5) business days prior to Bid Due Date to determine with certainty whether ESB were interested, to allow ESBs to prepare bids.

5. Providing interested ESB with adequate information about Drawings, Specifications and requirements of Contract.

6. Using services of available minority, women and small business organizations and other organizations that provide assistance in recruitment of MBEs / WBEs / ESBs.

7. Negotiating in good faith with interested ESBs, not rejecting ESBs as unqualified without sound reason based on thorough investigation of their capabilities.

8. Submitting required project reports and accompanying documents to County's Contract Compliance Officer within twenty-four (24) hours after Bid Due Date.

L. **Appeals Disqualification of Bid.** Bidder who is disqualified may appeal to Public Works & Transportation Committee and Equal Opportunity Commission.

10. METHOD OF AWARD - RESERVATIONS

A. Following will be basis of award of Contract, providing cost does not exceed amount of funds then estimated by County as available to finance Contract(s):

1. Lowest dollar amount submitted by qualified responsible bidder on Base Bid for all work comprising project, combined with such additive Owner accepted alternates.

2. Owner reserves right to reject all bids or any bid, to waive any informality in any bid, and to accept any bid that will best serve interests of County.

3. Unit Prices and Informational Bids will not be considered in establishing low bidder.

11. SECURITY FOR PERFORMANCE AND PAYMENTS

A. Simultaneous with delivery of signed Contract, Bidder shall be required to furnish Performance and Payment Bonds as specified in Article 29 of General Conditions of Contract, "Contract Security". Surety Company shall be licensed to do business in Wisconsin. Performance and Payment Bonds must be dated same date or subsequent to date of Contract. Performance and Payment Bonds must emulate information in Sample Performance and Payment Bonds in Construction Documents.

B. Provide certified copy of power of attorney from Surety Company showing that agent who signs Bond has power of attorney to sign for Surety Company. Secretary or Assistant Secretary of company must sign this certification, not attorney-in-fact. Certification must bear same or later date as Bond. Power of Attorney must emulate model power of attorney information detailed in Sample Performance and Payment Bonds.

C. If Bidder is partnership or joint venture, State certified list, providing names of individuals constituting partnership or joint venture must be furnished. Contract itself may be signed by one partner of partnership, or one partner of each firm comprising joint venture, but Performance and Payment Bonds must be signed by all partners.

D. If Bidder is a corporation, it is necessary that current certified copy of resolution or other official act of directors of corporation be submitted showing that person who signs Contract is authorized to sign contracts for corporation. It is also necessary that corporate seal be affixed to resolution, contract, and performance and payment bonds. If your corporation has no seal, it is required that above documents include statement or notation to effect that corporation has no seal.

12. TAXES

A. Wisconsin Statute 77.54 (9m) allows building materials that become part of local unit government facilities to be exempt from sales & use tax. Vendors & materials suppliers may not charge Bidders sales & use tax on these purchases. This does not include highways, streets or roads. Any other Sales, Consumer, Use & other similar taxes or fees required by law shall be included in Bid.

B. In accordance with Wisconsin Statute 71.80(16)(a),successful nonresident bidder, whether incorporated or not, and not otherwise regularly engaged in business in this state, shall file surety bond with State of Wisconsin Department of Revenue payable to Department of Revenue, to guarantee payment of income taxes, required unemployment compensation contributions, sales and use taxes and income taxes withheld from wages of employees, together with any penalties and interest thereon. Amount of bond shall be three percent (3%) of Contract or subcontract price on all contracts of $50,000 or more.

13. SUBMISSION OF BIDS

A. All Bids shall be submitted on standard Bid Form bound herein and only Bids that are made on this Bid Form will be considered. Entire Bid Form and other supporting documents, if any, shall be removed or copied from Construction Documents, filled out, and submitted in manner specified hereinafter. Submit completed Bid Bond with Bid as well.

B. No bids for any subdivision or any sub-classification of this Work, except as indicated, will be accepted. Any conditional Bid, amendment to Bid Form or appended item thereto, or inclusion of any correspondence, written or printed matter, or details of any nature other than that specifically called for, which would alter any essential provision of Construction Documents, or require consideration of unsolicited material or data in determining award of Contract, will disqualify Bid. Telecommunication alterations to Bid will not be accepted.

C. Bidders must submit single Bid for all the Work.

D. Bid amounts shall be inserted in words and in figures in spaces provided on Bid Form; in case of conflict, written word amounts will govern.

E. Addenda issued after Bid Letting shall become part of Construction Documents. Bidders shall acknowledge receipt of such addenda in appropriate space provided on Bid Form. Bid may be rejected if receipt of any particular addendum applicable to award of Contract has not been acknowledged on Bid Form.

F. Bids shall be signed, placed in envelope, sealed and delivered before due time to place designated in Invitation to Bid, and identified with project name, bid number, location, category of work being bid upon, Bid Due Date, name and address of bidder.

G. Bidder shall be responsible for sealed Bid being delivered to place designated for Bid Due Date on or before date and time specified. Bids received after time of closing will be rejected and returned to bidder unopened.

H. Bid will be considered invalid and will be rejected if bidder has not signed it.

I. Faxed or emailed Bids will not be accepted.

J. Bidder's organization shall submit completed with Bid, Fair Labor Practices Certification form, included in these Construction Documents.

14. SUBCONTRACTOR LISTING

A. Bidders shall be required to submit list of major subcontractors for General Construction, Plumbing, HVAC, and Electrical work proposed for this project to include committed prices for each subcontractor. List shall be placed in separate sealed envelope that must be clearly identified as "Major Subcontractor List", for named project and name of Bidder submitting it. County must receive envelope no later than date by which successful Bidder is required to submit his or her signed Contract, as established in Construction Documents.

15. ALTERNATE BIDS

A. Bidder shall carefully read requests for Alternate Bids, and thoroughly examine Drawings and Specifications to determine extent various changes and conditions will affect Bid.

B. Space is provided in Bid Form for requested Alternate Bids. Failure to submit bid for any requested Alternate Bids may result in rejection of entire Bid.

C. Bidder shall state amount to be added / subtracted to Base Bid for providing alternates, including all incidentals, omissions, additions, and adjustments as may be necessary or required by such changes. If there is no difference in price, Bidder shall state, "No Change".

D. Descriptions of requested Alternate Bids are as set forth in Construction Documents.

16. INFORMATIONAL BIDS

A. Not Applicable.

17. UNIT PRICES

A. Not Applicable.

18. COMMENCEMENT AND COMPLETION

A. Successful Bidder shall commence work when schedule and weather permit, but no later than stated in Bid Form. Contractor shall pursue the Work regularly and continuously at reasonable rate to insure completion of the Work within time stated in Bid.

B. Should it be found impossible to complete the Work on or before time specified for completion, written request may be submitted for extension of time setting forth reasons believed to justify granting of such request. Refer to Article 20 of General Conditions of Contract, titled "Time for Completion".

19. WORK BY OWNER

A. Not Applicable.

20. SPECIAL HAZARDS COVERAGE

A. Not Applicable.

FORM A

DANE COUNTY
EMERGING SMALL BUSINESS REPORT - CERTIFICATION

In accordance with General Conditions of Contract, submit this Emerging Small Business Report within ten (10) days after Bid Due Date.

PROJECT NAME: _____

_____

BID NO.: _____ BID DUE DATE: _____

BIDDER INFORMATION

COMPANY NAME: _____

ADDRESS: _____

_____

TELEPHONE NO.: _____

CONTACT PERSON: _____

EMAIL ADDRESS: _____

FORM B

DANE COUNTY
(Copy this Form as necessary to provide complete information)
EMERGING SMALL BUSINESS REPORT - INVOLVEMENT

COMPANY NAME: _____

PROJECT NAME: _____

BID NO.: _____ BID DUE DATE: _____

ESB NAME: _____

CONTACT PERSON: _____

ADDRESS: _____

_____

PHONE NO & EMAIL.: _____

_____

Indicate percentage of financial commitment to this ESB: _____% Amount: $_____

ESB NAME: _____

CONTACT PERSON: _____

ADDRESS: _____

_____

PHONE NO & EMAIL.: _____

_____

Indicate percentage of financial commitment to this ESB: _____% Amount: $_____

FORM C

DANE COUNTY
(Copy this Form as necessary to provide complete information)
EMERGING SMALL BUSINESS REPORT - CONTACTS

COMPANY NAME: _____

PROJECT NAME: _____

BID NO.: _____ BID DUE DATE: _____

	ESB FIRM NAME CONTACTED	DATE	PERSON CONTACTED	DID ESB BID?	ACC-EPT BID?	REASON FOR REJECTION
1)						
2)						
3)						
4)						
5)						
6)						
7)						
8)						

FORM D

DANE COUNTY
EMERGING SMALL BUSINESS REPORT - CERTIFICATION STATEMENT

I, _____ , _____ of
Name Title

_____ certify to best of my knowledge and
Company

belief that this business meets Emerging Small Business definition as indicated in Article 9 and that information contained in this Emerging Small Business Report is true and correct.

_____ _____
Bidder's Signature Date

DANE COUNTY DEPARTMENT of PUBLIC WORKS, HIGHWAY and TRANSPORTATION

County Executive
Joseph T. Parisi

1919 Alliant Energy Center Way ◆ Madison, Wisconsin 53713
Phone: (608) 266-4018 ◆ FAX: (608) 267-1533

Commissioner / Director
Gerald J. Mandli

BEST VALUE CONTRACTING APPLICATION

CONTRACTORS / LICENSURE APPLICANTS

The Dane County Department of Public Works requires all contractors to be pre-qualified as a best value contractor with the County prior to being awarded a contract. In addition, the County pre-qualifies potential contractors and sub-contractors who wish to work on County contracts. Subcontractors must become pre-qualified ten (10) days prior to commencing work under any Dane County Public Works Contract. Potential subcontractors are urged to become pre-qualified as early as possible. This document shall be completed, properly executed, along with the necessary attachments and additional information that the County requires for the protection and welfare of the public in the performance of a County contract.

Contractors or subcontractors of any tier who attain pre-qualification status will retain that status for a period of two (2) years from the date of qualification. Contractors shall notify the Dane County Department of Public Works, Highway & Transportation within fifteen (15) days of any changes to its business or operations that are relevant to the pre-qualification application. Failure to do so could result in suspension, revocation of the contractor's pre-qualification, debarment from County contracts for up to three (3) years and / or other sanctions available under the law.

No contracts will be awarded for construction work performed on Dane County projects unless the contractor is currently approved as a Wisconsin Trade Trainer or has applied for approval as an Apprenticeship Trade Trainer to the Wisconsin Department of Workforce Development and agrees to an acceptable apprenticeship program. If you are not currently approved as a Wisconsin Trade Trainer, or have not applied for approval as an Apprenticeship Trade Trainer, please contact the Department of Workforce Development - Bureau of Apprenticeship Standards at 608/266-3133 or visit their web site at: dwd.wisconsin.gov/apprenticeship/.

EXEMPTIONS

- Contractors who employ less than five (5) apprenticeable trade workers are not required to pre-qualify.
- Contractors performing work that does not apply to an apprenticeable trade, as outlined in Appendix A.
- The contractor / subcontractor provides sufficient documentation to demonstrate one or more of the following:
    - apprentices are not available in a specific geographic area;
    - the applicable apprenticeship program is unsuitable or unavailable; or
    - there is a documented depression of the local construction market which prevents compliance.

SEC.	PROOF OF RESPONSIBILITY	CHECK IF APPLICABLE
1	Does your firm possesses all technical qualifications and resources, including equipment, personnel and financial resources, necessary to perform the work required for any project or obtain the same through the use of responsible, pre-qualified subcontractors?	Yes: ☐ No: ☐
2	Will your firm possess all valid, effective licenses, registrations or certificates required by federal, state, county, or local law, which are necessary for the type of work to be performed including, but not limited to, those for any type of trade work or specialty work?	Yes: ☐ No: ☐
3	Will your firm meet all bonding requirements as required by applicable law or contract specifications?	Yes: ☐ No: ☐
4	Will your firm meet all insurance requirements as required by applicable law or specifications, including general liability insurance, workers compensation insurance and unemployment insurance requirements?	Yes: ☐ No: ☐
5	Will your firm maintain a substance abuse policy for employees hired for public works contracts that comply with Wis. Stats. Sec. 103.503?	Yes: ☐ No: ☐
6	Does your firm acknowledge that it must pay all craft employees on public works projects the wage rates and benefits required under Section 66.0903 of the Wisconsin Statutes?	Yes: ☐ No: ☐
7	Will your firm fully abide by the equal opportunity and affirmative action requirements of all applicable laws, including County ordinances?	Yes: ☐ No: ☐
8	In the past three (3) years, has your firm had control or has another corporation, partnership or other business entity operating in the construction industry controlled it? If so, please attach a statement explaining the nature of the firm relationship?	Yes: ☐ No: ☐ If Yes, attach details.
9	In the past three (3) years, has your firm had any type of business, contracting or trade license, certification or registration revoked or suspended?	Yes: ☐ No: ☐ If Yes, attach details.
10	In the past three (3) years, has your firm been debarred by any federal, state or local government agency?	Yes: ☐ No: ☐ If Yes, attach details.
11	In the past three (3) years, has your firm defaulted or failed to complete any contract?	Yes: ☐ No: ☐ If Yes, attach details.
12	In the past three (3) years, has your firm committed a willful violation of federal, state or local government safety laws as determined by a final decision of a court or government agency authority.	Yes: ☐ No: ☐ If Yes, attach details.
13	In the past three (3) years, has your firm been in violation of any law relating to your contracting business where the penalty for such violation resulted in the imposition of a penalty greater than $10,000?	Yes: ☐ No: ☐ If Yes, attach details.
14	Is your firm Executive Order 108 precertified with the State of Wisconsin?	Yes: No: ☐
15	Is your firm an active Wisconsin Trade Trainer as determined by the Wisconsin Bureau of Apprenticeship Standards?	Yes: ☐ No: ☐
16	Is your firm exempt from being pre-qualified with Dane County?	Yes: ☐ No: ☐ If Yes, attach reason for exemption.
17	Does your firm acknowledge that in doing work under any County Public Works Contract, it will be required to use as subcontractors only those contractors that are also pre-qualified with the County or become so ten days prior to commencing work?	Yes: ☐ No: ☐
18	Contractor has been in business less than one year?	Yes: ☐ No: ☐
19	Is your firm a first time Contractor requesting a one time exemption, but, intend to comply on all future contracts and are taking steps typical of a “good faith” effort?	Yes: ☐ No: ☐
20	Not applicable. My firm does not intend to work on Best Value Contracts. Note: Best Value Contracting is required to bid on most Public Works Contracts (if unclear, please call Jan Neitzel Knox 608-266-4029).	Yes: ☐ No: ☐

SIGNATURE SECTION

Your firm's Officer, or the individual who would sign a bid and / or contract documents must sign this document.

I do hereby certify that all statements herein contained are true and correct to the best of my knowledge:

Signature _____ Date _____

Printed or Typed Name and Title _____

NAME AND ADDRESS OF CONTRACTOR	
Name of Firm:	
Address:	
City, State, Zip:	
Telephone Number:	
Fax Number:	
E-mail Address:	

REMEMBER!

Return all to forms and attachments, or questions to:

JAN NEITZEL KNOX
EMAIL: NEITZEL-KNOX@COUNTYOFDANE.COM
OFFICE: (608)266-4029, FAX: (608)267-1533

DANE COUNTY DEPARTMENT OF PUBLIC WORKS,
HGHWAY & TRANSPORTATION
1919 ALLIANT ENERGY CENTER WAY
MADISON, WI 53713

APPENDIX A

APPRENTICEABLE TRADES

Bricklayer
Carpenter
Cement Mason (Concrete Finisher)
Cement Mason (Heavy Highway)
Construction Craft Laborer
Data Communications Installer
Electrician
Elevator Mechanic / Technician
Environmental Systems Technician / HVAC Service Technician / HVAC Install & Service
Glazier
Heavy Equipment Operator / Operating Engineer
Insulation Worker (Heat & Frost)
Iron Worker (Assembler, Metal Buildings)
Painter / Decorator
Plasterer
Plumber
Roofer / Waterproofer
Sheet Metal Worker
Sprinkler Fitter
Steamfitter (Service & Refrigeration)
Taper & Finisher
Telecommunications (Voice, Data & Video) Installer / Technician
Tile Setter

Name of Bidding Firm: _____

SECTION 00 41 13 - BID FORM

BID NO. 317006
PROJECT: JAIL MITIGATION UPGRADES
CITY- COUNTY BUILDING

TO: DANE COUNTY DEPARTMENT OF PUBLIC WORKS, HIGHWAY & TRANSPORTATION PROJECT MANAGER
1919 ALLIANT ENERGY CENTER WAY
MADISON, WISCONSIN 53713

BASE BID - LUMP SUM:
Work consists of a variety of upgrades including the replacement of certain detention locking mechanisms, doors & windows. There are also modifications in the mechanical & electrical systems. Include the Lump Sum Allowance (below) in Base Bid amount. The undersigned, having examined the site where the Work is to be executed and having become familiar with local conditions affecting the cost of the Work and having carefully examined the Drawings and Specifications, all other Construction Documents and Addenda thereto prepared by Dane County Department of Public Works, Highway & Transportation hereby agrees to provide all labor, materials, equipment and services necessary for the complete and satisfactory execution of the entire Work, as specified in the Construction Documents, for the Base Bid stipulated sum of:

_____ and _____ /100 Dollars
Written Price

$ _____
Numeric Price

LUMP SUM ALLOWANCE
Provide a lump sum allowance to be included in the Base Bid of one thousand dollars ($1000.00). This allowance will be used for necessary east side cellblock painting and finishing of existing steel cell fronts and walls in coordination with the County & the Architect / Engineer. Section 09 90 00 Painting and Coatings has the project requirements.

One Thousand - and 00 /100 Dollars
Written Price

$1000.00
Numeric Price

The undersigned agrees to add the alternate(s) portion of the Work as described, for the following addition(s) to or subtraction(s) from the Base Bid, as stipulated below.

ALTERNATE BID 1 - LUMP SUM:
Add price for providing replacement of nineteen (19) food pass locks with Folger Adam #17 locks on east side of CCB Jail per Specification Sections 11 19 20 - Detention Hardware. Paracentric key to be Key Code I607, mounted on outside face of door. Contractor to coordinate mounting with existing food pass door.

_____ and _____ /100 Dollars
Written Price

$_____
Numeric Price (circle: Add or Deduct)

Receipt of the following addenda and inclusion of their provisions in this Bid is hereby acknowledged:

Addendum No(s). _____ through _____

Dated _____

Dane County Sheriff's Department must have this project completed by June 22 , 2018. Assuming this Work can be started by June 12, 2017, what dates can you commence and complete this job?

Commencement Date: _____ Completion Date: _____
(final, not substantial)

I hereby certify that all statements herein are made on behalf of:

_____
(Name of Corporation, Partnership or Person submitting Bid)

Select one of the following:
1. A corporation organized and existing under the laws of the State of _____, or

2. A partnership consisting of _____, or

3. A person conducting business as _____;

Of the City, Village, or Town of _____ of the State of _____.

I have examined and carefully prepared this Bid from the associated Construction Documents and have checked the same in detail before submitting this Bid; that I have full authority to make such statements and submit this Bid in (its) (their) (my) behalf; and that the said statements are true and correct. In signing this Bid, we also certify that we have not, either directly or

indirectly, entered into any agreement or participated in any collusion or otherwise taken any action in restraint of free competition; that no attempt has been made to induce any other person or firm to submit or not to submit a Bid; that this Bid has been independently arrived at without collusion with any other bidder, competitor, or potential competitor; that this Bid has not been knowingly disclosed prior to the Bids Due Date to another bidder or competitor; that the above statement is accurate under penalty of perjury.

The undersigned further agrees to honor the Base Bid and the Alternate Bid(s) for sixty (60) calendar days from date of Award of Contract.

SIGNATURE: _____

(Bid is invalid without signature)

Print Name: _____ Date: _____

Title: _____

Address: _____

Telephone No.: _____ Fax No.: _____

Email Address: _____

Contact Person: _____

THIS PAGE IS FOR BIDDERS' REFERENCE AND NEED NOT BE SUBMITTED WITH BID FORM.

BID CHECK LIST:
These items **must** be included with Bid:
☐ Bid Form ☐ Bid Bond ☐ Fair Labor Practices Certification
☐ Project Experience / Reference Summary (Division 11 & 23 Subcontractors)

BIDDERS SHOULD BE AWARE OF THE FOLLOWING:

DANE COUNTY VENDOR REGISTRATION PROGRAM

Any person bidding on any County contract must be registered with the Dane County Purchasing Division & pay an annual registration fee. A contract will not be awarded to an unregistered vendor. Obtain a *Vendor Registration Form* by calling 608/266-4131 or complete a new form or renewal online at:
www.danepurchasing.com/registration

DANE COUNTY BEST VALUE CONTRACTING PRE-QUALIFICATION

Contractors must be pre-qualified as a Best Value Contractor with the Dane County Public Works Engineering Division before the award of contract. Obtain a *Best Value Contracting Application* by calling 608/266-4018 or complete one online at:
www.countyofdane.com/pwht/BVC_Application.aspx

EQUAL BENEFITS REQUIREMENT

By submitting a Bid, the contractor acknowledges that a condition of this contract is to provide equal benefits as required by Dane County Code of Ordinances Chapter 25.016. Contractor shall provide equal benefits as required by that Ordinance to all required employees during the term of the contract. Equal Benefits Compliance Payment Certification shall be submitted with final pay request. For more information:
www.danepurchasing.com/partner_benefit.aspx

SECTION 00 45 59 - FAIR LABOR PRACTICES CERTIFICATION

The undersigned, for and on behalf of the BIDDER, APPLICANT or PROPOSER named herein, certifies as follows:

A. That he or she is an officer or duly authorized agent of the above-referenced BIDDER, APPLICANT or PROPOSER, which has a submitted a bid, application or proposal for a contract or agreement with the county of Dane.

B. That BIDDER, APPLICANT or PROPOSER has (check one):

_____ not been found by the National Labor Relations Board ("NLRB") or the Wisconsin Employment Relations Commission ("WERC") to have violated any statute or regulation regarding labor standards or relations in the seven years prior to the signature date of this Certification.

_____ been found by the National Labor Relations Board ("NLRB") or the Wisconsin Employment Relations Commission ("WERC") to have violated any statute or regulation regarding labor standards or relations in the seven years prior to the signature date of this Certification.

_____ _____

Officer or Authorized Agent Signature Date

_____

Printed or Typed Name and Title

_____

Printed or Typed Business Name

NOTE: You can find information regarding the violations described above at: www.nlrb.gov and werc.wi.gov.

For reference, Dane County Ordinance 25.11(28)(a) is as follows:

(28) BIDDER RESPONSIBILITY. (a) Any bid, application or proposal for any contract with the county, including public works contracts regulated under chapter 40, shall include a certification indicating whether the bidder has been found by the National Labor Relations Board (NLRB) or the Wisconsin Employment Relations Committee (WERC) to have violated any statute or regulation regarding labor standards or relations within the last seven years. The purchasing manager shall investigate any such finding and make a recommendation to the committee, which shall determine whether the conduct resulting in the finding affects the bidder's responsibility to perform the contract.

If you indicated that the NLRB or WERC have found you to have such a violation, you must include copies of any relevant information regarding such violation with your proposal, bid or application.

Include this completed Certification with your bid, application or proposal.

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COUNTY OF DANE

PUBLIC WORKS CONSTRUCTION CONTRACT

Contract No. _____ Bid No. 317006

Authority: 2016 RES -_____

THIS CONTRACT, made and entered into as of the date by which authorized representatives of both parties have affixed their signatures, by and between the County of Dane (hereafter referred to as "COUNTY") and _____ (hereafter, "CONTRACTOR"), and

W I T N E S S E T H :

WHEREAS, COUNTY, whose address is c/o Assistant Public Works Director, 1919 Alliant Energy Center Way, Madison, WI 53713, desires to have CONTRACTOR provide Jail Mitigation Upgrades at the City County Building [including Alternate Bid[s] X, Y & Z (if applicable)] ("the Project"); and

WHEREAS, CONTRACTOR, whose address is _____ _____ is able and willing to construct the Project, in accordance with the Construction Documents;

NOW, THEREFORE, in consideration of the above premises and the mutual covenants of the parties hereinafter set forth, the receipt and sufficiency of which is acknowledged by each party for itself, COUNTY and CONTRACTOR do agree as follows:

1. CONTRACTOR agrees to construct, for the price of $_____ the Project and at the CONTRACTOR'S own proper cost and expense to furnish all materials, supplies, machinery, equipment, tools, superintendence labor, insurance, and other accessories and services necessary to complete the Project in accordance with the conditions and prices stated in the Bid Form, General Conditions of Contract, the drawings which include all maps, plats, plans, and other drawings and printed or written explanatory matter thereof, and the specifications therefore as prepared by Mead & Hunt Inc. (hereinafter referred to as "the Architect / Engineer"), and as enumerated in the Project Manual Table of Contents, all of which are made a part hereof and collectively evidence and constitute the Contract.

2. COUNTY agrees to pay the CONTRACTOR in current funds for the performance of the Contract subject to additions and deductions, as provided in the General Conditions of Contract, and to make payments on account thereof as provided in Article entitled, "Payments to Contractor" of the General Conditions of Contract.

3. During the term of this Contract, CONTRACTOR agrees to take affirmative action to ensure equal employment opportunities. The CONTRACTOR agrees in accordance with Wisconsin Statute 111.321 and Chapter 19 of the Dane County Code of Ordinances not to discriminate on the basis of age, race, ethnicity, religion, color, gender, disability, marital status, sexual orientation, national origin, cultural differences, ancestry, physical appearance, arrest record or conviction record, military participation or membership in the national guard, state defense force

or any other reserve component of the military forces of the United States, or political beliefs. Such equal opportunity shall include, but not be limited to, the following: employment, upgrading, demotion, transfer, recruitment, advertising, layoff, termination, training, rates of pay, and any other form of compensation. CONTRACTOR agrees to post in conspicuous places, available to all employees and applicants for employment, notices setting forth the provisions of this paragraph.

4. CONTRACTOR shall file an Affirmative Action Plan with the Dane County Contract Compliance Officer in accord with Chapter 19 of the Dane County Code of Ordinances. CONTRACTOR must file such plan within fifteen (15) business days of the effective date of this Contract. During the term of this Contract CONTRACTOR shall also provide copies of all announcements of employment opportunities to COUNTY'S Contract Compliance Office, and shall report annually the number of persons, by race, ethnicity, gender, and disability status, which apply for employment and, similarly classified, the number hired and number rejected.

5. During the term of this Contract, all solicitations for employment placed on CONTRACTOR'S behalf shall include a statement to the effect that CONTRACTOR is an "Equal Opportunity Employer".

6. CONTRACTOR agrees to comply with provisions of Chapter 25.016 of the Dane County Code of Ordinances, which pertains to domestic partnership benefits.

7. CONTRACTOR agrees to furnish all information and reports required by COUNTY'S Contract Compliance Officer as the same relate to affirmative action and nondiscrimination, which may include any books, records, or accounts deemed appropriate to determine compliance with Chapter 19, Dane County Code of Ordinances, and the provisions of this Contract.

8. CONTRACTOR agrees that all persons employed by CONTRACTOR or any subcontractor shall be paid no less than the minimum wage established under Chapter 40, Subchapter II, Dane County Code of Ordinances. CONTRACTOR agrees to abide by and comply with the provisions of Chapter 40, Subchapter II of the Dane County Code of Ordinances, and said Subchapter is fully incorporated herein by reference.

9. This Contract is intended to be a Contract solely between the parties hereto and for their benefit only. No part of this Contract shall be construed to add to, supplement, amend, abridge or repeal existing rights, benefits or privileges of any third party or parties including, but not limited to, employees of either of the parties.

10. The entire agreement of the parties is contained herein and this Contract supersedes any and all oral agreements and negotiations between the parties relating to the subject matter hereof. The parties expressly agree that the express terms of this Contract shall not be amended in any fashion except in writing, executed by both parties.

11. CONTRACTOR must be pre-qualified as a Best Value Contractor with Dane County Public Works Engineering Division before award of Contract. Subcontractors must be pre-qualified ten (10) business days prior to commencing Work under this Contract.

IN WITNESS WHEREOF, COUNTY and CONTRACTOR, by their respective authorized agents, have caused this Contract and its Schedules to be executed, effective as of the date by which all parties hereto have affixed their respective signatures, as indicated below.

* * * * * * *

FOR CONTRACTOR:

Signature Date

Printed or Typed Name and Title

Signature Date

Printed or Typed Name and Title

NOTE: If CONTRACTOR is a corporation, Secretary should attest. In accordance with IRS Regulations, unincorporated entities are required to provide either their Social Security or Employer Number in order to receive payment for services rendered.

* * * * * * *

This Contract is not valid or effectual for any purpose until approved by the appropriate authority designated below, and no work is authorized until the CONTRACTOR has been given notice to proceed by COUNTY'S Assistant Public Works Director.

FOR COUNTY:

Joseph T. Parisi, County Executive Date

Scott McDonell, County Clerk Date

AIA® Document A310™ – 2010

Bid Bond

CONTRACTOR:
(Name, legal status and address)

SURETY:
(Name, legal status and principal place of business)

OWNER:
(Name, legal status and address)

BOND AMOUNT:

PROJECT:
(Name, location or address, and Project number, if any)

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

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

Signed and sealed this day of

(Witness)	*(Contractor as Principal)* *(Seal)*
	(Title)
(Witness)	*(Surety)* *(Seal)*
	(Title)

CAUTION: You should sign an original AIA Contract Document, on which this text appears in RED. An original assures that changes will not be obscured.

Init.

AIA® Document A312™ – 2010

Performance Bond

CONTRACTOR:
(Name, legal status and address)

SURETY:
(Name, legal status and principal place of business)

OWNER:
(Name, legal status and address)

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

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

AIA Document A312–2010 combines two separate bonds, a Performance Bond and a Payment Bond, into one form. This is not a single combined Performance and Payment Bond.

CONSTRUCTION CONTRACT
Date:

Amount:

Description:
(Name and location)

BOND
Date:
(Not earlier than Construction Contract Date)

Amount:

Modifications to this Bond: ☐ None ☐ See Section 16

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:		Signature:	
Name and Title:	Name	Name and Title:	

(Any additional signatures appear on the last page of this Performance Bond.)

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or **BROKER:**

OWNER'S REPRESENTATIVE:
(Architect, Engineer or other party:)

§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

§ 2 If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Section 3.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after

.1 the Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Section 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;

.2 the Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and

.3 the Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

§ 4 Failure on the part of the Owner to comply with the notice requirement in Section 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

§ 5 When the Owner has satisfied the conditions of Section 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

§ 5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

§ 5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

§ 5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Section 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

§ 5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:

.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

§ 6 If the Surety does not proceed as provided in Section 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Section 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

§ 7 If the Surety elects to act under Section 5.1, 5.2 or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication, for

.1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

.2 additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Section 5; and

.3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

§ 8 If the Surety elects to act under Section 5.1, 5.3 or 5.4, the Surety's liability is limited to the amount of this Bond.

§ 9 The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors and assigns.

§ 10 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 11 Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 12 Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

§ 13 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 14 Definitions

§ 14.1 Balance of the Contract Price. The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

§ 14.2 Construction Contract. The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

§ 14.3 Contractor Default. Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

§ 14.4 Owner Default. Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 14.5 Contract Documents. All the documents that comprise the agreement between the Owner and Contractor.

§ 15 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 16 Modifications to this bond are as follows:

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:		Signature:	
Name and Title:		Name and Title:	
Address		Address	

CAUTION: You should sign an original AIA Contract Document, on which this text appears in RED. An original assures that changes will not be obscured.

AIA® Document A312™ – 2010

Payment Bond

CONTRACTOR:
(Name, legal status and address)

SURETY:
(Name, legal status and principal place of business)

OWNER:
(Name, legal status and address)

CONSTRUCTION CONTRACT
Date:

Amount:

Description:
(Name and location)

BOND
Date:
(Not earlier than Construction Contract Date)

Amount:

Modifications to this Bond: ☐ None ☐ See Section 18

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:		Signature:	
Name and Title:	Name	Name and Title:	

(Any additional signatures appear on the last page of this Payment Bond.)

(FOR INFORMATION ONLY — Name, address and telephone)
AGENT or **BROKER:**

OWNER'S REPRESENTATIVE:
(Architect, Engineer or other party:)

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

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

AIA Document A312–2010 combines two separate bonds, a Performance Bond and a Payment Bond, into one form. This is not a single combined Performance and Payment Bond.

§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner to pay for labor, materials and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.

§ 2 If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies and holds harmless the Owner from claims, demands, liens or suits by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Section 13) of claims, demands, liens or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract and tendered defense of such claims, demands, liens or suits to the Contractor and the Surety.

§ 4 When the Owner has satisfied the conditions in Section 3, the Surety shall promptly and at the Surety's expense defend, indemnify and hold harmless the Owner against a duly tendered claim, demand, lien or suit.

§ 5 The Surety's obligations to a Claimant under this Bond shall arise after the following:

§ 5.1 Claimants, who do not have a direct contract with the Contractor,

.1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and

.2 have sent a Claim to the Surety (at the address described in Section 13).

§ 5.2 Claimants, who are employed by or have a direct contract with the Contractor, have sent a Claim to the Surety (at the address described in Section 13).

§ 6 If a notice of non-payment required by Section 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Section 5.1.1.

§ 7 When a Claimant has satisfied the conditions of Sections 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:

§ 7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and

§ 7.2 Pay or arrange for payment of any undisputed amounts.

§ 7.3 The Surety's failure to discharge its obligations under Section 7.1 or Section 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Section 7.1 or Section 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

§ 8 The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Section 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

§ 9 Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

§ 10 The Surety shall not be liable to the Owner, Claimants or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to, or give notice on behalf of, Claimants or otherwise have any obligations to Claimants under this Bond.

§ 11 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 12 No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Section 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 13 Notice and Claims to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.

§ 14 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 15 Upon request by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

§ 16 Definitions

§ 16.1 Claim. A written statement by the Claimant including at a minimum:

- **.1** the name of the Claimant;
- **.2** the name of the person for whom the labor was done, or materials or equipment furnished;
- **.3** a copy of the agreement or purchase order pursuant to which labor, materials or equipment was furnished for use in the performance of the Construction Contract;
- **.4** a brief description of the labor, materials or equipment furnished;
- **.5** the date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
- **.6** the total amount earned by the Claimant for labor, materials or equipment furnished as of the date of the Claim;
- **.7** the total amount of previous payments received by the Claimant; and
- **.8** the total amount due and unpaid to the Claimant for labor, materials or equipment furnished as of the date of the Claim.

§ 16.2 Claimant. An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished.

§ 16.3 Construction Contract. The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

§ 16.4 Owner Default. Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 16.5 Contract Documents. All the documents that comprise the agreement between the Owner and Contractor.

§ 17 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 18 Modifications to this bond are as follows:

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:		Signature:	
Name and Title:		Name and Title:	
Address		Address	

CAUTION: You should sign an original AIA Contract Document, on which this text appears in RED. An original assures that changes will not be obscured.

SECTION 0062 95 - EQUAL BENEFITS COMPLIANCE
PAYMENT CERTIFICATION FORM

PURPOSE

25.016(8) of the Dane County Ordinance requires that each contractor receiving payment for contracted services must certify that he or she has complied fully with the requirements of Chapter 25.016 "Equal Benefits Requirement" of the Dane County Ordinances. Such certification must be submitted prior to the final payment on the contract.

This form should be included with a copy of the final contract invoice forwarded to your contract representative at Dane County.

CERTIFICATION

I, _____ certify that
Printed or Typed Name and Title

_____
Printed or Typed Name of Contractor

has complied fully with the requirements of Chapter 25.016 of the Dane County Ordinances "Equal Benefits Requirements".

Signed _____

Date _____

For questions on this form, please contact Chuck Hicklin at 608-266-4109 or your contract representative at Dane County.

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SECTION 00 72 13 - GENERAL CONDITIONS OF CONTRACT

TABLE OF CONTENTS

1. CONSTRUCTION DOCUMENTS

A. Construction Documents, listed in Table of Contents of this Specification volume shall form part of this Contract and provisions of Construction Documents shall be as binding upon parties as if they were fully set forth in Contract itself.

B. These shall also be considered as part of Construction Documents: Addenda, including additions and modifications incorporated in such addenda before execution of Contract; requests for information; construction bulletins; change orders; and written interpretations by Architect / Engineer or Public Works Project Manager that are made after execution of Contract.

C. Construction Documents are complementary, and what is required by one shall be as binding as if required by all. Intent of Construction Documents is to include all labor, materials and equipment necessary for proper execution of the Work.

2. DEFINITIONS

A. These terms as used in this Contract are respectively defined as follows:
   1. All uses of term "County" in Construction Documents shall mean Dane County.
   2. All uses of term "Department" in Construction Documents shall mean Department of Public Works, Highway & Transportation, which is a unit of Dane County government. Department is County agency overseeing Contract with Contractor.
   3. Public Works Project Manager is appointed by and responsible to Department. Public Works Project Manager has authority to act on behalf of Department and will sign change orders, payment requests and other administrative matters related to projects.
   4. Public Works Project Manager is responsible for supervision, administration and management of field operations involved in construction phase of this Work.
   5. Term "Work" includes all labor, equipment and materials necessary to produce project required by Construction Documents.
   6. Term "Substantial Completion" is date when project or specified area of project is certified by Architect / Engineer that construction is sufficiently completed, in accordance with Construction Documents, and as modified by any subsequent changes agreed to by parties, so that County may occupy project or specified area of project for use for which it was intended subject to permit approval for occupancy.
   7. Contractor is person, firm, or corporation with whom County makes Contract. Though multiple contracts may be involved, Construction Documents treat them throughout as if each were of singular number.

3. ADDITIONAL INSTRUCTIONS AND DRAWINGS

A. Contractor may be furnished additional instructions and detail drawings as necessary to carry out the Work included in Contract. Additional drawings and instructions thus supplied to Contractor will coordinate with Construction Documents and will be so prepared that they can be reasonably interpreted as part thereof. Contractor shall carry out the Work in accordance with additional detail drawings and instructions.

4. SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

A. Unless otherwise specified, Contractor shall submit three (3) copies of all Shop Drawings for each submission, until receiving final approval. After final approval, provide five (5) additional copies for distribution and such other copies as may be required.

B. Contractor shall submit, on an on-going basis and as directed, Product Data such as brochures that shall contain catalog cuts and specifications of all furnished mechanical and electrical equipment. After Architect / Engineer's approval, one (1) copy shall remain in Architect / Engineer's file, one (1) kept at Department's office and one (1) kept at job site by Contractor for reference purposes.

C. Samples shall consist of physical examples furnished by Contractor in sufficient size and quantity to illustrate materials, equipment or workmanship, and to establish standards to compare the Work.
   1. Submit Samples in sufficient quantity (minimum of two (2)) to permit Architect / Engineer to make all necessary tests and of adequate size showing quality, type, color range, finish, and texture. Label each Sample stating material, type, color, thickness, size, project name, and Contractor's name.
   2. Submit transmittal letter requesting approval, and prepay transportation charges to Architect / Engineer's office on samples forwarded.
   3. Materials installed shall match approved Samples.

D. Contractor shall review Shop Drawings and place their dated stamp thereon to evidence their review and approval and shall submit with reasonable promptness and in orderly sequence to cause no delay in the Work or in work of any other contractor. At time of submission, Contractor shall inform Architect / Engineer in writing of any deviation in Shop Drawings or Samples from requirements of Construction Documents. Architect / Engineer will not consider partial lists.

E. Architect / Engineer will review and approve or reject Shop Drawings with reasonable promptness to cause no delay. Architect / Engineer's approval shall not relieve Contractor from responsibility for errors or omissions in Shop Drawings.

F. Contractor shall not commence any work requiring Shop Drawing, Product Data or Sample submission until Architect / Engineer has approved submission. All such work shall be in accordance with approved Shop Drawings, Product Data and Samples.

G. Contractor shall keep on site of the Work, approved or conformed copy of Shop Drawings and shall at all times give Department access thereto.

H. By stamping and submitting Shop Drawings, Product Data and Samples, Contractor thereby represents that he or she has or will determine and verify all field measurements, field construction criteria, materials, catalog numbers, and similar data and that he or she has checked and coordinated each Shop Drawing, Product Data and Sample with requirements of the Work and of Construction Documents. Architect / Engineer shall return without examination, Shop Drawings, Product Data and Samples not so noted.

I. All Shop Drawings from any one Contractor should be numbered consecutively and on cover sheet shall bear name and location of project, name of Contractor, date of submittal and date of each correction or revision and associated Specification section and page number.

5. CUTTING AND PATCHING

A. Contractor shall be responsible for all cutting, fitting or patching required to complete the Work or to make its parts fit together properly.

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

6. CLEANING UP

A. Contractor shall keep premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under Contract. Contractor shall remove from and about the Work waste materials, rubbish, Contractor's tools, construction equipment, machinery, and surplus materials at completion of the Work. Contractor shall maintain streets and sidewalks around the Work site in clean condition. Contractor shall remove all spillage and prevent tracking of spillage arising from performance of the Work, into, out of, and within the Work site. Contractor shall establish regular maintenance program of sweeping, vacuuming and / or hosing to minimize accumulation of dirt and dust upon such areas.

B. If Contractor fails to clean up as directed in Construction Documents, County may do so and shall charge Contractor cost thereof.

C. Contractor shall be responsible for broken windows and glass, and at completion of the Work shall replace such damaged or broken windows and glass. After replacing damaged or broken windows and glass, Contractor shall remove all labels, wash and polish both sides of all windows and glass.

D. In addition to general cleaning (sweeping, vacuuming and / or hosing, as is appropriate to work surface), Contractor shall perform following final cleaning for all trades at completion of the Work:
   1. Remove temporary protections;
   2. Remove marks, stains, fingerprints and other soil or dirt from painted, decorated and finished woodwork and wall surfaces;
   3. Remove spots, plaster, soil and paint from ceramic tile, marble and other finished materials, and wash or wipe clean;
   4. Clean fixtures, cabinet work and equipment, removing stains, paint, dirt and dust, and leave same in undamaged, new condition;
   5. Clean aluminum in accordance with recommendations of manufacturer; and
   6. Clean resilient floors thoroughly with well-rinsed mop containing only enough moisture to clean off any surface dirt or dust and buff dry by machine to bring surfaces to sheen.

7. USE OF SITE

A. Contractor shall provide County and Architect / Engineer access to the Work under all circumstances.

B. Contractor shall confine operations at site to areas permitted by County, law, ordinance, permits and Construction Documents and shall not unreasonably encumber site with materials or equipment. Contractor shall assure free, convenient, unencumbered, direct and safe access to all properties adjacent to the Work for County, its employees, invitees and guests.

8. MATERIALS AND WORKMANSHIP

A. Contractor shall perform all work and furnish all supplies and materials, machinery, equipment, facilities and means, necessary to complete the Work required by this Contract, within time specified, in accordance with provisions of Construction Documents.

B. All equipment and materials incorporated in the Work covered by this Contract are to be new; use recycled and / or recovered materials to extent that such use is technically and economically feasible. Recovered materials are products recovered from solid waste in form identical to original form for use that is same as, or similar to original use. Recycled materials are products manufactured from solid waste.

C. If requested, Contractor shall furnish satisfactory evidence as to kind and quality of construction materials proposed or used. Contractor shall furnish to Architect / Engineer, for approval, manufacturer name and model, performance capacities and other pertinent information of machinery, mechanical, electrical or other types of equipment, which Contractor plans to install.

D. If not otherwise provided, materials and labor called for in this Contract shall be provided and performed in accordance with established practice and standards recognized by Architects, Engineers, Department, and construction industry.

E. Reference to "Standard" specifications of any association or manufacturer, or codes of County authorities, intends most recent printed edition or catalog in effect on date that corresponds with date of Construction Documents.

F. Whenever reference is made in Specifications that work shall be "performed", "applied", in accordance with "manufacturer's directions or instructions", Contractor to whom those instructions are directed shall furnish three (3) printed copies of such instructions to Architect / Engineer before execution of the Work.

