RFB NO. 322026

CONSTRUCTION DOCUMENTS
PROJECT MANUAL

DANE COUNTY DEPARTMENT OF
WASTE & RENEWABLES
1919 ALLIANT ENERGY CENTER WAY
MADISON, WISCONSIN 53713

REQUEST FOR BIDS NO. 322026
MAINTENANCE / OFFICE BUILDING CONSTRUCTION
DANE COUNTY RODEFELD LANDFILL
7102 HWY 12 & 18
MADISON, WISCONSIN

ISSUED FOR BIDS: JULY 12, 2022

Due Date / Time: **TUESDAY, AUGUST 9, 2022 / 2:00 P.M.**

Location: **WASTE & RENEWABLES OFFICE**

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

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

FOR INFORMATION ON THIS REQUEST FOR BIDS, PLEASE CONTACT:

ROBERT REGAN, PROJECT ENGINEER
TELEPHONE NO.: 608/516-3159
FAX NO.: 608/267-1533
E-MAIL: REGAN@COUNTYOFDANE.COM

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INVITATION TO BID

LEGAL NOTICE

Dane County Dept. of Waste & Renewables, 1919 Alliant Energy Center Way, Madison, WI 53713, will receive sealed Bids until:

2:00 P.M., TUESDAY, AUGUST 9, 2022

RFB NO. 322026

MAINTENANCE / OFFICE BUILDING CONSTRUCTION

DANE COUNTY RODEFELD LANDFILL

7102 HWY 12 & 18, MADISON, WI

Dane County is inviting Bids for construction services at the Dane County Rodefeld Landfill. The project will consist of rehabilitation of an existing 2,800 square foot maintenance building and construction of an adjacent 1,200 square foot office building, including all civil, mechanical, and electrical work. Only firms with capabilities, experience & expertise with similar projects should obtain this Request for Bids (RFB) document & submit Bids.

RFB document may be obtained after **2:00 p.m., July 12, 2022** from bids-pwht.countyofdane.com. Call Robert Regan, Project Engineer, 608/516-3159, or our office, 608/266-4018, with any questions.

Bidders must be qualified as Best Value Contractor before Bid Due Date / Time. Complete Application at publicworks.countyofdane.com/bvc or call 608/267-0119.

Pre-bid site tour will be held on July 26, 2022 at 10:00 a.m. at the Dane County Rodefeld Landfill, starting at the entrance to the Renewable Natural Gas Plant just inside the main site entrance gate. Bidders are strongly encouraged to attend.

PUBLISH: JULY 12 & JULY 19, 2022 - WISCONSIN STATE JOURNAL

JULY 13 & JULY 20, 2022 - THE DAILY REPORTER

END OF SECTION

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INSTRUCTIONS TO BIDDERS

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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 July 26, 2022 at 10:00 a.m. at the Dane County Rodefeld Landfill, starting at the entrance to the Renewable Natural Gas Plant just inside the main site entrance gate. Attendance by all bidders is optional, however bidders and subcontractors are strongly encouraged to attend.

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. Contractor and subcontractors shall meet all applicable Best Value Contractor requirements.

5. Has record of satisfactorily completing past projects. 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 Waste & Renewables Project Manager will make such investigations as are deemed necessary to determine ability of bidder to perform the Work, and bidder shall furnish to County's Waste & Renewables Project Manager or designee all such information and data for this purpose as County's Waste & Renewables Project Manager 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 section, 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 Specialist 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 *Dane County Targeted Business Directory* by going to this website. Do not click as a link; copy & paste address into a web browser.
https://equity.countyofdane.com/documents/PDFs/Targeted-Business-Directory.xlsx

G. **DBE Listing.** Bidders may also solicit bids from *State of Wisconsin DOT Disadvantaged Business Enterprise Unified Certification Program (DBE / UCP) Directory* by going to this website. These are not only transportation-related designers & contractors. Do not click as a link; copy & paste address into a web browser.
https://wisconsindot.gov/Documents/doing-bus/civil-rights/dbe/dbe-ucp-directory.xlsx

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

I. **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.

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

OEI@countyofdane.com
or
Dane County Contract Compliance Specialist
City-County Building, Room 356
210 Martin Luther King, Jr. Blvd.
Madison, WI 53703
608/266-4192

K. **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 Specialist 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.

L. **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 Specialist within twenty-four (24) hours after Bid Due Date.

M. **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 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 the 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. Current conditions prevent public bid openings.

I. Bids hand delivered & dropped off at Public Works' physical address should be placed in the "Public Works Bids & Proposals" drop box placed outside or just inside the building's front vestibule.

J. Bid will be opened on listed due date & time & results should be available within 24 hours at bids-pwht.countyofdane.com.

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

L. Faxed or emailed Bids will not be accepted.

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

14. SUBCONTRACTOR LISTING

A. Bidders are required to submit Section 00 43 36, Proposed Subcontractors Form listing all subcontractors for this project including committed prices for each subcontractor. Project Manager must receive Form no later than when successful Bidder submits their signed Contract. Failure to submit may delay progress payments.

15. ALTERNATE BIDS

A. Not Applicable.

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. This work will be accomplished by Owner or will be let under separate contracts and will not be included under this Contract:

1. Owner shall provide erosion control permitting, City of Madison permitting, marking of private utility locations, construction oversight, and concrete testing services.

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

Name of Bidding Firm: _____

SECTION 00 41 13

BID FORM

BID NO. 322026
PROJECT: MAINTENANCE / OFFICE BUILDING CONSTRUCTION
DANE COUNTY RODEFELD LANDFILL

TO: DANE COUNTY DEPARTMENT OF WASTE & RENEWABLES
ROBERT REGAN, PROJECT ENGINEER
1919 ALLIANT ENERGY CENTER WAY
MADISON, WISCONSIN 53713

NOTE: WISCONSIN STATUTE 77.54 (9M) ALLOWS FOR NO SALES & USE TAX ON THE PURCHASE OF MATERIALS FOR COUNTY PUBLIC WORKS PROJECTS. THIS

BASE BID - LUMP SUM:
Dane County is inviting Bids for construction services at the Dane County Rodefeld Landfill. The project will consist of rehabilitation of an existing 2,800 square foot maintenance building and construction of an adjacent 1,200 square foot office building, including all civil, mechanical, and electrical work. 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 Waste & Renewables 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

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

Addendum No(s). _____ through _____

Dated _____

Dane County Department of Waste & Renewables must have this project completed by March 31, 2023. Assuming this Work can be started by September 15, 2022, 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 is qualified as a Best Value Contractor or has proven their exemption. Qualification or exemption shall be complete before Bid Due Date / Time.

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: _____

END OF SECTION

THIS PAGE IS FOR BIDDERS' REFERENCE

DO NOT SUBMIT WITH BID FORM.

BID CHECK LIST:
These items **must** be included with Bid:

☐ Bid Form
☐ Bid Bond
☐ Proposed Subcontractors Form
☐ Fair Labor Practices Certification

DANE COUNTY BEST VALUE CONTRACTING QUALIFICATION

General Contractors & all Subcontractors must be qualified as a Best Value Contractor with the Dane County Public Works Engineering Division. Qualification & listing is not permanent & must be renewed every 36 months. Complete a *Best Value Contracting Application* online at:
publicworks.countyofdane.com/bvc

DANE COUNTY VENDOR REGISTRATION PROGRAM

All bidders are strongly encouraged to be a registered vendor with Dane County. Registering allows vendors an opportunity to receive notifications for RFBs & RFPs issued by the County and provides the County with up-to-date company contact information. Complete a new form or renewal online at:
danepurchasing.com/Account/Login?

SECTION 00 43 36

PROPOSED SUBCONTRACTORS FORM

General Contractor Name: _____ Bid No: _____

Instructions:
1. Complete all information in table below.
2. Include this Form with signed Construction Contract (Section 00 52 96).
3. General contractors & subcontractors must be qualified & registered as Best Value Contractor (Dane County Ordinances, Chapter 40.07). General contractors must be qualified & registered before bids are due. Subcontractors must be qualified & registered 10 working days before performing any work related to Construction Contract. No contractor can perform work without being qualified & registered.
4. Sample Best Value Contracting Application is included in this RFB package for informational purposes; fill out form online (publicworks.countyofdane.com/bvc).

SUBCONTRACTOR NAME	ADDRESS & PHONE NO.	DIVISION OF WORK	$$ AMOUNT OF CONTRACT

Check box if there is another form page attached to include additional subcontractors. ☐

The undersigned, for and on behalf of the General Contractor named herein, certifies the information on this Form is accurate.