9. CONTRACTOR'S TITLE TO MATERIALS

A. Contractor or any subcontractor shall not purchase materials or supplies for the Work subject to any chattel mortgage or under conditional sale contract or other agreement by which seller retains interest. Contractor warrants that all materials and supplies used in the Work are free from all liens, claims or encumbrances and Contractor has good title to them.

10. "OR EQUAL" CLAUSE

A. Whenever equipment or materials are identified on Drawings or in Specifications by reference to manufacturer's or vendor's name, trade name, catalog number, and other identifying information, it is intended to establish standards; and any equipment or material of other manufacturers and vendors which will perform adequately duties imposed by

general design will be considered equally accepted provided equipment or material so proposed is, in opinion of Architect / Engineer, of equal substance and function. Architect / Engineer and Department shall provide written approval before Contractor may purchase or install it.

B. Equipment or materials of manufacturers, other than those named, may be used only upon following conditions:
   1. That, in opinion of Architect / Engineer and Department, proposed material or equipment item is fully equal or superior (in design, materials, construction, workmanship, performance, finish, etc.) to named item. No compromise in quality level, however small, is acceptable.
   2. That, in substituting materials or equipment, Contractor assumes responsibility for any changes in system or for modifications required in adjacent or related work to accommodate such substitution despite Architect / Engineer's and Department's approval, and all costs growing out of approval of "or equal" items shall be responsibility of Contractor. No extra costs resulting from such approval shall become responsibility of Department, Architect / Engineer or any other separate Contractor.
   3. It shall be understood that use of materials or equipment other than those specified, or approved equal by Architect / Engineer and Department, shall constitute violation of Contract, and that Architect / Engineer and Department shall have right to require removal of such materials or equipment and their replacement with specified materials or equipment at Contractor's expense.
   4. Product and manufacturer named first in Specifications or on information shown on Drawings is basis of selection of manufactured items and equipment, particularly mechanical equipment. In using other than first named products or manufacturers, including those specified as additionally approved or acceptable, Contractor assumes responsibility for any changes in system and for modifications in any work required to accommodate them. Architect / Engineer's approval of such additionally acceptable products or manufacturers, either in Specifications or in Addendum, does not relieve Contractor from obligation to coordinate such optional products with other Contractors, whose work may be affected by them, and to pay all additional costs resulting from their inclusion into the Work. Contractor's liability shall include payment of Architect / Engineer's fees for any additional services made necessary by or directly connected to such product changes. No extra costs resulting from such changes shall become responsibility of Department, Architect / Engineer or any other separate Contractor.

C. No request for approval of "or equal" materials will be entertained except from Contractor. Identify any request for substitution as substitution on Contractor's letter of transmittal and give reasons for substitution. Department may in its sole discretion allow substitutions of materials.

11. PATENTS AND ROYALTIES

A. If Contractor uses any design, device or material covered by letters, patent or copyright, it is mutually agreed and understood, that, without exception, contract prices shall include all royalties or costs arising from use of such design, device or materials, in any way involved in the Work.

B. Contractor shall indemnify and save harmless County from any and all claims for infringement by reason of use of such patent or copyright in connection with the Work agreed to be performed under this Contract, and shall indemnify County for any cost,

expense or damage which it may be obliged to pay by reason of such infringement at any time during prosecution of the Work or after completion of the Work.

12. SURVEYS, PERMITS, REGULATIONS AND TAXES

A. Department will furnish to Contractor all site, topography and property surveys necessary for execution of the Work.

B. Contractor shall procure all permits, licenses and approvals necessary for execution of this Contract.

C. Contractor shall give all notices and comply with all State of Wisconsin, Federal and local laws, codes, rules and regulations relating to performance of the Work, protection of adjacent property, and maintenance of passageways, guard fences or other protective facilities.

D. Contractor shall pay all Sales, Consumer, Use and other similar taxes required by law.

E. Contractor shall promptly notify Architect / Engineer of any variances of Drawings or Specifications with that of any State of Wisconsin, federal or local law, code, rule or regulation. Upon such notification, Architect / Engineer will require correction of variance to comply with applicable law, code, rule or regulation at no additional cost to Contractor.

F. Work under this Contract shall comply with all applicable State of Wisconsin, Federal and local laws, codes and regulations.

G. Contractor shall pay charges for water, sewer and other utility connections made by municipalities where required by Specifications.

13. CONTRACTOR'S OBLIGATIONS AND SUPERINTENDENCE

A. Contractor shall provide and pay for all materials, labor, tools, equipment, transportation and superintendence necessary to execute, complete and deliver the Work within specified time. Contractor agrees to secure at their own expense all personnel necessary to carry out the Work. Such personnel shall not be deemed County employees nor shall they have or be deemed to have any direct contractual relationship with County.

B. Performance of any work necessary after regular working hours, on Sundays or Legal Holidays shall be without additional expense to County. Performance of any work at site at other than normal working hours must be coordinated with Public Works Project Manager.

C. Contractor shall furnish, erect, maintain and remove such temporary works as may be required.

D. Contractor shall observe, comply with, and be subject to all terms, conditions, requirements and limitations of Construction Documents.

E. At the Work site, Contractor shall give personal superintendence to the Work or shall employ construction superintendent or foreman, experienced in character of work covered by Contract, who shall have full authority to act for Contractor. Understand that such superintendent or foreman shall be acceptable to Architect / Engineer and Department.

F. Remove from project or take other corrective action upon notice from Architect / Engineer or Department for Contractor's employees whose work is considered by Architect / Engineer or Department to be unsatisfactory, careless, incompetent, unskilled or otherwise objectionable.

G. Contractor and subcontractors shall be required to conform to Labor Laws of State of Wisconsin and various acts amendatory and supplementary thereto and to other laws, ordinances and legal requirements applicable to the Work.

H. Presence and observation of the Work by Architect / Engineer or Public Works Project Manager shall not relieve Contractor of any obligations.

14. WEATHER CONDITIONS

A. In event of temporary suspension of work, or during inclement weather, or whenever Architect / Engineer shall direct, Contractor shall, and shall cause subcontractors to protect carefully all work and materials against damage or injury from weather. If, in opinion of Architect / Engineer or Department, any work or materials that have been damaged or injured due to failure on part of Contractor or any subcontractors so to protect the Work, such materials shall be removed and replaced at expense of Contractor.

15. PROTECTION OF WORK AND PROPERTY

A. Contractor shall at all times safely guard County's property from injury or loss in connection with this Contract. Contractor shall at all times safely guard and protect the Work, and adjacent property, from damage. Contractor shall replace or make good any such damage, loss or injury unless such is caused directly by errors contained in Contract, or by County, or County's duly authorized representative.

B. Contractor may act diligently, without previous instructions from Architect / Engineer and / or Department, in emergency that threatens loss or injury of property, or safety of life. Contractor shall notify Architect / Engineer and / or Department immediately thereafter. Promptly submit any claim for compensation by Contractor due to such extra work to Architect / Engineer and / or Department for approval as provided for in Article 18 herein.

16. INSPECTION AND TESTING OF MATERIALS

A. Authorized representatives and agents of County government shall have access at all times to the Work wherever it is in preparation or progress and Contractor shall provide facilities for such access and for inspection.

B. Should it be considered necessary or advisable at any time before final acceptance of the Work to make examination of work already completed, by removing or tearing out same, Contractor shall upon request, promptly furnish all necessary facilities, labor and materials. If such work is found to be defective in any aspect, due to fault of Contractor or subcontractors thereof, Contractor shall assume all expenses of such examination and of satisfactory reconstruction. Contractor will be reimbursed for such examination and replacement in accordance with Article 18 - A.3., of these General Conditions of Contract if such work is found to meet requirements of Contract.

C. If Specifications, Architect / Engineer's, or Public Works Project Manager's instructions require any work to be specially tested or approved, Contractor shall give Architect /

Engineer and Public Works Project Manager timely notice of its readiness for testing or inspection. Test all materials and equipment requiring testing in accordance with accepted or specified standards, as applicable. Architect / Engineer shall recommend laboratory or inspection agency and Department will select and pay for all initial laboratory inspection services. Should retesting be required, due to failure of initial testing, cost of such retesting shall be borne by Contractor.

D. Cost of any testing performed by manufacturers or Contractor for substantiating acceptability of proposed substitution of materials and equipment, or necessary conformance testing in conjunction with manufacturing processes or factory assemblage, shall be borne by Contractor or manufacturer responsible.

17. REPORTS, RECORDS AND DATA

A. Contractor shall submit to Architect / Engineer and Public Works Project Manager such schedule of quantities and costs, progress schedules, payrolls, reports, estimates, invoices, records and other data as either may request concerning work performed or to be performed under this Contract.

18. CHANGES IN THE WORK

A. Make no changes, except in cases of emergency, in the Work covered by approved Construction Documents without having prior written approval of Department. Charges or credits for the Work covered by approved change shall be determined by one of these methods:
   1. Unit bid prices previously approved.
   2. Agreed lump sum based on actual cost of:
      a) Labor, including foremen, and all fringe benefits that are associated with their wages.
      b) Materials entering permanently into the Work.
      c) Ownership or rental cost of construction tools and equipment during time of use on extra work.
      d) Power and consumable supplies for operation of power equipment.
      e) Workmen's Compensation Insurance, Contractor's Public Liability and Property Damage Insurance, and Comprehensive Automobile Liability Insurance.
      f) Social Security and old age and unemployment contributions.
      g) Add to cost under (2), fixed fee to be agreed upon, but not to exceed fifteen percent (15%) of actual cost of work performed with their own labor force. Fee shall be compensation to cover cost of supervision, overhead, bond, profit and any other general expense.
      h) On that portion of the Work under (2) done under subcontract, Contractor may include not over seven and one-half percent (7½%) for supervision, overhead, bond, profit and any other general expense.
      i) Department may require correct amount of costs with supporting vouchers; Contractor shall keep and present in such form as directed.
   3. Cost-plus work, with not-to-exceed dollar limit, based on actual cost of:
      a) Labor, including foremen, and all fringe benefits that are associated with their wages.
      b) Materials entering permanently into the Work.

c) Ownership or rental cost of construction tools and equipment during time of use on extra work. Rental cost cannot exceed fifty percent (50%) replacement value of rented equipment.
d) Power and consumable supplies for operation of power equipment.
e) Workmen's Compensation Insurance, Contractor's Public Liability and Property Damage Insurance, and Comprehensive Automobile Liability Insurance.
f) Social Security and old age and unemployment contributions.
g) To cost under (3), there shall be added fixed fee to be agreed upon but not to exceed fifteen percent (15%) of actual cost of work performed with their own labor force. Fee shall be compensation to cover cost of supervision, overhead, bond, profit, and any other general expense.
h) On that portion of the Work under (3) done under subcontract, Contractor may include not over seven and one-half percent (7½%) for supervision, overhead, bond, profit, and any other general expense.
i) Contractor shall keep and present, in such form as directed, correct amount of cost together with such supporting vouchers as may be required by Department.

B. If Contractor claims that by any instructions given by Architect / Engineer, Department, by drawings or otherwise, regarding performance of the Work or furnishing of material under Contract, involves extra cost, Contractor shall give Department written notice of cost thereof within two (2) weeks after receipt of such instructions and in any event before proceeding to execute work, unless delay in executing work would endanger life or property.

C. No claim for extra work or cost shall be allowed unless it was done in pursuance of written Change Order from Architect / Engineer and approved by Department, as previously mentioned, and claim presented with payment request submitted after changed or extra work is completed.

D. Negotiation of cost for change in the Work shall not be cause for Contractor to delay prosecution of the Work if Contractor has been authorized in writing by Public Works Project Manager to proceed.

19. EXTRAS

A. Without invalidating Contract, Department may order extra work or make changes by altering, adding to or deducting from the Work, contract sum being adjusted in accordance with Article 18 herein.

20. TIME FOR COMPLETION

A. Contractor agrees that the Work shall be prosecuted regularly and diligently and complete the Work as stated in Construction Documents.

21. CORRECTION OF WORK

A. All work, all materials whether incorporated in the Work or not, and all processes of manufacture shall at all times and places be subject to inspection of Architect / Engineer and Public Works Project Manager who shall be judge of quality and suitability of the Work, materials, and processes of manufacture for purposes for which they are used. Should they fail to meet Architect / Engineer's and Public Works Project Manager's approval they shall

be reconstructed, made good, replaced or corrected, by Contractor at Contractor's expense. Immediately remove all rejected material from site.

B. If Contractor defaults or neglects to carry out the Work in accordance with Construction Documents or fails to perform any provision of Contract, Department may, after ten (10) business days' written notice to Contractor and without prejudice to any other remedy County may have, make good such deficiencies. In such case, appropriate Change Order shall be issued deducting from Contractor's payments then or thereafter, cost of correcting such deficiencies, including cost of Architect / Engineer's additional services made necessary by such default, neglect or failure.

22. SUBSURFACE CONDITIONS FOUND DIFFERENT

A. If Contractor encounters subsurface or latent conditions at site materially differing from those shown on Drawings or indicated in Specifications, Contractor shall immediately give notice to Architect / Engineer and Public Works Project Manager of such conditions before they are disturbed. Architect / Engineer will thereupon promptly investigate conditions, and if Architect / Engineer finds that they materially differ from those shown on Drawings or indicated in Specifications, Architect / Engineer will at once make such changes as necessary, any increase or decrease of cost resulting from such changes to be adjusted in manner provided in above Article 18 entitled "Changes in the Work".

23. RIGHT OF DEPARTMENT TO TERMINATE CONTRACT

A. In event that any provisions of this Contract are violated by Contractor or by any subcontractors, County may serve written notice upon Contractor and Surety of its intention to terminate Contract, such notice to contain reasons for such intention to terminate Contract, and unless within ten (10) business days after serving of such notice upon Contractor, such violation or delay shall cease and satisfactory arrangement or correction be made, Contract shall, upon expiration of said ten (10) business days, cease and terminate.

B. In event of any such termination, County shall immediately serve notice thereof upon Surety and Contractor, and Surety shall have right to take over and perform Contract subject to County's approval; provided, however, that if Surety does not commence performance thereof within ten (10) business days from date of mailing to such Surety of notice of termination, County may take over the Work and prosecute same to completion by contract, or by force account, at expense of Contractor; Contractor and Surety shall be liable to County for any excess cost occasioned County thereby, and in such event County may take possession of and utilize in completing the Work, such materials and equipment as may be on the Work site and therefore necessary.

24. CONSTRUCTION SCHEDULE AND PERIODIC ESTIMATES

A. Contractor shall be responsible for Construction Schedule and coordination. Immediately after execution and delivery of Contract and before making first payment, Contractor shall notify all subcontractors to furnish all required information to develop Construction Schedule. Contractor and all subcontractors associated with the Work shall furnish following information from each Division of Specifications:
   1. List of construction activities;
   2. Start, finish and time required for completion of each activity;
   3. Sequential relationships between activities;

4. Identify all long lead-time items, key events, meetings or activities such as required submittals, fabrication and delivery, procurement of materials, installation and testing;
5. Weekly definition of extent of work and areas of activity for each trade or Subcontract; and
6. Other information as determined by Public Works Project Manager.

B. In addition to above requested items, Contractor shall request delivery dates for all County-furnished equipment, materials or labor. This shall include any work handled by Department under separate contracts such as asbestos abatement, air and water balancing, etc. Indicate on Construction Schedule these associated delivery and installation dates.

C. Progress Reporting:
1. Contractor shall update and publish Construction Schedule on monthly basis. Revisions to Schedule shall be by Contractor and made in same detail as original Schedule and accompanied by explanation of reasons for revision; and shall be subject to approval by Department.
2. Failure of Contractor to keep Schedule in updated format shall result in County hiring firm specializing in construction schedule development and deducting those costs associated with updating process from payments due Contractor.
3. Contractor shall submit show actual percentage of each activity completed, estimated future progress, and anticipated completion time.

D. Responsibility for timely completion requires:
1. Contractor and subcontractors understand that performance of each is interdependent upon performance of others.
2. Whenever it becomes apparent from current schedule, that phasing or progress completion dates will not be met, Contractor must take some or all following actions at no additional cost to County:
   a) Increase construction labor in such quantities and crafts as will eliminate backlog of work.
   b) Increase number of working hours per shift, shifts per working day, working days per week, amount of construction equipment, or any combination of foregoing to eliminate backlog of work.
   c) Reschedule work (yet remain in conformance with Drawings and Specifications).
3. Prior to proceeding with any of above actions, Contractor shall notify Public Works Project Manager.

E. Maintain current Construction Schedule at all times. Revise Construction Schedule in same detail as original and accompany with explanation of reasons for revision. Schedule shall be subject to approval by Architect / Engineer and Public Works Project Manager.

25. PAYMENTS TO CONTRACTOR

A. Contractor shall provide:
1. Detailed estimate giving complete breakdown of contract price by Specification Division; and
2. Periodic itemized estimates of work done for purpose of making partial payments thereon.

B. Submit these estimates for approval first to Architect / Engineer, then to Public Works Project Manager. Costs employed in making up any of these schedules are for determining

basis of partial payments and not considered as fixing basis for additions to or deductions from Contract price.

C. County will make partial payments to Contractor for value, proportionate to amount of Contract, of all labor and material incorporated in the Work during preceding calendar month upon receipt of Application and Certificate for Payment form from Architect / Engineer and approval of Department.

D. Contractor shall submit for approval first to Architect / Engineer, and then to Public Works Project Manager all Application and Certificate for Payment forms. If requested, Application and Certificate for Payment shall be supported by such additional evidence as may be required, showing Contractor's right to payment claimed.

E. Application and Certificate for Payment for preparatory work and materials delivered and suitably stored at site to be incorporated into the Work at some future period, will be given due consideration. Requesting payment for materials stored off site, may be rejected, however, if deemed essential for reasons of job progress, protection, or other sufficient cause, requests will be considered, conditional upon submission by Contractor of bills of sale, photographs and such other procedures as will adequately protect County's interest such as storage in bonded warehouse with adequate coverage. If there is any error in payment, Contractor is obligated to notify Department immediately, but no longer than ten (10) business days from receipt of payment.

F. Payments by County will be due within forty-five (45) business days after receipt by Department of Application and Certificate for Payment.

G. County will retain five percent (5%) of each Application and Certificate for Payment until final completion and acceptance of all the Work covered by Contract. However, anytime after fifty percent (50%) of the Work has been furnished and installed at site, County will make remaining payments in full if Architect / Engineer and Public Works Project Manager find that progress of the Work corresponds with Construction Schedule. If Architect / Engineer and Public Works Project Manager find that progress of the Work does not correspond with Construction Schedule, County may retain up to ten percent (10%) of each Application and Certificate for Payment for the Work completed.

H. All material and work covered by partial payments made shall become sole property of County, but 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 restoration of any damaged work, or as waiver of right of County to require fulfillment of all of terms of Contract.

I. County will make final payment within sixty (60) calendar days after final completion of the Work, and will constitute acceptance thereof. Submit Equal Benefits Compliance Payment Certification with final pay request. Payment may be denied if Certification is not included.

J. County may make payment in full, including retained percentages and less authorized deductions, upon completion and acceptance of each Division where price is stated separately in Contract.

K. Every contractor engaged in performance of any contract for Department of Public Works, Highway & Transportation shall submit to this Department, as requested and with final application for payment for work under said contract, affidavit(s) as required to prove that all

debts and claims against this Work are paid in full or otherwise satisfied, and give final evidence of release of all liens against the Work and County. If Wisconsin Prevailing Wage Rate Determination is required for this Work, use "Prime Contractor Affidavit of Compliance with Prevailing Wage Rate Determination" and "Agent or Subcontractor Affidavit of Compliance with Prevailing Wage Rate Determination" (if applicable). If Wisconsin Prevailing Wage Rate Determination is not required for this Work, use "Dane County, Wisconsin Contractor Wage Affidavit". Forms of such affidavits are included in Supplementary Conditions.

26. WITHHOLDING OF PAYMENTS

A. County, after having served written notice on said Contractor, may either pay directly any unpaid bills of which Department has written notice, or withhold from Contractor's unpaid compensation sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged; whereupon, payment to Contractor shall be resumed in accordance with terms of this Contract, but in no event shall these provisions be construed to impose any obligations upon County to either Contractor or Contractor's Surety.

B. In paying any unpaid bills of Contractor, County shall be deemed agent of Contractor, and any payment so made by County, shall be considered as payment made under Contract by County to Contractor and County shall not be liable to Contractor for any such payment made in good faith.

C. Contractor shall indemnify, hold harmless and defend Dane County, its boards, commissions, agencies, officers, employees and representatives from all claims growing out of lawful demands of subcontractors, laborers, workers, mechanics, material men, and furnishers of machinery and parts thereof, equipment, power tools, and all supplies, including commissary, incurred in performance of this Contract.

D. At Department's request, Contractor shall furnish satisfactory evidence that all obligations of nature designated above have been paid, discharged or waived.

27. ACCEPTANCE OF FINAL PAYMENT AS RELEASE

A. Making of final payment shall constitute waiver of all claims by County except those arising from:
   1. Unsettled lien;
   2. Faulty or defective work appearing after substantial completion;
   3. Failure of the Work to comply with requirements of Construction Documents; or
   4. Terms of any special guarantees required by Construction Documents.

B. Acceptance of final payment shall constitute waiver of all claims by Contractor.

28. PAYMENTS BY CONTRACTOR

A. Contractor shall pay following not later than fifth (5^{th}) business day following each payment received from County:
   1. All transportation and utility services rendered;

2. All materials, tools, and other expendable equipment that have been delivered at site of the Work to extent of ninety percent (90%) of cost thereof, and balance of cost thereof when said balance is paid to Contractor; and
3. Each subcontractor, respective amount allowed Contractor because of work performed by subcontractor to extent of subcontractor's interest therein.

29. CONTRACT SECURITY

A. Contractor shall furnish Performance and Payment Bonds in amount at least equal to one hundred percent (100%) of Contract price as security for faithful performance of this Contract and payment of all persons performing labor on project under this Contract and furnishing materials in connection with this Contract.

B. Sample Performance and Payment Bonds that Contractor will be required to execute is bound into these Construction Documents. Before construction Contract is consummated, completed Performance and Payment Bonds must be approved by Department.

30. ASSIGNMENTS

A. Contractor shall not assign whole or any part of this Contract or any moneys due or to become due hereunder without written consent of Department. In case Contractor assigns all or any part of any moneys due or to become due under this Contract, instrument of assignment shall contain clause substantially to effect that it is agreed that right of assignee in and to any moneys due or to become due to Contractor shall be subject to prior claims of all persons, firms and corporations for services rendered or materials supplied for performance of the Work called for in this Contract.

31. MUTUAL RESPONSIBILITY OF CONTRACTORS

A. If, through acts of neglect on part of Contractor or any subcontractor shall suffer loss or damage on the Work, Contractor agrees to settle with such subcontractor by agreement or arbitration if such other subcontractor will so settle. If such subcontractor shall assert any claim against County on account of any damage alleged to have been sustained, Department shall notify Contractor, who shall indemnify, hold harmless and defend Dane County, its boards, commissions, agencies, officers, employees and representatives against any such claim.

32. SEPARATE CONTRACTS

A. Department may award other contracts for the Work and all Contractors shall fully cooperate with each other and carefully adjust their work to that provided under other contracts as may be directed by Department. No Contractor shall commit or permit any act that will interfere with performance of the Work by any other Contractor.

B. Contractor shall coordinate the Work with those of other Contractors. Cooperation will be required in arrangement for storage of materials and in detailed execution of the Work. Contractor, including subcontractors, shall keep informed of progress and detail work of others and shall notify Architect / Engineer or Department immediately of lack of progress or defective workmanship on part of others. Failure of Contractor to keep informed of the Work progressing on site and failure to give notice of lack of progress or defective

workmanship by others shall be construed as acceptance by Contractor of status of the Work as being satisfactory for proper coordination with Contractor's own work.

33. SUBCONTRACTS

A. Contractor may use services of specialty subcontractors on those parts of the Work that, under normal contracting practices, are performed by specialty subcontractors.

B. Contractor shall not award any work to any subcontractor without prior approval of Department. Qualifications of subcontractors shall be same as qualifications of Contractor. Request for subcontractor approval shall be submitted to Department fifteen (15) business days before start of subcontractor's work. If subcontractors are changed or added, Contractor shall notify Department in writing.

C. Contractor shall be as fully responsible to County for acts and omissions of subcontractors, and of persons either directly or indirectly employed by them, as Contractor is for acts and omissions of persons directly employed by Contractor.

D. Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the Work to bind subcontractors to Contractor by terms of General Conditions of Contract and other Construction Documents insofar as applicable to work of subcontractors and to give Contractor same power as regards terminating any subcontract that Department may exercise over Contractor under any provision of Construction Documents.

E. Nothing contained in this Contract shall create any contractual relation between any subcontractor and County.

F. Contractor shall insert in all subcontracts, Articles 26, 33, 43 and 45, respectively entitled: "Withholding of Payments", "Subcontracts", "Affirmative Action Provision and Minority / Women / Disadvantaged Business Enterprises", and "Minimum Wages", and shall further require all subcontractors to incorporate physically these same Articles in all subcontracts.

34. PUBLIC WORKS PROJECT MANAGER'S AUTHORITY

A. Public Works Project Manager shall:
   1. Administer and ensure compliance with Construction Documents;
   2. Provide responsible on-site observations of construction and have authority to request work and to stop work whenever necessary to insure proper enforcement of Construction Documents;
   3. Convene and chair project meetings and foreman's coordination meetings when necessary to coordinate resolution of conflicts between Contractors, Architects, Engineers, Consultants, and Department; and
   4. Check and inspect material, equipment and installation procedures of all trades for proper workmanship and for compliance with Drawings, Specifications and Shop Drawings, permit no material on project site that is not satisfactory and reject work not in compliance with Construction Documents.

35. ARCHITECT / ENGINEER'S AUTHORITY

A. Architect / Engineer is retained by, and is responsible to Department acting for County.

B. Architect / Engineer shall determine amount, quality, acceptability, and fitness of several kinds of work and materials that are provided under this Contract and shall decide all questions that may arise in relation to said work and construction thereof.

C. Architect / Engineer shall decide meaning and intent of any portion of Specifications and of any Drawings where they may be found obscure or be in dispute.

D. Architect / Engineer shall provide responsible observation of construction. Architect / Engineer has authority to stop the Work whenever such stoppage may be necessary to insure proper execution of Construction Documents.

E. Architect / Engineer shall be interpreter of conditions of Construction Documents and judge of its performance.

F. Within reasonable time, Architect / Engineer shall make decisions on all matters relating to progress of the Work or interpretation of Construction Documents.

G. Architect / Engineer's decisions are subject to review by Public Works Project Manager.

36. STATED ALLOWANCES

A. Stated allowances enumerated in Instructions to Bidders shall cover net cost of materials or equipment, and all applicable taxes. Contractor's cost of delivery and unloading at site, handling costs on site, labor, installation costs, overhead, profit and any other incidental costs shall be included in Contractor's bid, but not as part of cash allowance.

B. Department will solicit at least two (2) bids on materials or equipment for which allowance is stated and select on basis of lowest qualified responsible bid. Contractor will then be instructed to purchase "Allowed Materials". If actual price for purchasing "Allowed Materials", including taxes, is more or less than "Cash Allowance", Contract price shall be adjusted accordingly. Adjustment in Contract price shall not contain any cost items excluded from cash allowance.

37. ESTIMATES OF QUANTITIES

A. Whenever estimated quantities of work to be done and materials to be furnished under this Contract are shown in any of Construction Documents, they are given for use in comparing bids and right is especially reserved to increase or diminish them as they may be deemed reasonably necessary or desirable by Department to complete the Work included in this Contract, and cost for such increase or diminution shall be adjusted in manner provided for in General Conditions of Contract Article 18 entitled "Changes in the Work".

38. LANDS AND RIGHTS-OF-WAY

A. Prior to start of construction, County shall furnish all land and rights-of-way necessary for carrying out and completion of the Work to be performed under this Contract.

39. GENERAL GUARANTEE

A. Neither final certificate of payment nor any provision in Construction Documents nor partial or entire occupancy of premises by County shall constitute acceptance of work not done in accordance with Construction Documents or relieve Contractor of liability in respect to any expressed warranties or responsibility for faulty materials or workmanship.
   1. In no event shall making of any payment required by Contract constitute or be construed as waiver by County of any breach of covenants of Contract or waiver of any default of Contractor and making of any such payment by County while any such default or breach shall exist shall in no way impair or prejudice right of County with respect to recovery of damages or other remedy as result of such breach or default.

B. Contractor shall remedy and make good all defective workmanship and materials and pay for any damage to other work resulting there from, which appear within period of one (1) year from date of substantial completion, providing such defects are not clearly due to abuse or misuse by County. Department will give notice of observed defects with reasonable promptness.

C. Guarantee on work executed after certified date of substantial completion will begin on date when such work is inspected and approved by Architect / Engineer and Public Works Project Manager.

D. Where guarantees or warrantees are required in sections of Specifications for periods in excess of one (1) year, such longer terms shall apply; however, Contractor's Performance and Payment Bonds shall not apply to any guarantee or warranty period in excess of one (1) year.

40. CONFLICTING CONDITIONS

A. Any provision in any of Construction Documents which may be in conflict or inconsistent with any Articles in these General Conditions of Contract or Supplementary Conditions shall be void to extent of such conflict or inconsistency.

B. In case of ambiguity or conflict between Drawings and Specifications, Specifications shall govern.

C. Printed dimensions shall be followed in preference to measurements by scale. Large-scale drawings take precedence over small-scale drawings. Dimensions on Drawings and details are subject to field measurements of adjacent work.

41. NOTICE AND SERVICE THEREOF

A. Any notice to Contractor from Department relative to any part of this Contract shall be in writing and considered delivered and service thereof completed, when said notice is posted, by certified or registered mail, to Contractor at Contractor's last given address, or delivered in person to said Contractor, or Contractor's authorized representative on the Work.

42. PROTECTION OF LIVES AND HEALTH

A. In order to protect lives and health of Contractor's employees under Contract, Contractor shall comply with all pertinent provisions of Wisconsin Administrative Code, Rules of Department of Commerce, relating to Safety and Health.

B. Contractor alone shall be responsible for safety, efficiency and adequacy of Contractor's tools, equipment and methods, and for any damage that may result from their failure or their improper construction, maintenance or operation.

43. AFFIRMATIVE ACTION PROVISION AND MINORITY / WOMEN / DISADVANTAGED BUSINESS ENTERPRISES

A. Affirmative Action Provisions.
   1. During term of their Contract, Contractor agrees not to discriminate on basis of race, religion, color, sex, handicap, age, sexual preference, marital status, physical appearance, or national origin against any person, whether recipient of services (actual or potential), employee, or applicant for employment. Such equal opportunity shall include but not be limited to following: employment, upgrading, demotion, transfer, recruitment, advertising, layoff, termination, training, rates of pay, and any other form of compensation or level of service(s). Contractor agrees to post in conspicuous places, these affirmative action standards so as to be visible to all employees, service recipients and applicants for this paragraph. Listing of prohibited bases for discrimination shall no be construed to amend in any fashion state or federal law setting forth additional bases and exceptions shall be permitted only to extent allowable in state or federal law.
   2. Contractor is subject to this Article only if Contractor has ten (10) or more employees and receives $10,000.00 or more in annual aggregate contracts with County. Contractor shall file and Affirmative Action Plan with Dane County Contract Compliance Officer in accord with Chapter 19 of Dane County Code of Ordinances. Such plan must be filed within fifteen (15) business days of effective date of this Contract and failure to do so by said date shall constitute ground for immediate termination of Contract by County. Contractor shall also, during term of this Contract, provide copies of all announcements of employment opportunities to County's Contract Compliance Office, and shall report annually number of persons, by race, sex and handicap status, who apply for employment, and, similarly classified, number hired and number rejected.
   3. Contact Dane County Contract Compliance Officer at Dane County Contract Compliance Office, 210 Martin Luther King, Jr. Blvd., Room 421, Madison, WI 53703, 608/266-4114.
   4. In all solicitations for employment placed on Contractor's behalf during term of this Contract, Contractor shall include statement to affect Contractor is "Equal Opportunity Employer". Contractor agrees to furnish all information and reports required by County's Contract Compliance Officer as same relate to affirmative action and nondiscrimination, which may include any books, records, or accounts deemed appropriate to determine compliance with Chapter 19, Dane County Code of Ordinances, and provision of this Contract.

B. Minority / Women / Disadvantaged / Emerging Small Business Enterprises.
   1. Chapter 19.508 of Dane County Code of Ordinances is official policy of Dane County regarding utilization of, to fullest extent of, Minority Business Enterprises (MBEs), Women Business Enterprises (WBEs) Disadvantage Business Enterprises (DBEs) and Emerging Small Business Enterprises (ESBEs).

2. Contractor may utilize MBEs / WBEs / DBEs / ESBEs as subcontractors or suppliers. List of subcontractors will be required of low bidder as stated in this Contract. List shall indicate which are MBEs / WBEs / DBEs / ESBEs and percentage of subcontract awarded, shown as percentage of total dollar amount of bid.

44. COMPLIANCE WITH FAIR LABOR STANDARDS

A. During term of this Contract, Contractor shall report to County Contract Compliance Officer, within ten (10) business days, any allegations to, or findings by National Labor Relations Board (NLRB) or Wisconsin Employment Relations Commission (WERC) that Contractor has violated statute or regulation regarding labor standards or relations. If investigation by Contract Compliance Officer results in final determination that matter adversely affects Contractor's responsibilities under this Contract, and which recommends termination, suspension or cancellation of this Contract, County may take such action.

B. Contractor may appeal any adverse finding by Contract Compliance Officer as set forth in Dane County Ordinance 25.015(11)(c) through (e).

C. Contractor shall post this statement in prominent place visible to employees: "As condition of receiving and maintaining contract with Dane County, this employer shall comply with federal, state and all other applicable laws prohibiting retaliation or union organizing."

45. DOMESTIC PARTNERSHIP BENEFITS

A. Contractor agrees to provide same economic benefits to all of its employees with domestic partners as it does to employees with spouses, or cash equivalent if such benefit cannot reasonably be provided. Contractor agrees to make available for County inspection Contractor's payroll records relating to employees providing services on or under this Contract or subcontract. If any payroll records of Contractor contain any false, misleading or fraudulent information, or if Contractor fails to comply with provisions of Chapter 25.016, Dane County Ordinances, contract compliance officer may withhold payments on Contract; terminate, cancel or suspend Contract in whole or in part; or, after due process hearing, deny Contractor right to participate in bidding on future County contracts for period of one year after first violation is found and for period of three years after second or subsequent violation is found.

46. USE AND OCCUPANCY PRIOR TO ACCEPTANCE

A. Contractor agrees to use and occupancy of portion or unit of the Work before formal acceptance by Department, provided Department:
   1. Secures written consent of Contractor; except when in opinion of Public Works Project Manager, Contractor is chargeable with unwarranted delay in final cleanup of punch list items or other Contract requirements.
   2. Secures endorsement from insurance carrier and consent of Surety permitting occupancy of building or use of the Work during remaining period of construction, or, secures consent of Surety.
   3. Assumes all costs and maintenance of heat, electricity and water.
   4. Accepts all work completed within that portion or unit of the Work to be occupied, at time of occupancy.

47. MINIMUM WAGES

A. Contractor shall post, at appropriate conspicuous point on site of project, schedule showing all determined minimum wage rates for various classes of laborers and mechanics to be engaged in the Work under this Contract and all deductions, if any, required by law to be made from unpaid wages actually earned by laborers and mechanics so engaged.

B. Supplementary Conditions section in Construction Documents lists wage determinations required by State Law.

C. If, after award of Contract, it becomes necessary to employ any person in trade or occupation not classified in wage determinations, such person shall be paid at not less than such rate as shall be determined by Wisconsin Department of Workforce Development. Such approved minimum rate shall be retroactive to time of initial employment of such person in such trade or occupation. Contractor shall notify Department of Contractor's intention to employ persons in trades or occupations not so classified in sufficient time for Department to obtain approved rates for such trades or occupations.

D. Specified wage rates are minimum rates only, and Department will not consider any claims for additional compensation made by Contractor because of payment by Contractor of any wage rate in excess of applicable rate contained in this Contract. Contractor shall adjust any disputes in regard to payment of wages in excess of those specified in this Contract.

E. Submit required affidavit(s) to Department of Public Works, Highway & Transportation, as requested and with final application for payment for work under said contract. Affidavit(s) shall clearly indicate name, trade or occupation, and paid wages of every laborer, worker or mechanic employed by Contractor and all subcontractors during billing period including accurate record of number of hours worked by each employee and actual wages paid as stipulated in Wisconsin Statue 66.0903. If Wisconsin Prevailing Wage Rate Determination is required for this Work, use "Prime Contractor Affidavit of Compliance with Prevailing Wage Rate Determination" and "Agent or Subcontractor Affidavit of Compliance with Prevailing Wage Rate Determination" (if applicable). If Wisconsin Prevailing Wage Rate Determination is not required for this Work, use "Dane County, Wisconsin Contractor Wage Affidavit". Forms of such affidavits are included in Supplementary Conditions.

48. CLAIMS

A. No claim may be made until Department's Assistant Public Works Director has reviewed Architect / Engineer's decision as provided for in Article 35 of General Conditions of Contract. If any claim remains unresolved after such review by Department's Assistant Public Works Director the claim may be filed under Wisconsin Statute 893.80. Work shall progress during period of any dispute or claim. Unless specifically agreed between parties, venue will be in Dane County, Wisconsin.

49. ANTITRUST AGREEMENT

A. Contractor and County recognize that in actual economic practice, overcharges resulting from antitrust violations are in fact usually borne by County. Therefore, Contractor hereby assigns to County any and all claims for such overcharges as to goods and materials purchased in connection with this Contract, except as to overcharges which result from

antitrust violations commencing after price is established under this Contract and any change order thereto.

50. INSURANCE

A. Contractor Carried Insurance:
   1. Contractor shall not commence work under this Contract until Contractor has obtained all insurance required under this Article and has provided evidence of such insurance to Risk Manager, 425 City-County Building, 210 Martin Luther King Jr. Blvd., Madison, WI 53703. Contractor shall not allow any subcontractor to commence work until insurance required of subcontractor has been so obtained and approved. Company providing insurance must be licensed to do business in Wisconsin.
   2. Worker's Compensation Insurance:
      a) Contractor shall procure and shall maintain during life of this Contract, Worker's Compensation Insurance as required by statute for all of Contractor's employees engaged in work at site of project under this Contract and, in case of any such work sublet, Contractor shall require subcontractor similarly to provide Worker's Compensation Insurance for all of latter's employees to be engaged in such work unless such employees are covered by protection afforded by Contractor's Worker's Compensation Insurance.
      b) If any claim of employees engaged in hazardous work on project under this Contract is not protected under Worker's Compensation Statute, Contractor shall provide and shall cause each subcontractor to provide adequate Employer's Liability Insurance for protection of such of Contractor's employees as are not otherwise protected.
   3. Contractor's Public Liability and Property Damage Insurance:
      a) Contractor shall procure and maintain during life of this Contract, Contractor's Public Liability Insurance and Contractor's Property Damage Insurance in amount not less than $1,000,000 bodily injury, including accidental death, to any one person, and subject to same limit for each person, in amount not less than $1,000,000 on account of one accident, and Contractor's Property Damage Insurance in amount not less then $1,000,000 or combined single limit of at least $1,000,000 with excess coverage over and above general liability in amount not less than $5,000,000. Contractor shall add "Dane County" as additional insured for each project.
      b) Contractor's Public Liability and Property Damage Insurance shall include Products, Completed Operation, and Contractual Liability under Insurance Contract. "Contractor shall in all instances save, defend, indemnify and hold harmless County and Architect / Engineer against all claims, demands, liabilities, damages or any other costs which may accrue in prosecution of the Work and that Contractor will save, defend, indemnify and hold harmless County and Architect / Engineer from all damages caused by or as result of Contractor's operations" and each shall be listed as additional insured on Contractor's and sub-contractors' insurance policies.
      c) Obligations of Contractor under Article 50.A.2.b) shall not extend to liability of Architect / Engineer, agents or employees thereof, arising out of:
         1) Preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs or specifications; or
         2) Giving of or failure to give directions or instructions by Architect / Engineer, agents or employees thereof provided such giving or failure to give is primary cause of injury or damage.
      d) Contractor shall procure and shall maintain during life of this Contract, Comprehensive Automobile Liability Insurance covering owned, non-owned and hired automobiles for limits of not less than $1,000,000 each accident single limit,

bodily injury and property damage combined with excess coverage over and above general liability in amount not less than $5,000,000.

e) Contractor shall either:
   1) Require each subcontractor to procure and to maintain during life of subcontract, subcontractor's Public Liability Property Damage Insurance, and Comprehensive Automobile Liability Insurance of type and in same amount specified in preceding paragraphs; or
   2) Insure activities of subcontractors in Contractor's own policy.

4. Scope of Insurance and Special Hazards: Insurance required under Article 50.A.2 & 50.A.3. hereof shall provide adequate protection for Contractor and subcontractors, respectively, against damage claims which may arise from operations under this Contract, whether such operation be by insured or by anyone directly or indirectly employed by insured and also against any of special hazards which may be encountered in performance of this Contract as enumerated in Supplementary Conditions.
5. Proof of Carriage of Insurance: Contractor shall furnish Risk Manager with certificates showing type, amount, class of operations covered, effective dates, dates of expiration of policies and "Dane County" listed as additional insured. Such certificates shall also contain (substantially) following statement: "Insurance covered by this certificate will not be canceled or materially altered, except after ten (10) business days written notice has been received by Risk Manager."

B. Builder's Risk:
   1. County shall provide Builder's Risk insurance coverage for its insurable interests in construction or renovation projects with completed value of $500,000 or less. Therefore, if project completed value is more than $500,000, Contractor shall obtain and maintain in force, at its own expense, Builder's Risk Insurance on all risks for amount equal to full completed value of covered structure or replacement value of alterations or additions. Any deductible shall not exceed $25,000 for each loss. Policy shall include occupancy clause and list Dane County as loss payee.

C. Indemnification / Hold Harmless:
   1. Contractor shall indemnify, hold harmless and defend Dane County, its boards, commissions, agencies, officers, employees and representatives from and against all claims, damages, losses and expenses including attorneys' fees arising out of or resulting from performance of the Work, provided that any 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) including loss of use resulting therefrom, and is caused in whole or in part by any act or omission of Contractor, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by part indemnified hereunder.
   2. In any and all claims against Dane County, its boards, commissions, agencies, officers, employees and representatives or by any employee of Contractor, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, indemnification obligation under this Contract shall not be limited in any way by any limitation on amount or type of damages, compensation or benefits payable by or for Contractor or any subcontractor under worker's compensation acts, disability benefits or other employee benefit acts.
   3. Obligations of Contractor under this Contract shall not extend to liability of Architect / Engineer, its agents or employees arising out of:
      a) Preparation or approval of maps, drawings, opinion, reports, surveys, change orders, designs or specifications; or

b) Giving of or failure to give directions or instruction by Architect / Engineer, its agents or employees provided such giving or failure to give is primary cause of injury or damage.

4. Dane County shall not be liable to Contractor for damages or delays resulting from work by third parties or by injunctions or other restraining orders obtained by third parties.

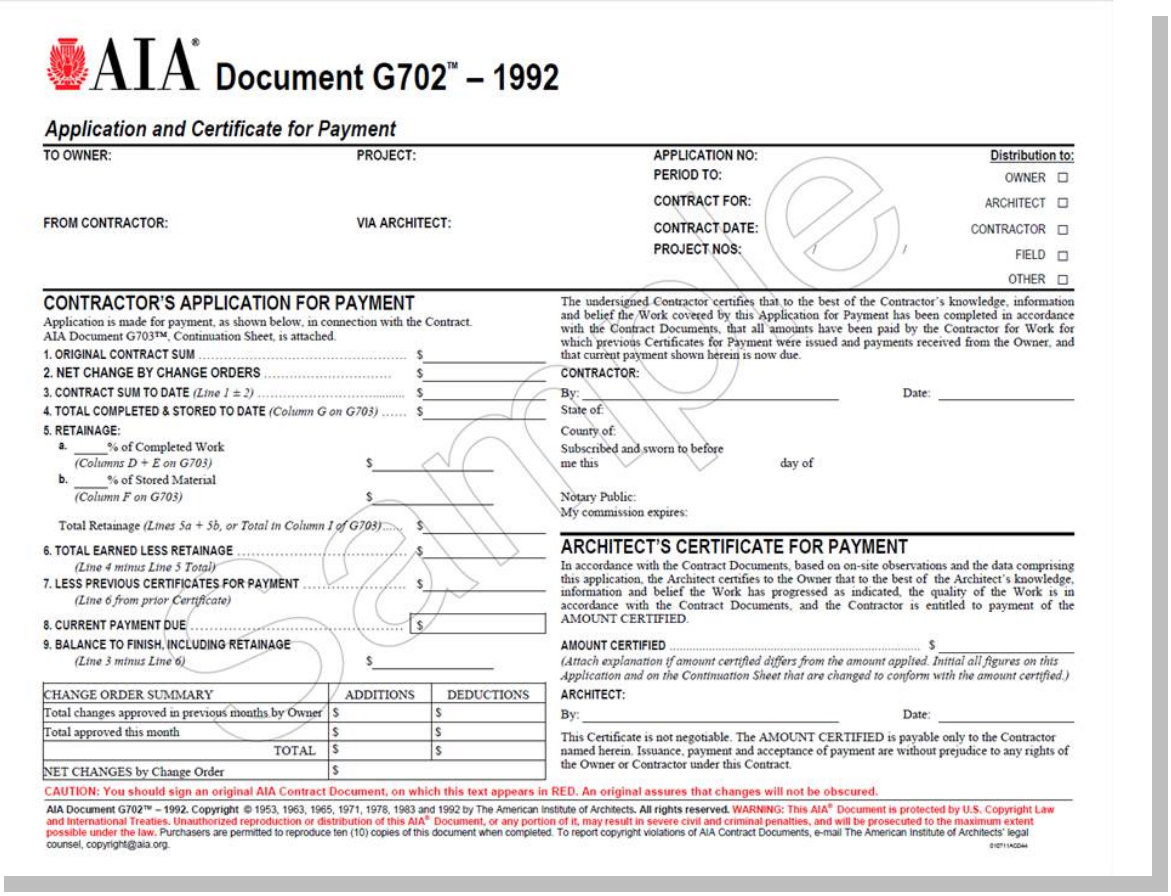
51. WISCONSIN LAW CONTROLLING

A. It is expressly understood and agreed to by parties hereto that in event of any disagreement or controversy between parties, Wisconsin law shall be controlling.

SECTION 00 73 07 - SUPPLEMENTARY CONDITIONS

1. APPLICATION & CERTIFICATE FOR PAYMENT

A. Every contractor engaged in performance of any contract for Department of Public Works, Highway & Transportation shall submit partial and final Application & Certificate for Payment for work under said contract. Form shall provide similar information as shown on AIA G702™ and G703™ forms (samples shown below). Forms shall be submitted to project Architect / Engineer for approval.



AIA® Document G702™ – 1992

Application and Certificate for Payment

TO OWNER: PROJECT: APPLICATION NO: Distribution to:
PERIOD TO: OWNER ☐
CONTRACT FOR: ARCHITECT ☐
FROM CONTRACTOR: VIA ARCHITECT: CONTRACT DATE: CONTRACTOR ☐
PROJECT NOS: / / FIELD ☐
OTHER ☐

CONTRACTOR'S APPLICATION FOR PAYMENT

Application is made for payment, as shown below, in connection with the Contract.
AIA Document G703™, Continuation Sheet, is attached.

1. ORIGINAL CONTRACT SUM ..... $
2. NET CHANGE BY CHANGE ORDERS ..... $
3. CONTRACT SUM TO DATE *(Line 1 ± 2)* ..... $
4. TOTAL COMPLETED & STORED TO DATE *(Column G on G703)* ..... $
5. RETAINAGE:
   a. ____% of Completed Work *(Columns D + E on G703)* $
   b. ____% of Stored Material *(Column F on G703)* $
   Total Retainage *(Lines 5a + 5b, or Total in Column I of G703)* ..... $
6. TOTAL EARNED LESS RETAINAGE ..... $ *(Line 4 minus Line 5 Total)*
7. LESS PREVIOUS CERTIFICATES FOR PAYMENT ..... $ *(Line 6 from prior Certificate)*
8. CURRENT PAYMENT DUE ..... $
9. BALANCE TO FINISH, INCLUDING RETAINAGE *(Line 3 minus Line 6)* $

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by Owner	$	$
Total approved this month	$	$
TOTAL	$	$
NET CHANGES by Change Order	$	

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown herein is now due.

CONTRACTOR:
By: Date:
State of:
County of:
Subscribed and sworn to before me this day of
Notary Public:
My commission expires:

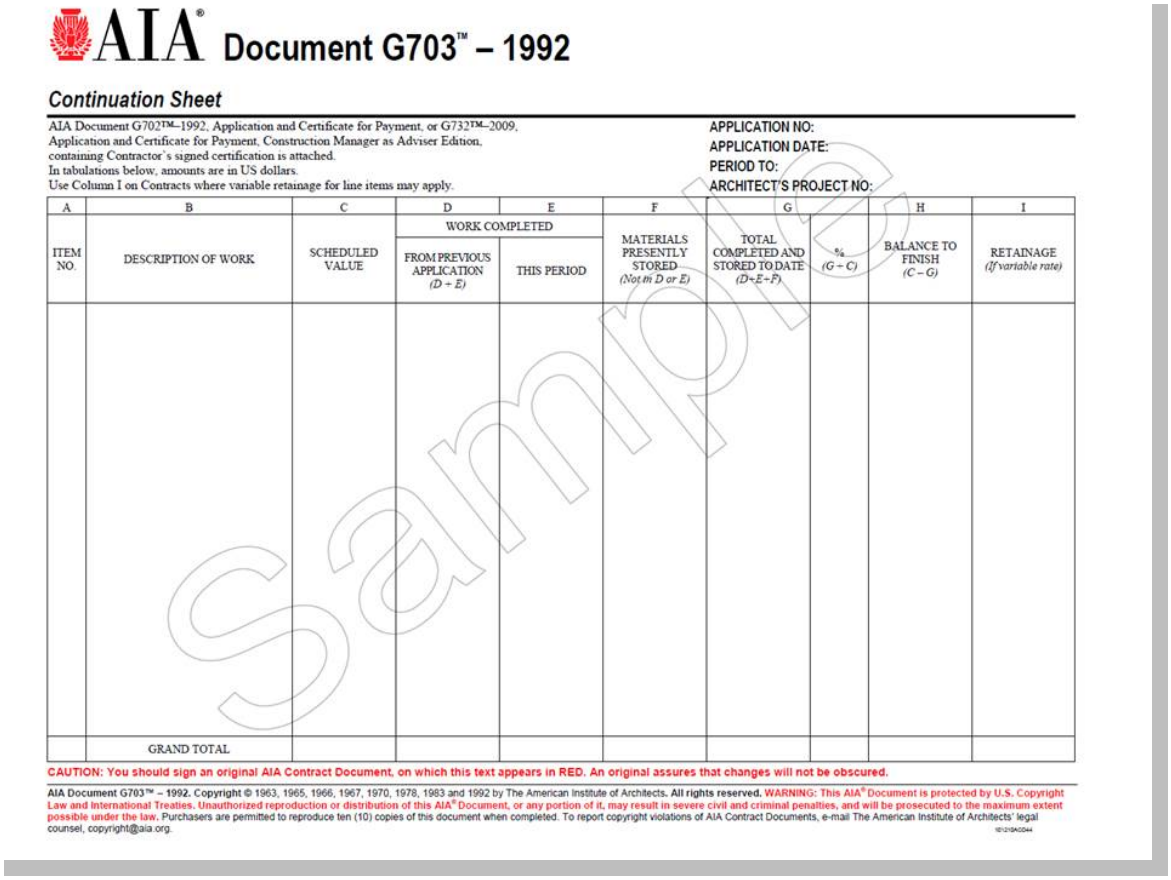
ARCHITECT'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED ..... $
(Attach explanation if amount certified differs from the amount applied. Initial all figures on this Application and on the Continuation Sheet that are changed to conform with the amount certified.)
ARCHITECT:
By: Date:

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

CAUTION: You should sign an original AIA Contract Document, on which this text appears in RED. An original assures that changes will not be obscured.



AIA® Document G703™ – 1992

Continuation Sheet

AIA Document G702™–1992, Application and Certificate for Payment, or G732™–2009, Application and Certificate for Payment, Construction Manager as Adviser Edition, containing Contractor's signed certification is attached.
In tabulations below, amounts are in US dollars.
Use Column I on Contracts where variable retainage for line items may apply.

APPLICATION NO:
APPLICATION DATE:
PERIOD TO:
ARCHITECT'S PROJECT NO:

A	B	C	D	E	F	G		H	I
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	WORK COMPLETED: FROM PREVIOUS APPLICATION (D + E)	WORK COMPLETED: THIS PERIOD	MATERIALS PRESENTLY STORED (Not in D or E)	TOTAL COMPLETED AND STORED TO DATE (D+E+F)	% (G ÷ C)	BALANCE TO FINISH (C – G)	RETAINAGE (If variable rate)
	GRAND TOTAL								

CAUTION: You should sign an original AIA Contract Document, on which this text appears in RED. An original assures that changes will not be obscured.

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2. CONTRACTOR WAGE AFFIDAVIT

A. Every contractor engaged in performance of any contract for Department of Public Works, Highway & Transportation shall submit to this Department, as requested and with final application for payment for work under said contract, affidavit in form as hereinafter set forth in this section. Affidavit affirms that all persons employed by contractor or by any of contractor's subcontractors on such contract have been paid no less than minimum wages established under Dane County Ordinances, Chapter 40, Subchapter II (Minimum Wage Ordinance) and in effect at date of execution of contract, that full payment of wages earned has been made, and that no rebates either directly or indirectly have been made. Form of such affidavit is included in this section.

B. Form should be included with a copy of the final contract invoice forwarded to your contract representative at Dane County.

DANE COUNTY, WISCONSIN

CONTRACTOR WAGE AFFIDAVIT

COMPANY NAME: _____

ADDRESS: _____

_____

CONTRACT NO.: _____ DIVISION(S) OF WORK: _____

AFFIDAVIT

STATE OF WISCONSIN)
) ss.
DANE COUNTY)

I, _____, being
name and title of person signing affidavit
first duly sworn at _____,
city & state of company incorporation
on oath, depose and say that with respect to the payment of the persons employed by the

_____, subcontractors on the _____
contractor company name division(s) of work
_____, at the _____
building or site of project
that during the period commencing _____, and ending _____
date date
all persons employed on said project have been paid the full wages earned, that no rebates have been or will be made either directly or indirectly by said contractor or subcontractor from the full weekly wages earned by any person, and that no deductions have been made either directly or indirectly from the full weekly wages earned by any person, other than authorized legal deductions (including taxes such as Federal Income Withholding and Social Security, State and

_____,
state any other legal deductions such as union dues, unemployment insurance, 401k contributions, etc., or fill in "N/A"
and that there is full compliance with the provisions and intent of the requirements of Dane County Ordinances, Chapter 40, Subchapter II (Minimum Wage Ordinance). This affidavit is made to induce Dane County to approve the application for payment to which this affidavit is attached.

_____
Contractor Company Name

_____ _____
Signature Title

Sworn to before me this _____ day of _____, 20__.

_____ My Commission expires _____
Notary Public Date

3. JAIL ACCESS

A. The Background Check Form on the following page must be filled out before access can be granted to the Dane County Jail. Visiting the site for pre-bid tour is mandatory for prime bidders & subcontractors bidding on Divisions 11 & 23 work. All other subcontractors are strongly encouraged to attend this tour.

B. Submit Background Check Form (one form per participant) via fax to Scott Carlson at 608/267-1533 or scan & email it to carlson.scott@countyofdane.com.

C. In order to be considered & cleared, submit all forms no later than April 14, 2017.

D. All previous Background Check Forms have been deleted from the system & if any of your staff want access for the pre-bid tour, they must re-apply for clearance.

E. Winning bidder shall submit Background Check Forms for every worker (General Contractor & all Subcontractors) needing access to the site well before the Work commences.

PRE-BID FACILITY TOUR & MEETING

TUESDAY, APRIL 25, 2017, 11:00 a.m.

JAIL MITIGATION UPGRADES - CITY-COUNTY BUILDING
MADISON, WISCONSIN

BACKGROUND CHECK FORM

THIS FORM IS DUE NO LATER THAN APRIL 14, 2017. DO NOT INCLUDE WITH BID.

PLEASE TYPE OR PRINT LEGIBLY

TO BE FILLED OUT FOR EACH TOUR & MEETING PARICIPANT:

This form is mandatory for each individual intending to tour the facilities. Bidders are required to obtain security clearance for individuals scheduled to attend the on-site tours. A full criminal background check will be performed. No more than two (2) individuals may participate for any one Bidding Company. A government issued photo identification is required to enter the facilities.

First Name

Middle Name

Last Name

Other Names Used

Date of Birth | Sex | Race

Driver's License No. | State Issued

Current Full Address

Cities & States Lived In, Past 10 Years

Felony Convictions? (Yes or No)

If yes, when?

Misdemeanor Convictions? (Yes or No)

If yes, when?

Today's Date | Bidding Company Name

Please allow 7 full business days for the background process to be completed. Thank you.

OFFICE USE ONLY

D.O.T.
C.I.B.
F.B.I.
CCAP
WARRANTS
TICKETS
JAIL RECORDS
LOCAL COMPUTER CONTACTS

Date Criminal History Run _____

Submit to:

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SECTION 01 07 00

BASIC REQUIREMENTS

PART 1 GENERAL

1.1 SECTION SUMMARY

A. Section Includes:

1. Section Summary
2. Summary of the Work
3. Contractor Use of Premises
4. Applications for Payment
5. Change Procedures
6. Alternates
7. Lump Sum Allowances for Work
8. Coordination
9. Cutting and Patching
10. Conferences
11. Progress Meetings
12. Submittal Procedures
13. Proposed Products List
14. Shop Drawings
15. Product Data
16. Samples
17. Manufacturers' Instructions
18. Manufacturers' Certificates
19. Quality Assurance / Quality Control of Installation
20. References
21. Interior Enclosures
22. Protection of Installed Work
23. Parking
24. Staging Areas
25. Occupancy During Construction and Conduct of Work
26. Protection
27. Progress Cleaning
28. Products
29. Transportation, Handling, Storage and Protection
30. Product Options
31. Substitutions
32. Starting Systems
33. Demonstration and Instructions
34. Contract Closeout Procedures
35. Final Cleaning
36. Adjusting
37. Operation and Maintenance Data
38. Spare Parts and Maintenance Materials
39. As-Built and Record Drawings and Specifications

1.2 SUMMARY OF THE WORK

A. Project Description: Perform the Work as specified and detailed in Construction Documents package. Contractor to provide construction services for a variety of upgrades including replacement of certain detention locking mechanisms, doors & windows. There are also modifications in mechanical & electrical systems, other doors & partitions. Project to be completed in multiple stages to allow for movement of inmates within Jail during construction.

B. Work by Owner:
1. Test & removal of any asbestos containing materials.

C. Permits: Prior to commencement of the Work, Contractor to secure any and all necessary permits for completion of the Work and facility occupancy.

1.3 CONTRACTOR USE OF PREMISES

A. Limit use of premises to allow work by others and work by Owner.

B. Coordinate utility outages and shutdowns with Owner.

1.4 APPLICATIONS FOR PAYMENT

A. Submit three (3) original copies with “wet” signatures of each application on AIA G702™ and G703™ forms or approved contractors invoice form.

B. Content and Format: Utilize Schedule of Values for listing items in Application for Payment.

C. Payment Period: Monthly.

D. Submit Applications for Payment to Architect / Engineer for initial approval. Architect / Engineer will forward approved copies to Owner who will also approve & process for payment.

1.5 CHANGE PROCEDURES

A. Contractor's costs for Products, delivery, installation, labor, insurance, payroll, taxes, bonding, equipment rental, overhead and profit will be included in Change Orders authorizing expenditure of funds from contingency allowance.

1.6 ALTERNATES

A. Alternates quoted on Bid Form shall be reviewed and accepted or rejected at Owner's option.

B. Coordinate related work and modify surrounding work as required.

C. Schedule of Alternates:

1. Food Pass Door Locks Replacement.

a. Add price for providing replacement of nineteen (19) food pass locks with Folger Adam #17 locks on east side of CCB Jail per Specification Sections 11 19 20 - Detention Hardware. Paracentric key to be Key Code I607, mounted on outside face of door. Contractor to coordinate mounting with existing food pass door.

1.7 LUMP SUM ALLOWANCES FOR WORK

A. Include in Base Bid lump sum allowance of $1,000 for east side cellblock for painting and finishing of existing steel cell fronts and walls. Allowance shall include all necessary material, plus cost for delivery, installation, insurance, overhead, profit, and applicable taxes. Coordinate this with County & the Architect / Engineer. Section 09 90 00 Painting and Coatings has the project requirements.

1.8 COORDINATION

A. Coordinate scheduling, submittals, and work of various sections of Specifications to assure efficient and orderly sequence of installation of interdependent construction elements.

B. Verify utility requirement characteristics of operating equipment are compatible with building utilities.

C. Coordinate space requirements and installation of mechanical and electrical work that are indicated diagrammatically on Drawings.

D. Refer to Drawings for recommended work sequence and duration.

E. Contractor shall provide Public Works Project Engineer with work plan that ensures the Work will be completed within required time of completion.

F. Construct work in stages to accommodate Dane County Sheriff's Office operation of Jail. All activities shall be coordinated three (3) weeks (minimum) in advance with Public Works Project Engineer unless noted otherwise in these specifications

G. Public Works Project Engineer may choose to videotape site or workers as the Work progresses.

1.9 CUTTING AND PATCHING

A. Employ skilled and experienced installer to perform cutting and patching new work; restore work with new Products.

B. Submit written request in advance of cutting or altering structural or building enclosure elements.

C. Fit work tight to adjacent elements. Maintain integrity of wall, ceiling, or floor construction; completely seal voids.

D. Refinish surfaces to match adjacent finishes.

1.10 CONFERENCES

A. There will be pre-bid conference for this project; see Instructions to Bidders.

B. Owner will schedule pre-construction conference after Award of Contract for all affected parties.

C. Contractor shall submit Construction Schedule at pre-construction meeting.

D. When required in individual Specification section, convene pre-installation conference at project site prior to commencing work of Section.

1.11 PROGRESS MEETINGS

A. Schedule and administer meetings throughout progress of the Work at minimum of one (1) per week, at time & day to be determined with Public Works Project Engineer.

B. Preside at meetings, record minutes, and distribute copies within two (2) business days to those affected by decisions made.

1.12 SUBMITTAL PROCEDURES

A. Submittal form to identify Project, Contractor, Subcontractor or supplier; and pertinent Construction Documents references.

B. Apply Contractor's stamp, signed or initialed, certifying that review, verification of Products required, field dimensions, adjacent construction work, and coordination of information is in accordance with requirements of the Work and Construction Documents.

C. Identify variations from Construction Documents and Product or system limitations that may be detrimental to successful performance of completing the Work.

D. Revise and resubmit submittals as required; identify all changes made since previous submittal.

1.13 PROPOSED PRODUCTS LIST

A. Within fifteen (15) business days after date of Award of Contract, submit complete list of major Products proposed for use, with name of manufacturer, trade name, and model number of each Product.

1.14 SHOP DRAWINGS

A. Submit number of copies that Contractor requires, plus three (3) copies that shall be retained by Public Works Project Manager.

1.15 PRODUCT DATA

A. Submit number of copies that Contractor requires, plus two (2) copies that shall be retained by Public Works Project Manager.

B. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturer's standard data to provide information unique to this Project.

1.16 SAMPLES

A. Submit samples to illustrate functional and aesthetic characteristics of Product.

B. Submit samples of finishes from full range of manufacturers' standard colors, textures, and patterns for Public Works Project Manager's selection.

1.17 MANUFACTURERS' INSTRUCTIONS

A. When specified in individual Specification sections, submit manufacturers' printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, in quantities specified for Product Data.

1.18 MANUFACTURERS' CERTIFICATES

A. When specified in individual Specification sections, submit manufacturers' certificate to Public Works Project Manager for review, in quantities specified for Product Data.

B. Indicate material or Product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

1.19 QUALITY ASSURANCE / QUALITY 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.

C. Comply with specified standards as minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

1.20 REFERENCES

A. Conform to reference standard by date of issue current as of date for receiving bids.

B. Should specified reference standard conflict with Construction Documents, request clarification from Public Works Project Manager before proceeding.

1.21 INTERIOR ENCLOSURES

A. Provide temporary partitions as required to separate work areas from Owner occupied areas, to prevent distribution of dust and moisture into Owner occupied areas, and to prevent damage to existing materials and equipment.

1.22 PROTECTION OF INSTALLED WORK

A. Protect installed work and provide special protection where specified in individual Specification sections.

1.23 PARKING

A. Arrange for temporary parking areas to accommodate construction personnel. Parking shall not be available at project site.

1.24 STAGING AREAS

A. Coordinate staging areas with Public Works Project Manager prior to starting the Work.

B. On-site space for use as staging areas and storage of materials is limited and will be apportioned among various Contractors as their needs dictate with due regard for storage requirements of each Contractor. Each Contractor shall be responsible for safety of equipment and materials that are stored on site.

1.25 OCCUPANCY DURING CONSTRUCTION AND CONDUCT OF WORK

A. Contractors working in Jail must sign-in with Dane County Sheriff's Department upon arrival at facility. Contractors must sign-out with Dane County Sheriff's Department upon leaving facility.

B. Dane County Sheriff's Department will check-in all equipment and tools for all Jail work. All equipment and tools must be check-out by Dane County Sheriff's Department as items are removed from facility. If equipment or tools are missing, contractors will not be allowed to leave facility until all items are accounted for.

C. Contractors working in inmate areas will be briefed on inmate confidentiality, security procedures and their responsibilities under Prison Rape Elimination Act.

D. Contractors will be introduced to Dane County Sheriff's Office officers. Dane County Sheriff's Office will be notified of where contractors will be working.

E. Tools and materials shall not be left unattended at anytime. Tools and materials can be used by inmates to harm themselves or others. If any item is discovered to be missing (tools, materials, etc.), it is Contractor's responsibility to notify Dane County Sheriff's

Department immediately. Minimal amount of secure storage is available for storage of tools and materials.

F. Contractors must leave any unnecessary tools or personal belongings in their vehicles. Do not provide smoking materials, matches or money to any inmate.

G. All construction material and salvage material shall be removed from facility or secured at day's end.

H. Contractors are asked to not work at facility if they are ill with something contagious.

I. All contractors are expected to leave work areas in conditions; such that area can be occupied immediately upon leaving area.

J. Smoking is prohibited on Dane County property.

K. Dane County Sheriff's Department will supply two escorts for duration of the Work. If there are changes in work schedule, 48 hour notice would be appreciated.

L. Any Contractor employee, or group of employees, inside inmate occupied area of Jail must be with one of two assigned escorts at all times. It will not be required to have escort present when working non-inmate occupied areas.

M. Owner reserves right at any time to dismiss from premises any Contractor or construction personnel that do not uphold requirements of this Section.

N. Owner shall not be held liable for any lost time, wages, or impacts to construction schedule by any Contractor or construction personnel dismissed for failure to uphold requirements of this Section.

O. Areas of existing facility will be occupied during period when the Work is in progress. Work may be done during normal business hours (8:00 am to 4:30 pm), but confer with Owner, schedule work and store materials so as to interfere as little as possible with normal use of premises. Notify Owner when coring or similar noise making work is to be done and obtain Owner's written approval of schedule. If schedule is not convenient for Owner, reschedule and resubmit new times for Owner approval. Coring of floor along with other noisy work may have to be done on second and third shifts.

P. Work shall be done and temporary facilities furnished so as not to interfere with access to any occupied area and so as to cause least possible interference with normal operation of facility or any essential service thereof.

Q. Contractor shall, at all times, provide approved, safe walkways and facility entrances for use by Owner, employees and public.

R. Contractor shall provide adequate protection for all parts of facility, its contents and occupants wherever the Work under this Contract is to be performed.

S. Contractor is not responsible for providing & maintaining temporary toilet facilities.

T. Each Contractor shall arrange with Owner to make necessary alterations, do new work, make connections to all utilities, etc., at such times as will not cause interruption of utility services to facility. Contractor doing this work shall protect, cap, cut off and / or replace and relocate existing pipes, electrical work and other active utilities encountered which may interfere with new construction work.

U. New work in extension of existing work shall correspond in all respects with that to which it connects or similar existing work unless otherwise indicated or specified.
1. Existing work shall be cut, altered, removed or replaced as necessary for performance of Contract obligations.
2. Work remaining in place, damaged or defaced by reason of work done under this Contract shall be restored equal to its condition at time of Award of Contract.
3. If removal of work exposes discolored or unfinished surfaces or work out of alignment, such surfaces shall be refinished or materials replaced as necessary to make continuous work uniform and harmonious.

1.26 PROTECTION

A. Contractor shall provide and maintain barricades & signage to prohibit access to construction site.

1.27 PROGRESS CLEANING

A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in clean and orderly condition.

1.28 PRODUCTS

A. Products: Means new material, machinery, components, equipment, fixtures, and systems forming the Work, but does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components specifically identified for reuse.

B. Do not use materials and equipment removed from existing premises, except as specifically identified or allowed by Construction Documents.

1.29 TRANSPORTATION, HANDLING, STORAGE AND PROTECTION

A. Transport, handle, store and protect Products in accordance with manufacturer's instructions.

1.30 PRODUCT OPTIONS

A. Where definite material is specified, it is not intentional to discriminate against "equal" product made by another manufacturer. Intention is to set definite standard of material quality. Should bidder choose to bid materials other than those specified, bidder shall submit said materials specifications to Public Works Project Manager for approval at least seven (7) business days prior to Bid Due Date.

B. Products and materials that are not specified, but have been approved for use by Public Works Project Manager shall be identified in addenda to all bidding contractors.

C. Requests for material or product substitutions submitted after Bid Due Date may be considered. Owner reserves right to approve or reject substitutions based on Specification requirements and intended use.

1.31 SUBSTITUTIONS

A. Public Works Project Manager shall consider requests for Substitutions only up to seven (7) business days prior to date of Bid Due Date.

B. Document each request with complete data substantiating compliance of proposed Substitution with Construction Documents.

C. Submit three (3) copies of requests for Substitution for consideration. Limit each request to one (1) proposed Substitution.

D. Substitutions shall not change contract price established at Bid Due Date.

1.32 STARTING SYSTEMS

A. Provide written notification prior to start-up of each equipment item or system.

B. Ensure that each piece of equipment or system is ready for operation.

C. Execute start-up under supervision of responsible persons in accordance with manufacturers' instructions.

D. Submit written report that equipment or system has been properly installed and is functioning correctly.

1.33 DEMONSTRATION AND INSTRUCTIONS

A. Demonstrate operation and maintenance of Products to Owner's personnel at point of completion of work in each phased area & before moving to next phased area.

B. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at agreed-upon times, at designated location.

C. Owner may choose to videotape demonstration sessions; demonstration and demonstrator shall be to level of satisfaction of Owner.

1.34 CONTRACT CLOSEOUT PROCEDURES

A. Submit written certification that Construction Documents have been reviewed, the Work has been inspected, and the Work is complete in accordance with Construction Documents and ready for Public Works Project Manager's inspection.

B. Submit final Application for Payment identifying total adjusted Contract Sum / Price, previous payments, and amount remaining due.

1.35 FINAL CLEANING

A. Execute final cleaning at point of completion of work in each phased area & before moving to next phased area.

B. Clean interior and exterior surfaces exposed to view.

C. Remove waste and surplus materials, rubbish, and construction facilities from site.

1.36 ADJUSTING

A. Adjust operating Products and equipment to ensure smooth and unhindered operation.

1.37 OPERATION AND MAINTENANCE MANUAL

A. Provide operation and maintenance manual for all mechanical and electrical equipment and systems supplied and installed in the Work.

1.38 SPARE PARTS AND MAINTENANCE MATERIALS

A. Provide Products, spare parts, maintenance and extra materials in quantities specified in individual Specification Sections.

B. Deliver to the Work site and place in location as directed.

1.39 AS-BUILT AND RECORD DRAWINGS AND SPECIFICATIONS

A. Contractor-produced Drawings and Specifications shall remain property of Contractor whether Project for which they are made is executed or not. Contractor shall furnish Architect / Engineer with original marked up redlines of Construction Documents' drawings and specifications that shall include all Addendums, Change Orders, Construction Bulletins, on-site changes, field corrections, etc. These are project As-Built Drawings & Specifications.

B. Architect / Engineer shall update original Construction Documents to include all Addendums & any other changes including those provided by Contractor in As-Built Drawings & Specifications. These updates are project Record Drawings & Specifications.

C. Architect / Engineer shall furnish Public Works Project Manager with Record Drawings as detailed in Professional Services Agreement.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01 74 19

CONSTRUCTION WASTE MANAGEMENT, DISPOSAL & RECYCLING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Summary
2. Waste Management Goals
3. Construction and / or Demolition Waste Management
4. Waste Management Plan
5. Reuse
6. Recycling
7. Materials Sorting and Storage On Site
8. Lists of Recycling Facilities Processors and Haulers
9. Waste Management Plan Form

B. Related Sections:
1. Section 01 07 00 - Basic Requirements
2. Section 02 41 23 - Selective Demolition, Alteration & Patching

1.2 WASTE MANAGEMENT GOALS

A. Dane County requires that as many waste materials as possible produced as result of this project be salvaged, reused or recycled in order to minimize impact of construction waste on landfills and to minimize expenditure of energy and cost in fabricating new materials. Additional information may be found in Dane County Green Building Policy, Resolution 299, 1999-2000.

1.3 CONSTRUCTION AND / OR DEMOLITION WASTE MANAGEMENT

A. All construction and demolition waste suitable for recycling must go to Dane County Construction & Demolition Recycling Facility located at 7102 US Hwy 12, Madison, located across from Yahara Hills Golf Course. This facility can receive mixed loads of construction and demolition waste. For complete list of acceptable materials see www.countyofdane.com/pwht/recycle/CD_Recycle.aspx.

B. Dane County Landfill, also at 7102 US Hwy 12, Madison, must receive all other waste from this project. www.countyofdane.com/pwht/recycle/landfill.aspx.

1.4 WASTE MANAGEMENT PLAN

A. Contractor shall develop Waste Management Plan (WMP) for this project. Dane County's Special Projects & Materials Manager may be contacted with questions. Outlined in RECYCLING section of this specification are examples of materials that can be recycled or reused as well as recommendations for waste sorting methods.

B. Contractor shall complete WMP and include cost of recycling / reuse in Bid. WMP will be submitted to Public Works Project Manager within fifteen (15) business days of Bid Due date. Copy of blank WMP form is in this Section. Submittal shall include cover letter and WMP form with:
   1. Information on:
      a. Types of waste materials produced as result of work performed on site;
      b. Estimated quantities of waste produced;
      c. Identification of materials with potential to be recycled or reused;
      d. How materials will be recycled or reused;
      e. On-site storage and separation requirements (on site containers);
      f. Transportation methods; and
      g. Destinations.

1.5 REUSE

A. Contractors and subcontractors are encouraged to reuse as many waste materials as possible. Salvage should be investigated for materials not reusable on site.

1.6 RECYCLING

A. These materials must be recycled at Dane County Construction & Demolition Recycling Facility:
   1. Wood.
   2. Wood Pallets.
   3. PVC Plastic (pipe, siding, etc.).
   4. Asphalt & Concrete.
   5. Bricks & Masonry.
   6. Cardboard.
   7. Metal.
   8. Unpainted Gypsum Drywall.

B. These materials can be recycled elsewhere in Dane County area:
   1. Fluorescent Lamps.
   2. Foam Insulation & Packaging (extruded and expanded).
   3. Barrels & Drums.

C. All materials must be recycled at WDNR permitted waste processing facilities that adhere to all State Statutes.

1.7 MATERIALS SORTING AND STORAGE ON SITE

A. Contractor shall provide separate containers for recyclable materials. Number of containers will be dependent upon project and site conditions.

B. Contractor shall provide on-site locations for subcontractors supplied recycling containers to help facilitate recycling.

C. Mixed loads of recycled materials are allowed only per instructions at www.countyofdane.com/pwht/recycle/CD_Recycle.aspx.

1.8 LISTS OF RECYCLING FACILITIES PROCESSORS AND HAULERS

A. Refer to www.countyofdane.com/pwht/recycle/CD_Recycle.aspx for information on Dane County Construction & Demolition Recycling Facility.

B. Web site www.countyofdane.com/pwht/recycle/categories.aspx lists current information for Dane County Recycling Markets. Contractors can also contact Allison Hackner at 608/266-4990, or local city, village, town recycling staff listed at site www.countyofdane.com/pwht/recycle/contacts.aspx. Statewide listings of recycling / reuse markets are available from UW Extension at https://www.uwgb.edu/shwec/.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

WASTE MANAGEMENT PLAN FORM

Contractor Name: _____

Address: _____

_____

Phone No.: _____ Recycling Coordinator: _____

MATERIAL	ESTIMATED QUANTITY	DISPOSAL METHOD (CHECK ONE)	RECYCLING / REUSE COMPANY OR DISPOSAL SITE
Salvaged & reused building materials	_____ cu. yds. _____ tons	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Wood	_____ cu. yds. _____ tons	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Wood Pallets	_____ units	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
PVC Plastic	_____ cu. ft. _____ lbs.	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Asphalt & Concrete	_____ cu. ft. _____ lbs.	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Bricks & Masonry	_____ cu. ft. _____ lbs.	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Cardboard	_____ cu. ft. _____ lbs.	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Metals	_____ cu. yds. _____ tons	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Unpainted Gypsum / Drywall	_____ cu. yds. _____ tons	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Fluorescent Lamps	_____ cu. ft. _____ lbs.	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Foam Insulation	_____ cu. ft. _____ lbs.	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Barrels & Drums	_____ units	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Glass	_____ cu. yds. _____ tons	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Other	_____	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Other	_____	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____

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SECTION 02 41 23 - SELECTIVE DEMOLITION, ALTERATION, AND PATCHING

PART ONE - GENERAL

DESCRIPTION

Selective demolition at and within the existing building.

Restoration of surfaces altered by demolition.

SUBMITTALS

Submit permits and notices authorizing demolition if required.

QUALITY ASSURANCE

Regulatory Requirements: Comply with governing state or local government agency regulations before beginning demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

PROJECT CONDITIONS

Do not interfere with use and operation of existing adjacent facilities. Maintain free and safe passage to and from.

Prevent movement or settlement of adjacent structures. Provide and place bracing or shoring and be responsible for safety and support of structures. Assume liability for such movement, settlement, damage, or injury.

Cease operations and notify Owner and A/E immediately if safety of adjacent structures appears to be endangered. Take precautions to properly support structures. Do not resume operations until safety is restored.

Protect existing work not indicated or scheduled to be altered.

Hazardous Materials: If suspected hazardous materials are encountered, do not disturb; immediately notify Owner and Architect. Hazardous materials will be removed by Owner under a separate contract.

Provide, erect and maintain safety devices as required to protect general public, workers, and adjoining property.

Coordinate Work on premises with Owner's designated representative.

Do not close or obstruct roadways without approval of Owner's representative.

Maintain utilities to existing building at all times.

PART TWO - PRODUCTS

MATERIALS

Except for items or materials indicated to be reused, salvaged, or otherwise indicated to remain the Owner’s property, demolished materials shall become the Contractor’s property and shall be removed from the site. Store items indicated for reuse or salvage as directed by Owner.

PRODUCTS FOR PATCHING, EXTENDING, AND MATCHING

Provide same products or types of construction as that in existing construction, as needed to patch, extend, or match existing work.

Generally, Contract Documents will not define products or standards of workmanship present in existing construction; Subcontractor shall determine products by inspection and any necessary testing, and workmanship by use of the existing as a sample of comparison.

Presence of a product, finish, or type of construction requires that patching, extending, or matching shall be performed as necessary to make Work complete and consistent to identical standards of quality.

SALVAGED MATERIALS

Salvage sufficient quantities of cut or removed material to replace damaged work of existing construction, when material is not readily obtainable on current market.

Store salvaged items in a dry, secure place on site as directed by Owner.

Items not required for use in repair of existing work shall be either removed from the site or remain the property of the Owner as determined by the Owner.

Do not incorporate salvaged or used material in new construction except with permission of Owner and Architect.

PART THREE - EXECUTION

DEMOLITION

Demolish and remove existing construction only to the extent required by new construction and as indicated.

Demolish in an orderly and careful manner as required to salvage products indicated.

Perform demolition in accordance with applicable authorities having jurisdiction.

Repair all demolition performed in excess of that required at no cost to the Owner.

In addition to demolition specifically shown, cut, move, or remove items as necessary to provide access or to allow alterations and new work to proceed.

Patch, repair, and refinish existing items to remain, to the specified condition for each material, with a workmanlike transition to adjacent new items of construction.

Remove demolished materials, tools and equipment from site upon completion of work. Leave site in a condition acceptable to A/E.

ALTERATIONS, CUTTING, AND PROTECTION

Assign the work of moving, removal, cutting and patching to trades qualified to perform the work in a manner to cause least damage to each type of work, and provide means of returning surfaces to appearance of new work.

Perform cutting and removal of work to remove minimum necessary, and in a manner to avoid damage to adjacent work.

Cut finish surfaces such as masonry, tile, plaster, or metals, by methods to terminate surfaces in a straight line at a natural point of division.

Protect existing finishes, equipment, and adjacent work that are scheduled to remain from damage.

SALVAGE

Carefully remove, salvage, and turn over to Owner items designated on the Drawings to be salvaged.

Items shall be neatly stockpiled on-site where directed by Owner.

PATCHING

Comply with installation requirements specified elsewhere for products used.

Patch all damaged surfaces with products to match existing.

Patch sufficiently to achieve weather protection.

Patch and extend existing work using skilled mechanics that are capable of matching existing quality of workmanship. Quality of patched or extended work shall be not less than that specified for new work.

ADJUSTMENTS

Where partitions are removed, patch floors, walls, and ceilings with finish materials to match existing.

Where removal of partitions results in adjacent spaces becoming one, rework floors and ceilings to provide smooth planes without breaks, steps, or bulkheads. Realign existing ceiling grids to match new ceiling grids.

Where extreme change of plane of two inches or more occurs, request instructions from A/E as to method of making transition.

TRANSITION FROM EXISTING TO NEW WORK

When new work abuts or finishes flush with existing work, make a smooth and workmanlike transition. Patched work shall match existing adjacent work in texture and appearance so that the patch or transition is invisible at a distance of five feet.

When finished surfaces are cut in such a way that smooth transition with new work is not possible, terminate existing surfaces in a neat manner along a straight line at a natural line of division, and provide trim appropriate to finish surface.

CLEANING

Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

Clean Owner occupied areas daily.

Clean spillage, overspray, and heavy collection of dust in Owner occupied areas immediately.

At completion of work of each trade, clean area and make surfaces ready for work of successive trades.

At completion of alterations work in each area, provide final cleaning and return space to a condition suitable for use by Owner.

End of Section

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SECTION 05 59 63 - DETENTION ENCLOSURES

PART ONE - GENERAL

SUMMARY

Section Includes:

Woven-rod-mesh assemblies.

Related Requirements:

Section 01 35 13.16: Special Project Procedures for Detention Facilities
Section 05 05 53: Security Metal Fastenings
Section 07 92 00: Joint Sealants; security sealant
Section 09 90 00: Painting and Coating; for field painting of detention enclosures.

COORDINATION

Coordinate installation of anchorages for detention enclosures. 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 adjacent construction. Deliver such items to Project site in time for installation.

SUBMITTALS

Product Data: For each type of product.

Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for detention enclosures.

Shop Drawings: For detention enclosures.

Include plans, elevations, sections, and attachment details.

Indicate location, plan, and dimension of each detention enclosure.

Indicate type of steel for each detention enclosure component.

Indicate requirements for cast-in anchors to be installed as work of other Sections.

Show elevations of each detention enclosure door and indicate location, dimensions, door swing/slide direction, details of detention door hardware and accessories, and preparations for power, signal, and control systems.

Samples for Verification: For each type of detention enclosure indicated.

Include 12-by-12 inch cut-away corner section of woven-rod-mesh assembly, constructed of specified framing and woven-rod panel, showing fabrication techniques and workmanship.

Qualification Data: For qualified Installer.

Welding certificates.

Material Certificates: For tool-resisting steel indicating compliance with the performance requirements for complete test sequence according to applicable ASTM standard.

Mill Certificates: For tool-resisting-steel rods used in woven-rod mesh assemblies, certifying that rods were fabricated from material with same chemical and physical properties as material used to fabricate tool-resisting-steel round bars.

Examination reports documenting inspections of substrates, areas, and conditions.

Anchor-inspection reports documenting inspections of built-in and cast-in anchors.

Field quality-control reports documenting inspections of installed products.

Field quality-control certification signed by Contractor and DEC.

QUALITY ASSURANCE

Installer Qualifications: An authorized representative who is trained and approved by manufacturer.

Welding Qualifications: Qualify procedures and personnel according to the following:

AWS D1.1/D1.1M, "Structural Welding Code - Steel."
AWS D1.3, "Structural Welding Code - Sheet Steel."
AWS D1.6, "Structural Welding Code - Stainless Steel."

FIELD CONDITIONS

Field Measurements: Verify actual dimensions of construction contiguous with detention enclosures by field measurements before fabrication.

PART TWO - PRODUCTS

WOVEN-ROD-MESH ASSEMBLIES

Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

Kane Architectural Innovations
Maximum Security Products Corp.
Sierra Detention Systems
Sweeper Metal Fabricators Corp.
The G-S Company
Trussbilt
Willo Products Company, Inc.

Main Framing: Formed from minimum 1-1/2-by-2-1/2 inch built-up tubular steel consisting of an open channel with fixed concealment plates.

Open Channel: Formed from 0.134-inch (10 gage) nominal thickness uncoated steel sheet or channel with individual slots along inner edges to support woven-rod panels.

Concealment Plates: Steel sheet to match open channel.

Supplementary Framing: Formed from 2-inch square by 3/16-inch thick steel tubing.

Braces: Formed from same material as main framing.

Woven-Rod Panels: Formed from double crimped, 3/8-inch diameter steel rod, woven horizontally and vertically into a rigid grille with rods at 2 inches o.c.

Steel Rod: Homogeneous tool-resisting steel.

Floor Anchor Clips: 2-by-2-by-3/16-inch thick mild-steel angles for straight framing; 1-1/2-by-1-1/2-by-3/16-inch thick mild-steel angles for corners.

Floor Anchors: 2-inch square-by-3/16-inch thick, mild-steel tubing sleeve welded to 6-inch square-by-3/16-inch thick, mild-steel plate.

Wall and Ceiling Anchors and Trim: Continuous 2-by-2-by-3/16-inch thick mild-steel angle with 2-by-3/16-inch thick mild-steel flat bar.

Materials:

Tool-Resisting-Steel Round Rods: Rods fabricated from material with same chemical and physical properties as tool-resisting-steel round bars.

Mild-Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.

Steel Sheet: Cold-rolled ASTM A 1008/A 1008M or hot-rolled ASTM A 1011/A 1011M, CS (Commercial Steel), Type B; suitable for exposed applications.

Steel Tubing: ASTM A 501 or ASTM A 513, Type B unless otherwise indicated.

Finishes:

Steel Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.

Steel Factory Finish: Clean, pretreat, and apply manufacturer's standard two-coat, baked-on finish consisting of prime coat and thermosetting topcoat, with a minimum dry film thickness of 1 mil for topcoat.

Color and Gloss: As selected by Architect from manufacturer's full range.

FABRICATION, GENERAL

Shop Assembly: Preassemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.

Coordinate dimensions and attachment methods of detention enclosures with those of adjoining construction to produce integrated assemblies with closely fitting joints and with edges and surfaces aligned unless otherwise indicated.

Shear and punch metals cleanly and accurately. Remove burrs.

Form and grind edges and corners to be free of sharp edges or rough areas.

Form metal in maximum lengths to minimize joints. Form sheet-metal corners to smallest radius possible without causing grain separation or otherwise impairing the Work.

Weld corners and seams continuously to comply with referenced AWS standard and the following:

Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.

Obtain fusion without undercut or overlap.