_____ _____
Officer or Authorized Agent Signature Date

_____
Printed or Typed Name and Title

SUBCONTRACTOR NAME	ADDRESS & PHONE NO.	DIVISION OF WORK	$$ AMOUNT OF CONTRACT

END OF SECTION

COUNTY OF DANE

WASTE & RENEWABLES CONSTRUCTION CONTRACT

Contract No. _____ Bid No. 322026

Authority: 2022 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 Waste & Renewables Director, 1919 Alliant Energy Center Way, Madison, WI 53713, desires to have CONTRACTOR provide Maintenance / Office Building Construction at the Dane County Rodefeld Landfill ("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 Kueny Architects, LLC (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. The term of this Contract shall commence when fully executed by the parties. The CONTRACTOR shall commence the Work by _____. The Work's substantial completion date shall be _____. Failure to meet commence work or substantial completion dates on the Work as set forth herein is grounds for termination of the Contract and other remedies as set forth in the General Conditions of Contract incorporated herein.

3. 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.

4. 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.

5. CONTRACTOR shall file an Affirmative Action Plan with the Dane County Contract Compliance Specialist 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 Office of Equity & Inclusion, 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.

6. 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".

7. CONTRACTOR agrees to furnish all information and reports required by COUNTY'S Contract Compliance Specialist 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. The intent of this Contract is to be a Contract solely between the parties hereto and for their benefit only. Do not construe any part of this Contract 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 the parties.

9. 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.

10. CONTRACTOR must be qualified as a Best Value Contractor or have proven their exemption with Dane County Public Works Engineering Division before Bid Due Date / Time. All contractors and subcontractors must be qualified as a Best Value Contractor or have proven their exemption to perform any work under this Contract.

11. This Contract, and any amendment or addendum relating to it, may be executed and transmitted to any other party by legible facsimile reproduction or by scanned legible electronic PDF copy, and utilized in all respects as, an original, wet-inked manually executed document. Further, this Contract and any amendment or addendum thereto, may be stored and reproduced by each party electronically, photographically, by photocopy or other similar process, and each party may at its option destroy any original document so reproduced. All parties hereto stipulate that any such legible reproduction shall be admissible in evidence as the original itself in any judicial, arbitration or administrative proceeding whether or not the original is in existence and whether or not each party made such reproduction in the regular course of business. This term does not apply to the service of notices 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 work is not authorized until the CONTRACTOR has been given notice to proceed by COUNTY'S Waste & Renewables 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 00 72 12

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 Waste & Renewables 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 Waste & Renewables, which is a unit of Dane County government. Department is County agency overseeing Contract with Contractor.
   3. Waste & Renewables Project Manager is appointed by and responsible to Department. Waste & Renewables 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. Waste & Renewables 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 does not need to pay State and local sales & use taxes on building materials that become part of local unit government facilities. See Wisconsin Statute 77.54 (9m). This does not include materials for highways, streets or roads. Contractor shall pay any other Sales, Consumer, Use & other similar taxes or fees 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 Waste & Renewables 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 Waste & Renewables 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 Waste & Renewables Project Manager's instructions require any work to be specially tested or approved, Contractor shall give Architect / Engineer and Waste & Renewables 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 Waste & Renewables 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 Waste & Renewables 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 Waste & Renewables 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 Waste & Renewables 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 Waste & Renewables 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 Waste & Renewables 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 Waste & Renewables 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 Waste & Renewables 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 Waste & Renewables 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 Waste & Renewables 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 Waste & Renewables Project Manager find that progress of the Work corresponds with Construction Schedule. If Architect / Engineer and Waste & Renewables 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.

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 Waste & Renewables 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.

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. PROJECT MANAGER'S AUTHORITY

A. Waste & Renewables 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 Waste & Renewables Project Manager.

36. STATED ALLOWANCES

A. Not applicable.

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's and Waste & Renewables 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 twenty (20) or more employees and receives $20,000.00 or more in annual aggregate contracts with County. Contractor shall file and Affirmative Action Plan with Dane County Contract Compliance Specialist 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 Office of Equity & Inclusion, 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 Specialist at Dane County Office of Equity & Inclusion, 210 Martin Luther King, Jr. Blvd., Room 356, Madison, WI 53703, 608/266-4192.
   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 Specialist 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 Specialist, 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 Specialist 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 Specialist 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. 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 Waste & Renewables 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.

46. CLAIMS

A. No claim may be made until Department's Waste & Renewables 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 Waste & Renewables 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.

47. 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.

48. 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 subcontractors' 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 $1,000,000 or less. Therefore, if project completed value is more than $1,000,000, 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.

49. 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.