Remove welding flux immediately.

Finish exposed welds and surfaces smooth and blended at exposed connections so that no roughness shows after finishing and contour of welded surface matches that of adjacent surface.

Weld before finishing components to greatest extent possible. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.

Provide for anchorage of type indicated; coordinate with supporting structure. Fabricate and space anchoring devices to secure detention enclosures rigidly in place and to support indicated loads. Build in straps, plates, and brackets as needed to support and anchor fabricated items to adjoining construction. Reinforce formed-metal units as needed to attach and support other construction.

Cut, reinforce, drill, and tap detention enclosures as indicated to receive hardware, security fasteners, and similar items.

Form exposed work true to line and level with accurate angles, surfaces, and straight sharp edges.

Form exposed connections with hairline joints flush and smooth using concealed fasteners where possible. Use exposed security fasteners of type indicated or, if not indicated, flat-head (countersunk) security screws. Locate joints where least conspicuous.

FABRICATION OF WOVEN-ROD-MESH ASSEMBLIES

Main Framing: Before inserting woven-rod panels, weld and grind smooth corners of open channel elements.

Woven-Rod Panels: Insert panels symmetrically in main framing. Extend end of each rod at least 1-inch into main framing and, from inside of channel, weld into each slot where it contacts main framing.

Concealment Plates: Weld plates to main framing with minimum 1-inch welds at minimum 10 inches o.c., staggered side to side and ground smooth, to form a fully enclosed tubular steel frame.

Anchor Clips: For each enclosure panel, weld one anchor clip to secure side of main framing in line with vertical framing.

Swinging Doors: Fabricate doors with framing on four sides of door from same material as adjacent panels and with 2-by-1/4-inch flat steel bar astragal continuous on lock jamb. Align bottom of door with bottom of adjacent panels. Comply with requirements in Section 08 71 63 for detention hinges and detention locks and latches.

Hardware Preparation: Mortise, reinforce, drill, and tap doors and main framings for templated hardware to comply with requirements in Section 08 71 63. Frame openings to receive detention door locks.

ACCESSORIES

Concealed Bolts: ASTM A 307, Grade A unless otherwise indicated.

Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.

PART THREE - EXECUTION

EXAMINATION

Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of detention enclosures.

Examine roughing-in for embedded and built-in anchors to verify actual locations of detention enclosure connections before installation.

Prepare written report, endorsed by Installer, listing conditions detrimental to performance of detention enclosures.

Verify locations of detention enclosures with those indicated on Shop Drawings.

Proceed with installation only after unsatisfactory conditions have been corrected.

INSTALLATION, GENERAL

Install detention enclosures plumb, rigid, properly aligned, and securely fastened in place, complying with manufacturer's written recommendations.

Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing detention enclosures to in-place construction. Include threaded fasteners for inserts, security fasteners, and other connectors.

Cutting, Fitting, and Placement: Obtain manufacturer's written approval for cutting, drilling, and fitting required for installing detention enclosures. Set detention enclosures accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.

Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.

Field Welding: Comply with the following requirements:

Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.

Obtain fusion without undercut or overlap.

Remove welding flux immediately.

Finish exposed welds and surfaces smooth and blended at exposed connections so that no roughness shows after finishing and contour of welded surface matches that of adjacent surface.

INSTALLATION OF WOVEN-ROD-MESH ASSEMBLIES

Floor Anchorage: Fasten anchor clips to floor with 3/8-inch diameter bolts with double-expansion shields.

Wall and Ceiling Anchorage: Anchor continuous angle to walls and ceilings with 3/8-inch diameter, security-type, double-expansion anchor bolts with "break-off" heads or weld bolt heads to angle.

Weld main framing to wall and ceiling angles with 1-inch welds at 12 inches o.c.

Weld adjacent main framing members to each other with 1/4-inch deep by 3/4-inch long welds at 12 inches o.c. on both sides of framing.

Provide supplementary framing where required. Weld main framing to supplementary framing with 1/8-inch fillet welds 1 inch long at 12 inches o.c. on both sides of framing.

Provide additional field bracing as shown or as necessary for rigid, secure installation.

FIELD QUALITY CONTROL

Prepare inspection reports and indicate compliance with and deviations from the Contract Documents.

Remove and replace detention work if inspections indicate that work does not comply with specified requirements. Remove malfunctioning units; replace with new units.

Perform additional inspections to determine compliance of replaced or additional work. Prepare inspection reports.

Prepare field quality-control certification endorsed by DEC that states installed products comply with requirements in the Contract Documents.

CLEANING AND PROTECTION

Touchup Painting: Immediately after erection, clean bolted connections and abraded areas of shop paint, and paint exposed areas with same material used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.

Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas; repair galvanizing to comply with ASTM A 780.

End of Section

SECTION 07 92 00 - JOINT SEALANTS

PART ONE - GENERAL

DESCRIPTION

Joint sealants, including joint backing, tape, and primer.

Labor, material, tools, equipment, and services necessary for and reasonably incidental to the execution of caulking and sealant work shown on the Drawings or specified herein.

RELATED WORK AND REQUIREMENTS

Refer to schedule at end of this Section.

SYSTEM PERFORMANCE

Provide joint sealants that have been produced and installed to establish and maintain watertight and airtight continuous seals.

REFERENCES

Sealant and Waterproofers Institute
"Sealants: The Professionals Guide".

SUBMITTALS

Product Data: Submit manufacturer's technical data for each joint sealant product required, including instructions for joint preparation and joint sealant application.

Samples: Submit cured strip samples of actual product of each color selected by A/E.

Warranties: Sample of special warranties.

QUALITY ASSURANCE

Installer Qualifications: Engage an Installer who has successfully completed within the last 3 years at least 3 joint sealant applications similar in type and size to that of this Project and who will assign mechanics from these earlier applications to this Project, of which one will serve as lead mechanic.

Employ only qualified workers thoroughly skilled and specially trained in the techniques of caulking, who can demonstrate to the satisfaction of the A/E their ability to fill joints solidly and neatly.

Single Source Responsibility for Joint Sealant Materials: Obtain joint sealant materials from a single manufacturer for each different product required.

Application and Mixing Requirements: Mix and apply sealants in strict accordance with the manufacturer's printed directions. Initial mixing and application shall be under the direct supervision of the manufacturer's representative.

DELIVERY, STORAGE, AND HANDLING

Deliver materials to project site in original unopened containers or bundles with labels informing about manufacturer, product name and designation, color, expiration period for use, pot life, curing time and mixing instructions for multicomponent materials.

Store and handle materials to prevent their deterioration or damage due to moisture, temperature changes, contaminants, or other causes.

Do not use caulking materials that have been stored for a period of time exceeding the maximum recommended shelf life of the materials.

PROJECT/SITE CONDITIONS

Examination: Examine Drawings and verify that all joints are properly detailed and proportioned for expansion and/or control, as recommended in writing by the sealant manufacturer. Immediately notify A/E of any deviations.

Environmental Requirements: Do not proceed with the installation of sealants under adverse weather conditions when joint to be sealed is damp, wet or frozen, or when ambient and substrate temperatures are below or above the manufacturer's recommended limitations for installation. Consult with manufacturer for specific instructions before proceeding.

WARRANTY

Installer's Warranty: Manufacturer's standard form in which Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within the warranty period of two (2) years from date of Substantial Completion.

Manufacturer's Warranty: Manufacturer's standard form in which joint sealant manufacturer agrees to furnish joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within the following warranty periods from date of Substantial Completion.

Exterior Silicone Sealants: Twenty (20) years.
Other Sealants: Ten (10) years.

Warranties specified in this article exclude deterioration or failure of joint sealants from the following:

Movement of the structure caused by structural settlement or errors attributable to design or construction resulting in stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression.

Disintegration of joint substrates from natural causes exceeding design specifications.

Mechanical damage caused by individuals, tools, or other outside agents.

Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART TWO - PRODUCTS

MATERIALS, GENERAL

Compatibility: Provide joint sealants, joint fillers and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.

Liquid-Applied Joint Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied joint sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.

Stain-Test-Response Characteristics: Where sealants are specified to be non-staining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.

JOINT SEALANTS

Acceptable Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

Dow Corning Corporation
GE Advanced Materials
Pecora Corporation
Sika Corporation, Construction Products Division
Tremco Incorporated

Type 1: Single-Component, Nonsag, Non-Staining, Neutral-Curing Silicone Joint Sealant: ASTM C 920, Type S, Grade NS, Class 50, for Use NT, G, M, A, and O. Equivalent to Tremco Spectrem 2.

Type 1 Sealant Colors: As selected by A/E from manufacturer's full range.

Type 2 (Security Sealant): Multi-Component, Nonsag, High-Solids, High-Modulus Epoxy Compound, Pick-Proof Joint Sealant; ASTM C 881, Type 1, Grade 3. Equivalent to Pecora Corporation DynaPoxy EP-1200 with the following physical properties:

Compressive Strength:	ASTM D 695, 11,000 psi
Hardness, Shore D:	ASTM C 661, 70 (max. 72 hours)

JOINT SEALANT BACKING

General: Provide sealant backings of material and type which are nonstaining; 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.

Plastic Foam Joint Fillers: Preformed, compressible, resilient, nonwaxing, nonextruding strips of flexible, nongassing plastic foam of material indicated below; nonabsorbent to water and gas and of size, shape and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

Provide either open cell polyurethane foam or closed-cell polyethylene foam, subject to approval of sealant manufacturer, for cold-applied sealants only. Open cell joint backing not permitted in exterior wall construction.

Bond Breaker Tape: Polyethylene tape or other plastic tape as 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. Provide self-adhesive tape where applicable.

MISCELLANEOUS MATERIALS

Primer: Provide type recommended by joint sealant manufacturer where required for adhesion of sealant to joint substrates indicated. Verify whether primer is staining or nonstaining prior to application.

Cleaners for Nonporous Surfaces: Provide nonstaining, chemical cleaners of type which are acceptable to manufacturers of sealants and sealant backing materials, which are not harmful to substrates and adjacent nonporous materials, and which do not leave oily residues or otherwise have a detrimental effect on sealant adhesion or in-service performance.

Masking Tape: Provide nonstaining, nonabsorbent type compatible with joint sealants and to surfaces adjacent to joints.

PART THREE - EXECUTION

INSPECTION

Installer shall inspect joints indicated to receive joint sealants for compliance with requirements for joint configuration, installation tolerances and other conditions affecting joint sealant performance. Installer shall notify A/E in writing listing any conditions detrimental to performance of joint sealant work. Do not allow joint sealant work to proceed until unsatisfactory conditions have been corrected.

PREPARATION

Surface Cleaning of Joints:

Clean out joints immediately before installing joint sealants to comply with recommendations of joint sealant manufacturers and the following requirements:

Remove all foreign material from joint substrates which could interfere with adhesion of joint sealant, including dust, paints, except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer; oil, grease, waterproofing, water repellents, water, surface dirt and frost.

Clean concrete, masonry, unglazed surfaces of ceramic tile and similar porous joint substrate surfaces to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove laitance and form release agents from concrete.

Clean metal, glass, porcelain enamel, glazed surfaces of ceramic tile and other nonporous surfaces by chemical cleaners or other means that are not harmful to substrates or leave residues capable of interfering with adhesion of joint sealants.

Joint Priming: Prime joint substrates where recommended by joint sealant manufacturer. Apply primer to comply with joint sealant manufacturer's recommendations. Confine primers to areas of joint sealant bond, do not allow spillage or migration onto adjoining surfaces.

Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces which otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

INSTALLATION

General: Comply with joint sealant manufacturer's printed installation instructions applicable to products and applications indicated, except where more stringent requirements apply.

Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications and conditions indicated.

Joint Sealant Backings: Install joint fillers of type indicated to provide support of sealants during application and at position required to produce the cross-sectional shapes and depths of installed sealants relative to joint widths which allow optimum sealant movement capability. Do not leave gaps between ends of joint fillers. Do not stretch, twist, puncture or tear joint fillers. Remove absorbent joint fillers that have become wet prior to sealant application and replace with dry material.

Bond Breaker Tape: Install bond breaker tape between sealants and joint fillers, or back of joints where adhesion of sealant to surfaces at back of joints would result in sealant failure.

Do not install more joint sealant backing or bond breaker tape than can be caulked in one day.

Sealants: Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration, and providing uniform, cross-sectional shapes and depths relative to joint widths which allow optimum sealant movement capability.

Tooling of Nonsag Sealants: Immediately after sealant application and prior to time skinning or curing begins, tool sealants to form smooth, uniform beads of concave joint configuration, unless otherwise indicated, to eliminate air pockets, and to ensure contact and adhesion of sealant with sides of joint. Remove excess sealant from surfaces adjacent to joint. Do not use tooling agents that discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.

PROTECTION AND CLEANING

Protect joint sealants during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately and reseal joints with new materials to produce joint sealant installations with repaired areas indistinguishable from original work.

Clean off excess sealants or sealant smears adjacent to joints as work progresses by methods and with cleaning materials approved by manufacturers of joint sealants and of products in which joints occur.

SCHEDULE

	SEALANT TYPE
EXTERIOR	
Perimeters of exterior wall openings:	1
INTERIOR	
Joints exposed to inmates including but not limited to, joints between walls and ceilings, between door, window, and similar frames and wall penetrations, between dissimilar materials, around surface or recessed mounted fixtures and equipment, and elsewhere indicated on Drawings as "security sealant":	2

End of Section

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SECTION 08 11 13 - STANDARD HOLLOW METAL DOORS AND FRAMES

PART ONE - GENERAL

DESCRIPTION

Fire rated standard steel hollow metal doors and frames.

RELATED WORK AND REQUIREMENTS

Section 08 71 00: Door Hardware

SUBMITTALS

Product Data: Submit manufacturers' technical product data substantiating that products comply with requirements.

QUALITY ASSURANCE

Provide doors and frames complying with American National Standards Institute ANSI/SDI A250.8 "Specifications for Standard Steel Doors and Frames (SDI-100)" and as herein specified.

Fire-Rated Door Assemblies: Provide assemblies complying with NFPA 80, that have been tested, listed, and labeled by Underwriters Laboratories, Inc. (UL) or other qualified testing agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C. Provide same label on door and frame and place labels where visible when in installed position.

Smoke-Control Door Assemblies: Comply with NFPA 105 or UL 1784.

DELIVERY, STORAGE, AND HANDLING

Deliver hollow metal work cartoned or crated to provide protection during transit and job storage.

Inspect hollow metal work upon delivery for damage. Minor damages may be repaired provided refinished items are equal in all respects to new work and acceptable to A/E; otherwise, remove and replace damaged items as directed.

Store doors and frames at building site under cover. Place units in a vertical position with heads up, spaced by blocking, on minimum 4-inch high wood blocking. Avoid using non-vented plastic or canvas shelters that could create a humidity chamber. If wrappers on door become wet, remove cartons immediately. Provide 1/4-inch space between each stacked door to permit air circulation.

PART TWO - PRODUCTS

STANDARD HOLLOW METAL DOORS AND FRAMES

Manufacturers: Subject to compliance with requirements, provide products by one of the following:

- Ceco Door; ASSA ABLOY
- Curries Company; ASSA ABLOY
- Pioneer Industries
- Republic Doors and Frames
- Steelcraft; an Allegion brand

MATERIALS

Hot-Rolled Steel Sheet: ASTM A 1011, Commercial Steel (CS), suitable for exposed applications.

Cold-Rolled Steel Sheet: ASTM A 568 or ASTM A 1008, Commercial Steel (CS), free of scale, pitting, or surface defects; pickled and oiled.

Galvanized Steel Sheets: Zinc-coated carbon steel sheets complying with ASTM A 924, Commercial Steel, hot-dip galvanized according to ASTM A 653, with A60 or G60 coating designation, mill phosphatized.

Supports and Anchors: Fabricate of not less than 18 gage galvanized sheet steel.

Inserts, Bolts, and Fasteners: Manufacturer's standard units, except hot-dip galvanize items to be built into exterior walls, complying with ASTM A 153, Class C or D as applicable.

Primer: Manufacturer's standard rust-inhibitive baked on primer, suitable as a base for specified finish paints.

FABRICATION

GENERAL

Fabricate steel door and frame units to be rigid, neat in appearance and free from defects, warp or buckle. Wherever practicable, fit and assemble units in manufacturer's plant. Clearly identify work that cannot be permanently factory-assembled before shipment, to assure proper assembly at project site.

Comply with ANSI/SDI A250.8 requirements as follows:

Doors: Level III, extra heavy-duty, Model 2 (seamless), 16 gage faces, 1-3/4 inches thick hollow steel with core providing fire-protection rating indicated.

Frames: Minimum 14 gage sheet steel.

Fabricate exposed faces of doors and panels, including stiles and rails, from galvanized sheet steel. Fabricate stile and rail doors full flush panel design; no face seams. Stile and rail doors not permitted.

Fabricate frames, concealed stiffeners, reinforcement, edge channels, louvers and moldings from either cold-rolled or hot-rolled steel (at fabricator's option).

Exposed Fasteners: Provide countersunk security fasteners as specified in Section 05 05 53.

Door Hardware Preparation: Prepare doors and frames to receive mortised and concealed door hardware in accordance with locations specified in and templates provided by Section 08 71 00 contractor. If not indicated, then prep in accordance with "Recommended Locations for Builder's Hardware", published by Door and Hardware Institute. Comply with applicable requirements of ANSI A115 series specifications for door and frame preparation for hardware. **Do not proceed with door hardware preparation until the hardware supplier's hardware schedule has been approved by A/E.**

Reinforce doors and frames to receive surface applied hardware. Drilling and tapping for surface applied door hardware may be done at project site.

STANDARD STEEL DOORS

Provide metal doors of sizes, types, and styles indicated on Drawings and Schedules. Provide fire resistance label for class indicated.

STANDARD STEEL FRAMES

Provide metal frames for doors, of types and styles as indicated on Drawings and Schedules. Conceal fastenings, unless otherwise indicated. Fabricate frames with mitered and continuously welded corners. Provide fire-resistance label for class indicated.

Door Silencers: Drill stops to receive 3 silencers on strike jambs of single-swing frames and 2 silencers on heads of double-swing frames.

Plaster Guards: Provide 26 gage steel plaster guards or mortar boxes, welded to frame, at back of door hardware cut-outs where mortar or other materials might obstruct hardware operation and to close off interior of openings.

FINISHES

General: After fabrication, all tool marks and surface imperfections shall be dressed, filled and sanded as required to make all faces and vertical edges smooth, level and free of all irregularities.

Shop Painting:

Clean, treat, and paint exposed surfaces of steel door and frame units.

Clean steel surfaces of mill scale, rust, oil, grease, dirt, and other foreign materials before application of paint.

Apply shop coat of prime paint of even consistency to provide a uniformly finished surface ready to receive finish paint.

PART THREE - EXECUTION

INSTALLATION

General: Install standard steel doors, frames, and accessories in accordance with manufacturer's data and as herein specified.

Frame Installation:

Comply with provisions of ANSI/SDI A250.11 "Recommended Erection Instructions for Steel Frames", unless otherwise indicated.

Install fire-rated frames according to NFPA 80.

Door Installation:

Fit hollow metal doors accurately in frames, within clearances specified in ANSI/SDI A250.8.

Install fire-rated doors with clearances according to NFPA 80.

TOUCH-UP

Prime Coat Touch-Up: Immediately after erection, sand smooth any rusted or damaged areas of prime coat and apply compatible touch-up air-drying primer.

End of Section

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SECTION 08 31 13.53 - SECURITY ACCESS DOORS AND FRAMES

PART ONE - GENERAL

DESCRIPTION

Security access doors and frames required for wall access where indicated on Drawings.

RELATED WORK AND REQUIREMENTS

Section 01 35 13.16: Special Project Procedures for Detention Facilities
Section 05 05 53: Security Metal Fastenings
Section 11 19 20: Detention Hardware

SUBMITTALS

Product Data: Submit manufacturer's technical data and installation instructions for each type of security access door and frame assembly, including setting drawings, templates, instructions and directions for installation of anchorage devices.

QUALITY ASSURANCE

Fire-Resistance Ratings: Wherever a fire-resistance classification is indicated, provide security access door and frame assemblies with door, frame, hinge, and latch from manufacturer listed in Underwriters Laboratories, Inc. "Building Materials Directory" for rating shown. Provide UL label on each fire-rated security access door and frame.

PART TWO - PRODUCTS

HIGH- SECURITY FLUSH ACCESS DOORS AND FRAMES

Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

- Acudor Products, Inc.
- Babcock-Davis
- J.L. Industries, Inc.; a division of the Activar Construction Products Group
- Karp Associates, Inc.
- Larsens Manufacturing Company
- Milcor; Commercial Products Group of Hart & Cooley, Inc.
- Nystrom, Inc.

Door Size: As indicated on Drawings.

Uncoated Steel Sheet for Door: Nominal 0.134-inch, 10 gage; factory primed.

Frame Material: Minimum 2-inch-by-2-inch-by-3/16-inch thick steel angle welded with joints ground smooth; factory prime.

Hinges: Manufacturer’s standard heavy-duty, welded butt security hinge.

Latch and Lock: Prepared to receive detention locking devices furnished and installed by Section 11 19 20 Contractor.

MATERIALS

Steel Plates, Shapes, and Bars: ASTM A 36.

Steel Sheet: Uncoated or electrolytic zinc coated, ASTM A 879, with cold-rolled steel sheet substrate complying with ASTM A 1008, Commercial Steel (CS), exposed.

Frame Anchors: Same type as door face.

Inserts, Bolts, and Anchor Fasteners: Hot-dip galvanized steel according to ASTM A 153 or ASTM F 2329.

FABRICATION

General: Provide security access door and frame assemblies manufactured as integral units ready for installation.

Metal Surfaces: For metal surfaces exposed to view in the completed Work, provide materials with smooth, flat surfaces without blemishes. Do not use materials with exposed pitting, seam marks, roller marks, rolled trade names, or roughness.

Doors and Frames: Grind exposed welds smooth and flush with adjacent surfaces. Furnish attachment devices and fasteners of type required to secure access doors to types of supports indicated.

Latch and Lock Hardware:

Quantity: Furnish number of latches and locks required to hold doors tightly closed.

Keys: Furnish two keys per lock and key all locks alike.

Mortise Cylinder Preparation: Prepare door panel to accept cylinder specified in Section 11 19 20.

FINISHES

Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

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

Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

Factory Primed Finish: Apply manufacturer's standard lead and chromate free, universal primer immediately after surface preparation and pretreatment.

PART THREE - EXECUTION

EXAMINATION

Examine substrates for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

Proceed with installation only after unsatisfactory conditions have been corrected.

INSTALLATION

Comply with manufacturer's written instructions for installing security access doors and frames.

ADJUSTING

Adjust doors and hardware, after installation for proper operation.

Remove and replace security access door doors or frames that are warped, bowed or otherwise damaged.

End of Section

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SECTION 08 56 63 - DETENTION WINDOWS

PART ONE - GENERAL

DESCRIPTION

Casement detention windows complete with miscellaneous anchorages and fastening devices.

RELATED WORK AND REQUIREMENTS

Section 01 35 13.16: Special Project Procedures for Detention Facilities
Section 05 05 53: Security Metal Fastenings
Section 07 92 00: Joint Sealants

COORDINATION

Coordinate installation of anchorages for detention windows. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, inserts, anchor bolts, and items with integral anchors, that are to be embedded in masonry. Deliver such items to Project site in time for installation.

SUBMITTALS

Product Data: For each type of product.

Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for detention windows.

Shop Drawings: For detention windows.

Include plans, elevations, sections, and attachment details.
Full-size section details of framing members, including detention bars, detention screens, reinforcement and stiffeners.
Location of weep holes.
Hardware, including operators.
Glazing details.

Samples: For each type of exposed finish required, submit three 12-inch long, full-size sections with specified factory applied color finish.

Qualification Data: For qualified installer.

Welding certificates.

Material Certificates: For homogeneous tool-resisting steel indicating compliance with performance requirements for complete test sequence according to applicable ASTM standard.

Product Test Reports: For each type of detention window, for tests performed by a qualified independent testing agency.

Examination reports documenting inspections of substrates, areas, and conditions.

Field Quality Control Reports: Field quality control certification signed by Contractor and DEC.

FIELD CONDITIONS

Field Measurements: Verify actual dimensions of openings by field measurements before fabrication.

QUALITY ASSURANCE

Installer Qualifications: An authorized representative who is trained and approved by manufacturer.

Welding Qualifications: Qualify procedures and personnel according to the following:

AWS D1.1/D1.1M, "Structural Welding Code - Steel."
AWS D1.2/D1.2M, "Structural Welding Code - Aluminum."
AWS D1.3, "Structural Welding Code - Sheet Steel."
AWS D1.6, "Structural Welding Code - Stainless Steel."

WARRANTY

Warranty: Manufacturer agrees to repair or replace detention windows that fail in materials or workmanship within a warranty period of two years from date of Substantial Completion.

Failures include, but are not limited to, the following:

Structural failures including deflections exceeding 1/4 inch.
Failure of welds.
Lateral deflection of glass lite edges in excess of 1/175.
Excessive air leakage.
Excessive water penetration.
Deterioration of metals, metal finishes, and other materials beyond normal weathering and detention use.

PART TWO - PRODUCTS

PERFORMANCE REQUIREMENTS

Attack Resistance: Grade 1 when tested according to ASTM F 1592.

Ballistics Resistance: Test glazed window assembly for bullet penetration according to UL 752, Performance Level 3.

Dual Certification: Provide window assemblies with Grade 1 glazing panels, when tested according to ASTM F 1915.

Structural Loads: Detention windows shall withstand the effects of wind loads, with no permanent deformation or breakage of components within window assembly when tested according to ASTM E 330.

Wind Loads: Uniform pressure (velocity pressure) of 40 psf positive pressure (windward) and 45 psf negative pressure (leeward).

Air Infiltration: Provide windows with maximum air leakage through fixed glazing and framing areas of 0.37 cfm/sq. ft. of crack length when tested according to ASTM E 283 at a minimum static air pressure difference of 1.57 lbf/sq. ft.

Water Penetration: Provide windows that do not evidence water penetration through operable units when tested according to ASTM E 331 for 15 minutes when the window is subjected to a rate of flow of 5 gal. /hr. /sq. ft. with differential pressure across the window unit of 2.86 PSF.

CASEMENT DETENTION WINDOWS

Basis-of-Design Product: Subject to compliance with requirements, provide Hope's Windows, Inc.; S20 Series Steel Side Hung detention windows or an equivalent product by one of the following:

CM Security Group
Habersham Metal Products Company
Trussbilt, LLC
Willo Products Company, Inc.

Steel Framing: Fabricate perimeter framing and removable covers from 12-gauge cold-rolled steel sheet; ventilator head, jamb, and sill framing from hot-rolled steel sections weighing not less than 1.93 lb/linear foot; vertical muntins from 11-gauge cold-rolled steel sheet; ventilator bedding angles from 16-guage cold-rolled steel sheet; and 0.055-inch thick glazing stops from extruded aluminum.

Tool-Resisting Steel Bar Grid: 7/8-inch diameter, tool-resisting steel, round bars concealed within muntins at 6 inches o.c., oriented along length of window unless otherwise indicated, with 1/4-by-2-inch tool-resisting steel flat bars concealed within perimeter frame.

Steel: Homogeneous, tool-resisting steel, Grade 4 according to ASTM A 627.

Hardware:

Gear-Type, Rotary, Ventilator Operators: Manufacturer's security-grade ventilator control; consisting of manual operator with worm gear, self-locking, bronze bearings, and steel linkage arms on both jambs; maximum opening of 50 degrees, with nonremovable operable knob.

Operator shall turn all ventilators simultaneously, securely closing them at both jambs without using additional manually controlled locking devices.

Conceal operator, which shall be removable as a unit, within subframe.

Detention Screens:

Fixed Angle-Frame Screens: Fabricate angle frames and removable clamp strips from 12-gauge cold-rolled steel sheet. Match window frame finish.

Wire-Fabric Screen Cloth: Stainless steel, Type 18/8, Alloy #304, woven 12-mesh to the inch from 0.028-inch diameter wire, double crimped.

Security Glazing: Factory assembled insulating glass units consisting of 1/4-inch thick heat-strengthened outboard lite equivalent to PPG Solarban 60, 1/2-inch air space, nominal 1-inch thick translucent inboard lite equivalent to Global Security Glazing UL Level 3 - Secur-Tem + Poly SP311. Total unit nominal thickness of 1-3/4 inches.

Materials:

Mild-Steel Plates, Shapes, and Bars: ASTM A 36.
Cold-Rolled Steel Sheet: ASTM A 1008, CS (Commercial Steel), Type B; suitable for exposed applications.
Tool-Resisting Steel Bars: ASTM A 627.

FABRICATION

General: Fabricate detention windows to provide a complete system for assembly of components and anchorage of window units.

Provide units that are reglazable from the exterior.

Fabricate detention window frames of one-piece construction, except where removable covers are required.

Form removable covers to match frame profile.

Anchors for In-Place-Construction Installation: 3/16-inch thick steel angles or formed-steel plates, 4 inches long, welded to back of detention window frames as required to secure detention windows to adjacent construction.

Provide two anchors per side of window plus one additional anchor for every 18 inches or fraction thereof more than 36 inches in height or width.

Fabricate windows with minimum 1.25-inch stop heights to provide minimum 1 inch glass engagement.

Provide weep holes and internal water passages to conduct infiltrating water to the exterior.

Detention Screen Frames: Miter or cope corners the full depth of frame; weld and dress smooth.

Detention Screens: Secure screen to frame with security fasteners or stainless-steel rivets.

Detention Bars: Fabricate flat bar perimeter frame to allow round bars to penetrate and create a secure grid. Weld round bars to back side of flat bars. Conceal detention bars within window framing.

Welding: Weld components to comply with referenced AWS standard. To greatest extent possible, weld before finishing and in concealed locations to minimize distortion or discoloration of finish. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.

Metal Protection: Separate dissimilar metals to protect against galvanic action by painting contact surfaces with primer or by applying sealant or tape recommended by manufacturer for this purpose.

Preglazed Fabrication: Preglaze window units at factory. Installation orientation of glazing to meet performance requirements.

Glazing Stops: Provide glazing stops applied with security fasteners and coordinated with glazing indicated. Finish glazing stops to match window units.

Weather Stripping: Factory applied.

Security Fasteners: Fabricate detention windows using security fasteners with head style appropriate for fabrication requirements, strength, and finish of adjacent materials, except that a maximum of two different sets of tools shall be required to operate security fasteners for Project.

GENERAL FINISH REQUIREMENTS

Comply with NAAMM/NOMMA 500 for recommendations for applying and designating finishes.

Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

STEEL FINISHES

Surface Preparation: Remove mill scale and rust, if present, from uncoated steel, complying with SSPC-SP 5/NACE No. 1, "White Metal Blast Cleaning" or SSPC-SP8, "Pickling". After cleaning, apply a conversion coating suited to the organic coating to be applied over it.

Factory Prime Finish: After surface preparation and pretreatment, apply manufacturer's standard, fast-curing, lead and chromate free, universal primer to achieve a minimum dry film thickness of 1 mil.

Baked-Enamel or Powder-Coat Finish: After cleaning and pretreating, apply manufacturer's standard two-coat, baked-on finish consisting of prime coat and thermosetting topcoat. Comply with coating manufacturer's written instructions for applying and baking to achieve a minimum dry film thickness of 1.5 mils.

Color and Gloss: As selected by Architect from manufacturer’s full range.

ACCESSORIES

Concealed Bolts: ASTM A 307, Grade A unless otherwise indicated.

Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welding.

Anchors, Clips, and Window Accessories: Stainless steel; hot-dip, zinc-coated steel or iron, complying with ASTM B 633; provide sufficient strength to withstand design pressures indicated.

Grout: ASTM C 476.

Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.

Sealants: Provide as specified in Section 07 92 00.

PART THREE - EXECUTION

EXAMINATION

Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of detention windows.

Examine roughing-in to verify actual locations of detention window connections before detention window installation.

For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of detention windows.

Proceed with installation only after unsatisfactory conditions have been corrected.

INSTALLATION

General: Install detention windows level, plumb, rigid, properly aligned, and securely fastened in place, complying with Drawings, Shop Drawings, and manufacturer's written instructions.

Provide anchorage devices and fasteners as required to secure detention windows to wall construction. Include threaded fasteners for inserts, security fasteners, and other connectors.

In-Place-Construction Anchor Installation: Weld angle anchors to embedded anchors to match locations of detention window frame anchors. Detach removable covers from detention window frames and set frames into opening until detention window frame anchors contact and match embedded anchors. Weld detention window frame anchors to embedded anchors minimum 1-inch long welds with spacing not to exceed 18 inches. Reinstall removable covers.

Grout: Fill spaces between detention windows and adjacent substrate with grout. Install grout in lifts and take other precautions, including bracing detention windows, to ensure that detention windows are not deformed or damaged by grout forces.

Removable Covers, Glazing Stops, and Trim: Fasten components with security fasteners.

Install detention windows with glazing stops and removable covers located on secure (non-inmate) side of openings.

Security Fasteners: Install detention windows using security fasteners with head style appropriate for installation requirements, strength, and finish of adjacent materials, except that a maximum of two different sets of tools shall be required to operate security fasteners for Project.

Sealants: Comply with requirements of Section 07 92 00 for installing sealants, fillers, and gaskets.

Seal all exterior and interior perimeter joints between frames and adjacent dissimilar materials in the manner specified in Section 07 92 00 to provide weathertight construction unless otherwise indicated.

Security Sealant: At inmate side, apply security sealant between frames and adjacent dissimilar materials in the manner specified in Section 07 92 00.

Metal Protection: Where dissimilar metals will contact each other, protect against galvanic action by painting contact surfaces with primer or bituminous paint recommended in writing by manufacturer for this purpose.

Glazing: Comply with installation requirements in Section 08 80 00 for installation of glass indicated to be glazed into detention windows.

Detention Screens: Secure screens to the interior side of window frames using security fasteners.

FIELD QUALITY CONTROL

Inspect installed products to verify compliance with requirements. Prepare inspection reports and indicate compliance with and deviations from the Contract Documents.

Remove and replace detention work where inspections indicate that work does not comply with specified requirements.

Perform additional inspections to determine compliance of replaced or additional work. Prepare inspection reports.

Prepare field quality control certification endorsed by DEC that states installed products and their installation comply with requirements in the Contract Documents.

ADJUSTING, CLEANING, AND PROTECTION

Adjust operating ventilators and hardware to provide a tight fit at contact points and weather stripping, for smooth operation and a weathertight enclosure.

Remove and replace defective work, including detention windows that are warped, bowed, or otherwise unacceptable.

Clean surfaces promptly after installation of detention windows. Take care to avoid damaging the finish. Remove excess glazing and sealant compounds, dirt, and other substances.

After erection of detention windows, abraded surfaces shall be cleaned and touched-up with air dry enamel paint, as supplied by the window manufacturer, in color to match factory applied finish.

Provide temporary protection to ensure that detention windows are without damage at the time of Substantial Completion.

End of Section

SECTION 08 71 00 - DOOR HARDWARE

PART ONE - GENERAL

DESCRIPTION

Builder's Door Hardware
Miscellaneous Door Hardware

RELATED WORK AND REQUIREMENTS

Section 08 11 13: Standard Hollow Metal Doors and Frames
Division 26: Electrical; final connection of electrically operated hardware
Division 28: Electronic Safety and Security; building fire alarm, security, and access control systems

REFERENCES

Standards:

Provide material complying with the following standards as established by the American National Standards Institute, Inc., (ANSI) which is sponsored by the Builders Hardware Manufacturer's Association, Inc., (BHMA). Product tests are to be administered by the ETL Testing Laboratories, Inc., or other official testing laboratories that have been designated by BHMA for the testing of ANSI standard.

Materials and Finishes	BHMA 1301	
Butts and Hinges	ANSI A156.1	Grade 1
Bored & Preassembled Latches	ANSI A156.2	Grade 1
Exit Devices	ANSI A156.3	Grade 1
Door Controls - Closers	ANSI A156.4	Grade 1
Auxiliary Locks	ANSI A156.5	Grade 1
Architectural Door Trim	ANSI A156.6	
Template Hinge Dimensions	ANSI A156.7	
Door Controls - Overhead Holders	ANSI A156.8	Grade 1
Mortise Locks & Latches	ANSI A156.13	Operational Grade 1
		Security Grade 1
Closer Holder Release Devices	ANSI A156.15	
Auxiliary Hardware	ANSI A156.16	Grade 1
Self-Closing Hinges & Pivots	ANSI A156.17	Grade 1

Listed Hardware: Hardware to be installed in or on fire labeled doors and frames, Class A or lesser, single or pairs, shall be tested and listed by Underwriters Laboratories or other testing facility acceptable to Wisconsin Department of Commerce – Division of Safety & Buildings. Exit devices that are to be used as panic hardware shall be tested and listed in Underwriters Laboratories "Accident Equipment List - Panic Hardware". Hardware shall comply with National Fire Protection Association (NFPA) Standard Number 80 and UL 10C and shall be properly stamped or labeled for easy identification.

SUBMITTALS

Product Data: Submit product data including installation details, material descriptions, dimensions of individual components and profiles, and finishes.

Shop Drawings: Submit details of electrified door hardware, indicating the following:

Wiring Diagrams: Detail wiring for power, signal, and control systems and differentiate between manufacturer installed and field installed wiring. Include the following:

1. System schematic.
2. Point-to-point wiring diagram.
3. Riser diagram.
4. Elevation of each door.

Detail interface between electrified door hardware and building fire alarm, security and access control systems.

Operation Narrative: Describe the operation of doors controlled by electrified door hardware.

ANSI: Upon request by A/E, provide hardware manufacturers' letters of compliance that their products meet specified ANSI standards and that they have been tested and meet grades specified.

Templates: Provide templates and/or physical hardware to all trades requiring them in order they may cut, reinforce or otherwise prepare their material or product to receive the hardware item. If physical hardware is required by any manufacturer, ship to them such hardware via prepaid freight in sufficient time to prevent any delay in the execution of their work.

QUALITY ASSURANCE

General:

Hardware has been specified by manufacturer's name, brand, and catalog numbers for the purpose of establishing a basis for quality, finish, design, and operational function.

Hardware shall be substantially manufactured in the United States of America as defined in Wisconsin Statutes.

Supplier Qualifications: Supplier furnishing hardware in the project's vicinity for a period of not less than five (5) years. This supplier shall have experience in the preparation of architectural hardware specifications, estimating, detailing, ordering, servicing of architectural hardware in all its branches and will be available at reasonable times during the course of the work for project hardware consultation to the Owner, A/E, and General Contractor.

Supplier's principal office shall be located within a 100-mile radius of the Project Site.

DELIVERY, STORAGE, AND HANDLING

Package all items of hardware to be delivered to the job site. Package, arrange, and label in a manner acceptable to General Contractor. Include all necessary screws, bolts, miscellaneous parts, instructions and where necessary installation templates for manufacturer's suggested installation. **Do not include miscellaneous parts and accessories not specified nor intended to be used on the Project**. Clearly label to conveniently identify them and their intended location in the building.

Deliver door hardware to and jointly inventory with General Contractor. Direct factory shipments to the job site not acceptable. Promptly replace items damaged in shipment with proper material without additional cost.

Handle hardware in a manner to minimize marring, scratching, or damage.

OWNER'S INSTRUCTIONS

Upon completion of hardware installation, assist the General Contractor in instructing Owner in function, operation, and maintenance of all hardware and other work of this Section. Include demonstration of electrically controlled hardware devices.

PART TWO - PRODUCTS

MANUFACTURERS

Requirements for design, function, finish, size, and other distinctive qualities of each type of door hardware are specified below. Listed manufacturers' products meeting the requirements in this section are acceptable.

PERFORMANCE REQUIREMENTS

Accessibility Requirements:

Door handles, pulls, latches, locks and other operating devices on doors required to be accessible by IBC Chapter 11 shall not require tight grasping, tight pinching or twisting of the wrist and that operate with a force of not more than 5 pounds. Door handles, pulls, latches, locks and other operating devices shall be installed 34 inches minimum and 48 inches maximum above the finished floor.

Comply with the following maximum opening-force requirements:

Interior, Non-Fire-Rated Hinged Doors: 5 pounds applied perpendicular to door.
Fire Doors: Minimum opening force allowable by authorities having jurisdiction.

Door Closers: Adjust door closer sweep periods so that, from an open position of 90 degrees, the time required to move the door to an open position of 12 degrees shall be 5 seconds minimum.

CONTINUOUS GEARED HINGES

Acceptable Manufacturers:

Ives	IVE
Select	SEL
Stanley	STA

Geared hinges as scheduled, BHMA 156.26 Grade 2.

Undersize continuous hinge to allow sweep to go across entire width of door.

Provide factory cut holes for power transfer devices in rated openings.

EXIT DEVICES AND MULLIONS

Acceptable Manufacturers:

Von Duprin	VON
Detex	DET
Precision	PRE

Provide as scheduled.

Provide function as noted in hardware groups or scheduled.

Provide the following:
Breakaway type levers, if any.
Cylinder dogging, except on rated doors.
Required filler plates and shim kits for flush mounting of exit devices on all doors
Provide mullion stabilizers, mounting kit and cylinders with keyed removable mullions.

Provide power supplies for electric latch retraction exit devices.

CLOSERS

Acceptable Manufacturers:

LCN	LCN
Sargent	SAR
Corbin-Russwin	COR

Product: As scheduled.

Provide closers with arms, brackets, drop plates, and other closer accessories to suit the door and frame conditions.

ELECTRICALLY CONTROLLED MAGNETIC DOOR HOLDERS AND FIRE/LIFE SAFETY CLOSERS

Acceptable Manufacturers:

LCN	LCN
Rixson	RIX
Norton	NOR

Coordinate voltage requirements with fire alarm supplier.

DOOR PROTECTION PLATES

Acceptable Manufacturers:

Hiawatha, Inc.	HIA
Ives	IVE
Trimco	TRI

Kickplates: 0.050-inch thick, Type 302 stainless steel, square corners and beveled edges.
Height: 10 inches high unless otherwise indicated.
Width: 2 inches less than width of door at single doors and 1 inch less than width of doors at pairs.

DOOR SEALS

Acceptable Manufacturers:

Hager Companies	HA
National Guard Products	NGP
Pemko	P
Reese Enterprises	RE
Zero International	ZER

As scheduled.

COMPONENTS AND ACCESSORIES

Provide Phillips head screws and bolts for all items of hardware.

Provide security type screws and bolts specified in Section 05 05 53 for exposed fasteners. Exposed fastener is each and any fastener that is exposed to view with doors open or closed.

Provide closers with machine screws for attachment to reinforcing in doors and frames.

Self-tapping metal screws in the anchorage of closers not permitted.

Provide hardware with bolts, screws, fasteners, brackets, fittings, and accessories required for proper installation and performance.

FINISHES

Provide the following BHMA finishes:

Continuous Hinges: 628 Anodized aluminum.

Exit Devices: 626 Brushed Chrome.

Surface Mounted Closers: Covers and Arms BHMA 689 aluminum powder coated.

Door Stops: 630 Brushed Stainless Steel.

Door Protection Plates: 630 Brushed Stainless Steel.

PART THREE - EXECUTION

INSTALLATION

Deliver hardware scheduled or required to be built-in to metal doors and frames to contractors for that Work.

Deliver all electrically operated products requiring electrician installation to Division 26 contractor for installation.

General:

Install each hardware item in compliance with the manufacturer's instructions and recommendations. Securely fasten all parts to be attached. Fit faces of mortised parts snug and flush. Make sure all operating parts move freely and smoothly without binding, sticking, or excessive clearance.

Wherever cutting and fitting is required to install hardware onto or into surfaces which are later to be painted or finished in another way, remove and store hardware prior to painting or finishing.

Reinstall when finishes have been completed on the surface to which the hardware is to be applied.

HARDWARE MOUNTING LOCATIONS (Unless Detailed or Noted Otherwise):

Continuous Geared Hinges: Install hinge 3/8 inch below top of door.

Kickplates: 1/8 inch from bottom edge, centered on door.

Door Closers: **INSTALL SURFACE MOUNTED CLOSERS ON DOORS WITHOUT THRU-BOLTING.** Refer to door specifications for door construction. Install for maximum opening of 180 degrees whenever possible, or to adjoining wall. Indicate degree of openings on final hardware schedules.

Wall Stop/Holder: Install 2 inches down from top of door.

Magnetic Hold Open Devices: Center 4 inches from top edge and latch edge of door (may vary to suit CMU coursing; verify with A/E). Recess magnet box flush with wall. Securely anchor in wall. Provide minimum 20 gauge metal stud blocking in metal stud partitions.

Electric Strikes: Install power supplies in ceiling above.

MISCELLANEOUS INSTALLATION

After installation, turn over to Owner representative templates, instruction sheets, and installation details when the building is accepted. Include five each of any special adjusting and/or installation tools furnished with the hardware by the manufacturers.

FIELD QUALITY CONTROL

Include provisions for hardware supplier to make one job visit of four hours, plus travel, to assist the General Contractor during installation of hardware.

ADJUSTING AND CLEANING

Adjust and check each operating item of hardware to ensure correct operation and function. Replace units that cannot be adjusted to operate as intended.

Final Adjustment: Prior to Substantial Completion make final check and adjustment of all hardware items. Clean hardware to restore operation, function, and finish.

Adjust door closers and other door control devices to compensate for final operation of heating and ventilating equipment.

PROTECTION

Use all means to protect hardware located in areas subject to damage during construction.

HARDWARE GROUPS (HG)

Hardware Group No. 01 (Door 7E1)

Provide each PR door(s) with the following:

Qty		Description	Catalog Number	Finish	Mfr
2	EA	CONT. HINGE	224HD SECHM	628	IVE
2	EA	FIRE EXIT HARDWARE	9849-EO-F-LBL-SEC	626	VON
1	EA	OH STOP	90SE SOC	630	GLY
1	EA	FIRE/LIFE CLOSER	4040SE TORX	689	LCN
1	EA	SURFACE CLOSER	4111 EDA TORX	689	LCN
2	EA	KICK PLATE	8400 10" X 1" LDW B-CS TKTX	630	IVE
1	EA	FIRE/LIFE WALL MAG	SEM7830	689	LCN
1	SET	SEALS	328AA TORX	AL	ZER
1	EA	ASTRAGAL	139A TORX	AL	ZER

The 4040SE fire/life safety closer and the wall magnet are to be tied to the fire alarm system for immediate release upon fire alarm.

Hardware Group No. 02 (Stair No. 1 and Stair No. 4 Exit Discharge)

Provide each door with the following:

Qty		Description	Catalog Number	Finish	Mfr
1	EA	FIRE EXIT HARDWARE	98-NL-F-LBL-SEC	626	VON

Modify existing door and frame to install new hardware.

Hardware Group No. 03 (24 locations of 3'-0" by 7'-0" doors to be determined in field)

Provide each opening with the following:

Qty		Description	Catalog Number	Finish	Mfr
1	EA	JAMB AND HEAD SEALS	188S-Bk	---	ZER

End of Section

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SECTION 08 91 19 - FIXED LOUVERS

PART ONE - GENERAL

DESCRIPTION

Fixed wall louvers.
Blank-off panels for wall louvers.

RELATED WORK AND REQUIREMENTS

Section 07 92 00: Joint Sealants
Division 23: Heating Ventilating and Air Conditioning

SYSTEM DESCRIPTION

Structural Performance:

General: Design, engineer, fabricate, and install exterior wall louvers to withstand the effects of loads and stresses from wind and normal thermal movement, without evidencing permanent deformation of louver components including blades, frames, and supports; noise or metal fatigue caused by louver blade rattle or flutter; and permanent damage to fasteners and anchors.

Wind Load: Uniform pressure (velocity pressure) of 25 lbs. per sq. ft. acting inwards or outwards.

Normal Thermal Movement: Defined as that resulting from the following maximum change (range) in ambient temperature. Base design calculations on actual surface temperatures of metal due to both solar heat gain and nighttime sky heat loss.

Temperature Change (Range): 100 deg. F (55.5 deg. C).

Air Performance, Water Penetration, and Air Leakage Ratings: Provide louvers complying with performance requirements indicated as demonstrated by testing manufacturers stock units, of height and width indicated, according to Air Movement and Control Association (AMCA) Standard 500.

SUBMITTALS

Shop Drawings: Submit shop drawings of louver units and accessories. Include plans, elevations, sections, and details showing profiles, angles, spacing of louver blades; unit dimensions related to wall openings and construction; free areas for each size indicated; and profiles of frames at jambs, heads and sills.

Samples: Submit 6-inch square metal samples for verification purposes of each type of metal finish required, of same thickness and alloy specified in color selected by A/E.

PROJECT CONDITIONS

Field Measurements: Verify actual louver openings by accurate field measurements before fabrication; show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delay of the Work.

QUALITY ASSURANCE

SMACNA Standard: Comply with SMACNA "Architectural Sheet Metal Manual" recommendations for fabrication; construction details, and installation procedures.

AMCA Standard: Comply with AMCA Standard 500 and certified ratings program. Units shall bear AMCA seal.

PART TWO - PRODUCTS

MATERIALS

Aluminum Extrusions: ASTM B 221, Alloy 6063-T5, T6 or T-52.

Aluminum Sheet: ASTM B 209, Alloy 3003 or 5005 with temper as required for forming, or as otherwise recommended by metal producer for required finish.

Galvanized Steel Sheet: ASTM A 653/A 653M, G90 zinc coating, mill phosphatized.

Fasteners: Provide stainless steel or aluminum fasteners, unless otherwise indicated. Do not use metals that are corrosive or incompatible with materials joined.

Provide types, gages, and lengths of fasteners to suit unit installation conditions.
Provide phillips flat-head machine screws for exposed fasteners, unless otherwise indicated.

Anchors and Inserts: Provide type, size, and material required for type of loading and installation indicated. Use nonferrous metal or hot-dip galvanized anchors and inserts for exterior installations and elsewhere as required for corrosion resistance. Use toothed steel or expansion bolt devices for drilled-in-place anchors.

Bituminous Paint: SSPC-Paint 12 (cold-applied asphalt mastic).

Sealant: Provide Type 1 as specified in Section 07 92 00.

FABRICATION

General:

Fabricate louvers to comply with requirements indicated for design, dimensions, materials, joinery, and performance.

Preassemble louvers in shop to minimize field splicing and assembly. Disassemble units as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.

Maintain equal louver blade spacing, including separation between blades and frames at head and sill, to produce uniform appearance.

Fabricate frames, including integral sills, to fit in openings of size indicated on Drawings, with allowances made for fabrication and installation tolerances of louvers, adjoining construction, and perimeter sealant joints.

Include supports, anchorages, and accessories required for complete assembly.

Provide sill extensions and loose sills made of same material as louvers, where indicated, or required for drainage to exterior and to prevent water penetrating to interior.

FIXED EXTRUDED ALUMINUM WALL LOUVERS

Basis-of-Design Product: Subject to compliance with requirements, provide Airolite Company, LLC; Model K6744 or equivalent product by one of the following:

Air Flow Company, Inc.
American Warming & Ventilating, Inc.

Arrow United Industries
Construction Specialties, Inc.
Greenheck Fan Corporation
Industrial Louvers, Inc.
Ruskin Company

Continuous Horizontal Fixed Blade Louvers: Extruded aluminum frames and louver blades with supporting framework concealed from view from outside face of louver by placing braces, mullions, and brackets on inside face; with close fitting, field-made splice joints in blades designed to permit expansion and contraction without deforming blades or framework; and complying with the following requirements:

Louver Depth: 4 inches.
Frame Type: Channel.
Frame and Louver Blade Thickness: 0.081-inch.
Louver Blade Profile: Drainable blade.
Louver Blade Angle: 37-1/2 or 45 degrees.

Performance Requirements: As follows, determined by testing units 48 inches wide by 48 inches high per AMCA Standard 500:

Louver Free Area: Not less than 8.0 sq. ft.

Air Performance: Not more than 0.10-inch water gage static pressure drop at airflow of 750 fpm free area intake velocity.

Water Penetration: Not more than 0.014 oz. per sq. ft. of free area at airflow of 850 fpm free area velocity when tested for 15 minutes.

AMCA Seal: Mark units with AMCA Certified Ratings Seal.

Exterior Corners: Prefabricated corner units with mitered and welded blades aligned with straight sections, with concealed bracing.

LOUVER SCREENS

Screening Type: 1/2-inch square mesh formed with .063-inch diameter aluminum wire bird screen. Bird screening shall be standard mill finish and replaceable within screen frames.

Screen Frames: Fabricate screen frames from same material as louver with mitered corners, and to louver sizes indicated. Screen frame finish shall match louvers.

Secure louver screens to inside face of louver frames with stainless steel machine screws, spaced at each corner and at 12 inches o.c. between.

Blank-Off Panels: Provided by Division 23 Contractor.

ALUMINUM FINISHES

Clear Anodized Finish: Provide AA-M12C22A41, Class I, clear anodized coating.

PART THREE - EXECUTION

COORDINATION

Coordinate with installation of other Contractor's work as required to ensure that each element of the work performs properly.

Coordinate fixed louver sizes with Division 23 Contractor.

INSTALLATION

Locate and place louver units' plumb, level, and in proper alignment with adjacent work.

Use concealed anchorages where possible. Provide brass or lead washers fitted to screws where required to protect metal surfaces and to make a weathertight connection.

Form closely fitted joints with exposed connections accurately located and secured.

Provide perimeter reveals and openings of uniform width for sealants and joint fillers, as indicated.

Repair finishes damaged by cutting, welding, soldering, and grinding operations required for fitting and jointing. Restore finishes so there is no evidence of corrective work. Return items that cannot be refinished in field to shop, make required alterations and refinish entire unit, or provide new units.

Protect galvanized and nonferrous metal surfaces from corrosion or galvanic action by application of a heavy coating of bituminous paint on surfaces that will be in contact with concrete, masonry, or dissimilar metals.

Install concealed gaskets, flashings, joint fillers, and insulation as louver installation progresses, where weathertight louver joints are required. Comply with Section 07 92 00 for sealants applied during louver installation.

PROTECTION AND CLEANING

Protect louvers from damage of any kind during construction period including use of temporary protective coverings where needed and approved by louver manufacturer. Remove protective covering at time of Substantial Completion.

Restore louvers damaged during installation and construction period, so that no evidence remains of correction work. If results of restoration are unsuccessful, as judged by A/E, remove damaged units and replace with new units.

Clean and touch-up minor abrasions in finishes with air-dried coating that matches color and gloss of, and is compatible with, factory-applied finish coating.

Prior to final inspection, clean exposed surfaces with water and with a mild soap or detergent not harmful to finishes. Rinse thoroughly and dry surface.

End of Section

SECTION 09 21 13 – GYPSUM BOARD ASSEMBLIES

PART ONE - GENERAL

DESCRIPTION

Gypsum wallboard, metal stud framing, accessories and finishing.

RELATED WORK AND REQUIREMENTS

Section 09 90 00: Painting and Coating

REFERENCES

American Standard for Testing and Materials (ASTM)

- ASTM C 475 - Specification for Joint Treatment Materials for Gypsum Wallboard Construction.
- ASTM C 754 - Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Wallboard, Backing Board, or Water- Resistant Backing Board.
- ASTM C 840 - Specification for Application and Finishing of Gypsum Board.
- ASTM C 1396 - Specification for Gypsum Board.

Gypsum Association (GA)

- GA-216 - Application and Finishing of Gypsum Board

DELIVERY, STORAGE AND HANDLING

Deliver materials in original packages, containers or bundles bearing brand name and identification of manufacturer or supplier.

Store materials inside under cover and keep them dry and protected against damage from surface contamination, corrosion, construction traffic and other causes. Neatly stack gypsum boards flat to prevent sagging.

Handle gypsum boards to prevent damage to edges, ends, and surfaces. Do not bend or otherwise damage metal corner beads and trim.

PROJECT CONDITIONS

Environmental Conditions:

General: Establish and maintain environmental conditions for application and finishing of gypsum board to comply with ASTM C 840 requirements and gypsum board manufacturer's written recommendations, whichever are more stringent.

Ventilation: Ventilate building spaces to remove water not required for drying joint treatment materials. Avoid drafts during dry, hot weather to prevent materials from drying too rapidly.

PART TWO - PRODUCTS

ACCEPTABLE MANUFACTURERS

CertainTeed Corporation
Georgia-Pacific Building Products
National Gypsum Company
United States Gypsum Company (USG)

USG products listed to establish standard of quality. Equivalent products by other listed acceptable manufacturers are also acceptable.

MATERIALS

Gypsum Wallboard:

General: Provide gypsum board, ASTM C 1396, of types indicated below in maximum lengths available to minimize end-to-end joints.

USG Fiberock VHI Abuse-Resistant Panels – 5/8-inch thick unless otherwise indicated.

Trim Accessories:

Outside Corners: USG "Sheetrock" paper faced metal drywall bead.
Inside and Outside Angled Corners: "USG Sheetrock" paper faced flexible metal corner tape.
Edge Metal: USG "Sheetrock" paper faced metal drywall trim, "J" or "L" shaped.
Control Joints: USG #093.
Tear-Away L Bead: USG paper faced metal premasked "L" shaped tape-on trim.

Joint Treatment Materials:

General: Provide materials complying with ASTM C 475, ASTM C 840, and recommendations of manufacturer of both gypsum board and joint treatment materials for the application indicated.

Joint Tape: Paper reinforcing tape.

Joint Compounds: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.

Prefilling: At open joints and damage surface areas, use setting-type powder joint compound equivalent to USG "Sheetrock" Lightweight Setting-Type Joint Compound (Easy Sand).

Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges use ready-mixed joint compound equivalent to USG "Sheetrock" All Purpose Joint Compound.

Fill and Finish Coats: For second and third coats, use ready-mixed joint compound equivalent to USG "Sheetrock" Lightweight All Purpose Joint Compound (Plus 3).

Metal Stud Framing: Provide 25 gage galvanized studs with top and bottom runner channels and 1-1/4 inch leg that complies with ASTM C 754 requirements. Size as indicated on Drawings.

Miscellaneous Materials:

General: Provide auxiliary materials for gypsum board construction that comply with referenced standards and the recommendations of the manufacturer of the gypsum board.

Wallboard Fasteners: Bugle head screws of the type and size recommended by the wallboard manufacturer for the application indicated.

Metal Stud Fasteners: Suitable for use intended.

Interior Textured Finish: By Section 09 90 00 contractor.

PART THREE - EXECUTION

INSPECTION

Inspect substrate to receive gypsum board assemblies for alignment, support, bracing, etc., prior to installation. Shim, block as required to comply with tolerances.

Verify that the installation of all blocking, mechanical, and electrical work is completed.

INSTALLATION

General:

Gypsum Board Application and Finishing Standards: Install and finish gypsum board to comply with ASTM C 840 and GA-216.

Metal Framing Installation Standard: Install metal framing to comply with ASTM C 754 and ASTM C 840 requirements that apply to framing installation.

Gypsum Wallboard:

Apply gypsum wallboard panels vertically on framing. Extend from floor to structural deck above, unless provided elsewhere in the Contract Documents. Minimize end joints.

Provide 1/4 to 3/8 inch joint between top of floor system and gypsum wall panels.

Cut openings required for air transfer ducts, piping, etc., above ceiling plane or fit panels after installation.

Install trim and accessories

Install edge trim at all exposed edges of board and where board abuts dissimilar material.

Control Joints: Provide control joints at locations at locations required by referenced gypsum board application and finish standards (ASTM C840 and GA-216) to prevent cracking of finished drywall.

FINISHING

General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.

Prefill open joints and damaged surface areas.

Apply joint tape over gypsum board joints, except those with trim having flanges not intended for tape.

Gypsum Board Finish Levels: Finish panels to levels indicated below, according to ASTM C 840, for locations indicated:

Level 1: Embed tape at joints at panel surfaces that will be concealed to view.

Level 4: Embed tape and apply separate first, fill, and finish coats of joint compound to tape, fasteners, and trim flanges at panel surfaces that will be exposed to view.

Finishing work will not be considered acceptable if corners or edges do not form true, level straight, or plumb lines, or if joints, fasteners, head, flanges of trim accessories, or defects that are visible after application of field-applied decoration.

Mask junctions with dissimilar materials.

Do not intermix joint compounds.

Allow drying time between application of joint compound in accordance with manufacturer's recommendations for the relative humidity and temperature levels at the time of application.

Lightly sand joint compound smooth between coat applications.

Texture Finish: By Section 09 90 00 contractor.

End of Section

SECTION 09 90 00 - PAINTING AND COATING

PART ONE - GENERAL

DESCRIPTION

Extent of interior painting and finishing is indicated on Drawings.

Surface preparation.

ALLOWANCES

Painting and finishing existing cell front assemblies is based upon allowance. See Instructions to Bidders and General Conditions of Contract.

SUBMITTALS

Product Data: Submit manufacturer's technical information and application instructions for each material proposed for use.

Shop Drawings: For field painted stair and floor identification.

Show identification locations and heights.
Show identification typestyles, text copy, and layouts.

Samples: Submit paint samples of each color for Architect's approval. Resubmit until required sheen and color are achieved.

Coating Maintenance Manual: Provide coating maintenance manual including product data pages, safety data sheets, care and cleaning instructions, touch-up procedures, and color code for each product, color and finish used for Owner's later use in maintenance.

Submit schedule for paint and finishing activity.

DELIVERY, STORAGE AND HANDLING

Deliver all paints, enamels, and similar materials in the original containers with the seals unbroken and label intact and with the manufacturer's instructions printed thereon.

Store all materials used on the job in protected areas designated by the Owner. Keep storage place neat and clean, and make good all damage thereto or its surroundings. Remove used rags, waste and trash from the building every night and take every precaution to avoid the danger of fire.

PROJECT CONDITIONS

Before painting is started in any area, broom clean and remove excessive dust.

After painting operations begin in a given area, broom cleaning will not be allowed; cleaning shall then be done only with commercial vacuum cleaning equipment.

Provide adequate illumination in all areas where painting operations are in progress.

Schedule and coordinate the work of this Section with other trades and do not proceed until other work and/or job conditions are as required to achieve satisfactory results.

Examine the Contract Documents for various other trades and thoroughly familiarize yourself with all their provisions regarding painting.

EXTRA MATERIALS

Furnish extra paint materials from the same production run that match products installed. Package paint materials in unopened, factory-sealed containers for storage and identify with labels describing contents. Deliver extra materials to Owner designated storage room.

Quantity: Not less than 1 gallon of each material and color applied.

PART TWO - PRODUCTS

ACCEPTABLE PAINT, STAIN, AND VARNISH MANUFACTURERS

Benjamin Moore
Coronado Paint; Benjamin Moore Company
Diamond Vogel Paints
Hallman/Lindsay
Glidden Professional; PPG Architectural Finishes, Inc.
Mautz Paint Company; Sherwin-Williams
Pratt & Lambert; Sherwin-Williams
Sherwin-Williams

MATERIALS

Provide all painting materials of the best quality and approved by the Owner. They shall bear identifying labels on the containers with the manufacturer's instructions printed thereon. Paint containers not bearing manufacturer's identifying labels or bearing identifying labels of other manufacturers not approved by Owner will not be permitted on the project site.

Paint shall not be badly settled, caked, or thickened in the container, shall be readily dispersed with a paddle to a smooth consistency and shall have excellent application properties.

Deliver paint to the job color-mixed except for tinting of undercoats and possible thinning.

Tinting materials shall be recommended by the manufacturer for the particular material tinted.

Ensure that all mixed colors match the color selection made by the A/E prior to application of the coating.

Application Equipment: Application equipment is not required to be new, but shall be adequate for the work and workmanship required herein.

Accessory Material: Include all required ladders, scaffolding, drop cloths, maskings, scrapers, tools, dusters, cleaning solvents, and waste, as required to perform the Work and achieve the results herein specified.

COLORS

Colors and finishes will be set forth in the color schedule to be furnished by the Architect.

See Schedule of paints and finishes at end of this Section.

PART THREE - EXECUTION

INSPECTION

Before starting any work, carefully examine surfaces to receive paint finishes for defects which cannot be corrected by the procedures specified herein under "PREPARATION OF SURFACES" and which might prevent satisfactory painting results. Do not proceed until such damages are corrected. The commencing of work in a specific area shall be construed as acceptance of the surfaces, and thereafter the painting contractor shall be fully responsible for satisfactory work as required herein.

PREPARATION OF SURFACES

General Procedures:

Remove and protect hardware, accessories, device plates, lighting fixtures, factory finished work and similar items, or provide ample in-place protection. Upon completion of each space, carefully replace all removed items.

Remove electrical panel box covers and doors before painting walls. Paint separately and reinstall after all paint is dry.

Provide surface applied protection to fire-rated labels on door and frames before painting. Upon completion of painting doors and frames, carefully remove surface applied protection.

Surface Preparation:

Clean and prepare surfaces to be painted in accordance with the manufacturer's instructions for each particular substrate condition and as specified.

Existing Walls: Clean and prepare surfaces in accordance with SSPS-SP2 hand tool cleaning. Glossy surfaces must be dulled.

Clean surfaces before applying paint or surface treatments. Remove oil and grease prior to cleaning. Schedule cleaning and painting so that dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.

Provide barrier coats over incompatible primers or remove and reprime. Notify A/E in writing of problems anticipated with using the specified finish coat material with substrates primed by others.

Cementitious Surfaces:

Prepare concrete, concrete masonry block, and cement plaster surfaces to be painted. Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen as required to remove glaze. If hardeners or sealers have been used to improve curing, use mechanical methods of surface preparation.

Use abrasive cleaning methods if recommended by the paint manufacturer.

Determine alkalinity and moisture content of surfaces by performing appropriate tests. If surfaces are sufficiently alkaline to cause blistering and burning of finish paint, correct this condition before application. Do not paint surfaces where moisture content exceeds that permitted in manufacturer's printed directions.

Drywall Surfaces:

Fill all minor irregularities with spackling paste and sand to a smooth, level surface. Exercise care to avoid raising nap of paper on drywall.

Ferrous Metal Surfaces:

Clean nongalvanized ferrous metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with recommendations of the Steel Structures Painting Council (SSPC).

Blast steel surfaces clean as recommended by the paint system manufacturer and in accordance with requirements of SSPC specification SSPC-SP 6.

Remove rust, mill scale and defective shop applied primer paint down to sound surfaces or bare metal using scraper, sandpaper or wire brush as necessary. Grind disc sand, etc., if necessary to remove shoulders at edge of sound paint to prevent them from photographing through finish coats. Clean with solvents recommended by the paint manufacturer and wipe dry with clean cloths.

Touch up all bare metal and damaged shop applied prime coats with the same primer as the shop coat.

Aluminum Metal Surfaces: Treat with appropriate primers to ensure finish coat bond.

Galvanized Metal Surfaces: Clean galvanized surfaces such as metal roof deck, metal fabrications, etc. with non-petroleum based solvents so that the surface is free of oil and surface contaminants and wipe dry with clean cloths.

Existing Painted Metal Surfaces:

Remove all rust, loose or flaking paint down to sound surfaces or bare metal using scraper, sandpaper or wire brush as necessary. Grind disc sand, etc., if necessary to remove shoulders at edge of sound paint to prevent them from photographing through finish coat. Clean with solvents recommended by the paint manufacturer and wipe dry with clean cloths.

Touch up all bare metal surfaces with appropriate primer to ensure finish coat bond.

APPLICATION - WORKMANSHIP

Apply paint in accordance with manufacturer's directions. Use applicators and techniques best suited for substrate and type of material being applied. Employ only skilled mechanics.

Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.

Apply materials under adequate illumination, evenly spread and flowed on smoothly to avoid runs, sags, holidays, brush marks, air bubbles, and excessive roller stipple.

Apply materials at not less than the manufacturer's recommend spreading rate. Provide a total dry film thickness of the entire system as recommended by the manufacturer.

Coverage and hide shall be complete. When color, stain, dirt or undercoats show through final coat of paint, the surface shall be covered by additional coats until the paint film is of uniform finish, color, appearance and coverage, at no additional cost to the Owner.

All coats shall be dry to manufacturer's recommendations before applying succeeding coats.

All suction spots or "hot spots" in plaster and/or cement after the application of the first coat shall be touched up before applying the second coat.

Where spray painting is specified the contractor shall finish 100 square feet by spraying the sample of the finish upon the request of the A/E. This shall be finished with materials specified or approved.

Interior Painting and Finishing:

Enamel finish applied to metal shall be sanded with fine sandpaper and then cleaned between coats to produce an even surface.

FINISHING OF NEW GYPSUM SURFACES

Apply texture sealer finish to all exposed surfaces indicated to be painted.

Apply texture sealer finish, using a 3/4-inch nap roller, to an area of approximately 200 sq. ft. and obtain A/E approval. Approved area shall establish standard for all the Work.

FINISHING OF SURFACES IN EXISTING BUILDING

Where patching of existing finishes occur, paint to match existing.

TOUCH-UP, CLEANING, AND REPAIRS

Touch-up all marred, scratched or patched surfaces to affect a uniform appearing surface.

As work progresses, promptly remove paint where spilled, splashed, or spattered.

Repair to "like new" condition, all surfaces which are damaged due to paint removal, or replace with new work.

During progress of work, keep premises free from unnecessary accumulation of tools, equipment, rubbish, cans, rags, etc.

Upon completion of work in any area, leave premises neat and clean and free of rubbish.

PROTECTION

Protect work at all times, and protect all adjacent work and materials by suitable covering or other method during progress of Work.

Provide "wet paint" signs to protect newly painted finishes. Remove temporary protective wrappings provided by others for protection of their work after completion of painting operations.

PAINTS AND COATINGS SCHEDULE

Sherwin-Williams products listed for quality standard, unless otherwise indicated.

Surfaces to be painted are indicated on the Drawings.

INTERIOR WORK

GWB:
1 coat High Build Primer B28W8601
2 coats ProMar 200 Zero VOC Interior Latex Eg-Shel B20-2600 Series

Existing Painted CMU, Concrete, GWB, and Plaster:
2 coats ProMar 200 Zero VOC Interior Latex Eg-Shel B20-2600 Series as scheduled.

Ferrous Metals, Primed Metal, Galvanized, and Non-Ferrous Metal:
1 coat Pro-Cyrl Universal Metal Primer B66-310 Series
2 coats ProClassic Interior Waterbased Acrylic-Alkyd Semi-Gloss B34W850 Series

PAINTED STAIR AND LANDING IDENTIFICATION

Identification painted directly on existing substrates, including primers, sealers, undercoats, and transition coats as required.

Paint Type: Same paint material used on substrate or as recommended by manufacturer for optimum adherence to existing substrates.

Locations: At each floor level inside of Stair #1, #2, #3 and #4. Verify exact location with Owner.

Typeface: Helvetica Bold.

Size: 8 inches high.

Text Copy: Stair #_ - Floor #_. Obtain Owner's approval of exact text copy.

Color: As selected by Owner.

Compatibility: Provide paint materials that are compatible with one another and existing substrates, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.

Transition Coat: Paint manufacturer's recommended coating for use where a residual existing coating is incompatible with the paint system.

Installation:

Appearance Standard: Completed sign work shall have a sharp and uniformly delineated appearance as viewed by Owner at 5 feet away from painted surface.

Comply with manufacturers' written instructions for surface preparation and paint-application for each substrate condition.

SCHEDULE OF MISCELLANEOUS FINISHES

General:

Finish mechanical piping and electrical conduits, boxes; sprinkler piping and brackets; ductwork and accessories exposed in rooms and areas scheduled to receive wall and ceiling finishes with 2 spray finish coats of same material and color as adjacent surface, over appropriate primer.

Examine Drawings and Specifications for miscellaneous items indicated to be finished.

Include the following:

New hollow metal doors and frames specified in Section 08 11 13.

Access panels and frames specified in Section 08 31 13.53.

Surface raceways "Wiremold" specified in Division 26.

Apply 2 spray coats ProClassic Interior Waterbased Acrylic-Alkyd Semi-Gloss B34W850 Series over appropriate primer to all miscellaneous finish work except as noted otherwise.

End of Section

SECTION 10 14 43 - LUMINOUS EGRESS PATH MARKINGS

PART ONE - GENERAL

DESCRIPTION

Luminous (photoluminescent) egress path markings in Stairs 1, 2, 3 and 4.

REFERENCES

National Fire Protection Association NFPA 101 - Life Safety Code.

Underwriters Laboratories, Inc. UL 1994 - Standard for Luminous Egress Path Marking Systems, 410 - Standard for Slip Resistance for Floor Surface Materials.

American Society for Testing & Materials ASTM E 2072 – Standard Specification for Photoluminescent (Phosphorescent) Safety Systems and E2073 – Standard Test Method for Photopic Luminance of Photoluminescent (Phosphorescent) Markings.

QUALITY ASSURANCE

Provide directional and egress markings in accordance with NFPA 101, IBC Building Code, and local authorities having jurisdiction.

SUBMITTALS

Product Data: For each product and materials specified.

PART TWO - PRODUCTS

MANUFACTURERS

Basis-of-Design Products: Subject to compliance with requirements, provide EverGlow NA, Inc.; Luminescent Exit (Egress) Path Markings or equivalent products by, but not limited to, one of the following:

Jalite, Inc.
Jessup Glo Brite

MATERIALS

Luminous (Photoluminescent) Egress Path Markings:

Photoluminescent material absorbs and storing energy from ambient light, interior lighting and sunlight; does not require any external power supply.

Non-toxic, non-radioactive.

Free from vinyl and polyvinyl chloride compounds.

Manufactured using low-VOC inks and coatings. High solid epoxy coatings.

High-visibility illumination.

Tested and listed to UL 1994.

UL approved for use in interior locations with fluorescent lighting.

Stair nosings and markers that can be used on stair nosings are listed to UL1994 and UL410 or tested to meet ASTM E2072 or E2073 luminance requirements.

Tape: Equivalent to EverGlow Tamper Resistant Tape, a conformable acrylic film for marking handrails, obstacles, hazards, perimeter (demarcation lines) of door frames and push bars.

Paint: Equivalent to EverGlow TL300 Epoxy Coating for permanent lighting throughout period of use. Application areas include stair nosings, perimeter (demarcation lines) of landings, staircases, and escape routes. High luminance epoxy coatings meeting ASTM requirements and can be applied over white or yellow primer coatings.

PART THREE - EXECUTION

PREPARATION

Clean substrate surfaces of dirt, oil, grease, and loose matter that could impair adhesion.

INSTALLATION

Install markings in accordance with manufacturer's instructions.

Locate markings in accordance with NFPA 101, IBC Building Code, and local authorities having jurisdiction.

Install markings level, straight, and true to line.

End of Section

SECTION 11 19 00 – DETENTION EQUIIPMENT GENERAL REQUIREMENTS

PART 1 - GENERAL

SCOPE

The work under this section includes the general requirements for the detention equipment system shown on the Drawings and specified herein. Included are the following topics:

The Contractor performing work under Section 11 19 00 shall be referred to in this specification and on the Drawings as the DEC (Detention Equipment Contractor).

The work performed by the DEC under specification Section 11 19 00 includes the following:

Section 05 59 63 – Detention Enclosures
Section 08 31 13.53 – Security Access Doors and Frames
Section 08 56 63 – Detention Windows
Section 11 19 10 – Detention Hollow Metal Doors and Frames
Section 11 19 20 – Detention Hardware
Section 11 20 00 – Security Fasteners

RELATED WORK

Section 11 19 10 - Detention Hollow Metal Doors and Frames
Section 11 20 00 – Security Fasteners

BIDDER QUALIFICATIONS

Bidders shall assign a project manager as the sole responsible contact for coordination purposes for the duration of the project. The project manager shall have at least 5 years experience in detention construction, and be a technically qualified full time employee of the bidding contractor.

Bidders must have the capability to provide equipment in full and strict compliance of provisions of this specification. It is mandatory that the minimum given specifications be strictly adhered to, so as to provide a high level of quality to the design objectives. There shall be no substitutions allowed that have not been pre-approved by addendum.

Bidders shall have access to necessary equipment, organizational capacity and technical competence to perform work properly and expeditiously.

Bidders shall employ qualified, experienced, factory trained installers to perform the work. The A/E reserves the right to contact specified manufacturers and confirm that the bidder is an established and authorized reseller of detention equipment.

It is essential that bidders have an established record of successfully completed projects. The criteria used to evaluate whether a project has been successfully completed includes:

Contracts completed in accordance with plans and specifications.
Work completed within the time constraints of the project.
Fulfillment of guarantee requirements as specified in the contract documents.

A single bidder shall perform the work of this Section. This Contractor shall be regularly engaged in the installation and service of detention equipment including, but not limited to, equipment listed in Sections 11 19 10 thru 11 19 20.

ACCEPTABLE DEC CONTRACTORS

Cornerstone – Tanner, AL
Pauly Jail Building Company – Noblesville, IN
Sierra Detention Systems – Golden, CO
Stronghold Industries – Racine, WI

QUALIFICATION REQUIREMENTS

Contractors seeking approval to bid as an DEC shall submit the following qualification data to the Architect at least 7 days prior to the bid date or the date of the last published addendum, whichever is earlier. Upon approval, the prospective DEC will be listed by addendum. Verbal approval is unacceptable. Bids received from unapproved contractors will not be considered.

Upon receipt of qualification data, the A/E will make an investigation to determine the ability of the DEC to perform the work. The A/E reserves the right to request additional information as deemed necessary for the determination process. Prospective contractors seeking approval to bid as an DEC shall provide the following minimum information:

Submit evidence that the DEC has been actively engaged in the installation of detention equipment listed under this specification for a minimum of 10 years. Furnish a list of 5 projects in size, type and value of that being bid. The minimum period of operation for each project shall be 12 months. List of completed projects shall include the following:

Name and location of installation.
Value of contact and scope of work provided.
Date of Owner occupancy.
Name and telephone number of Owner's representative.
Name and telephone number of Construction Manager or General Contractor.
Name and telephone number of Architect's project manager.

Certification that equipment will be installed by employees of the firm seeking pre-qualification in lieu of an installation subcontractor. The successful Div. 11 DEC will not be allowed to subcontract installation labor. All installation must be performed by direct employees of the DEC.

Certification that the DEC is not a manufacturer of any material items listed under Div. 11. It is imperative that the successful DEC be solely devoted to the Contracting industry for the purpose of advancing life safety and security within the correctional built environment. Qualification submissions received from manufacturers that also double as Contractors will not be considered, as approval of such Contractors does not allow for open, fair and competitive bidding.

Submit evidence of financial and bonding capability. Provide the following information from the bonding agent:

Name, address, phone number of bonding company with point of contact.

Advise the total overall bonding capacity of the DEC and the maximum limit of bonding capacity per job.

State how much work by the DEC is currently bonded.

Although this project does not require the DEC to provide a payment and performance bond, provide a letter from the bonding company stating that a 100% payment and performance bond would be provided if necessary.

The financial and bonding information must state that the DEC has a minimum 110% capacity over and above the value of the bid package as assigned by the construction cost estimator assigned to this project.

The financial and bonding information must list all outstanding bid bonds, the value of each outstanding bid, and % certainty that the DEC will be awarded the contract for all outstanding bids requiring a bond.

Owner and A/E reserve the right to disqualify manufacturers, equipment suppliers, and contractors who do not strictly comply with requirements of this section or product substitution procedures called for in this section and Div. 01. Grounds for disqualification shall exist if it is determined that the information submitted is inaccurate, or in the opinion of the Architect, does not satisfy the pre-qualification requirements.

Any bid from a General Contractor that does not include the name of a pre-qualified DEC in the appropriate space provided on the bid form will be automatically rejected.

UNLOADING AND STORAGE OF MATERIALS

The DEC shall be responsible for receiving, unloading, storage and distribution of detention equipment as specified.

It will be the responsibility the DEC to coordinate delivery times and handling arrangements. It will also be the responsibility of the DEC to acquire the necessary dry, secure, lockable storage space required for their materials. Materials shall be protected from moisture, condensation, temperature change, exposure to sun, and other means of potential damage.

Do not store products on or in the structure in a manner that might cause distortion or damage to the products or the supporting structure.

The DEC shall repair or replace materials damaged during handling, shipment, storage, distribution or installation without additional cost or time impact to the project. Damaged materials will be repaired or replaced in an expeditious manner so as not to affect the project schedule or the work of other trades.

SERVICE REQUIREMENTS

The DEC shall show satisfactory evidence, upon request, that they maintain a fully equipped local service organization capable of furnishing adequate inspection and service to the equipment, including replacement parts. The service organization shall be capable of a minimum 8 hour on site response time. The service organization shall produce evidence that they have a fully experienced and established business for at least 5 years and proven satisfactory installations during that time. The DEC shall be prepared to offer a service contract for the maintenance of the systems upon expiration of the specified period of guarantee.

On-site service, parts and labor are to be provided at no cost to the Owner, for a period of 12 months from the date of final acceptance.

The DEC shall maintain engineering and service departments capable of rendering advice regarding installation and final adjustment of equipment.

SUBMITTALS

Shop drawings shall be submitted for approval prior to ordering any equipment in accordance with Division 01 requirements. One complete set of drawings shall be submitted in electronic format as outlined herein.

SUBMITTAL REQUIRMENTS

The DEC shall submit shop drawings for products in their scope of work in a composite submittal format. Submittals will not be deemed complete unless they contain the following components in their entirety:

SECTION 11 19 10 - DETENTION HOLLOW METAL DOORS AND FRAMES

Detention Door and Frame Shop Drawings
Detention Hollow Metal Installation and Storage Instructions
Manufacturer's letter of "UC" certification
Frame Mounted Security Electronics Templates
Load and Impact Test Reports
Detention Hollow Metal Prime Paint Data

SECTION 11 19 20 - DETENTION HARDWARE

Detention Hardware Schedule
Detention Sliding Device Shop Drawings
Detention Hardware Catalog Cuts
Detention Hardware Templates
Detention Hardware Wiring Diagrams

OPERATION AND MAINTENANCE MANUALS

The DEC shall provide 3 complete sets, in hard cover binders, of maintenance and operating instructions of products specified in Section 11 19 20. Include as built drawings of the detention keying plans with a detailed schematic chart of the detention keying system showing all levels of change and master keying assigned to the project. Manuals shall also include a material guide that contains the replacement part numbers and description of all components used.

Submit operation and maintenance manuals to the Architect and Owner for review, comment and approval. Promptly make any necessary corrections and submit final copies for Owner use.

See Division 01 for additional requirements.

PART 2 - PRODUCTS

EQUIPMENT STANDARDS

A complete detention equipment system consisting of all the individual equipment shown and specified is required. These are largely functional specifications in order to maintain competitive bidding; however, it is expected that the minimum given specification requirements be strictly adhered to so as to provide a high level of quality with the design objectives. Equivalent manufacturers and products shall be in strict accordance with this specification.

It is the responsibility of the DEC to verify the completeness of the Drawings, Specifications and Schedules and the suitability of devices to meet the intent of the specifications. Any additional equipment, accessories or incidentals required, whether or not specifically mentioned herein, shall be provided by the Contractor without claim for additional payment, it being understood that a complete detention equipment system is required.

Materials and equipment shall be new and unused. Unless specifically approved by the A/E, materials and equipment in the system shall be the standard design or model ordinarily supplied as a product item by manufacturers regularly engaged in the production of such equipment. They shall be the manufacturer's latest standard designs current at the time of delivery, modified only to the extent necessary to comply with the requirements of these specifications. Where two or more units of the same class of equipment are required, such units shall be the standard products of a single manufacturer. Manufacturers shall be established in the industry so that prompt and continued service and delivery of spare parts may be assured.

Temperature Ratings: Indoor components in heated areas shall be capable of full operation in relative humidity up to 90% and temperatures from 35° F. to 120° F. Outdoor components shall be capable of full operation in humidity up to 100% and temperatures from -30° F. to 120° F.

Fasteners for detention hardware, lock coverplates, removable glass stops, etc. shall be TORX® security type compatible with those specified in Section 11200 - Security Fasteners.

Components that comprise the various systems shall be UL listed where a UL listing exists for that component.

CABLING AND TERMINATIONS

The Division 26 electrical contractor is responsible for providing and installing Conduit, wire, cable, cable tray, junction boxes, pull boxes, and termination of field devices and head end equipment. Cabling, wiring and terminations shall be in conduit in accordance with Division 26.

Cabling shall be continuous and shall not be spliced between the field-mounted device and the receiving equipment. Door wiring shall be run from the door to the control panel without splices.

The DEC shall furnish and install factory pre-wired loom (wire harness) for the detention sliding door device system of Section 11 19 20. Wiring harnesses to be installed in the cable tray located in the overhead housing of the detention sliding door device system. Terminations shall be performed by the Division 26 Contractor.

System wiring shall be color coded with labeling and coding in accord with submitted and approved wiring diagrams. Color coding and tagging shall be maintained throughout the system at accessible locations to the cabling.

PART 3 - EXECUTION

ON-SITE COORDINATION

The DEC shall make periodic visits to the site to review the work of other trades as it relates to the installation of the detention equipment. The coordination shall included, but not be limited to, the following:

Examine the areas and conditions under which installation is to occur and document conditions detrimental to the proper and timely completion of the work. Installation should not proceed until unsatisfactory conditions have been corrected.

Prior to installation, meet at the project site to review products, installation methods, and any procedures required to perform the work.

Install products without damage to the work of other trades. Adjacent surfaces shall be protected from damage and staining during installation.

Furnish and install appropriate anchors to complete the work. Coordinate with other trades where necessary to make the necessary provisions for proper installation.

Furnish setting drawings, diagrams, templates, and installation instructions for products.

Coordinate timing and distribution of materials so that distributed materials do not affect the work of other trades.

Coordinate proper locations of rough-in requirements and service connections with other trades.

The DEC shall visit the site once every other month until mobilized on-site for installation and system start-up. A report will be provided for each visit describing the work in progress, the work completed to date and the work to

remain. The report shall also include a description of any changes that were discussed or directions given to the Masonry Contractor, Electrical Contractor or Security Electronics Contractor. The report will include any work that does not conform to DEC installation requirements. This report shall be forwarded to the construction team (Architect, General Contractor, and the Detention Equipment Consultant.

PROJECT CLOSEOUT

The DEC shall make themselves readily available during the final systems checkout performed by the Division 28 Security Electronics Contractor at the end of the project. The DEC shall promptly adjust and repair problems deemed to be mechanical.

The DEC shall include all costs in their bid for a full-time presence on site during the first week of start-up after Owner occupancy. This requirement shall include a minimum of five 8-hour days for 1 technician. The purpose of this requirement is for trouble shooting and training that occurs during the first full week of occupancy once the detention equipment system is fully exercised.

INSTALLATION

Securely place products in locations required. Install in alignment, free from warp, twist or distortion, plumb, level and true. Comply with approved shop drawings, manufacturer's instructions and recommendations for both handling and installation of the products for particular conditions of installation in each case, except where more stringent requirements are indicated or specified, or where project conditions require extra precautions or provisions for satisfactory performance of work. Where printed instructions are not available or do not apply to project conditions, consult manufacturer's technical representative for specific recommendations before proceeding. Do not install products which are observed to be defective.

Perform cutting, drilling and fitting required for installation of detention equipment.

Set work accurately in location, alignment and elevation, measured from established lines and levels with lines visually parallel.

Cut necessary holes for installation or other work in detention equipment; comply with templates or detail drawings furnished by other trades prior to fabrication and installation of detention work.

Comply with AWS Code for procedures of manual shielded metal-arc welding, appearance and quality of welds made, and methods used in correcting welding work. Exposed plug welds shall be 1/8 inch minimum at 3/8-inch diameter holes equally and evenly spaced no greater than 8 inches on center. Exposed fillet (stitch) welds shall be 1/8 inch minimum, 1 inch long (minimum length) evenly spaced not greater than 12 inches on center. Field welding required for the installation of detention equipment shall be in accord with the recommendations of the detention equipment manufacturer. Where surfaces are to be exposed to view, grind and sand welds smooth; finish holes, defects, other imperfections so surfaces will be smooth when painted. Fill spaces between welds with metal body putty filler at all metal to metal joints. Metal to metal joints shall be completely filled and shall contain no cracks or seams that can be used for passage or storage of contraband. Use of security sealant in lieu of metal body putty filler prohibited.

Security sealants at metal to masonry/concrete joints will be the responsibility of the Section 07 70 00 contractor.

Clean and touch up any scratches or paint damage that occurs during installation with primer prior to finish painting.