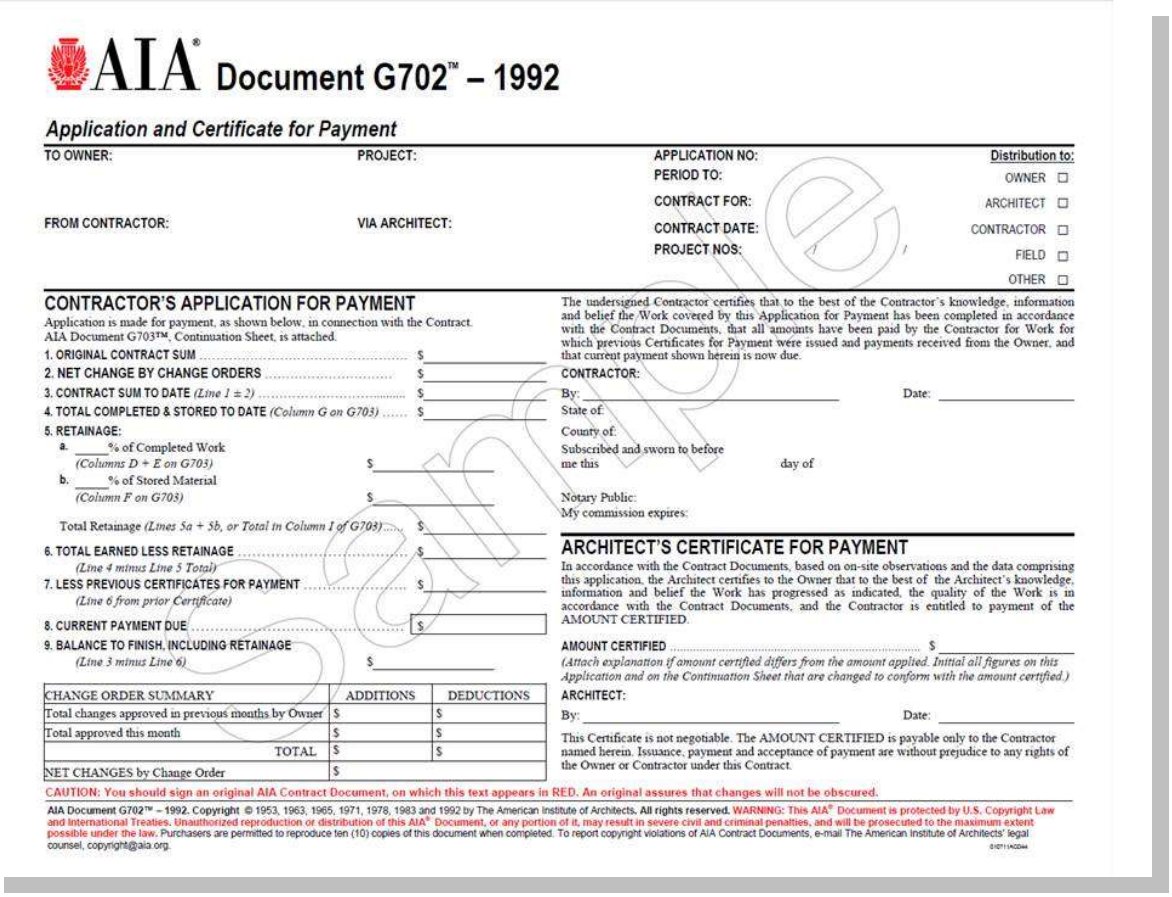
END OF SECTION

SECTION 00 73 00

SUPPLEMENTARY CONDITIONS

1. APPLICATION & CERTIFICATE FOR PAYMENT

A. Every contractor engaged in performance of any contract for Department of Waste & Renewables 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 Department of Waste & Renewables Project Manager 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:

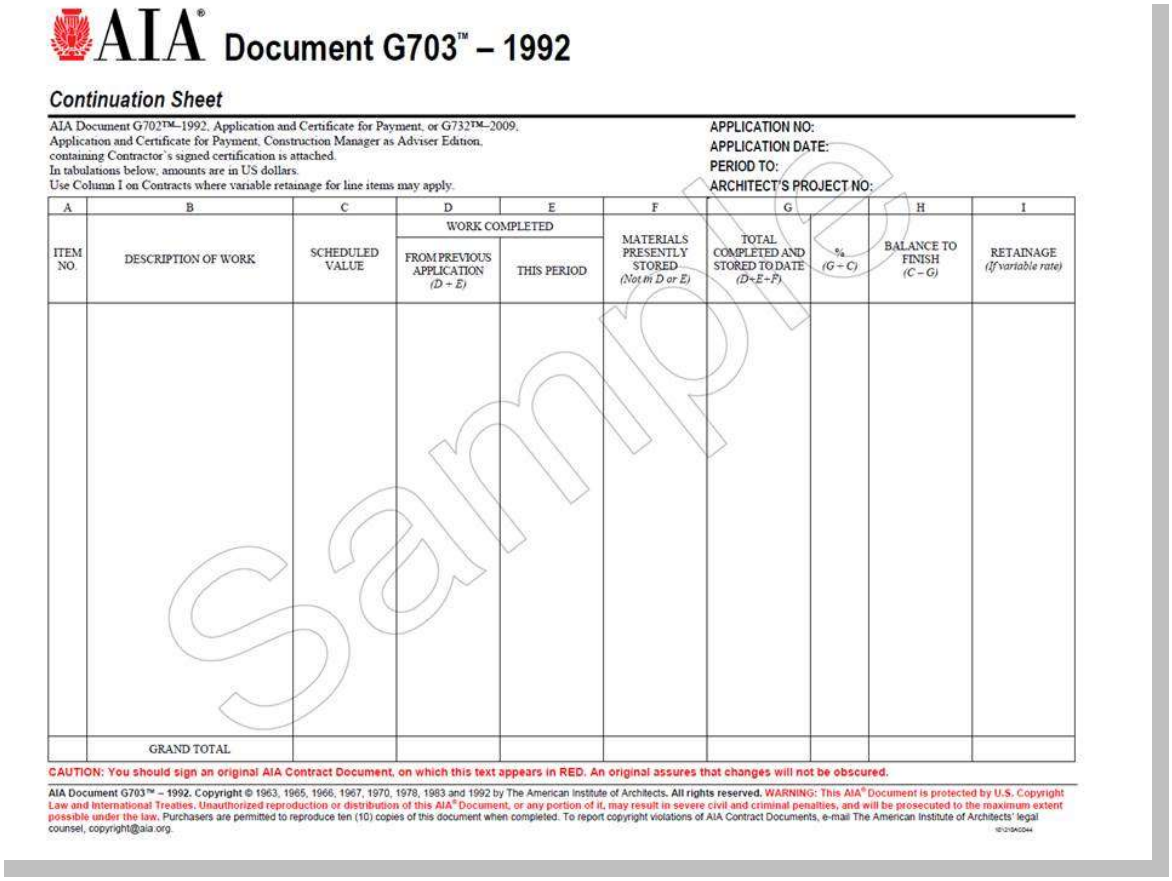
ARCHITECT'S CERTIFICATE FOR PAYMENT

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.

END OF SECTION

SECTION 00 73 00

BEST VALUE CONTRACTING

1. CONTRACTORS / LICENSURE APPLICANTS

The Dane County Department of Public Works requires contractors & subcontractors to be a Best Value Contractor (BVC) before being hired. Contractor & subcontractor application documents should be turned in immediately. Contractor approval or exemption must be complete prior to Bid Due Date / Time. All subcontractors must also be approved or prove their exemption ten (10) business or more days before performing any work under a County contract. 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 qualification status will retain that status for a period of three (3) 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 application or status. Failure to do so could result in suspension, revocation of the contractor's 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: https://dwd.wisconsin.gov/apprenticeship/.

Fill out the BVC Application at the Public Works Engineering Division web site (publicworks.countyofdane.com/bvc). This document is only provided in the RFB for reference. The following page shows what the questions are on the application.

2. EXEMPTIONS TO QUALIFICATION

Contractors performing work that does not apply to an apprenticeable trade, as outlined in Item 4. Apprenticeable Trades, is the only reason for claiming an exemption if not an active Wisconsin Trades Trainer. See Question 18A.