ADJUSTMENT AND REPAIR

Before final connections to electrical power are made, test electrically operating or sensing items and adjust as required to provide proper functions. Test electrically controlled doors utilizing the control consoles under normal operating procedures.

Adjust and lubricate moving parts to operate smoothly and quietly, without binding.

Work shall be free from scratches, dents, permanent discolorations and other defects; remove and replace damaged parts, surfaces with imperfections or damage during installation or thereafter before time of final project acceptance. Prior to touch-up painting, remove foreign material from metal surfaces including connections. Touch-up welds, bolted connections, and abraded/damaged areas in shop applied metal primer paint.

PROTECTION AND CLEANING

During installation, protect adjacent surfaces and detention equipment from damage. Work shall be free from scratches, dents, permanent discolorations and other defects. Remove and replace damaged parts and surfaces imperfections prior to Owner occupancy.

It is the responsibility of the DEC to make any necessary recommendations to the General Contractor to protect completed work. The DEC shall make regular site inspections and immediately advise the General Contractor of any potential hazards that may damage completed work. It shall be the expressed interest of the DEC to provide the greatest degree of assurance possible that goods and services provided are not damaged prior to Owner occupancy.

Maintain storage and work areas in a neat and orderly condition during construction.

Remove non-permanent labels and non-permanent protective coatings. Thoroughly clean surfaces, including concealed work, in accord with manufacturer's instructions. Remove foreign materials prior to inspections and project closeout.

MAINTENANCE AND OTHER MANUALS

The DEC shall maintain a file specific to this project which shall include all detention equipment manuals, approved shop drawings, manufacturer's maintenance instructions, and other pertinent information. This file shall be maintained for a period of time consistent with the length of time the equipment provided is in actual service. Documents shall be of such a nature that they may be reproduced to replace similar documents in possession of the Owner.

The DEC shall provide a minimum 8 hours training time. Training sessions shall be arranged with the Owner's representative. Training session to be video taped. Provide 1 copy of the video taped training session to the Owner upon completion.

Topics to be discussed during training session shall include, but are not limited to:

Detention Door Hardware
Operation and Maintenance Manuals

GUARANTIES

The DEC shall warrant materials furnished and installed in their respective bid sections to be free from defects in materials and workmanship for a period of 1 year from the date of Substantial Completion as indicated in the Conditions of the Contract. In addition to the requirements listed in the Conditions of the Contract the DEC shall extend the correctional period for 1 additional year.

Material which has been misused, abused or neglected by the Owner, defects for damage caused by work or failure of work by others; ordinary wear and tear; or normal equipment adjustment which are within the Owner's operation and maintenance responsibility will not be covered by the warranty.

Any unauthorized modifications, repairs or tampering shall constitute termination of this guaranty.

PREVENTATIVE SERVICE CALLS

During the period of guarantee, the DEC shall provide 2 preventative service calls by qualified personnel at no additional cost to the Owner. Calls shall consist of at least 8 hours on site performing routine inspection and maintenance service. Calls shall be arranged with the Owner at least 2 weeks prior to the scheduled visit. These preventative service calls shall be in addition to any other time required for maintenance or service during the period of guarantee.

The first preventative service call shall occur 3 months after the date of Substantial Completion. The final preventative service call shall occur 9 months thereafter. Any required lubrication or adjustments shall be performed in the presence of Owner's maintenance personnel so they can learn the techniques used for routine service and maintenance.

End of Section

SECTION 11 19 10 – DETENTION HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

SCOPE

The work under this section includes all labor, materials, equipment and services to provide a complete detention hollow metal door and frame system as shown on the Drawings and specified herein.

SUMMARY OF WORK

It will be the responsibility of the DEC to install all detention hollow metal doors.

It will be the responsibility of the DEC to install detention hollow metal frames in precast concrete and existing masonry partitions.

It will be the responsibility of the Division 04 – Masonry Contractor to install detention hollow metal frames in new masonry partitions.

It will be the responsibility of the Division 04 – Masonry Contractor to grout detention hollow metal frames in precast concrete partitions and masonry partitions.

It will be the responsibility of the DEC to weld and finish detention frame grout plugs.

RELATED WORK

Applicable provisions of Division 01 govern work under this Section.

Section 07 92 00 – Joint Sealants
Section 09 90 00 – Painting and Coating
Section 11 19 00 – Detention Equipment General Requirements
Section 11 20 00 – Security Fasteners
Section 26 01 00 – Common Work Requirements for Electrical

SUBMITTALS

Prepare submittals in accord with the requirements of specification section 11 19 00 and include the following information:

Manufacturers shop drawing submittal. Drawings shall include, but are not limited to, schedule of openings, door and frame elevations, sections, glazing and anchor details. Shop drawings shall include details of lock pockets, door position switches, and rough in for any frame mounted security electronic components. Shop drawings shall clearly distinguish between factory installed conduits, and conduit required by others. Shop drawings that do not conform to the above minimum requirements will be deemed incomplete.

Submit detention hollow metal installation and storage instructions. Reference NAAMM standard HMMA 840-99 for completeness.

Provide a manufacturer's "UC" (Underwriters Construction) letter of certification for any door and frame assembly NOT able to receive a physical fire label. Letter must state why the hollow metal assembly could not be fire rated. The letter shall state that although the assembly will not bear a physical fire label due to the reason listed, the procedures, quality and standards used during fabrication will be the same as those used for fabrication of a fire rated opening.

Submit templates of frame mounted security electronics devices with shop drawings or product data sheets of electrical back boxes. Submittal must include shop drawings of each different variation of frame mounted Security Electronics configuration for review of locations and mounting heights.

Submit copies of an independent testing laboratory reports certifying the following minimum performance requirements. Testing shall be in accord with ASTM F1450-97 and NAAMM standard HMMA 863-04. Testing of removable glass stops in accord with ASTM F1592-95A:

Static Load Test:

Under a centrally applied load of 14,000 pounds at quarter points the maximum permitted deflection is no greater than 0.58 inch with a rebound of not to exceed 0.15 inch after release of load.

Rack Load Test:

Under a concentrated load of 7,500 pounds on one unsupported corner of a door the maximum defection shall not exceed 3.5 inches without failure.

Door Impact Test:

Under a battering attack of 200 foot pound impacts applied to the stop side of the door by a steel pendulum, detention door remains closed during the test and be fully operational upon completion.

Edge Crush Test:

Under an applied load of 8,000 pounds applied to the midpoint on the hinge edge of the door, the maximum deflection shall not exceed 0.25” without failure.

Removable Glass Stop Test:

Under a battering attack of 200 foot pound impacts with a steel pendulum applied to the fixed stop side of steel plate glazed borrowed light, glazing stops remain in place and not more than one screw is broken upon completion.

QUALITY ASSURANCE

Materials under this specification shall be provided by one of the manufacturers listed. Detention hollow metal doors and frames by other manufacturers may be considered upon written approval of the Architect. Requests for substitution shall include all pertinent technical data, descriptive product literature, and product specifications and must be received at least 7 days prior to the bid date or the date of the last published addendum, whichever is earlier.

Prospective manufacturers shall be able to furnish materials that meet or exceed the requirements of this specification. Manufacturers must be in good financial standing, and able to demonstrate that they have been actively engaged in the manufacturing of detention hollow metal doors and frames for a minimum of 5 years.

Upon receipt of request for substitution, the A/E will make an investigation to determine the ability of the manufacturer to perform the work. The A/E reserves the right to request additional information as deemed necessary for the determination process. Upon approval, the prospective manufacturer will be listed by addendum.

Detention doors and frames must be fabricated by the same manufacturer.

Approved manufacturers of detention hollow metal doors and frames:

American Steel Products – Swainsboro, GA
Apex Industries – Moncton, NB Canada
Steel Door Industries – Hartselle, AL
Trussbilt – New Brighton, MN
Willo Products Company – Decatur, Alabama

PART 2 - PRODUCTS

DETENTION HOLLOW METAL DOORS

Provide a complete detention metal door system as detailed on the Drawings.

Interior detention hollow metal doors shall be factory formed with 12 gauge mild steel face sheets both sides. Exterior detention hollow metal doors shall be factory formed with 12 gauge minimum A60 galvannealed face sheets. Detention hollow metal doors in high humidity areas shall be fabricated with 12 gauge 304L stainless steel face sheets.

Doors shall be internally reinforced with one of the following systems:

Continuous steel truss design core material, 28 gauge minimum, having truncated triangular sections extending continuously from one door face to the other, spot welded to each face 2-3/4" o.c. horizontally and 3" o.c. vertically. Core material to extend full height and width of door.

Continuous vertical hat sections, one such hat section welded to each face of the panel, 16 gauge with vertical webs no more than 4 in. apart. Hat sections shall be welded to each other at least 6 in. o.c. both sides in order to prevent separation.

All voids between stiffeners shall be completely filled with fiberglass or mineral rock wool batt-type material.

Door edges shall be provided with additional reinforcing to prevent prying or compression attacks on the door edge. The thickness of the door edge, including reinforcing, shall not be less than 5/32”. Weld reinforcing securely to the door edge. Seams shall be fully welded, leaving a visible smooth, continuous weld at the edge of the door.

Top and bottom of the door shall be closed with 12 gauge perimeter reinforcing. Top and bottom closing channels shall be welded to the edge reinforcing. Top and bottom of doors shall be finished flush with an additional inverted channel of not less than 14 gauge.

Hinge reinforcement shall be minimum 3/16” thick, 1-1/2” wide and 10” long. Reinforcements shall be securely welded to the door edge. In addition, a backup stiffener channel not less than 14 gauge shall be welded to each hinge reinforcing and to each door face, to prevent rocking failure of the hinge reinforcing.

Swing door edges shall be beveled 1/8" in 2". Sliding doors shall have a square edge.

Doors shall be reinforced, drilled, tapped and prepared for mortised hardware in accordance with the final approved hardware schedule and templates. Doors shall be reinforced only for surface applied hardware. Reinforcing shall be as follows:

Surface Mounted Hinges – 3/8’ minimum
Mortised Hinges and Pivots – 3/16” minimum
Internal Reinforcing for Other Hardware – 12 gauge minimum

Glass Stops shall be provided to secure glazing. Fixed glass stops shall not be less than 12 gauge and shall be spot welded to both face sheets 5.0 in. o.c. minimum. Removable glass stops shall be constructed of 1-1/4” x 1-1/4” x 12 gauge angle. Angle stops shall be mitered or notched, fit tightly at the corner joints, and secured in place using 1/4 – 20

or 1/4 – 28 button head, pin TORX®, six point, tamper-resistant machine screws 2" from each end 8" o.c. max. Glass pockets shall be oversized 1/4" to allow for 1/8" thick glazing tape each side of glass.

Door Undercuts:

Swing doors without thresholds – 3/4"
Swing doors with thresholds – 1/8" clearance bottom of door to top of threshold
Sliding doors – as dictated by sliding device manufacturer

If directed by the Architect, the erector shall destroy a randomly selected detention hollow metal door by sawing it in half. If examination discloses a door construction other than that which is specified, the door manufacturer shall replace all doors shipped to the project with doors constructed in compliance with this Specification. All costs associated with replacement shall be bore by the detention hollow metal door and frame manufacturer.

DETENTION HOLLOW METAL FRAMES

Provide a complete detention metal frame system as detailed on the Drawings.

Interior detention hollow metal frames shall be factory formed from 12 gauge mild steel. All frames scheduled to receive bullet resistant glazing shall be factory formed from 10 gauge mild steel. Exterior detention hollow metal frames shall be factory formed from 12 gauge A60 galvannealed steel. Detention hollow metal frames in high humidity areas shall be fabricated from 12 gauge 304L stainless steel.

Frames shall be straight, neat in appearance, and free of warpage and buckling. Edge bends shall be straight and true. All frame joints shall be welded, except when overall size of frame prohibits shipment. In such cases appropriate frame splices shall be provided for erection in the field.

Jamb, head and sill profiles shall be as shown in architectural Drawings. Formed stop height for doors shall be 5/8".

All door frames shall be prepped to receive door silencers. Single doors shall be prepped to receive 3 silencers per jamb. Double doors prepped to receive 2 silencers per jamb. Provide protection to keep holes clear during construction. Provide Glynn-Johnson GJ64 door silencers or equal.

Frames that receive glazing shall utilize a double angle jamb profile as detailed. Overall glass stop height shall be 1-1/4". Removable glazing stops shall be constructed of 1-1/4" x 1-1/4" x 12 gauge angle. Protect inside of frame to assure complete screw penetration when frame is grouted full. Protect screws with plastic cups, mortar boxes or Styrofoam blocks as required. Stops shall be mitered or notched, fit tightly at the corner joints, and secured in place with Phillips head machine screws for shipment. Provide 1/4 – 20 or 1/4 – 28 button head, pin TORX®, six point, tamper-resistant replacement screws for final glass installation. Security screws are required 2" from each end and 8" o.c. max. Glass pockets shall be oversized 1/4" to allow for 1/8" thick glazing tape each side of glass.

Corner joints shall have contact edges closed tight with faces mitered and stops butted or mitered. Corner joints shall be continuously welded. The use of gussets or splice plates is unacceptable.
Frames for multiple openings shall have mullion members with closed tubular shapes conforming to profiles shown on drawings and no visible seams or joints.

Hinge reinforcement shall be a minimum of 3/16" thick, 1-1/2" wide and 10" long. Reinforcements shall be securely welded to the frame. The top hinge shall be additionally reinforced with a 3/16" thick back-up angle welded to the hinge reinforcing and frame face.

Frames shall be reinforced, drilled, tapped and prepared for mortised hardware in accordance with the final approved hardware schedule and templates. Frames shall be reinforced only for surface applied hardware. Reinforcing shall be as follows:

Lock Bolt Opening Backup	12 gauge minimum
Surface Mount Closers	12 gauge minimum
Concealed Closers	3/16" minimum
Strike Mounting Clips	3/16" minimum

Prepare frames to receive electric locks, hardware and electronic security components as scheduled. Provide all concealed conduits routed to the top or bottom of the frame as required. Provide a pull box with removable access plate at the bottom of the frame when concealed conduit is routed to the floor. When electric locks are used in conjunction with door position switches it is the responsibility of the detention hollow metal manufacturer to provide the conduit between the lock box and the door position switch. Provide all electrical boxes required for frame mounted electronic security components. All conduits furnished and installed by the detention hollow metal manufacturer shall be 3/4" IMC.

Provide 12 gauge floor clips welded in place at the bottom of each jamb. Floor clips shall have two 7/16" diameter holes for anchoring to floor. Provide adjustable floor clips if scheduled.

Provide wire loop anchors for each jamb mounted in masonry. Loops shall consist of 1/4" diameter smooth bar welded to a 10 gauge anchor tab with holes for bar reinforcement. In the installed position the loop shall extend 6" minimum from the throat of the frame. Provide sufficient anchors to permit maximum spacing between anchors of 16". Openings scheduled to receive fire ratings, shall be provided with anchors of type, size and spacing that comply with UL fire rating requirements.

Provide grout holes with plugs for frames installed in existing concrete or masonry openings. Grout guards of not less than 24 gauge steel shall be welded in place to protect all mortised hardware. Grout guards for closers shall be 18 gauge minimum.

All frames shall be provided with two temporary steel spreaders welded to the base of the jambs to serve as bracing during shipping and handling. Spreaders are for shipping purposes only. Frame installer shall remove spreaders prior to installation. Frame spreaders shall NOT be used to determine proper frame tolerance.

FINISHES

Doors and frames shall receive one coat of the manufacturer's shop epoxyester primer. All material shall be smooth and free of surface blemishes. Prior to painting, all surfaces shall be cleaned of rust, oil, or other impurities to condition the surface of the metal and promote paint adhesion. Prime paint shall be a minimum of 2 mils dry thickness. Frames shall be completely primed prior to the installation of glazing stops. Likewise, glazing stops shall be completely primed prior to installation.

PART 3 - EXECUTION

COORDINATION

The DEC shall verify all dimensions, elevations, and job site conditions before installation begins.

The DEC shall make periodic visits to the site to review the work of other trades as it relates to the installation of the detention hollow metal doors and frames.

UNLOADING, STORAGE AND DISTRIBUTION OF MATERIALS

The DEC will be responsible for receiving, unloading and storage of detention hollow metal doors and frames.

Detention hollow metal doors and frames shall be stored in accord with NAAMM standard HMMA 840-99.

It will be the responsibility of the DEC to distribute detention hollow metal frames to the appropriate floor or designated area of construction staging. It will be the responsibility of the DEC to distribute detention hollow metal doors to each opening.

INSTALLATION

Install detention hollow metal doors and frames true and plumb in accord with NAAMM standard HMMA 840-99 and manufacturer's recommendations.

The contractors responsible for setting frames shall provide all expansion anchors, site welding, body putty, filling, sanding and priming required at all frame splices and closure plates. The DEC shall be responsible for welding and finishing of all grout plugs. Field welding of metal to metal joints shall be in accord with manufacturer's recommendations. Exposed welds that occur at frame corners shall start no further than 6 inches above sills. Grind welds smooth and fill spaces between welds with metal body putty filler. All metal to metal joints shall be completely filled and shall contain no cracks or seams that can be used for passage or storage of contraband. Use of security sealant in lieu of metal body putty filler prohibited. All field welds shall be touched up with primer supplied by the detention hollow metal manufacturer.

The Division 04 – Masonry Contractor shall grout solid all detention hollow metal frames including intermediate mullions or tubular elements with a strength of at least 14 MPa (2,000 psi) mix or slush solid with mortar during wall construction. Check all grout guards and conduit connections to make sure they have not loosened prior to grouting.

The DEC must be present on site at the beginning of detention frame installation to train and coordinate the Division 04 – Masonry Contractor on the proper setting of detention frames.

Security sealants at all metal to masonry/concrete joints will the responsibility of the Div. 07 Sealants Contractor.

It will be the responsibility of the DEC to touch up all scratches or paint damage that occurs during installation. Damaged surfaces shall be cleaned and touched up with primer prior to finish painting. The DEC shall use touch up primer provided by the detention hollow metal manufacturer for compatibility with factory applied prime paint. Protection of work in place shall be in accord with Division 01 requirements.

End of Section

SECTION 11 19 20 – DETENTION HARDWARE

PART 1 - GENERAL

SCOPE

Provide all labor, equipment, materials and supervision to furnish and install security hardware as shown on the drawings and specified herein.

The requirements of specification section 11 19 00 pertain to the work of this section.

RELATED WORK

Section 11 19 00 - Detention Equipment General Requirements
Section 11 19 10 - Detention Hollow Metal Doors and Frames
Section 11 20 00 – Security Fasteners

SUBMITTALS

Prepare submittals in accord with the requirements of specification section 11 19 00 and include the following information:

Detention Hardware Schedule. Provide a detention hardware schedule that contains the following minimum requirements: Schedule of openings, hardware groups, lock types, key sides, side of lock mountings, and lock handings. Hardware schedules that do not conform to the above minimum requirements will be deemed incomplete.

Detention Sliding Device Shop Drawings. Provide shop drawings that contain the following minimum requirements: Schedule of openings, elevations, door details, sections, anchor details, overhead housings details, lock column details, receiver details, and rough-in details for any frame mounted security electronic components required. Distinguish on drawings electrical rough-in locations by Div. 26 contractor. Shop drawings that do not conform to the above minimum requirements will be deemed incomplete.

Manufacturer's product data (catalog cuts) for each scheduled hardware item.

Manufacturer's template data for each scheduled hardware item.

Manufacturers wiring diagrams for each scheduled electrical hardware item.

Provide 3 copies of operation and maintenance manuals for all materials specified in this section upon completion of the project. Submit manuals in accord with the requirements of specification section 11 19 00. Include as built drawings of the detention keying system with a schematic chart showing all levels of change and master keying assigned to the project.

QUALITY ASSURANCE

Provide materials specified under this section by one of the manufacturers listed. Detention hardware by other manufacturers may be considered upon written approval of the Architect. Requests for substitution shall include all pertinent technical data, descriptive product literature, and product specifications and must be received at least 7 days prior to the bid date or the date of the last published addendum, whichever is earlier.

Prospective manufacturers shall be able to furnish materials that meet or exceed the requirements of this specification. Manufacturers must be in good financial standing, and able to demonstrate that they have been actively engaged in the manufacturing of detention hardware for a minimum of 10 years.

Upon receipt of request for substitution, the A/E will make an investigation to determine the ability of the manufacturer to perform the work. The A/E reserves the right to request additional information as deemed necessary for the determination process. Upon approval, the prospective manufacturer will be listed by addendum.

All locks must be provided from a single manufacturer.

ACCEPTABLE PRE-APPROVED DETENTION LOCK MANUFACTURERS

AirTeq – Montgomery, AL
IDS Illinois – Shorewood, IL
RR Brink Locking Company – Shorewood, IL
Southern Folger Detention Equipment – San Antonio, TX
Approved Equal

PART 2 - PRODUCTS

FRAME MOUNTED ELECTRIC LOCKS

Electro-Mechanical 12" Jamb Locks – Motor Operated:

Manufacturer/Series:

Folger Adam 50HBM
No Equal

24VDC motor operated
Internal switches monitor status of bolt to show deadlocked and unlocked conditions.
No latchback
Galvanized case and cover
Stainless steel roller bolt and latchbolt strike
Paracentric key cylinder
ASTM, Security Grade 1
Standard Functions:

Electric:

Remote two-position maintained contact switch is required for this function. Latchbolt is retracted electrically when switch is in open position. Div 28 locking control software to initiate 3 second delay at which the remote switch will be triggered to return to locked position, latchbolt to extend reglardless of door position.

Mechanical:

Latchbolt is retracted with a paracentric key at the door, then it releases and automatically latches and deadlocks when the door is closed.

Emergency:

Remote two-position maintained contact switch is required for this function. Div. 28 locking control software to initiate emergency hold open feature.

Electro-Mechanical 8” Jamb Locks – Motor Operated:

Manufacturer/Series:

Folger Adam 120MC
No Equal

24VDC motor operated
Internal switches monitor status of bolt to show deadlocked and unlocked conditions.
Bolt throw 1” flush when retracted
No latchback
Galvanized case and cover
Stainless steel roller bolt and latchbolt strike
Pin tumbler mogul key cylinder with US26D finish
ASTM, Security Grade 1
Standard Functions:

Electric:

Remote two-position maintained contact switch is required for this function. Latchbolt is retracted electrically when switch is in open position. Div 28 locking control software to initiate 3 second delay at which the remote switch will be triggered to return to locked position, latchbolt to extend reglardless of door position.

Mechanical:

Latchbolt is retracted with a mogul key at the door, then it releases and automatically latches and deadlocks when the door is closed.

Emergency:

Remote two-position maintained contact switch is required for this function. Div. 28 locking control software to initiate emergency hold open feature.

Latchbolt is retracted electrically when switch is in open position and remains retracted indefinitely. When the emergency hold open is de-activated, the remote switch is returned to the locked position, latchbolt will extend regardless of door position.

DOOR MOUNTED MECHANICAL LOCKS

Mechanical Gang Release Cabinet Lock:

Manufacturer/Series:

Folger Adam 12
No known equal

Paracentric key cylinder keyed one side
Deadlocks in locked position
Galvanized case and cover

DOOR MOUNTED MORTISE LOCKS

Mortised Door Locks:

Manufacturer/Series:

Folger Adam 110
Folger Adam 125
No known equal

Mortised into door.
Provide lever handle trackset
Provide keeper as scheduled
Functions: Provide as designated in the detention hardware schedule.

DOOR MONITOR AND CONTROL

Overhead Concealed Closer with Door Position Switch:

Manufacturer/Series:

LCN 2210-DPS
Norton 7970-DPS

Fully hydraulic
Full rack and pinion with cast iron cylinder.
Separate adjustments for latch speed, general speed and back-check.
Door position switch
TORX® security mounting screws
Aluminum powder coated finish

DOOR HARDWARE

Full Mortise Hinge:

Manufacturer/Series:

Folger Adam 4-1/2FM-ICS
Southern Steel 204FMSS
Stanley IHTCB1995R
Portland Hardware PH 745 SSC ST

4-1/2" x 4-1/2" x 3/16"
Cast stainless steel hinge leafs and hinge pin
Drilled and countersunk for TORX® security mounting screws
US32D finish
Shall meet performance requirements for Grade 1 impact and cycle test according to ASTM F1758-96 Standard Test Method for Detention Hinges Used on Detention Grade Swinging Doors.
Provide 4 hinges per door up to 84" in height and one extra hinge for each additional 24" of height or fraction thereof.
Provide 4 hinges per door up to 38" in width and one extra hinge for each additional 12" of width or fraction thereof.

Kickplate:

Manufacturer/Series:

Rockwood K1125
IVES 8400

6” high x 2” less than door width x 1/8” thick
Stainless steel
Beveled four edges
Stop side mounted
TORX® security mounting screws or 5/32” 18-8 stainless steel blind rivets
US32D satin finish

Smoke Gasket:

Manufacturer/Series:

Pemko S88D
National Guard 5050B
Reese Enterprises 797B

Press on gasket
Provide at head and jambs
Provide at all fire rated openings or where scheduled
Dark bronze

Door Stop:

Manufacturer/Series:

Portland Security Hardware PSH-760
Hager 269T

2” diameter x 3-1/2” projection
Black neoprene 80-90 Shore A durometer hardness
Wall mounted
Request approval from Architect for all floor mounted stop locations
Wall/Floor stops are not required if standard operation of door closer prohibits door from striking wall.

KEYS AND KEYING

The contractor of this section shall meet with the Owner and Architect to determine final keying requirements. Each key shall be individually stamped in accord with the following designations or any changes in designation provided during the keying meeting.

All mogul keys shall be conventional large style detention type mogul design. Small ASSA style mogul keys with side bar operation unacceptable.

All paracentric keys shall be conventional large cast bronze detention type paracentric design. Stamped sheet steel type paracentric keys unacceptable.

All commercial keys shall utilize Best key cylinders. Contractor to provide interchangeable cores where required.

Keys shall be stamped with the following designations and provided in the following quantities:

Paracentric:

Code	Key Type	Description		Quantity
EM-P	Paracentric	Emergency Exit - Paracentric	25	
SA-P	Paracentric	Staff Area – Paracentric	25	
IA-P	Paracentric	Inmate Area- Paracentric	25	

Mogul:

Code	Key Type	Description		Quantity
EM-M	Mogul	Emergency Exit – Mogul	25	
SA-M	Mogul	Staff Area – Mogul		25
IA-P	Mogul	Inmate Area – Mogul		25

Commerical:

Code	Key Type	Description		Quantity
SA-S	Best	Staff Area – Commercial	25	
IA-S	Best	Inmate Area – Commercial		25

Provide a total of 25 blanks of each key type. Up to 5 additional change codes can be assigned to the project without additional cost to the Owner. Keys required for each additional code assigned to the project will reduce in direct proportion the quantity of key blanks required for that particular key type.

Keys shall ship direct from the manufacturer to an authorized receiver via registered mail or UPS. The receiver of detention keys shall be determined during the keying meeting.

The DEC shall obtain a set of keys from the Owner for use during construction of the project. Keys shall be returned to the Owner upon completion of each work day. If keys are lost during construction, it will be the responsibility of the DEC to re-key all hardware effected by the loss at no additional cost to the project. The DEC shall exercise utmost care and sound judgment while in possession of detention keys.

PART 3 - EXECUTION

COORDINATION

The DEC shall verify all quantities, dimensions, and job site conditions before installation begins.

The DEC shall make periodic visits to the site to review the work of other trades as it relates to the installation of detention hardware.

INSTALLATION

Install detention hardware in strict accordance with manufacturer's recommendations.

Adjust all hardware components for proper operation. Draw tight all exposed security fasteners.

Field welding of metal to metal joints shall be in accord with manufacturer's recommendations. Exposed welds that occur at frame corners and shall start no further than 6 inches above sills. Grind welds smooth and fill spaces between welds with metal body putty filler. All metal to metal joints shall be completely filled and shall contain no cracks or seams that can be used for passage or storage of contraband. Use of security sealant in lieu of metal body putty filler prohibited.

All field welds shall be touched up with primer supplied by the detention sliding device manufacturer.
Security sealants at all metal to masonry/concrete joints will the responsibility of the Section 07 70 00 Contractor.

It will be the responsibility of the DEC to touch up all scratches or paint damage that occurs during installation.

Damaged surfaces shall be cleaned and touched up with primer prior to finish painting. The DEC shall use touch up primer provided by the detention sliding device manufacturer for compatibility with factory applied prime paint. Protection of work in place shall be in accord with Division 01 requirements.

DETENTION HARDWARE CATEGORIES

The general layout of the detention hardware schedule is as follows:

DH-1: Sliding Device Retro-Fit Assembly – Kick Release
DH-2: Sliding Device Retro-Fit Assembly – Fully Operational
DH-3: Gang Release Cabinets – East Side
DH-4: Gang Release Cabinets – West Side
DH-5: Cell Block Entry – East Side
DH-6: Lock Replacement – Swing Door Pod Entry
DH-7: Lock Replacement – Sliding Door Pod Entry
DH-8: Lock Replacement – Lock Upgrade
DH-9: Lock Replacement – Lock Upgrade
DH-10: Egress Pathway – Lock Upgrade
DH-11: Lock Replacement – Lock Upgrade
DH-12: Lock Replacement – Mortise Deadbolt Keyed One Side
DH-13: Lock Replacement – Mortise Deadbolt Keyed Both Sides
DH-14: Lock Replacement – Mortise Slam Lock
DH-15: Owner Stock

DETENTION HARDWARE SCHEDULE (follows)

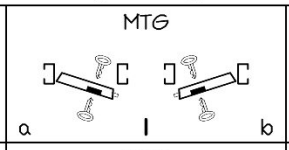
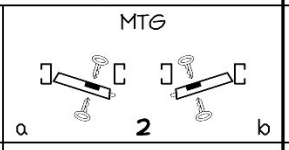
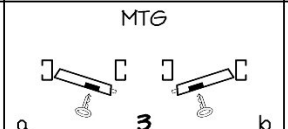
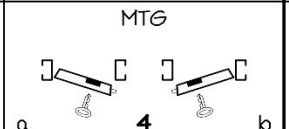
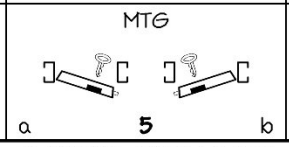
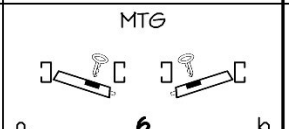
DETENTION HARDWARE SCHEDULE

HDWR GRP	QTY	SE	DESCRIPTION	SUPPLIER	NOTES
DH-12			**LOCK REPLACEMENT - MORTISE DEADBOLT KEYED ONE SIDE**		
	1		110-01 Mortise Lock x LeverTrak	Folger Adam	
	1		110 Series Mortise Strikeplate	Folger Adam	
DH-13			**LOCK REPLACEMENT - MORTISE DEADBOLT KEYED BOTH SIDEES**		
	1		110-02 Mortise Lock x LeverTrak	Folger Adam	
	1		110 Series Mortise Strikeplate	Folger Adam	
DH-14			**LOCK REPLACEMENT - MORTISE SLAM LOCK**		
	1		125-1-01 Mortise Lock x LeverTrak	Folger Adam	
	1		125 Series Mortise Strikeplate	Folger Adam	
DH-15			**OWNER STOCK**		
	6	E D	Motor and Connector Board Assembly x 24VDC	IDS-Illinois	
	6		Logic and Connector Board Assembly	IDS-Illinois	
	6	M	Motor Assembly x 120VAC	IDS-Illinois	

LOCK MOUNTING DESCRIPTIONS

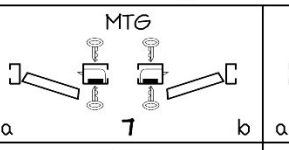
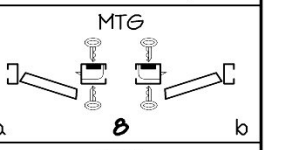
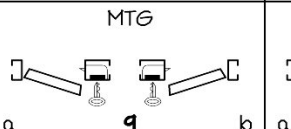
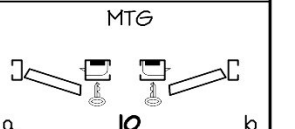
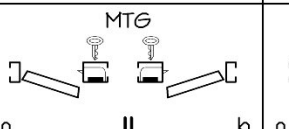
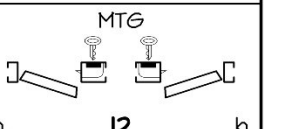
DOOR MOUNTED MECHANICAL LOCKS

Mounting Plate Hinge Side | Mounting Plate Stop Side

	Mounting Plate Hinge Side	Mounting Plate Stop Side
KEYED BOTH SIDES		
KEYED HINGE SIDE		
KEYED STOP SIDE		

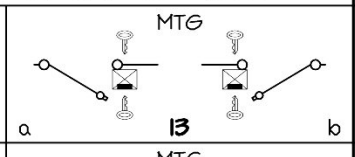
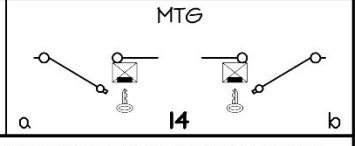
FRAME MOUNTED ELECTRIC LOCKS

Lock Cover Plate Hinge Side | Lock Cover Plate Stop Side

	Lock Cover Plate Hinge Side	Lock Cover Plate Stop Side
KEYED BOTH SIDES		
KEYED HINGE SIDE		
KEYED STOP SIDE		

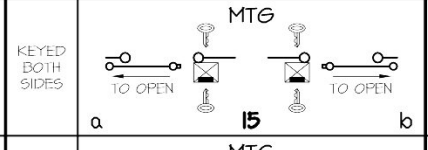
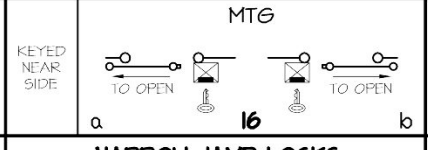
SWINGING GATE LOCKS

Lock Cover Plate Hinge Side

	Lock Cover Plate Hinge Side
KEYED BOTH SIDES	
KEYED HINGE SIDE	

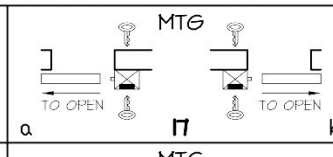
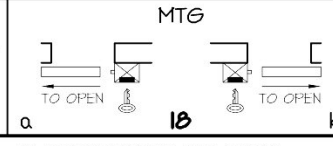
SLIDING GATE LOCKS

Lock Cover Plate Near Side

	Lock Cover Plate Near Side
KEYED BOTH SIDES	
KEYED NEAR SIDE	

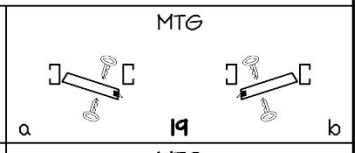
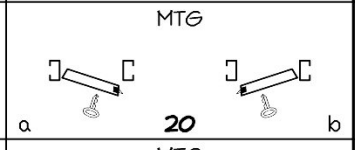
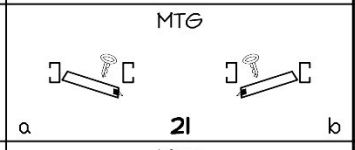
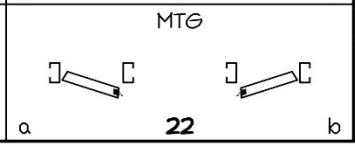
SLIDING JAMB LOCKS

Lock Cover Plate Near Side

	Lock Cover Plate Near Side
KEYED BOTH SIDES	
KEYED NEAR SIDE	

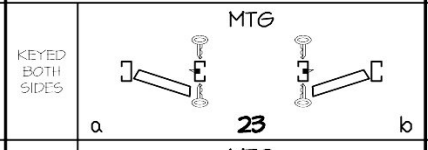
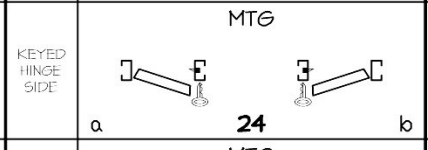
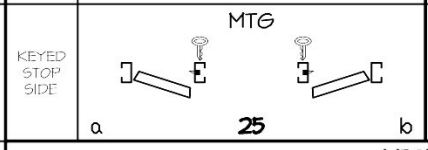
DOOR MOUNTED MORTISE LOCKS

Mortised Into Door

	Mortised Into Door
KEYED BOTH SIDES	
KEYED HINGE SIDE	
KEYED STOP SIDE	
LATCH SET ONLY	

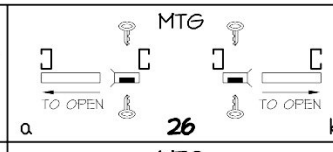
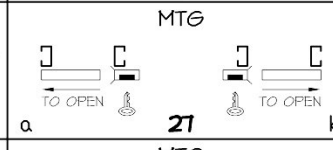
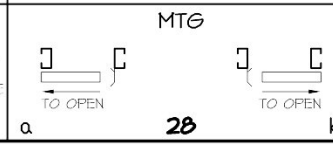
NARROW JAMB LOCKS

Mortised Into Jamb

	Mortised Into Jamb
KEYED BOTH SIDES	
KEYED HINGE SIDE	
KEYED STOP SIDE	

SLIDING DOOR DEVICES

Lock Cover Plate Near Side

	Lock Cover Plate Near Side
KEYED BOTH SIDES	
KEYED NEAR SIDE	
MANUAL GANG RELEASE	

LEGEND

DETENTION HARDWARE SCHEDULE NOTES

See specification section 11 19 20 for correct hinge quantity at each door opening.

Provide Stanley 3002 wall bumpers at raised pull locations whenever possible. Provide Portland Security Hardware PSH-760 door stops elsewhere. It will be the responsibility of the DEC to provide a wall stop suitable for each detention door opening condition. Selection of wall stop based upon wall construction, mounting location, specified hardware and guidelines noted. If floor stops are required, consult with A/E and Owner prior to mounting. Wall bumpers and door stops not required if standard operation of door closer prohibits door from striking wall.

Lock to cycle continuously during emergency egress.

Lock mounted stop side.

Provide serrated cuts in smoke gasket 6" O.C. Provide serrated cuts in smoke gasket only at doors subject to normal (non-emergency) inmate traffic.

Contractor responsible for providing continuous steel shim plates as required.

End of Section

SECTION 11 20 00 – SECURITY FASTENERS

PART 1 - GENERAL

SCOPE

This Section describes the requirements of security fasteners as shown on the Drawings and specified herein. Included are the following topics:

DESCRIPTION

All fasteners used in fabrication and installation of project components that are exposed to inmates in detention areas shall comply with the requirements of this Section. Requirements for security fasteners are excluded for the following items and locations:

- All fasteners in non-detention areas.
- Fasteners used above suspended ceilings
- Fasteners used behind access panels or within pipe and duct chases.
- Fasteners used for moveable furnishings, storage shelving and cabinet hardware.
- Fasteners used in mechanical, electrical, generator, communications and security electronics equipment rooms.
- Fasteners used within secured control rooms.

Applicable provisions of Division 01 govern work under this Section.

SUBMITTALS

Submit product data under provisions of Division 01.

QUALITY ASSURANCE

Materials under this specification shall be provided by one of the manufacturers listed. Security fasteners by other manufacturers may be considered upon written approval of the Architect. Requests for substitution shall include all pertinent technical data, descriptive product literature, and product specifications and must be received at least 7 days prior to the bid date of the date of the last published addendum, whichever is earlier.

Prospective manufacturers shall be able to furnish materials that meet or exceed the requirements of this specification. Manufacturers must be in good financial standing, and able to demonstrate that they have been actively engaged in the manufacturing of security fasteners for a minimum of 10 years.

Upon receipt of request for substitution, the A/E will make an investigation to determine the ability of the manufacturer to perform the work. The A/E reserves the right to request additional information as deemed necessary for the determination process. Upon approval, the prospective manufacturer will be listed by addendum.

TORX® is a registered trademark of Camcar Div. of Textron, Inc. All security fasteners shall be provided from a licensed manufacturer of TORX® products.

Approved manufacturers of security fasteners:

- Bryce Fastener Company, Inc. - Seattle, WA
- Camcar, Division of Texron, Inc. - Rockford, IL
- Holo-Krome Company - West Hartford, CT
- Safety Socket Screw Corporation - Chicago, IL
- Sentry Security Fasteners – Peoria, IL

Tamper-Pruf Screws, Inc. – Paramount, CA
Riteloc Company – Freeport, NY

PART 2 - PRODUCTS

SECURITY FASTNERS

Select fastener size, style and strength appropriate for their intended function. Fasteners installed in painted areas shall have heads primed for finish paint. Provide stainless steel construction for fasteners exposed in wet areas or installed in wet construction materials. Provide plated fasteners where required.

All exposed security fastener heads shall be TORX®, six point, pinned, tamper-resistant fasteners #4 through 3/4" diameter.

TOOLS

All security fasteners shall be operable by tools produced by the fastener manufacturer or by a producer licensed by the fastener manufacturer. The structural capacity of the tamper-resistant fasteners shall be in every instance equal to or greater than the physical properties of the fastening tool.

Size, shape and variations of security fasteners shall require no more than 12 different tools or wrenches to service all security fasteners on the project.

Provide 6 sets of tools for each size security screw installed on the project. Package tools in an individual container and deliver to the Owner.

PART 3 - EXECUTION

GENERAL

Security fasteners shall be obtained by the manufacturer, supplier or installer of each component requiring their use. It shall be the project trades collective responsibility to assure that quantity of tools/wrenches required does not exceed the maximum quantity of tools required by this Specification.

INSTALLATION

Install security fasteners in accordance with manufacturer's instructions using proper tools and procedures.

Draw tight all exposed security fasteners. Tack weld all hex-head expansion type fasteners exposed to the inmate within the security perimeter.

It will be the responsibility of the Contractor to replace damaged or defective fasteners. It will also be the responsibility of the Contractor to ascertain that the replacement fasteners will not adversely affect the anchorage, performance, operation, warranty or any other aspect of the products anchored or assembled.

End of Section

SECTION 23 05 00 - COMMON WORK RESULTS FOR HVAC

PART 1 - GENERAL

RELATED DOCUMENTS

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

ACCURACY OF DATA AND CONTRACT DRAWINGS

The design drawings are diagrammatic and they may not show all physical arrangements, offsets, bends, or elbows which may be required for installation of various materials, equipment, piping, and ductwork systems in allotted spaces. The Contractor shall examine these and other available drawings to determine space limitations and interferences. The Contractor shall be responsible for making any minor changes in location of equipment, pipe and ductwork from that shown on drawings and for all physical details required for installation. Cost for adapting Contractor's work to jobsite conditions shall not be considered as basis of an extra cost to contract. The Contractor shall get approval before proceeding with any change.

Elevation of piping, ductwork and equipment indicated on drawings are to be used as guidelines to assist Contractor with installations. Minor changes to these elevations may be necessary to eliminate unforeseen interferences. The Contractor shall get approval before proceeding with any changes in elevations.

Information pertaining to new and existing conditions that are described in the specifications or appear on drawings are based on available records. While such data has been collected with reasonable care, there is no expressed or implied guarantee that conditions so indicated are entirely representative of those actually existing or that unlooked for developments may not occur. Such information is merely provided to assist the Contractor in his investigation of conditions.

The Contractor must carefully examine the drawings, specifications and project site, and verify all measurements, distances, levels, materials, equipment, etc. before starting work.

Drawings shall not be scaled for determining exact dimensions or location of equipment.

SUBMITTALS

Product Data: None

QUALITY ASSURANCE

Steel Support Welding: Qualify processes and operators according to AWS D1.1, "Structural Welding Code--Steel."
Electrical Characteristics for HVAC Equipment: Equipment of higher electrical characteristics may be furnished provided such proposed equipment is approved in writing and connecting electrical services, circuit breakers, and conduit sizes are appropriately modified. If minimum energy ratings or efficiencies are specified, equipment shall comply with requirements.

DELIVERY, STORAGE, AND HANDLING

The Contractor or the Contractor’s authorized representative must be present to accept delivery of all equipment and materials furnished by him. The Owner’s personnel will not knowingly accept, unload or store anything delivered to the site for the Contractor’s use. Inadvertent acceptance of delivered items by a representative of the Owner shall not constitute acceptance or responsibility for any of the materials or equipment. It shall be the Contractor’s responsibility to assume all liability for any equipment or materials furnished by him which are delivered to the job site.

Storage of materials on the grounds and within the building shall be in strict accordance with instructions of the Owner. Storage of materials within building shall at no time exceed design carrying capacity of the structural system.

The Owner assumes no responsibility for materials stored in building or on the site. Each Contractor shall assume full responsibility for all losses or damage due to the storing of his materials.

Handle items carefully to avoid damage to components, enclosures and finishes. Follow the manufacturer's rigging instructions when handling and moving equipment.

COORDINATION

Arrange for pipe spaces, chases, slots, and openings in building structure during progress of construction, to allow for HVAC installations.

Coordinate installation of required supporting devices and set sleeves in poured-in-place concrete and other structural components as they are constructed.

CODES AND REGULATIONS

All codes and regulations of state and local authorities shall become part of this specification and must be adhered to where they exceed requirements as shown on the drawings or stated in the specifications, without additional cost to the Contract.

CONTINUITY OF EXISTING SERVICES

Do not interrupt or change existing services without prior written approval. When interruption is required, coordinate length of service time with Owner to minimize disruption of occupant activities.

See architectural drawing A-003 for project staging plan. Project staging plan shall be used to plan/coordinate project activities so as to minimize disruption to facility operations.

OPERATING AND MAINTENANCE INSTRUCTIONS

The Contractor shall provide operating and maintenance instruction manuals covering each and every item of equipment and devices furnished or erected by the Contractor prior to "Substantial Completion" as required by Division 1.

Each separate manual shall consist of the following:

Neatly typewritten table of contents including contractor's name, address and telephone number; list of each product referenced in manual; and name, address and telephone number of installing contractor and maintenance contractor for each product.

Tabbed sections of catalog data and literature for each product including model number, description and component parts; operating procedures; maintenance procedures; servicing and lubrication schedules; description of sequence of operations; parts lists; illustrations, assembly drawings and diagrams required for maintenance; any additional drawings, diagrams, charts or written text which may be required to supplement product data for particular installation; certified test and balance report; list of control point labels, and wiring diagrams.

Copy of warranty, bond and/or service contract issued for each product including an information sheet for operations personnel with proper procedures in event of a product failure and instances which might affect validity of warranties or bonds.

Full size sheets, if required, shall be folded into special holding pockets. Faxed, handwritten, or illegible materials are not acceptable.

Prior to final inspection or acceptance, fully instruct designated facility operating and maintenance personnel on operation, adjustment and maintenance of products, equipment and systems. Review contents of operating and maintenance manual with personnel in full detail to explain all aspects of operations and maintenance.

WORK COORDINATION

All Trades shall work in cooperation with each other, and fit their work into the structure as job conditions may demand. All final decisions as to right-of-way and run of pipes and ducts, etc. shall be made by the Owner. In general, priority shall be arranged as follows: (in order of preference)

Recessed lighting fixtures
Piping which must be drainable
Sheet metal ductwork
Lighting fixtures
Plumbing waste lines, downspouts, vents and sprinkler piping
Gravity water lines
Heating hot and chilled water lines
Refrigerant lines
Plumbing water and gas and air lines
Electrical conduit
Control air lines or wiring conduit

PART 2 - PRODUCTS

MANUFACTURERS

In other Part 2 articles where subparagraph titles below introduce lists, the following requirements apply for product selection:

Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the manufacturers specified.

Manufacturers: Subject to compliance with requirements, provide products by the manufacturers specified.

SLEEVES

Galvanized-Steel Sheet: 0.0239-inch (0.6-mm) minimum thickness; round tube closed with welded longitudinal joint.
Steel Pipe: ASTM A 53, Type E, Grade B, Schedule 40, galvanized, plain ends.

ESCUTCHEONS

Description: Manufactured wall and ceiling escutcheons and floor plates, with an ID to closely fit around pipe, tube, and insulation of insulated piping and an OD that completely covers opening.

Split-Plate, Stamped-Steel Type: With concealed hinge, spring clips, and chrome-plated finish.

One-Piece, Floor-Plate Type: Cast-iron floor plate.

Split-Casting, Floor-Plate Type: Cast brass with concealed hinge and set screw.

PART 3 - EXECUTION

HVAC DEMOLITION

Refer to Division 01 Section "Cutting and Patching" and Division 02 Section "Selective Structure Demolition" for general demolition requirements and procedures.

Disconnect, demolish, and remove HVAC systems, equipment, and components indicated to be removed.

Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material.

Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.

Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material.

Equipment to Be Removed: Disconnect and cap services and remove equipment.

Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.

Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.

If pipe, insulation, or equipment to remain is damaged in appearance or is unserviceable, remove damaged or unserviceable portions and replace with new products of equal capacity and quality.

Removed materials must not be reused unless otherwise specified or directed to be so.

Arrange and pay for disconnecting, removing and capping utility services within areas of demolition. Place markers to indicate location of disconnected services. Identify service lines and capping locations on Project Record Documents.

EQUIPMENT INSTALLATION - COMMON REQUIREMENTS

Install equipment to allow maximum possible headroom unless specific mounting heights are not indicated.

Install equipment level and plumb, parallel and perpendicular to other building systems and components in exposed interior spaces, unless otherwise indicated.

Install HVAC equipment to facilitate service, maintenance, and repair or replacement of components. Connect equipment for ease of disconnecting, with minimum interference to other installations. Extend grease fittings to accessible locations.

PAINTING

Damage and Touchup: Repair marred and damaged factory-painted finishes with materials and procedures to match original factory finish.

End of Section

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SECTION 23 05 13 - COMMON MOTOR REQUIREMENTS FOR HVAC EQUIPMENT

PART 1 - GENERAL

RELATED DOCUMENTS

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

COORDINATION

Coordinate features of motors, installed units, and accessory devices to be compatible with the following:

- Motor controllers.
- Torque, speed, and horsepower requirements of the load.
- Ratings and characteristics of supply circuit and required control sequence.
- Ambient and environmental conditions of installation location.

PART 2 - PRODUCTS

GENERAL MOTOR REQUIREMENTS

Comply with NEMA MG 1 unless otherwise indicated.

MOTOR CHARACTERISTICS

Duty: Continuous duty at ambient temperature of 40 deg C and at altitude of 3300 feet above sea level.

Capacity and Torque Characteristics: Sufficient to start, accelerate, and operate connected loads at designated speeds, at installed altitude and environment, with indicated operating sequence, and without exceeding nameplate ratings or considering service factor.

POLYPHASE MOTORS

Description: NEMA MG 1, Design B, medium induction motor.

Efficiency: Energy efficient, as defined in NEMA MG 1.

Service Factor: 1.15.

Multispeed Motors: Variable torque.

- For motors with 2:1 speed ratio, consequent pole, single winding.
- For motors with other than 2:1 speed ratio, separate winding for each speed.

Multispeed Motors: Separate winding for each speed.

Rotor: Random-wound, squirrel cage.

Bearings: Regreasable, shielded, antifriction ball bearings suitable for radial and thrust loading.

Temperature Rise: Match insulation rating.

Insulation: Class F.

Code Letter Designation:

Motors 15 HP and Larger: NEMA starting Code F or Code G.
Motors Smaller than 15 HP: Manufacturer's standard starting characteristic.

POLYPHASE MOTORS WITH ADDITIONAL REQUIREMENTS

Motors Used with Reduced-Voltage and Multispeed Controllers: Match wiring connection requirements for controller with required motor leads. Provide terminals in motor terminal box, suited to control method.

SINGLE-PHASE MOTORS

Motors larger than 1/20 hp shall be one of the following, to suit starting torque and requirements of specific motor application:

Permanent-split capacitor.
Split phase.
Capacitor start, inductor run.
Capacitor start, capacitor run.

Multispeed Motors: Variable-torque, permanent-split-capacitor type.
Bearings: Prelubricated, antifriction ball bearings or sleeve bearings suitable for radial and thrust loading.
Motors 1/20 HP and Smaller: Shaded-pole type.

Thermal Protection: Internal protection to automatically open power supply circuit to motor when winding temperature exceeds a safe value calibrated to temperature rating of motor insulation. Thermal-protection device shall automatically reset when motor temperature returns to normal range.

PART 3 - EXECUTION (Not Applicable)

End of Section

SECTION 23 05 53 - IDENTIFICATION FOR HVAC PIPING AND EQUIPMENT

PART 1 - GENERAL

RELATED DOCUMENTS

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

ACTION SUBMITTALS

Product Data: None.

COORDINATION

Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.

Coordinate installation of identifying devices with locations of access panels and doors.

PART 2 - PRODUCTS

EQUIPMENT LABELS

Plastic Labels for Equipment:

Material and Thickness: Multilayer, multicolor, plastic labels for mechanical engraving, 1/16 inch thick, and having predrilled holes for attachment hardware.

Letter Color: White.

Background Color: Red.

Maximum Temperature: Able to withstand temperatures up to 160 deg F.

Minimum Label Size: Length and width vary for required label content, but not less than 2-1/2 by 3/4 inch.

Minimum Letter Size: 1/4 inch for name of units if viewing distance is less than 24 inches, 1/2 inch for viewing distances up to 72 inches, and proportionately larger lettering for greater viewing distances.

Include secondary lettering two-thirds to three-fourths the size of principal lettering.

Fasteners: Stainless-steel rivets or self-tapping screws.

Adhesive: Contact-type permanent adhesive, compatible with label and with substrate.

Label Content: Include equipment's Drawing designation or unique equipment number, Drawing numbers where equipment is indicated (plans, details, and schedules), plus the Specification Section number and title where equipment is specified.

PART 3 - EXECUTION

PREPARATION

Clean piping and equipment surfaces of substances that could impair bond of identification devices, including dirt, oil, grease, release agents, and incompatible primers, paints, and encapsulants.

EQUIPMENT LABEL INSTALLATION

Install or permanently fasten labels on each major item of mechanical equipment.
Locate equipment labels where accessible and visible.

End of Section

SECTION 23 05 93 - TESTING, ADJUSTING, AND BALANCING FOR HVAC

PART 1 - GENERAL

RELATED DOCUMENTS

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

DEFINITIONS

AABC: Associated Air Balance Council.
NEBB: National Environmental Balancing Bureau.
TAB: Testing, adjusting, and balancing.
TABB: Testing, Adjusting, and Balancing Bureau.
TAB Specialist: An entity engaged to perform TAB Work.

INFORMATIONAL SUBMITTALS

Qualification Data: Within 30 days of Contractor's Notice to Proceed, submit documentation that the TAB contractor and this Project's TAB team members meet the qualifications specified in "Quality Assurance" Article.
Certified TAB reports.

QUALITY ASSURANCE

TAB Contractor Qualifications: Engage a TAB entity certified by AABC, NEBB, or TABB.
TAB Field Supervisor: Employee of the TAB contractor and certified by AABC, NEBB, or TABB.
TAB Technician: Employee of the TAB contractor and who is certified by AABC, NEBB, or TABB as a TAB technician.

Certify TAB field data reports and perform the following:
Review field data reports to validate accuracy of data and to prepare certified TAB reports.
Certify that the TAB team complied with the approved TAB plan and the procedures specified and referenced in this Specification.

TAB Report Forms: Use standard TAB contractor's forms approved by Architect.
Instrumentation Type, Quantity, Accuracy, and Calibration: As described in ASHRAE 111, Section 5, "Instrumentation."

ASHRAE Compliance: Applicable requirements in ASHRAE 62.1, Section 7.2.2 - "Air Balancing."

ASHRAE/IESNA Compliance: Applicable requirements in ASHRAE/IESNA 90.1, Section 6.7.2.3 - "System Balancing."

COORDINATION

Notice: Provide seven days' advance notice for each test. Include scheduled test dates and times.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

EXAMINATION

Examine the Contract Documents to become familiar with Project requirements and to discover conditions in systems' designs that may preclude proper TAB of systems and equipment.

Examine systems for installed balancing devices, such as test ports, gage cocks, thermometer wells, flow-control devices, balancing valves and fittings, and manual volume dampers. Verify that locations of these balancing devices are accessible.

Examine the approved submittals for HVAC systems and equipment.

Examine design data including HVAC system descriptions, statements of design assumptions for environmental conditions and systems' output, and statements of philosophies and assumptions about HVAC system and equipment controls.

Examine system and equipment installations and verify that field quality-control testing, cleaning, and adjusting specified in individual Sections have been performed.

Examine test reports specified in individual system and equipment Sections.

Examine HVAC equipment and filters and verify that bearings are greased, belts are aligned and tight, and equipment with functioning controls is ready for operation.

Examine operating safety interlocks and controls on HVAC equipment.

Report deficiencies discovered before and during performance of TAB procedures. Observe and record system reactions to changes in conditions. Record default set points if different from indicated values.

PREPARATION

Prepare a TAB plan that includes strategies and step-by-step procedures.
Complete system-readiness checks and prepare reports. Verify the following:

Permanent electrical-power wiring is complete.
Balance, smoke, and fire dampers are open.
Windows and doors can be closed so indicated conditions for system operations can be met.

GENERAL PROCEDURES FOR TESTING AND BALANCING

Perform testing and balancing procedures on each system according to the procedures contained in AABC's "National Standards for Total System Balance" NEBB's "Procedural Standards for Testing, Adjusting, and Balancing of Environmental Systems" and in this Section.

Comply with requirements in ASHRAE 62.1, Section 7.2.2 - "Air Balancing."

Cut insulation, ducts, pipes, and equipment cabinets for installation of test probes to the minimum extent necessary for TAB procedures.

After testing and balancing, patch probe holes in ducts with same material and thickness as used to construct ducts.

After testing and balancing, install test ports and duct access doors that comply with requirements in Section 233300 "Air Duct Accessories."

Mark equipment and balancing devices, including damper-control positions, valve position indicators, fan-speed-control levers, and similar controls and devices, with paint or other suitable, permanent identification material to show final settings.

Take and report testing and balancing measurements in inch-pound (IP) units.

GENERAL PROCEDURES FOR BALANCING AIR SYSTEMS

Prepare test reports for both fans and outlets. Obtain manufacturer's outlet factors and recommended testing procedures. Crosscheck the summation of required outlet volumes with required fan volumes.

Check airflow patterns from the outdoor-air louvers and dampers and the return- and exhaust-air dampers through the supply-fan discharge and mixing dampers.

Locate start-stop and disconnect switches, electrical interlocks, and motor starters.

Verify that motor starters are equipped with properly sized thermal protection.

Check dampers for proper position to achieve desired airflow path.

Check for airflow blockages.

Check for proper sealing of air-handling-unit components.

Verify that air duct system is sealed as specified in Section 233113 "Metal Ducts."

PROCEDURES FOR CONSTANT-VOLUME AIR SYSTEMS

Adjust fans to deliver total indicated airflows within the maximum allowable fan speed listed by fan manufacturer.

Measure total airflow.

Where sufficient space in ducts is unavailable for Pitot-tube traverse measurements, measure airflow at terminal outlets and inlets and calculate the total airflow.

Do not make fan-speed adjustments that result in motor overload. Consult equipment manufacturers about fan-speed safety factors. Modulate dampers and measure fan-motor amperage to ensure that no overload will occur. Measure amperage in full-cooling, full-heating, economizer, and any other operating mode to determine the maximum required brake horsepower.

PROCEDURES FOR MOTORS

Motors, 1/2 HP and Larger: Test at final balanced conditions and record the following data:

Manufacturer's name, model number, and serial number.
Motor horsepower rating.
Motor rpm.
Efficiency rating.
Nameplate and measured voltage, each phase.
Nameplate and measured amperage, each phase.
Starter thermal-protection-element rating.

Motors Driven by Variable-Speed Controllers: Test for proper operation at speeds varying from minimum to maximum. Record observations including name of controller manufacturer, model number, serial number, and nameplate data.

TOLERANCES

Set HVAC system's air flow rates and water flow rates within the following tolerances:

Supply, Return, and Exhaust Fans and Equipment with Fans: Plus or minus 10 percent.

FINAL REPORT

General: Prepare a certified written report; tabulate and divide the report into separate sections for tested systems and balanced systems.

Include a certification sheet at the front of the report's binder, signed and sealed by the certified testing and balancing engineer.
Include a list of instruments used for procedures, along with proof of calibration.

Final Report Contents: In addition to certified field-report data, include the following:

Fan curves.
Manufacturers' test data.
Field test reports prepared by system and equipment installers.
Other information relative to equipment performance; do not include Shop Drawings and product data.

General Report Data: In addition to form titles and entries, include the following data:

Title page.
Name and address of the TAB contractor.
Project name.
Project location.
Architect's name and address.
Engineer's name and address.
Contractor's name and address.
Report date.
Signature of TAB supervisor who certifies the report.
Table of Contents with the total number of pages defined for each section of the report. Number each page in the report.
Summary of contents including the following:

Indicated versus final performance.
Notable characteristics of systems.
Description of system operation sequence if it varies from the Contract Documents.

Nomenclature sheets for each item of equipment.
Notes to explain why certain final data in the body of reports vary from indicated values.
Test conditions for fans and pump performance forms including the following:

Settings for outdoor-, return-, and exhaust-air dampers.
Fan drive settings including settings and percentage of maximum pitch diameter.
Other system operating conditions that affect performance.

Fan Test Reports: For supply, return, and exhaust fans, include the following:

Fan Data:

- System identification.
- Location.
- Make and type.
- Model number and size.
- Manufacturer's serial number.
- Arrangement and class.
- Sheave make, size in inches, and bore.
- Center-to-center dimensions of sheave, and amount of adjustments in inches.

Motor Data:

- Motor make, and frame type and size.
- Horsepower and rpm.
- Volts, phase, and hertz.
- Full-load amperage and service factor.
- Sheave make, size in inches, and bore.
- Center-to-center dimensions of sheave, and amount of adjustments in inches.
- Number, make, and size of belts.

Test Data (Indicated and Actual Values):

- Total airflow rate in cfm.
- Total system static pressure in inches wg.
- Fan rpm.
- Discharge static pressure in inches wg.
- Suction static pressure in inches wg.

INSPECTIONS

Initial Inspection:

After testing and balancing are complete, operate each system and randomly check measurements to verify that the system is operating according to the final test and balance readings documented in the final report. Check the following for each system:

- Verify that balancing devices are marked with final balance position.
- Note deviations from the Contract Documents in the final report.

Final Inspection:

After initial inspection is complete and documentation by random checks verifies that testing and balancing are complete and accurately documented in the final report, request that a final inspection be made by Owner.

The TAB contractor's test and balance engineer shall conduct the inspection in the presence of Owner.

Owner shall randomly select measurements, documented in the final report, to be rechecked. Rechecking shall be limited to either 10 percent of the total measurements recorded or the extent of measurements that can be accomplished in a normal 8-hour business day.

If rechecks yield measurements that differ from the measurements documented in the final report by more than the tolerances allowed, the measurements shall be noted as "FAILED."

If the number of "FAILED" measurements is greater than 10 percent of the total measurements checked during the final inspection, the testing and balancing shall be considered incomplete and shall be rejected.

TAB Work will be considered defective if it does not pass final inspections. If TAB Work fails, proceed as follows:

Recheck all measurements and make adjustments. Revise the final report and balancing device settings to include all changes; resubmit the final report and request a second final inspection.

If the second final inspection also fails, Owner may contract the services of another TAB contractor to complete TAB Work according to the Contract Documents and deduct the cost of the services from the original TAB contractor's final payment.

Prepare test and inspection reports.

End of Section

SECTION 23 06 00 – HVAC AIR DUCT CLEANING

PART 1 – GENERAL

RELATED DOCUMENTS

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

QUALITY ASSURANCE

REFERENCE STANDARDS

NADCA 1992-01: Mechanical Cleaning of Non-Porous Air Conveyance System Components (National Air Duct Cleaners Association)
NADCA: Understanding Microbial contamination in HVAC Systems
NAIMA: Cleaning Fibrous Glass Insulated Air Duct Systems

Regular Member in good standing of NADCA (National Air Duct Cleaners Association). Maintain membership for the entire duration of the project. Maintain a staff of at least one Certified Air System Cleaning Specialist (ASCS). If membership of the firm, or any certification of any staff performing work is terminated or expires during the duration of the project, contact DFD immediately.

INFORMATIONAL SUBMITTALS

Include manufacturer's data and/or Contractor data for the following:

List of equipment to be used.
Product description and MSDS sheets for cleaners, biocides and encapsulants.
Access doors.

PART 2 - PRODUCTS

GENERAL

Use products which conform to NFPA 90A, possessing a flame spread rating of not over 25 and a smoke developed rating no higher than 50.

CLEANERS, BIOCIDES AND ENCAPSULANTS

Manufacturer: H.B. Fuller/Foster, Porter, or approved equal.

Cleaners, biocides and encapsulants shall be waterbase products specifically designed for application to HVAC duct interiors and capable of being applied with airless spray equipment. Biocides and encapsulants must be colored differently than substrate to be coated.

Biocidal agents to be formulated for long term fungicidal activity with no loss on aging. Biocidal agents must be registered with the U.S. Environmental Protection Agency for use on the interior of HVAC duct systems.

Cured biocides and encapsulants must provide tough washable elastic protective finish able to withstand light impact or abrasion without breaking down over time or releasing fibers.

EQUIPMENT

Particulate Collection Equipment: Fan/filter unit sized to create sufficient quantity of negative pressure for capture and filtration of air and contaminants dislodged during duct cleaning. Equipment to include prefiltration and HEPA final filtration with 99.97% collection efficiency for 0.3 micron size particles.

Portable pressure washers to be capable of 500 psig to 1000 psig operation.

Power brush systems designed specifically for duct cleaning.

PART 3 - EXECUTION

GENERAL

Use products and equipment in accordance with manufacturers instructions.

SEQUENCING OF WORK

Portions of the facility where this project is located will be occupied. Architectural staging plan drawing A-003 defines staging phases for this project and shall be followed to bid and execute the duct cleaning work.

CLEANING

Clean ductwork systems and associated turning vanes, dampers, coils, VAV boxes, drain pans, plenums, diffusers, registers, grilles and louvers; air handling units and associated fans, coils, drain pans, plenums and dampers; fans; terminal units and other equipment described below:

Visually inspect systems and site prior to cleaning. Document and report damaged system components to Owner's Construction Representative prior to cleaning. Mark damper and other component positions prior to cleaning and reset after cleaning to original position. Establish a specific, coordinated plan detailing how each area of the building will be protected during the various phases of work.

Protect building occupants, components and furnishings from cleaning activities. Use polyethylene sheeting covers and barriers where cleaning will disperse debris outside the HVAC systems. Install critical barriers within the building, at inlets/outlets and within the system to prevent migration of dust and debris to clean areas.

Use particulate collection equipment to remove and capture debris. Connect to system downstream of cleaning operations. Wherever possible, duct exhaust to the exterior of the building. Avoid discharge near air intakes and points of entry. Arrange source of makeup air to flow from clean area to work area negatively pressurizing work area. Take measures to control offensive odors and vapors during the cleaning process.

Clean systems using mechanical cleaning methods, such as vacuum cleaning, compressed air sweeping and mechanical brushing, designed to extract contaminants from within the HVAC system and safely remove contaminants from the facility. No cleaning methods are to be used which damage components of the system or negatively alter the integrity of the system.

Clean fibrous glass thermal or acoustical insulation with HEPA vacuuming equipment. Document locations of damage, deterioration, delamination, mold, fungus growth or excessive moisture which cannot be restored by cleaning or resurfacing with repair coating. Report locations and conditions to Architect/Engineer and Owner's Project Representative for determination of removal and/or replacement.

Where fibrous glass thermal or acoustical insulation is to be removed, scrape and brush metal clean. Remove loose fasteners, weld pins where required for cleaning work and sheet metal covers associated with insulation. Patch and seal fastener openings.

Clean coils to restore pressure drop to within 10% of design rating. Where design rating is unknown, coils must be cleaned free of foreign material and chemical residue. Cleaning methods used must not bend, erode or damage coil surfaces, fins or tubes. Clean coil drain pans and drain. Make drain fully operational. Where wet methods are used, thoroughly rinse coils and drains pans with clean water to remove latent residues. Provide temporary drain pans below coils without drain pans to capture water.

Where systems and equipment containing filters are cleaned, obtain replacement filters from building occupant and replace existing filters.

Verification of HVAC system cleanliness will be performed after cleaning and prior to application of biocides and encapsulants. The Contractor shall notify the Owner's Construction Representative and Architect/Engineer in advance of verification. Verification will consist of inspection by the Contractor, Owner's Construction Representative and/or Architect/Engineer. If surfaces are visibly clean, no contaminants are evident through visual inspection and coils are within 10% of design pressure drop, the HVAC system shall be considered clean. However the Owner reserves the right to further verify system cleanliness through third party gravimetric or wipe testing analysis per NADCA standards.

BIOCIDES AND ENCAPSULANTS

Biocides and encapsulants are to be applied only after cleaning and verification have been completed and surfaces are dry. System fans are to remain off and critical barriers maintained to prevent migration of biocides and encapsulants from the HVAC systems.

Apply biocides to the following surfaces which are suspected of or have been tested and verified for microbial contamination:

Plenums and ductwork around and 5' downstream of cooling coils and humidifiers.
Cooling coil drain pans.
Outdoor air intake drain pans.

Biocides and encapsulants to be directly sprayed (not fogged), brushed or rolled onto surfaces to achieve a continuous film of thickness recommended by manufacturer. Increase application rate on porous or rough surfaces. Protect coils, fan blades, bearings, damper linkages and seals, fire/smoke dampers, humidifiers, airflow sensors, pressure sensors, temperature sensors and humidity sensors during application of biocides and encapsulants. Clean any overspray from these components immediately. Allow products to fully cure prior to using HVAC systems. Operate systems during unoccupied hours flushing with fresh air to purge system prior to occupied use.

CLEANING REPORT

Provide a report describing pre-cleaning inspection and damage, systems cleaned, methods and materials used, problems encountered, final verification and any remaining problems noted. Submit three copies to Owner's Construction Representative.

End of Section

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SECTION 23 09 93 - SEQUENCE OF OPERATIONS FOR HVAC CONTROLS

PART 1 - GENERAL

RELATED DOCUMENTS

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

SUMMARY

This Section includes control sequences for HVAC systems, subsystems, and equipment.

Related Sections include the following:

Section 230900 "Instrumentation and Control for HVAC" for control equipment and devices and for submittal requirements.

VENTILATION SEQUENCES

Supply Fans SF-1 through SF-4: Controlled by H-O-A switches on a remote fan control station panel and the building fire alarm system.

Each fan controlled by HAND-OFF-AUTO switch and remote differential pressure speed controller.

HAND: Fan is energized and runs.

OFF: Fan is off.

AUTO:

When there is a fire alarm event anywhere within the building as communicated from the main fire alarm control panel (FACP), the fan will be energized and run. This fire alarm event can be triggered by (but not necessarily limited to) a remote smoke detector or manual pull station.

Each H-O-A switch shall be labeled clearly identifying which fan it is associated with and which stairwell the fan is in (see drawing M-101 for stairwell numbers).

When the fan is energized from the remote fan control station panel, the differential pressure speed controller provided with each fan shall vary the speed of the fan ECM motor to maintain a fixed differential pressure between the stairwell served by the fan and reference outdoor air pressure. This differential pressure shall be set at 0.20” w.c. and shall be adjustable at the fan speed controller from 0.05” w.c. to 0.30” w.c.

Note: Electrical Contractor to provide and install remote fan control station panel, wiring from remote panel to each fan, and wiring from FACP to the remote panel. Any local wiring or tubing near the fan required for a complete and fully functioning system shall be provided by this contractor

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

End of Section

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SECTION 23 31 13 - METAL DUCTS

PART 1 - GENERAL

RELATED DOCUMENTS

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

PERFORMANCE REQUIREMENTS

Delegated Duct Design: Duct construction, including sheet metal thicknesses, seam and joint construction, reinforcements, and hangers and supports, shall comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" and performance requirements and design criteria indicated in "Duct Schedule" Article.

Airstream Surfaces: Surfaces in contact with the airstream shall comply with requirements in ASHRAE 62.1.

Indicated duct sizes are inside clear dimensions.

QUALITY ASSURANCE

Welding Qualifications: Qualify procedures and personnel according to the following:

AWS D1.1/D1.1M, "Structural Welding Code - Steel," for hangers and supports.
AWS D1.2/D1.2M, "Structural Welding Code - Aluminum," for aluminum supports.
AWS D9.1M/D9.1, "Sheet Metal Welding Code," for duct joint and seam welding.

ASHRAE Compliance: Applicable requirements in ASHRAE 62.1, Section 5 - "Systems and Equipment" and Section 7 - "Construction and System Start-up."

ASHRAE/IESNA Compliance: Applicable requirements in ASHRAE/IESNA 90.1, Section 6.4.4 - "HVAC System Construction and Insulation."

Construct all ductwork to be free from vibration, chatter, objectionable pulsations and leakage under specified operating conditions. Objectionable conditions shall be corrected to the satisfaction of the Owner, at no cost to the Contract.

PART 2 - PRODUCTS

SINGLE-WALL RECTANGULAR DUCTS AND FITTINGS

General Fabrication Requirements: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" based on indicated static-pressure class unless otherwise indicated.

Transverse Joints: Select joint types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 2-1, "Rectangular Duct/Transverse Joints," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

Longitudinal Seams: Select seam types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 2-2, "Rectangular Duct/Longitudinal Seams," for static-pressure class, applicable sealing

requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

Elbows, Transitions, Offsets, Branch Connections, and Other Duct Construction: Select types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Chapter 4, "Fittings and Other Construction," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

SHEET METAL MATERIALS

General Material Requirements: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" for acceptable materials, material thicknesses, and duct construction methods unless otherwise indicated. Sheet metal materials shall be free of pitting, seam marks, roller marks, stains, discolorations, and other imperfections.
Galvanized Sheet Steel: Comply with ASTM A 653/A 653M.

Galvanized Coating Designation: G90.
Finishes for Surfaces Exposed to View: Mill phosphatized.

Reinforcement Shapes and Plates: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.

SEALANT AND GASKETS

General Sealant and Gasket Requirements: Surface-burning characteristics for sealants and gaskets shall be a maximum flame-spread index of 25 and a maximum smoke-developed index of 50 when tested according to UL 723; certified by an NRTL.

Water-Based Joint and Seam Sealant:

Application Method: Brush on.
Solids Content: Minimum 65 percent.
Shore A Hardness: Minimum 20.
Water resistant.
Mold and mildew resistant.
VOC: Maximum 75 g/L (less water).
Maximum Static-Pressure Class: 10-inch wg, positive and negative.
Service: Indoor or outdoor.
Substrate: Compatible with galvanized sheet steel (both PVC coated and bare), stainless steel, or aluminum sheets.

Flanged Joint Sealant: Comply with ASTM C 920.

General: Single-component, acid-curing, silicone, elastomeric.
Type: S.
Grade: NS.
Class: 25.
Use: O.
For indoor applications, sealant shall have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
Sealant shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

Flange Gaskets: Butyl rubber, neoprene, or EPDM polymer with polyisobutylene plasticizer.

HANGERS AND SUPPORTS

Hanger Rods for Noncorrosive Environments: Cadmium-plated steel rods and nuts.

Hanger Rods for Corrosive Environments: Electrogalvanized, all-thread rods or galvanized rods with threads painted with zinc-chromate primer after installation.

Strap and Rod Sizes: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Table 5-1, "Rectangular Duct Hangers Minimum Size," and Table 5-2, "Minimum Hanger Sizes for Round Duct."

Duct Attachments: Sheet metal screws, blind rivets, or self-tapping metal screws; compatible with duct materials.

Trapeze and Riser Supports:

Supports for Galvanized-Steel Ducts: Galvanized-steel shapes and plates.

PART 3 - EXECUTION

DUCT INSTALLATION

Drawing plans, schematics, and diagrams indicate general location and arrangement of duct system. Indicated duct locations, configurations, and arrangements were used to size ducts and calculate friction loss for air-handling equipment sizing and for other design considerations. Install duct systems as indicated unless deviations to layout are approved on Shop Drawings and Coordination Drawings.

Install ducts according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" unless otherwise indicated.

Install ducts with fewest possible joints.

Install ducts with a clearance of 1 inch, plus allowance for insulation thickness.

Protect duct interiors from moisture, construction debris and dust, and other foreign materials.

Locate ducts with sufficient space around equipment to allow normal operating and maintenance activities.

At ends of ducts not connected to equipment or air distribution devices at time of ductwork installation, provide temporary closure of polyethylene film or other covering until time connections to be completed.

Where ducts pass through interior partitions and exterior walls and are exposed to view, conceal spaces between construction openings and ducts or duct insulation with sheet metal flanges of same metal thickness as ducts. Overlap openings on 4 sides by at least 1-1/2 inches.

INSTALLATION OF EXPOSED DUCTWORK

Protect ducts exposed in finished spaces from being dented, scratched, or damaged.

Trim duct sealants flush with metal. Create a smooth and uniform exposed bead. Do not use two-part tape sealing system.

Maintain consistency, symmetry, and uniformity in the arrangement and fabrication of fittings, hangers and supports, duct accessories, and air outlets.

Repair or replace damaged sections and finished work that does not comply with these requirements.

DUCT SEALING

Install duct to pitch toward outside air intakes and drain to outside of building. Solder or seal seams to form watertight joints.

HANGER AND SUPPORT INSTALLATION

Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Chapter 5, "Hangers and Supports."

Building Attachments: Concrete inserts, powder-actuated fasteners, or structural-steel fasteners appropriate for construction materials to which hangers are being attached.

Where practical, install concrete inserts before placing concrete.

Install powder-actuated concrete fasteners after concrete is placed and completely cured.

Use powder-actuated concrete fasteners for standard-weight aggregate concretes or for slabs more than 4 inches thick.

Do not use powder-actuated concrete fasteners for lightweight-aggregate concretes or for slabs less than 4 inches thick.

Do not use powder-actuated concrete fasteners for seismic restraints.

Hangers Exposed to View: Threaded rod and angle or channel supports.

Install upper attachments to structures. Select and size upper attachments with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.

FIELD QUALITY CONTROL

Perform tests and inspections.

Duct System Cleanliness Tests:

Visually inspect duct system to ensure that no visible contaminants are present.

Duct system will be considered defective if it does not pass tests and inspections.

DUCT CLEANING

Clean NEW duct system(s) before testing, adjusting, and balancing.

Note: 6th and 7th floor EXISTING HVAC duct systems cleaning covered by specification section 230600 – HVAC Air Duct Cleaning

Use service openings for entry and inspection.

Create new openings and install access panels appropriate for duct static-pressure class if required for cleaning access. Provide insulated panels for insulated or lined duct.

Particulate Collection and Odor Control:

When venting vacuuming system inside the building, use HEPA filtration with 99.97 percent collection efficiency for 0.3-micron-size (or larger) particles.

When venting vacuuming system to outdoors, use filter to collect debris removed from HVAC system, and locate exhaust downwind and away from air intakes and other points of entry into building.

Clean the following components by removing surface contaminants and deposits:

Air outlets and inlets (registers, grilles, and diffusers).

Supply, return, and exhaust fans including fan housings, plenums (except ceiling supply and return plenums), scrolls, blades or vanes, shafts, baffles, dampers, and drive assemblies.

Mechanical Cleaning Methodology:

Clean metal duct systems using mechanical cleaning methods that extract contaminants from within duct systems and remove contaminants from building.

Use vacuum-collection devices that are operated continuously during cleaning. Connect vacuum device to downstream end of duct sections so areas being cleaned are under negative pressure.

Use mechanical agitation to dislodge debris adhered to interior duct surfaces without damaging integrity of metal ducts, duct liner, or duct accessories.

Provide drainage and cleanup for wash-down procedures.

Antimicrobial Agents and Coatings: Apply EPA-registered antimicrobial agents if fungus is present. Apply antimicrobial agents according to manufacturer's written instructions after removal of surface deposits and debris.

START UP

Air Balance: Comply with requirements in Section 230593 "Testing, Adjusting, and Balancing for HVAC."

End of Section

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SECTION 23 33 00 - AIR DUCT ACCESSORIES

PART 1 - GENERAL

RELATED DOCUMENTS

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

ACTION SUBMITTALS

Product Data: For each type of product.
Product data to include but not be limited to:

- Dimensional and weight data
- Temperature/Pressure ratings
- Manufacturer’s name and model number
- Materials of construction
- Sealant and gasket materials
- Manufacturer’s installation instructions.
- Capacities and performance

CLOSEOUT SUBMITTALS

Operation and Maintenance Data: For air duct accessories to include in operation and maintenance manuals.

MAINTENANCE MATERIAL SUBMITTALS

Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

- Fusible Links: Furnish quantity equal to 10 percent of amount installed.

PART 2 - PRODUCTS

ASSEMBLY DESCRIPTION

Comply with NFPA 90A, "Installation of Air Conditioning and Ventilating Systems," and with NFPA 90B, "Installation of Warm Air Heating and Air Conditioning Systems."

Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" for acceptable materials, material thicknesses, and duct construction methods unless otherwise indicated. Sheet metal materials shall be free of pitting, seam marks, roller marks, stains, discolorations, and other imperfections.

MATERIALS

Galvanized Sheet Steel: Comply with ASTM A 653/A 653M.

- Galvanized Coating Designation: G60.
- Exposed-Surface Finish: Mill phosphatized.

Stainless-Steel Sheets: Comply with ASTM A 480/A 480M, Type 304, and having a No. 2 finish for concealed ducts and finish for exposed ducts.

Aluminum Sheets: Comply with ASTM B 209, Alloy 3003, Temper H14; with mill finish for concealed ducts and standard, 1-side bright finish for exposed ducts.

Extruded Aluminum: Comply with ASTM B 221, Alloy 6063, Temper T6.

Reinforcement Shapes and Plates: Galvanized-steel reinforcement where installed on galvanized sheet metal ducts; compatible materials for aluminum and stainless-steel ducts.

Tie Rods: Galvanized steel, 1/4-inch minimum diameter for lengths 36 inches or less; 3/8-inch minimum diameter for lengths longer than 36 inches.

BACKDRAFT AND PRESSURE RELIEF DAMPERS

Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

- Air Balance Inc.; a division of Mestek, Inc.
- American Warming and Ventilating; a division of Mestek, Inc.
- Cesco Products; a division of Mestek, Inc.
- Greenheck Fan Corporation.
- Lloyd Industries, Inc.
- Nailor Industries Inc.
- NCA Manufacturing, Inc.
- Pottorff.
- Ruskin Company.
- Vent Products Company, Inc.

Description: Gravity balanced.
Maximum Air Velocity: 1000 fpm.
Frame: Hat-shaped, 0.094-inch- thick, galvanized sheet steel, with welded corners or mechanically attached and mounting flange.
Blades: Multiple single-piece blades, maximum 6-inch width, with sealed edges.
Blade Action: Parallel.
Blade Seals: Neoprene, mechanically locked.
Blade Axles:

- Material: Galvanized steel.
- Diameter: 0.20 inch.

Tie Bars and Brackets: Galvanized steel.
Return Spring: Adjustable tension.
Bearings: Steel ball or synthetic pivot bushings.
Accessories:

- Adjustment device to permit setting for varying differential static pressure.
- Counterweights and spring-assist kits for vertical airflow installations.
- 90-degree stops.

FIRE DAMPERS

Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

Air Balance Inc.; a division of Mestek, Inc.
Arrow United Industries; a division of Mestek, Inc.
Cesco Products; a division of Mestek, Inc.
Greenheck Fan Corporation.
Nailor Industries Inc.
NCA Manufacturing, Inc.
Pottorff.
Prefco; Perfect Air Control, Inc.
Ruskin Company.
Vent Products Company, Inc.
Ward Industries, Inc.; a division of Hart & Cooley, Inc.

Type: Static; rated and labeled according to UL 555 by an NRTL.

Closing rating in ducts up to 4-inch wg static pressure class and minimum 2000-fpm velocity.

Fire Rating: 1-1/2 hours.

Frame: Curtain type with blades outside airstream except when located behind grille where blades may be inside airstream; fabricated with roll-formed, 0.034-inch- thick galvanized steel; with mitered and interlocking corners.

Mounting Sleeve: Factory- or field-installed, galvanized sheet steel.

Minimum Thickness: 0.138 inch or 0.39 inch thick, as indicated, and of length to suit application.
Exception: Omit sleeve where damper-frame width permits direct attachment of perimeter mounting angles on each side of wall or floor; thickness of damper frame must comply with sleeve requirements.

Mounting Orientation: Vertical or horizontal as indicated.

Blades: Roll-formed, interlocking, 0.034-inch- thick, galvanized sheet steel. In place of interlocking blades, use full-length, 0.034-inch- thick, galvanized-steel blade connectors.

Horizontal Dampers: Include blade lock and stainless-steel closure spring.

Heat-Responsive Device: Replaceable, 165 deg F rated, fusible links.

PART 3 - EXECUTION

INSTALLATION

Install duct accessories according to applicable details in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" for metal ducts.

Install duct accessories of materials suited to duct materials; use galvanized-steel accessories in galvanized-steel ducts, stainless-steel accessories in stainless-steel ducts, and aluminum accessories in aluminum ducts.
Install fire dampers according to UL listing.

Fire dampers shall be installed where and when necessary, whether or not indicated on drawings, in compliance with all applicable local, state and insurance codes and requirements, and other authorities having jurisdiction.

Manually test each fire damper for proper operation by removing the fusible link. Repair or replace any fire damper that does not close completely. Re-install fusible link after test.

Demonstrate re-setting of fire dampers to Owner's representative.

FIELD QUALITY CONTROL

Tests and Inspections:

Operate dampers to verify full range of movement.
Inspect locations of access doors and verify that purpose of access door can be performed.

End of Section

SECTION 23 34 23 - HVAC POWER VENTILATORS

PART 1 - GENERAL

RELATED DOCUMENTS

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

PERFORMANCE REQUIREMENTS

Project Altitude: Base fan-performance ratings on sea level.

Operating Limits: Classify according to AMCA 99.

Each fan system shall be capable of delivering 110% of the scheduled airflow at the scheduled static pressure. The fan motor shall not operate into the motor service factor when operating under these conditions.

Drive efficiency shall be considered when selecting motors in accordance with manufacturer's recommendations or according to AMCA Publication 203, Appendix L.

ACTION SUBMITTALS

Product Data: For each type of product indicated. Include rated capacities, operating characteristics, and furnished specialties and accessories. Also include the following:

- Certified fan performance curves with system operating conditions indicated.
- Certified fan sound-power ratings.
- Motor ratings and electrical characteristics, plus motor and electrical accessories.
- Material thickness and finishes, including color charts.
- Dampers, including housings, linkages, and operators.
- Fan speed controllers.

Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.

Wiring Diagrams: For power, signal, and control wiring.

INFORMATIONAL SUBMITTALS

Field quality-control reports.

CLOSEOUT SUBMITTALS

Operation and Maintenance Data: For power ventilators to include in emergency, operation, and maintenance manuals.

MAINTENANCE MATERIAL SUBMITTALS

Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

Belts: One (1) set for each belt-driven unit.

QUALITY ASSURANCE

Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

AMCA Compliance: Fans shall have AMCA-Certified performance ratings and shall bear the AMCA-Certified Ratings Seal.

PART 2 - PRODUCTS

PROPELLER FANS

Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

Acme Engineering & Manufacturing Corporation.
Aerovent; a division of Twin City Fan Companies, Ltd.
Carnes Company.
Hartzell Fan Incorporated.
Loren Cook Company.
PennBarry.
Greenheck

Housing: Galvanized-steel sheet with flanged edges and integral orifice ring with baked-enamel finish coat applied after assembly.

Steel Fan Wheels: Formed-steel blades riveted to heavy-gage steel spider bolted to cast-iron hub.

Fan Wheel: Replaceable, cast or extruded-aluminum, airfoil blades fastened to cast-aluminum hub; factory set pitch angle of blades.

Fan Drive: Motor mounted in airstream, factory wired to disconnect switch located on outside of fan housing.

Fan Drive:

Resiliently mounted to housing.
Statically and dynamically balanced.
Selected for continuous operation at maximum rated fan speed and motor horsepower, with final alignment and belt adjustment made after installation.
Extend grease fitting to accessible location outside of unit.
Service Factor Based on Fan Motor Size: 1.4.
Fan Shaft: Turned, ground, and polished steel; keyed to wheel hub.
Shaft Bearings: Permanently lubricated, permanently sealed, self-aligning ball bearings.

Ball-Bearing Rating Life: ABMA 9, L_{10} of 100,000 hours.