3. APPLICATION QUESTIONS

NO.	PROOF OF RESPONSIBILITY	CHECK IF APPLICABLE
1	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 qualified with the County or become so ten (10) or more days before beginning any work?	Yes: ☐ No: ☐
2	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, qualified subcontractors?	Yes: ☐ No: ☐
3	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: ☐

4	Will your firm meet all bonding requirements as required by applicable law or contract specifications?	Yes: ☐ No: ☐
5	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: ☐
6	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: ☐
7	Will your employees who will perform work on a Public Works project all be covered under a current workers compensation policy and be properly classified under such policy?	Yes: ☐ No: ☐
8	Will your employees who will perform work on a Public Works project have the opportunity to enroll in minimum essential coverage and not be subject to an enrollment period of more than 60 days per the federal Affordable Care Act, Sec. 1513?	Yes: ☐ No: ☐
9	Will your firm fully abide by the equal opportunity and affirmative action requirements of all applicable laws, including County ordinances?	Yes: ☐ No: ☐
10	Has your firm been the subject of any order or judgement from any State or Federal Agency or court concerning employment practice, including but not limited to: classification of employees under state unemployment or workers compensation laws; minimum wage, overtime pay, recordkeeping, and child labor standards imposed by federal or state law; and employment discrimination or unfair labor practices prohibited by federal or state law. (Attach copies of any order or judgement)	Yes: ☐ No: ☐ If Yes, attach details.
11	Is your firm authorized or registered to transact business in the state by the Department of Financial Institutions in compliance with Wis. Stat. Chaps. 178, 179, 180, 181, or 183?	Yes: ☐ No: ☐ If Yes, attach details.
12	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.
13	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.
14	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.
15	In the past three (3) years, has your firm defaulted or failed to complete any contract?	Yes: ☐ No: ☐ If Yes, attach details.
16	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.
17	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.
18	Is your firm an active Wisconsin Trade Trainer as determined by the Wisconsin Bureau of Apprenticeship Standards?	Yes: ☐ No: ☐ If Yes, attach details.

18A	Is your firm claiming an exemption to qualification?	Yes: ☐ No: ☐ If Yes, attach details.
19	Contractor has been in business less than one year?	Yes: ☐ No: ☐

4. APPRENTICEABLE TRADES:

- Bricklayer
- Boilermaker
- 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

END OF SECTION

SECTION 00 73 11

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 25.09 is as follows:

(1) 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 Controller 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.

END OF SECTION

SECTION 01 00 00

GENERAL REQUIREMENTS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. 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. Job Site Administration
13. Submittal Procedures
14. Proposed Products List
15. Shop Drawings
16. Product Data
17. Samples
18. Manufacturers' Instructions
19. Manufacturers' Certificates
20. Quality Assurance / Quality Control of Installation
21. References
22. Interior Enclosures
23. Protection of Installed Work
24. Parking
25. Staging Areas
26. Occupancy During Construction and Conduct of Work
27. Protection
28. Progress Cleaning
29. Products
30. Transportation, Handling, Storage and Protection
31. Product Options
32. Substitutions
33. Starting Systems
34. Demonstration and Instructions
35. Contract Closeout Procedures
36. Final Cleaning
37. Adjusting
38. Operation and Maintenance Data
39. Spare Parts and Maintenance Materials

40. 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 all labor and materials for the rehabilitation of an existing 2,800 square foot maintenance building and construction of an adjacent 1,200 square foot office building, including all civil, mechanical, and electrical work.

B. Work by Owner: See Instructions to Bidders, Section 19, titled “Work by Owner”.

C. Diggers Hotline:
1. It is General Contractor’s responsibility to contact Diggers Hotline to have all utility locations marked prior to excavation and planning excavation so as not to delay the Work.
2. Use Diggers Hotline to obtain information on safe working clearances from overhead lines.
3. Completely comply with all requirements of each affected utility company.
4. It is General Contractor’s responsibility to contact & hire private utility locating services if necessary.

1.3 CONTRACTOR USE OF PREMISES

A. Refer to General Conditions of Contract, Section 7 titled “Use of Site”.

B. Coordinate utility outages and shutdowns with Owner.

1.4 APPLICATIONS FOR PAYMENT

A. Submit each Application for Payment on AIA G702™ and G703™ forms or approved contractors invoice form. Contractor shall have these forms notarized and signed.

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 Waste & Renewables Project Manager for approval & processing for payment.

1.5 CHANGE PROCEDURES

A. Refer to General Conditions of Contract, Section 18 titled “Changes in the Work”.

1.6 ALTERNATES

A. Not applicable.

1.7 LUMP SUM ALLOWANCES FOR WORK

A. Not applicable.

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 indicated diagrammatically on Drawings.

D. Contractor shall provide Waste & Renewables Project Manager with work plan that ensures the Work's completion within required time & schedule.

E. Waste & Renewables Project Manager may choose to photograph or videotape site or workers as the Work progresses.

1.9 CUTTING AND PATCHING

A. Refer to General Conditions of Contract, Section 5 titled "Cutting and Patching".

1.10 CONFERENCES

A. Project shall have pre-bid conference; see Instructions to Bidders.

B. Owner will schedule preconstruction 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. Owner shall schedule and administer meetings throughout progress of the Work at minimum of one (1) per week. Day & time of progress meetings to be determined at the preconstruction meeting.

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

C. Attendance at progress meetings by General Contractor, subcontractors, or their authorized representative, is mandatory.

D. Contractors shall give verbal reports of progress on the Work, discuss schedule for upcoming period and present all conflicts, discrepancies or other difficulties for resolution.

1.12 JOB SITE ADMINISTRATION

A. Contractor shall have project superintendent on site regularly during progress of the Work.

B. Contractor shall not change their project superintendent or project manager for duration of the Work without written permission of Public Works Project Manager.

C. Owner shall have representative on site regularly during progress of the Work.

1.13 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.

1.14 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.

1.15 SHOP DRAWINGS

A. Refer to General Conditions of Contract, Section 4 titled “Shop Drawings, Product Data and Samples”.

1.16 PRODUCT DATA

A. Refer to General Conditions of Contract, Section 4 titled “Shop Drawings, Product Data and Samples”.

1.17 SAMPLES

A. Refer to General Conditions of Contract, Section 4 titled “Shop Drawings, Product Data and Samples”.

1.18 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.

1.19 MANUFACTURERS' CERTIFICATES

A. When specified in individual Specification sections, submit manufacturers' certificate to Waste & Renewables 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.

1.20 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.

1.21 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 Waste & Renewables Project Manager before proceeding.

1.22 INTERIOR ENCLOSURES

A. Not applicable.

1.23 PROTECTION OF INSTALLED WORK

A. Refer to General Conditions of Contract, Section 15 titled “Protection of Work and Property”.

1.24 PARKING

A. Refer to General Conditions of Contract, Section 7 titled “Use of Site”.

B. Parking shall be available at the Work site.

1.25 STAGING AREAS

A. Refer to General Conditions of Contract, Section 7 titled “Use of Site”.

1.26 OCCUPANCY DURING CONSTRUCTION AND CONDUCT OF WORK

A. Refer to General Conditions of Contract, Section 7 titled “Use of Site”.

B. Smoking is prohibited on Dane County property.

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

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

E. Each Contractor shall arrange with Owner to make necessary alterations, do new work, make connections to all utilities, etc., and 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.

F. Contractor is responsible for providing & maintaining temporary toilet facilities.

1.27 PROTECTION

A. Contractor shall protect from damage / injury all trees, shrubs, hedges, plantings, grass, mechanical, electrical & plumbing equipment, walks and driveways and pay for any damage to same resulting from insufficient or improper protection.

1.28 PROGRESS CLEANING

A. Refer to General Conditions of Contract, Section 6 titled “Cleaning Up”.

1.29 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.

1.30 TRANSPORTATION, HANDLING, STORAGE AND PROTECTION

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

1.31 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 Waste & Renewables 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 Waste & Renewables 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.

1.32 SUBSTITUTIONS

A. Waste & Renewables 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. Limit each request to one (1) proposed Substitution for Waste & Renewables Project Manager’s consideration.

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

1.33 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.

1.34 DEMONSTRATION AND INSTRUCTIONS

A. Demonstrate operation and maintenance of Products to Owner's personnel prior to date of final inspection.

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 photograph or videotape demonstration session; demonstration and demonstrator shall be to level of satisfaction of Owner.

1.35 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 Waste & Renewables Project Manager's inspection.

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

1.36 FINAL CLEANING

A. Refer to General Conditions of Contract, Section 6 titled “Cleaning Up”.

1.37 ADJUSTING

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

1.38 OPERATION AND MAINTENANCE MANUAL

A. Provide two (2) bound, hard-copy operation and maintenance manuals that include all systems, materials, products, equipment, mechanical and electrical equipment and systems supplied and installed in the Work. Provide electronic version of operation and maintenance manual also.

1.39 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.

1.40 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 Waste & Renewables Project Manager with original marked up redlines of Construction Documents’ drawings and specifications that shall include all Addendums, Change Orders, Construction Bulletins, Field Directives, on-site changes, field corrections, etc. These are project As-Built Drawings & Specifications. Record Drawings & Specifications shall be created from these As-Builts by Waste & Renewables.