Accessories:

Gravity Shutters: Aluminum blades in aluminum frame; interlocked blades with nylon bearings.

Motor-Side Back Guard: Galvanized steel, complying with OSHA specifications, removable for maintenance.

Wall Sleeve: Galvanized steel to match fan and accessory size.

Variable-Speed Controller: Solid-state control to reduce speed from 100 to less than 50 percent.

Disconnect Switch: Non-fusible type, with thermal-overload protection mounted inside fan housing, factory wired through an internal aluminum conduit.

MOTORS

Comply with NEMA designation, temperature rating, service factor, enclosure type, and efficiency requirements for motors specified in Section 230513 "Common Motor Requirements for HVAC Equipment."

Motor Sizes: Minimum size as indicated. If not indicated, large enough so driven load will not require motor to operate in service factor range above 1.0.

SOURCE QUALITY CONTROL

Certify fan performance ratings, including flow rate, pressure, power, air density, speed of rotation, and efficiency by factory tests according to AMCA 210, "Laboratory Methods of Testing Fans for Aerodynamic Performance Rating." Label fans with the AMCA-Certified Ratings Seal.

PART 3 - EXECUTION

INSTALLATION

Install power ventilators level and plumb.

Install units with clearances for service and maintenance.

Label units according to requirements specified in Section 230553 "Identification for HVAC Piping and Equipment."

CONNECTIONS

Ground equipment according to Section 26.

Connect wiring according to Section 26.

Provide safety screen(s) when inlet or outlet is exposed.

Where fan inlet or outlet ducting has been changed from that shown on the drawings, provide any motor, drive, and/or electrical system changes required to increase static pressure.

FIELD QUALITY CONTROL

Perform tests and inspections.

Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.

Tests and Inspections:

Verify that shipping, blocking, and bracing are removed.

Verify that unit is secure on mountings and supporting devices and that connections to ducts and electrical components are complete. Verify that proper thermal-overload protection is installed in motors, starters, and disconnect switches.

Verify that cleaning and adjusting are complete.

Disconnect fan drive from motor, verify proper motor rotation direction, and verify fan wheel free rotation and smooth bearing operation. Reconnect fan drive system, align and adjust belts, and install belt guards.

Adjust damper linkages for proper damper operation.

Verify lubrication for bearings and other moving parts.

Verify that manual and automatic volume control and fire and smoke dampers in connected ductwork systems are in fully open position.

Disable automatic temperature-control operators, energize motor and adjust fan to indicated rpm, and measure and record motor voltage and amperage.

Shut unit down and reconnect automatic temperature-control operators.

Remove and replace malfunctioning units and retest as specified above.

Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

Prepare test and inspection reports.

ADJUSTING

Adjust damper linkages for proper damper operation.

Comply with requirements in Section 230593 "Testing, Adjusting, and Balancing for HVAC" for testing, adjusting, and balancing procedures.

Lubricate bearings.

End of Section

SECTION 26 01 00 - COMMON WORK REQUIREMENTS FOR ELECTRICAL

PART 1 - GENERAL

RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to all Sections of division 26.

DESCRIPTION

Work to be performed under the sections of Division 26 includes all labor, materials, and equipment required to install complete electrical systems as described in these specifications and as shown on the drawings. 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.

Before submitting a bid, the Contractor shall examine the drawings and specifications, visit the work site, and be informed of local conditions, all federal, state and local ordinances, regulations and all other pertinent items which may affect cost, schedule, and completion of this project.

Drawings accompanying these specifications are a part of these specifications. Drawings are intended to show general arrangement, design, and extent of work and are diagrammatic. Drawings are not intended to show exact locations except where dimensions are shown. Any substantial differences existing between drawings and conditions in the field shall be submitted to the Owner for consideration before proceeding with work. Electrical work is shown on plans using standard industry symbols.

Before ordering materials or doing work, the Contractor shall verify all measurements pertaining to work scope and assume installation responsibility for complete and fully functional electrical systems.

The electrical work included in all other divisions of this specification and related documents is the responsibility of the contractor performing the division 26 work unless specifically noted otherwise.

REFERENCED STANDARDS

Abbreviations of standards organizations referenced in this and other sections are as follows:

ANSI	American National Standards Institute
ASTM	American Society for Testing and Materials
EPA	Environmental Protection Agency
ETL	Electrical Testing Laboratories, Inc.
IBC	International Building Code
IEEE	Institute of Electrical and Electronics Engineers
IES	Illuminating Engineering Society
ISA	Instrument Society of America
NBS	National Bureau of Standards
NEC	National Electric Code
NECA	National Electrical Contractors Association
NEMA	National Electrical Manufacturers Association
NESC	National Electrical Safety Code
NFPA	National Fire Protection Association
UL	Underwriters Laboratories Inc.

QUALITY ASSURANCE

Manufacturer references used herein are intended to establish a level of quality and performance requirements unless more explicit restrictions are stated to apply.

Where equipment or accessories are used which differ in arrangement, configuration, dimensions, ratings, or engineering parameters from those indicated on the contract documents, the contractor is responsible for all costs involved in integrating the equipment or accessories into the system and the assigned space and for obtaining the performance from the system into which these items are placed.

All materials, shall be listed by and shall bear the label of an approved electrical testing laboratory. If none of the approved electrical testing laboratories has published standards for a particular item, then other national independent testing standards, subject to approval by the Owner, shall apply and such items shall bear those labels. Where one of the approved electrical testing laboratories has an applicable system listing and label, the entire system shall be so labeled. The Contractor shall not modify new equipment in such a way as to nullify the Testing Laboratories label. All equipment and materials shall be used or installed in accordance with any instruction included in the listing by the laboratory.

REGULATORY REQUIREMENTS

All work and materials are to conform in every detail to applicable rules and requirements of local codes and regulations, the National Electrical Code (NFPA 70), other applicable National Fire Protection Association codes, and current manufacturing standards (including NEMA) and any additional local modifications enacted by the Local Authority Having Jurisdiction. Contractor shall be responsible to verify what if any local modifications are in place or enacted by the Local Authority Having Jurisdiction.

All work shall be installed in accordance with NECA standards of installation.

All work shall conform where applicable to the Williams-Steiger Occupational Safety and Health Act of 1970 (OSHA), Part 1910, "Occupational Safety and Health Standards." This shall include any local or state modifications enacted by the Authority having Jurisdiction.

CONTINUITY OF EXISTING SERVICES AND SYSTEMS

No outages shall be permitted on existing systems except at the time and during the interval specified by the Owner. The Owner may require written approval. Any outage must be scheduled when the interruption causes the least interference with normal Owner schedules and business routines. No extra costs will be paid to the Contractor for such outages which must occur outside of regular weekly working hours.

Interruption of Existing Electric Service: Do not interrupt electric service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary electric service according to requirements indicated:

Notify Owner no fewer than 3 days in advance of proposed interruption of electric service.
Indicate method of providing temporary electric service.

Do not proceed with interruption of electric service without Owner's written permission.

This Contractor shall restore any circuit interrupted as a result of this work to proper operation as soon as possible. Note that facility operations are on a seven-day week schedule.

OMISSIONS

No later than ten (10) days before bid opening, the Contractor shall call to the attention of the Owner any materials or apparatus the Contractor believes to be inadequate and to any necessary items of work omitted.

SUBMITTALS

Submit for all equipment and systems as indicated in the respective specification sections, marking each submittal with that specification section number. Mark general catalog sheets and drawings to indicate specific items being submitted and proper identification of equipment by name or number, as indicated in the contract documents. Failure to do this may result in the submittal(s) being returned to the Contractor for correction and resubmission. Failing to follow these instructions does not relieve the Contractor from the requirement of meeting the project schedule.

On request, the Contractor shall furnish additional drawings, illustrations, catalog data, performance characteristics, etc. to clarify intent of construction or operations.

Submittals shall be grouped to include complete submittals of related systems, products, and accessories in a single submittal. Mark dimensions and values in units to match those specified. Include wiring diagrams of electrically powered equipment.

The submittals must be approved before fabrication.

PROJECT/SITE CONDITIONS

Install Work in locations shown on Drawings, unless prevented by Project conditions.

Prepare drawings showing proposed rearrangement of work to meet Project conditions, including changes to work specified in other Sections. Obtain written permission of Owner before proceeding.

Tools, materials, and equipment shall be confined to areas designated by the Owner.

WORK SEQUENCE AND SCHEDULING

See the General Conditions of the Contract, Scheduling and Coordination of Work, and Time for Completion of the Project, and General Requirements, Mutual Responsibility for additional requirements.

WORK BY OTHER TRADES

Every attempt has been made to indicate in this trade's specifications and drawings all work required of this Contractor. However, there may be additional specific paragraphs in other trade specifications and addenda, and additional notes on drawings for other trades which pertain to this Trade's work, and thus those additional requirements are hereby made a part of these specifications and drawings.

Electrical details on drawings for equipment to be provided by others is based on preliminary design data only. This Contractor shall lay out the electrical work and shall be responsible for its correctness to match equipment actually provided by others.

RECORD DRAWINGS

A set of prints shall be kept at the job site upon which all changes and deviations from the original design are to be recorded daily. All changes shall be clearly marked. These drawings shall indicate as a minimum, all changes made to the drawings, changes in circuiting, equipment location, accurate locations of embedded conduit, and all other significant changes and deviations from the original design.

The daily record of changes shall be the responsibility of the Contractor’s field representative. No arbitrary mark-ups will be permitted.

The record drawing set shall be made available and may be audited periodically by the Owner to assure the changes are being recorded.

At the completion of the project, the Contractor shall submit the marked-up record drawings to the Owner prior to request for final payment.

PART 2 - PRODUCTS

MANUFACTURERS

Reference applicable sections within Division 26.

PART 3 - EXECUTION

WORK INCLUDED

The scope of work shall include all work, including all labor, materials and equipment, testing required to install a complete electrical system as indicated in the project Manual. The Project Manual consists of the bidding documents, the contract, specifications, contract drawings and all subsequent addenda and modifications. The contractor shall furnish and install all necessary materials, apparatus and devices to complete the electrical equipment and systems installation herein specified, except such parts as are specifically exempted herein.

All work items shown on the drawings is within the scope of work and shall be provided as indicated. Only items that are clearly indicated as being provided by others or under a separate contract shall be out of scope.

In general, the specifications indicate the requirements and quality for products required and the executions for those products. Only items that are clearly indicated as being provided by others or under a separate contract shall be out of scope.

If there is any discrepancy between the drawings and the specifications, it is the contractor’s responsibility to notify the Owner for resolution, prior to procuring equipment or starting work.

Coordinate and verify all equipment being supplied by equipment supplier and other trades. Verify equipment size, motor HP, dimensions, locations, etc. as all are subject to change.

All permits and inspection fees required to complete the work shall be paid for by the Contractor unless noted otherwise.

All electrical equipment and fixtures shall be installed in complete accordance with the manufacturers' recommendations.

Contractor shall provide all motor connections.

EQUIPMENT ACCESS

Install all piping, conduit, ductwork, and accessories to permit access to equipment for maintenance. Coordinate the exact location of conduit and panels with then Owner, making sure that access is available for all equipment.

COORDINATION

The Contractor shall cooperate with other trades and the Owner’s construction representative in locating work in a proper manner. Should it be necessary to raise or lower or move longitudinally any part of the electrical work to better fit the general installation, such work shall be done at no extra cost, provided such decision is reached prior to actual installation.

Coordinate all work with other trades prior to installation. Any installed work that is not coordinated and that interferes with another trades work shall be removed or relocated at the installing contractor's expense.

HOUSEKEEPING AND CLEAN UP

The Contractor shall clean up and remove from the premises, on a daily basis, all debris and rubbish resulting from its work and shall repair all damage to new and existing equipment resulting from its work. When job is complete, the Contractor shall remove all tools, excess material and equipment, etc., from the site.

End of Section

SECTION 26 05 19 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

ACTION SUBMITTALS

Product Data: For each type of product.

PART 2 - PRODUCTS

CONDUCTORS AND CABLES

Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

- Alpha Wire.
- Belden Inc.
- Encore Wire Corporation.
- General Cable Technologies Corporation.
- Southwire Incorporated.
- Helix/HiTemp Cables, Inc.
- Rockbestos-Suprenant Cable Corp.

Copper Conductors: Comply with NEMA WC 70/ICEA S-95-658.

Conductor Insulation: Comply with NEMA WC 70/ICEA S-95-658 for Type THHN-THWN-2.

Emergency Circuits (2-hour rated): Power cable assembly for smoke containment circuits and emergency circuits requiring a minimum 2-hour rating. Type MI mineral insulated cable installed as a listed electrical circuit protective system with a minimum 2-hour fire-resistive cable rating per Factory Mutual testing. UL 2196 and ULC-S139-00 approved.

Install and support cabling system per manufacturer's requirements.

Multiconductor Cable:

- Comply with UL 1277, UL 1685, and NFPA 70 for Type TC-ER cable.

Conductor sizes shown on drawings are based on 75 Degree C copper.

All conductors shall be rated 600 volts.

Branch circuit wire sizes not shown on the drawings shall be #12 AWG minimum.

CONNECTORS AND SPLICES

Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

- AFC Cable Systems, Inc.
- Gardner Bender.
- Hubbell Power Systems, Inc.
- Ideal Industries, Inc.
- Ilsco; a branch of Bardes Corporation.
- NSi Industries LLC.
- O-Z/Gedney; a brand of the EGS Electrical Group.
- Thomas and Betts Corp.

3M; Electrical Markets Division.
Tyco Electronics.

Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

Split Bolt Connectors: Not acceptable.

Solderless Pressure Connectors: High copper alloy terminal. May be used only for cable termination to equipment pads or terminals. Not approved for splicing.

Spring Wire Connectors: Solderless spring type pressure connector with insulating covers for copper wire splices and taps. Use for conductor sizes 10 AWG and smaller.

All wire connectors used in underground or exterior pull boxes shall be gel filled twist connectors or a connector designed for damp and wet locations.

Mechanical Connectors: Bolted type tin-plated; high conductivity copper alloy; spacer between conductors; beveled cable entrances.

Compression (crimp) Connectors: Long barrel; seamless, tin-plated electrolytic copper tubing; internally beveled barrel ends. Connector shall be clearly marked with the wire size and type and proper number and location of crimps.

SYSTEM DESCRIPTION

Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

PART 3 - EXECUTION

INSTALLATION OF CONDUCTORS AND CABLES

Feeder and branch circuit routing is shown diagrammatically on the drawings and is approximate unless dimensioned. Route feeders and branch circuits as required to meet project conditions.

All power wiring shall be installed in conduit unless specifically indicated otherwise.

Complete raceway installation between conductor and cable termination points according to Section 260533 "Raceways and Boxes for Electrical Systems" prior to pulling conductors and cables.

Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.

Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips that will not damage cables or raceway.

Install exposed feeders and branch circuits parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.

Support feeders and branch circuits according to Division 26 Section "Hangers and Supports for Electrical Systems."

CONNECTIONS

Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.

Make splices, terminations, and taps that are compatible with conductor material.

IDENTIFICATION

Identify and color-code conductors and cables according to standard.

Identify each spare conductor at each end with identity number and location of other end of conductor, and identify as spare conductor.

End of Section

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SECTION 26 05 26 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

SUMMARY

Section includes grounding and bonding systems and equipment.

QUALITY ASSURANCE

Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

Comply with UL 467 for grounding and bonding materials and equipment.

PART 2 - PRODUCTS

MANUFACTURERS

Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

- Burndy; Part of Hubbell Electrical Systems.
- Dossert; AFL Telecommunications LLC.
- ERICO International Corporation.
- Fushi Copperweld Inc.
- Galvan Industries, Inc.; Electrical Products Division, LLC.
- Harger Lightning and Grounding.
- ILSCO.
- O-Z/Gedney; A Brand of the EGS Electrical Group.
- Robbins Lightning, Inc.
- Siemens Power Transmission & Distribution, Inc.

CONDUCTORS

Insulated Conductors: Copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.

Bare Copper Conductors:

Solid Conductors: ASTM B 3.

Stranded Conductors: ASTM B 8.

CONNECTORS

Listed and labeled by an NRTL acceptable to authorities having jurisdiction for applications in which used and for specific types, sizes, and combinations of conductors and other items connected.

Bolted Connectors for Conductors and Pipes: Copper or copper alloy.

Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

PART 3 - EXECUTION

EQUIPMENT GROUNDING

Install insulated equipment grounding conductors with all feeders and branch circuits.

INSTALLATION

Grounding Conductors: Route along shortest and straightest paths possible unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.

FIELD QUALITY CONTROL

Perform tests and inspections.
Tests and Inspections:

After installing grounding system but before permanent electrical circuits have been energized, test for compliance with requirements.

Inspect physical and mechanical condition. Verify tightness of accessible, bolted, electrical connections with a calibrated torque wrench according to manufacturer's written instructions.

Grounding system will be considered defective if it does not pass tests and inspections.

End of Section

SECTION 26 05 29 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

SUMMARY

This Section includes the following:

Hangers and supports for electrical equipment and systems.

PERFORMANCE REQUIREMENTS

Provide supports for multiple raceways capable of supporting combined weight of supported systems and its contents.

Provide equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.

INFORMATIONAL SUBMITTALS

No submittal required.

PART 2 - PRODUCTS

SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

Steel Slotted Support Systems: Comply with MFMA-4, factory-fabricated components for field assembly.

Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

Allied Tube & Conduit.
Cooper B-Line, Inc.; a division of Cooper Industries.
ERICO International Corporation.
GS Metals Corp.
Thomas & Betts Corporation.
Unistrut; Tyco International, Ltd.
Wesanco, Inc.

Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-4.

Channel Dimensions: Selected for applicable load criteria.

Raceway and Cable Supports: As described in NECA 1 and NECA 101.

Conduit and Cable Support Devices: Steel hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.

Structural Steel for Fabricated Supports and Restraints: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.

Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:

Concrete Inserts: Steel or malleable-iron, slotted support system units similar to MSS Type 18; complying with MFMA-4 or MSS SP-58.

Clamps for Attachment to Steel Structural Elements: MSS SP-58, type suitable for attached structural element.

Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.

Toggle Bolts: All-steel springhead type.

Hanger Rods: Threaded steel.

FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES

Description: Welded or bolted, structural-steel shapes, shop or field fabricated to fit dimensions of supported equipment.

PART 3 - EXECUTION

APPLICATION

Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems except if requirements in this Section are stricter.

Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for EMT, IMC, and RMC as required by NFPA 70. Minimum rod size shall be 1/4 inch in diameter.

Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slottedsupport system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits.

Secure raceways and cables to these supports with single-bolt conduit clamps.

All supports installed outside, exposed to the weather, or inside in wet or damp areas shall utilize corrosion resistant supports, fittings, hardware, conduit clamps and all accessories.

SUPPORT INSTALLATION

Comply with NECA 1 and NECA 101 for installation requirements except as specified in this Article.

Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb.

All electrical fixtures, devices, and equipment shall be securely mounted. They shall be incapable of being rotated or displaced.

Do not fasten supports to piping, ductwork, mechanical equipment, cable tray, conduit, or any other surface not a part of the building structure or other structural surface.

Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:

To Existing Concrete: Expansion anchor fasteners.

To Steel: Welded threaded studs complying with AWS D1.1/D1.1M, with lock washers and nuts or Beam clamps (MSS Type 19, 21, 23, 25, or 27) complying with MSS SP-69.
To Light Steel: Sheet metal screws.

Drill holes for expansion anchors in concrete at locations and to depths that avoid reinforcing bars.

Do not drill or weld structural steel members unless approved by Owner.

INSTALLATION OF FABRICATED METAL SUPPORTS

Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor electrical materials and equipment.

PAINTING

Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

End of Section

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SECTION 26 05 33 - RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

SUMMARY

Section Includes:

- Metal conduits, tubing, and fittings.
- Boxes, enclosures, and cabinets.

INFORMATIONAL SUBMITTALS

No Submittal Required.

PART 2 - PRODUCTS

METAL CONDUITS, TUBING, AND FITTINGS

Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

- AFC Cable Systems, Inc.
- Allied Tube & Conduit.
- Anamet Electrical, Inc.
- Electri-Flex Company.
- O-Z/Gedney.
- Picoma Industries.
- Republic Conduit.
- Robroy Industries.
- Southwire Company.
- Thomas & Betts Corporation.
- Western Tube and Conduit Corporation.
- Wheatland Tube Company.

Listing and Labeling: Metal conduits, tubing, and fittings shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

EMT: Comply with ANSI C80.3 and UL 797.

Fittings for Metal Conduit: Comply with NEMA FB 1 and UL 514B.

- Material: Steel.
- Type: Compression.

BOXES, ENCLOSURES, AND CABINETS

Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

- Adalet.
- Cooper Technologies Company; Cooper Crouse-Hinds.

EGS/Appleton Electric.
Erickson Electrical Equipment Company.
FSR Inc.
Hoffman.
Hubbell Incorporated.
Kraloy.
Milbank Manufacturing Co.
Mono-Systems, Inc.
O-Z/Gedney.
RACO; Hubbell.
Robroy Industries.
Spring City Electrical Manufacturing Company.
Stahlin Non-Metallic Enclosures.
Thomas & Betts Corporation.
Wiremold / Legrand.

General Requirements for Boxes, Enclosures, and Cabinets: Boxes, enclosures, and cabinets installed in wet locations shall be listed for use in wet locations.

Sheet Metal Outlet and Device Boxes: Comply with NEMA OS 1 and UL 514A.

PART 3 - EXECUTION

RACEWAY APPLICATION

Apply raceway products as specified below unless otherwise indicated:

Exposed Conduit Not Subject to Physical Damage: EMT.

Exposed and Subject to Physical Damage: GRC.

Raceway locations include the following: Stairwells

Connection to Vibrating Equipment (Including Motor-Driven Equipment): FMC.

Raceway Fittings: Compatible with raceways and suitable for use and location.

Rigid and Intermediate Steel Conduit: Use threaded rigid steel conduit fittings unless otherwise indicated.

Comply with NEMA FB 2.10.

EMT: Use compression, steel fittings. Comply with NEMA FB 2.10.

Flexible Conduit: Use only fittings listed for use with flexible conduit. Comply with NEMA FB 2.20.

INSTALLATION

Comply with NECA 1 and NECA 101 for installation requirements except where requirements on Drawings or in this article are stricter.

Complete raceway installation before starting conductor installation.

Comply with requirements in Section 260529 "Hangers and Supports for Electrical Systems" for hangers and supports. For stairwells all fasteners shall comply with Section 050533 “Security Metal Fastenings”.

Install temporary closures to prevent foreign matter from entering raceways.

Unused openings in boxes and fittings shall be plugged with suitable devices rated for the proper environment.

Make bends and offsets so ID is not reduced. Keep legs of bends in the same plane and keep straight legs of offsets parallel, unless otherwise indicated.

Install exposed raceways parallel or at right angles to nearby surfaces or structural members and follow surface contours as much as possible.

Run parallel or banked raceways together on common supports.

Make parallel bends in parallel or banked runs. Use factory elbows only where elbows can be installed parallel; otherwise, provide field bends for parallel raceways.

All conduit entry into boxes shall be through the side or bottom with a condensation drip tee mounted at the lowest point in the conduit.

All conduit installed outside exposed to the weather and in wet locations shall utilize sealing locknuts and bushings.

Threaded Conduit Joints, Exposed to Wet, Damp, Corrosive, or Outdoor Conditions: Apply listed compound to threads of raceway and fittings before making up joints. Follow compound manufacturer's written instructions.

Join raceways with fittings designed and approved for that purpose and make joints tight.

Terminations:

When raceways are terminated with locknuts and bushings, align raceways to enter squarely and install locknuts with dished part against box. Use two locknuts, one inside and one outside box.

Where raceways are terminated with threaded hubs, screw raceways or fittings tightly into hub so end bears against wire protection shoulder. Where chase nipples are used, align raceways so coupling is square to box; tighten chase nipple so no threads are exposed.

Terminate threaded conduits into threaded hubs or with locknuts on inside and outside of boxes or cabinets. Install bushings on conduits up to 1-1/4-inch trade size and insulated throat metal bushings on 1-1/2-inch trade size and larger conduits terminated with locknuts. Install insulated throat metal grounding bushings on service conduits.

Install raceways square to the enclosure and terminate at enclosures with locknuts. Install locknuts hand tight plus 1/4 turn more.

Do not rely on locknuts to penetrate nonconductive coatings on enclosures. Remove coatings in the locknut area prior to assembling conduit to enclosure to assure a continuous ground path.

Cut conduit perpendicular to the length. For conduits 2-inch trade size and larger, use roll cutter or a guide to make cut straight and perpendicular to the length.

Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of pull wire. Cap underground raceways designated as spare above grade alongside raceways in use.

Install raceway sealing fittings at accessible locations according to NFPA 70 and fill them with listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings according to NFPA 70.

Install devices to seal raceway interiors at accessible locations. Locate seals so no fittings or boxes are between the seal and the following changes of environments. Seal the interior of all raceways at the following points:

Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
Where an underground service raceway enters a building or structure.
Where otherwise required by NFPA 70.

Expansion fittings shall be installed across expansion joints in structures and concrete construction.
Install hinged-cover enclosures and cabinets plumb. Support at each corner.

PROTECTION

Protect coatings, finishes, and cabinets from damage and deterioration.

Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.

End of Section

SECTION 26 28 13 – FUSES

PART 1 - GENERAL

SUMMARY

Section Includes:

Cartridge fuses rated 600-V ac and less for use in enclosed switches.

ACTION SUBMITTALS

No Submittal Required.

MAINTENANCE MATERIAL SUBMITTALS

Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

Fuses: Not fewer than three (3) of each size and type.

QUALITY ASSURANCE

Source Limitations: Obtain fuses, for use within a specific product or circuit, from single source from single manufacturer.

Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

Comply with NEMA FU 1 for cartridge fuses.

Comply with NFPA 70.

COORDINATION

Coordinate fuse ratings with utilization equipment nameplate limitations of maximum fuse size and with system short-circuit current levels.

PART 2 - PRODUCTS

MANUFACTURERS

Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

BUSSMANN, an Eaton business
Edison, a brand of Bussmann by Eaton
Mersen
Littelfuse, Inc.

CARTRIDGE FUSES

Characteristics: NEMA FU 1, nonrenewable cartridge fuses with voltage ratings consistent with circuit voltages.

PART 3 - EXECUTION

EXAMINATION

Examine fuses before installation. Reject fuses that are moisture damaged or physically damaged.

Examine holders to receive fuses for compliance with installation tolerances and other conditions affecting performance, such as rejection features.

Examine utilization equipment nameplates and installation instructions. Install fuses of sizes and with characteristics appropriate for each piece of equipment.

Evaluate ambient temperatures to determine if fuse rating adjustment factors must be applied to fuse ratings. Proceed with installation only after unsatisfactory conditions have been corrected.

FUSE APPLICATIONS

Cartridge Fuses:

Motor Branch Circuits: Class RK1, time delay.
Other Branch Circuits: Class RK1, time delay.

INSTALLATION

Install fuses in fusible devices. Arrange fuses so rating information is readable without removing fuse. Fuses shall not be installed until equipment is ready to be energized.

End of Section

SECTION 26 28 16 - ENCLOSED SWITCHES AND CIRCUIT BREAKERS

PART 1 - GENERAL

SUMMARY

Section Includes:

- Fusible switches.
- Enclosures.

ACTION SUBMITTALS

Product Data: For each type of enclosed switch, circuit breaker, accessory, and component indicated. Include dimensioned elevations, sections, weights, and manufacturers' technical data on features, performance, electrical characteristics, ratings, accessories, and finishes.

- Enclosure types and details.
- Current, horsepower, and voltage ratings.
- Short-circuit current ratings (interrupting and withstand, as appropriate).
- Detail features, characteristics, ratings, and factory settings of individual overcurrent protective devices, accessories, and auxiliary components.

QUALITY ASSURANCE

Source Limitations: Obtain enclosed switches and circuit breakers, overcurrent protective devices, components, and accessories, within same product category, from single source from single manufacturer.

Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

COORDINATION

Coordinate layout and installation of switches, circuit breakers, and components with equipment served and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.

PART 2 - PRODUCTS

FUSIBLE SWITCHES

Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

- Eaton Electrical Inc.; Cutler-Hammer Business Unit.
- General Electric Company; GE Consumer & Industrial - Electrical Distribution.
- Siemens Energy & Automation, Inc.
- Square D; a brand of Schneider Electric.

Type HD, Heavy Duty, Single Throw, 240-V ac, UL 98 and NEMA KS 1, horsepower rated, with clips or bolt pads to accommodate specified fuses, lockable handle with capability to accept three padlocks, and interlocked with cover in closed position.

HD Switches:

UL Listed Short Circuit Rating: 200,000 symmetrical amperes when Class R or Class J fuses are used on switch sizes 30 to 600 amperes. The UL listed short circuit rating shall be 200,000 symmetrical amperes when Class L fuses are used on switch sizes 800 to 1200 amperes.

Switch Blades: Visible when the switch is OFF and the cover is open.

Lugs: Front removable and UL listed for 167 deg F conductors aluminum or copper conductors.

Fuse Pullers: 30 through 100 ampere switches shall be equipped with factory installed fuse pullers.

Arc Suppressors: Removable arc suppressors to facilitate easy access to line side lugs.

Electrical Interlock: Provisions for a field installable electrical interlock.

Switch Operating Mechanism: Quick-make, quick-break such that, during normal operation of the switch, the operation of the contacts shall not be capable of being restrained by the operating handle after the closing or opening action of the contacts has started.

Handle Position: At least 90° between OFF and ON positions to clearly distinguish and indicate handle position, “ON” and “OFF” positions shall be labeled.

Accessories:

Equipment Ground Kit: Internally mounted and labeled for copper and aluminum ground conductors.

Class R Fuse Kit: Provides rejection of other fuse types when Class R fuses are specified.

Hookstick Handle: Allows use of a hookstick to operate the handle.

Lugs: Mechanical type, suitable for number, size, and conductor material.

ENCLOSURES

Enclosed Switches and Circuit Breakers: NEMA AB 1, NEMA KS 1, NEMA 250, and UL 50, to comply with environmental conditions at installed location. Provide the following minimum requirements, unless noted otherwise on the drawings.

Outdoor Locations: Stainless Steel, NEMA 250, Type 4X.

PART 3 - EXECUTION

EXAMINATION

Examine elements and surfaces to receive enclosed switches and circuit breakers for compliance with installation tolerances and other conditions affecting performance of the Work.

Proceed with installation only after unsatisfactory conditions have been corrected.

INSTALLATION

Install individual wall-mounted switches and circuit breakers with tops at uniform height unless otherwise indicated. Install fuses in fusible devices.

Comply with NECA 1.

IDENTIFICATION

Identify field-installed conductors, interconnecting wiring, and components; provide warning signs.
Label each enclosure with engraved metal or laminated-plastic nameplate.

FIELD QUALITY CONTROL

Perform tests and inspections.

Tests and Inspections:

Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.

Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.

Enclosed switches and circuit breakers will be considered defective if they do not pass tests and inspections.

End of Section

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SECTION 28 31 00 – FIRE ALARM AND DETECTION SYSTEM

PART 1 - GENERAL

RELATED DOCUMENTS

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

SUMMARY

Section Includes:

- System smoke detectors.
- Firefighters' smoke-control station.
- Addressable interface device.

DEFINITIONS

EMT: Electrical Metallic Tubing.

FACP: Fire Alarm Control Panel.

HLI: High Level Interface.

NICET: National Institute for Certification in Engineering Technologies.

ACTION SUBMITTALS

Product Data: For each type of product, including furnished options and accessories.

Include construction details, material descriptions, dimensions, profiles, and finishes.

Include rated capacities, operating characteristics, and electrical characteristics.

Shop Drawings: For fire-alarm system.

Comply with recommendations and requirements in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.

Include plans, elevations, sections, details, and attachments to other work.

Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and locations. Indicate conductor sizes, indicate termination locations and requirements, and distinguish between factory and field wiring.

Detail assembly and support requirements.

Include voltage drop calculations for notification-appliance circuits.

Include battery-size calculations.

Include input/output matrix.

Include statement from manufacturer that all equipment and components have been tested as a system and meet all requirements in this Specification and in NFPA 72.

Include performance parameters and installation details for each detector.

Include plans, sections, and elevations of heating, ventilating, and air-conditioning ducts, drawn to scale; coordinate location of duct smoke detectors and access to them.

Show critical dimensions that relate to placement and support of sampling tubes, detector housing, and remote status and alarm indicators.

Show field wiring required for HVAC unit shutdown on alarm.

Show field wiring and equipment required for HVAC unit shutdown on alarm and override by firefighters' control system.

Show field wiring and equipment required for HVAC unit shutdown on alarm and override by firefighters' smoke-evacuation system.

Locate detectors according to manufacturer's written recommendations.

Show air-sampling detector pipe routing.

Include floor plans to indicate final outlet locations showing address of each addressable device. Show size and route of cable and conduits and point-to-point wiring diagrams.

General Submittal Requirements:

Submittals shall be approved by authorities having jurisdiction prior to submitting them to Architect.

Shop Drawings shall be prepared by persons with the following qualifications:

Trained and certified by manufacturer in fire-alarm system design.

NICET-certified, fire-alarm technician; Level IV minimum.

Licensed or certified by authorities having jurisdiction.

INFORMATIONAL SUBMITTALS

Qualification Data: For Installer.

Field quality-control reports.

SAMPLE WARRANTY

For special warranty.

CLOSEOUT SUBMITTALS

Operation and Maintenance Data: For fire-alarm systems and components to include in emergency, operation, and maintenance manuals.

In addition to items specified in Section 017823 "Operation and Maintenance Data," include the following:

Comply with the "Records" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.

Provide "Fire Alarm and Emergency Communications System Record of Completion Documents" according to the "Completion Documents" Article in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.

Complete wiring diagrams showing connections between all devices and equipment. Each conductor shall be numbered at every junction point with indication of origination and termination points.

Riser diagram.

Device addresses.

Air-sampling system sample port locations and modeling program report showing layout meets performance criteria.

Record copy of site-specific software.

Provide "Inspection and Testing Form" according to the "Inspection, Testing and Maintenance" chapter in NFPA 72, and include the following:

- Equipment tested.
- Frequency of testing of installed components.
- Frequency of inspection of installed components.
- Requirements and recommendations related to results of maintenance.
- Manufacturer's user training manuals.

Manufacturer's required maintenance related to system warranty requirements.

Abbreviated operating instructions for mounting at fire-alarm control unit and each annunciator unit.

Software and Firmware Operational Documentation:

Software operating and upgrade manuals.

Program Software Backup: On magnetic media or compact disk, complete with data files.

Device address list.

Printout of software application and graphic screens.

QUALITY ASSURANCE

Installer Qualifications: Installation shall be by personnel certified by NICET as fire-alarm Level II technician.

PROJECT CONDITIONS

Perform a full test of the existing system prior to starting work. Document any equipment or components not functioning as designed.

Interruption of Existing Fire-Alarm Service: Do not interrupt fire-alarm service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary guard service according to requirements indicated:

Notify Owner no fewer than seven days in advance of proposed interruption of fire-alarm service.

Do not proceed with interruption of fire-alarm service without Owner's written permission.

Use of Devices during Construction: Protect devices during construction unless devices are placed in service to protect the facility during construction.

SEQUENCING AND SCHEDULING

Existing Fire-Alarm Equipment: Maintain existing equipment fully operational until new equipment has been tested and accepted. As new equipment is installed, label it "NOT IN SERVICE" until it is accepted. Remove labels from new equipment when put into service, and label existing fire-alarm equipment "NOT IN SERVICE" until removed from the building.

Equipment Removal: After acceptance of new fire-alarm system, remove existing disconnected fire-alarm equipment and wiring.

WARRANTY

Special Warranty: Manufacturer agrees to repair or replace fire-alarm system equipment and components that fail in materials or workmanship within specified warranty period.

Warranty Extent: All equipment and components not covered in the Maintenance Service Agreement.
Warranty Period: Five years (5) from date of Substantial Completion.

PART 2 - PRODUCTS

SYSTEM DESCRIPTION

Source Limitations for Fire-Alarm System and Components: Components shall be compatible with, and operate as an extension of, existing system. Provide system manufacturer's certification that all components provided have been tested as, and will operate as, a system.

All components provided shall be listed for use with the selected system.

Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

SYSTEMS OPERATIONAL DESCRIPTION

Fire-alarm signal shall initiate the following actions:

Activate stairwell pressurization systems.

MANUAL FIRE-ALARM BOXES

General Requirements for Manual Fire-Alarm Boxes: Comply with UL 38. Boxes shall be finished in red with molded, raised-letter operating instructions in contrasting color; shall show visible indication of operation; and shall be mounted on recessed outlet box. If indicated as surface mounted, provide manufacturer's surface back box.

Double-action mechanism requiring two actions to initiate an alarm with integral addressable module arranged to communicate manual-station status (normal, alarm, or trouble) to fire-alarm control unit.

Station Reset: Key- or wrench-operated switch.

Indoor Protective Shield: Factory-fabricated, clear plastic enclosure hinged at the top to permit lifting for access to initiate an alarm. Lifting the cover actuates an integral battery-powered audible horn intended to discourage false-alarm operation.

SYSTEM SMOKE DETECTORS

General Requirements for System Smoke Detectors:

Comply with UL 268; operating at 24-V dc, nominal.

Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit.

Base Mounting: Detector and associated electronic components shall be mounted in a twist-lock module that connects to a fixed base. Provide terminals in the fixed base for connection to building wiring.

Self-Restoring: Detectors do not require resetting or readjustment after actuation to restore them to normal operation.

Integral Visual-Indicating Light: LED type, indicating detector has operated and power-on status.

Remote Control: Unless otherwise indicated, detectors shall be digital-addressable type, individually monitored at fire-alarm control unit for calibration, sensitivity, and alarm condition.

Rate-of-rise temperature characteristic of combination smoke- and heat-detection units shall be selectable at fire-alarm control unit for 15 or 20 deg F (8 or 11 deg C) per minute.

Fixed-temperature sensing characteristic of combination smoke- and heat-detection units shall be independent of rate-of-rise sensing and shall be settable at fire-alarm control unit to operate at 135 or 155 deg F (57 or 68 deg C).

Multiple levels of detection sensitivity for each sensor.

Sensitivity levels based on time of day.

Photoelectric Smoke Detectors:

Detector address shall be accessible from fire-alarm control unit and shall be able to identify the detector's location within the system and its sensitivity setting.

An operator at fire-alarm control unit, having the designated access level, shall be able to manually access the following for each detector:

Primary status.
Device type.
Present average value.
Present sensitivity selected.
Sensor range (normal, dirty, etc.).

Ionization Smoke Detector:

Detector address shall be accessible from fire-alarm control unit and shall be able to identify the detector's location within the system and its sensitivity setting.

An operator at fire-alarm control unit, having the designated access level, shall be able to manually access the following for each detector:

- Primary status.
- Device type.
- Present average value.
- Present sensitivity selected.
- Sensor range (normal, dirty, etc.).

FIREFIGHTERS' SMOKE-CONTROL SYSTEM

Initiate Smoke-Management Sequence of Operation:

Provide Fire Fighter’s Control Panel for manual override of automatic control for mechanical stairwell pressurization smoke control system

Comply with sequence of operation as described in Section 230993 "Sequence of Operations for HVAC Controls."

Fire-alarm system shall provide all interfaces and control points required to properly activate smoke-management systems.

First fire-alarm system initiating device to go into alarm condition shall activate the smoke-control functions.

Subsequent devices going into alarm condition shall have no effect on the smoke-control mode.

Addressable Relay Modules:

Provide address-setting means on the module. Store an internal identifying code for control panel use to identify the module type.

Allow the control panel to switch the relay contacts on command.

Have a minimum of two normally open and two normally closed contacts available for field wiring.

Listed for controlling HVAC fan motor controllers.

ADDRESSABLE INTERFACE DEVICE

General:

Include address-setting means on the module.
Store an internal identifying code for control panel use to identify the module type.
Listed for controlling HVAC fan motor controllers.

Monitor Module: Microelectronic module providing a system address for alarm-initiating devices for wired applications with normally open contacts.

Control Module:

Operate fans for use in stairwell pressurization.

FIRE ALARM WIRE AND CABLE

Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

Comtran Corporation.
Draka Cableteq USA.
Genesis Cable Products; Honeywell International, Inc.
Rockbestos-Suprenant Cable Corp.
West Penn Wire.

General Wire and Cable Requirements: NRTL listed and labeled as complying with NFPA 70, Article 760.
Signaling Line Circuits: Twisted, shielded pair, size as recommended by system manufacturer.

Circuit Integrity Cable: Twisted shielded pair, NFPA 70, Article 760, Classification CI, for power-limited fire alarm signal service Type FPL. NRTL listed and labeled as complying with UL 1424 and UL 2196 for a 2-hour rating.

Non-Power-Limited Circuits: Solid-copper conductors with 600-V rated, 75 deg C, color-coded insulation.

Multiconductor Cable: NFPA 70, copper conductors, Type TFN/THHN conductor insulation, copper drain wire, NTRL listed for fire alarm and cable tray installation, plenum rated, and complying with requirements in UL 2196 for a 2-hour rating.

PART 3 - EXECUTION

EXAMINATION

Examine areas and conditions for compliance with requirements for ventilation, temperature, humidity, and other conditions affecting performance of the Work.

Verify that manufacturer's written instructions for environmental conditions have been permanently established in spaces where equipment and wiring are installed, before installation begins.

Examine roughing-in for electrical connections to verify actual locations of connections before installation.

Proceed with installation only after unsatisfactory conditions have been corrected.

EQUIPMENT INSTALLATION

Comply with NFPA 72, NFPA 101, and requirements of authorities having jurisdiction for installation and testing of fire-alarm equipment. Install all electrical wiring to comply with requirements in NFPA 70 including, but not limited to, Article 760, "Fire Alarm Systems."

Devices placed in service before all other trades have completed cleanup shall be replaced.

Devices installed but not yet placed in service shall be protected from construction dust, debris, dirt, moisture, and damage according to manufacturer's written storage instructions.

Connecting to Existing Equipment: Verify that existing fire-alarm system is operational before making changes or connections.

Connect new equipment to existing control panel in existing part of the building.

Connect new equipment to existing monitoring equipment at the supervising station.

Expand, modify, and supplement existing control and monitoring equipment as necessary to extend existing control and monitoring functions to the new points. New components shall be capable of merging with existing configuration without degrading the performance of either system.

Install a cover on each smoke detector that is not placed in service during construction. Cover shall remain in place except during system testing. Remove cover prior to system turnover.

PATHWAYS

Pathways shall be installed in EMT.

EMT shall be painted red enamel.

CONNECTIONS

Make addressable connections with a supervised interface device to the following devices and systems. Install the interface device less than 36 inches (910 mm) from the device controlled. Make an addressable confirmation connection when such feedback is available at the device or system being controlled.

Alarm-initiating connection to stairwell and elevator-shaft pressurization systems.

IDENTIFICATION

Install framed instructions in a location visible from fire-alarm control unit.

GROUNDING

Ground shielded cables at the control panel location only. Insulate shield at device location.

FIELD QUALITY CONTROL

Field tests shall be witnessed by authorities having jurisdiction.

Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.
Perform tests and inspections.

Perform the following tests and inspections with the assistance of a factory-authorized service representative:

Visual Inspection: Conduct visual inspection prior to testing.

Inspection shall be based on completed record Drawings and system documentation that is required by the "Completion Documents, Preparation" table in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.

Comply with the "Visual Inspection Frequencies" table in the "Inspection" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72; retain the "Initial/Reacceptance" column and list only the installed components.

System Testing: Comply with the "Test Methods" table in the "Testing" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.

Factory-authorized service representative shall prepare the "Fire Alarm System Record of Completion" in the "Documentation" section of the "Fundamentals" chapter in NFPA 72 and the "Inspection and Testing Form" in the "Records" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.

Reacceptance Testing: Perform reacceptance testing to verify the proper operation of added or replaced devices and appliances.

Fire-alarm system will be considered defective if it does not pass tests and inspections.

Prepare test and inspection reports.

Maintenance Test and Inspection: Perform tests and inspections listed for weekly, monthly, quarterly, and semiannual periods. Use forms developed for initial tests and inspections.

DEMONSTRATION

Train Owner's maintenance personnel to adjust, operate, and maintain fire-alarm system.

End of Section

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