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. Recycling
5. Materials Sorting and Storage On Site
6. Lists of Recycling Facilities Processors and Haulers
7. Waste Management Plan Form

B. Related Sections:
1. Section 01 00 00 - General Requirements

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 landfill.countyofdane.com/services/construction.

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

1.4 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. Vinyl Siding.
7. Cardboard.
8. Metal.
9. Unpainted Gypsum Drywall.
10. Shingles.

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

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

1.5 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. Dane County allows mixed loads of recycled materials only per instructions at landfill.countyofdane.com/services/construction.

1.6 LISTS OF RECYCLING FACILITIES PROCESSORS AND HAULERS

A. Refer to landfill.countyofdane.com/services/construction for information on Dane County Construction & Demolition Recycling Facility.

B. Web site landfill.countyofdane.com/recycle-locations lists current information for Dane County Recycling Markets. Contractors can also contact Allison Rathsack, 608/266-4990, or local city, village, town recycling staff listed at site landfill.countyofdane.com/resources/local-contacts. Statewide listings of recycling / reuse markets are available from UW Extension at uwgb.edu/solid-hazardous-waste-education-center/.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 03 30 00 CAST-IN-PLACE CONCRETE

SCOPE Applicable provisions of the General and Supplementary Conditions and Division 1 govern work under this Section.

INDEX

PART 1 GENERAL

1.1 Description

A. Work Included: Cast-in-place concrete required for this work (including forms and reinforcing) is indicated on the drawings and includes but is not necessarily limited to:
   1. Footings - foundations
   2. Exterior flat work
   3. Interior floor

B. Related Work Specified Elsewhere

1. Testing laboratory	Per Construction Manager
2. Sitework	Per Drawings
3. Miscellaneous Metal	Section 05 50 00
4. Metal Building System	Section 13 34 19

C. Work Installed but Furnished by Others: Anchor bolts, templates and built-in items for precast work, Section 13 34 19.

1.2 Quality Assurance

A. Workers: Use only workers experienced in the placing and finishing of concrete and erecting of reinforcing.

B. Codes and Standards: Concrete work shall conform to all requirements of ACI 301, Specifications for Structural Concrete for Buildings Current Edition, except as modified by the Supplemental Requirements below:
   1. A copy of ACI-301, Specifications for Structural Concrete for Buildings is on file at the office of the Architect. The Contractor in submitting a proposal verifies that he has complete knowledge of ACI 301. A copy of ACI 301 will be bound into the copy of the building Specifications and kept on the site during construction. All concrete work will also conform to ACI 318-14 Building Code Requirements for Reinforced Concrete.

1.3 Submittals

Submittals: At award of Contract and before any concrete is delivered to the job site submit to the Architect in accordance with these Specifications: Reinforcing steel drawings and Mix designs.

PART 2 PRODUCTS

2.1 **Supplemental Requirements**: Numbers listed below correspond to numbering designations used in ACI 301, Specifications for Structural Concrete for Buildings.

(1.6) Testing: Take test cylinders as directed by Architects for testing by Owner.

(2.2.1.4) Joint at perpendicular filler to meet Article 2.2.1.4

(3.2) Reinforcing steel:
3.2.1.1 Deformed bars grade: ASTM A 615 Grade 60, New billet steel.
3.2.1.5 Wire grade: ASTM A 185.

(3.3.2.5) Welded Wire Fabric: Welded wire fabric shall be as specified on the drawings. Fabric to be supplied in sheets, rolled goods are not permitted. Fabric to be supported on chairs to position the wires at the specified height. "Hooking" during concrete placement is not permitted.

(4.2.1.4) Admixtures: Air entraining admixtures compliant with ASTM C260 in accord with ACI 301 will be acceptable. Minimum 6.5% air content. Chemical admixtures compliant with ASTM C 494 or ASTM C 1017 in accord with ACI 301 will be acceptable / Chemical (non-chloride) admixtures compliant with ASTM C 494 or ASTM C 1017 in accord with ACI 301 will be acceptable.

(4.2.2) Concrete Strength: All concrete for footings and foundations shall be 4,000 psi at 28 days. Concrete for floor slabs shall be 6,000 psi at 28 days.

(4.2.2.2) Maximum slumps as follows: Slump tolerance shall be 4" per ACI 301 with a tolerance of +/- 1" per ACI 117. As stated in ACI 301, plasticizing admixtures will increase the allowable slump.

(5.3.1) Placing: Notify Architect 24 hours in advance of starting time of each pour. Allow time for inspection of forms, reinforcement, screeds, etc., and to explain procedures for slump and cylinder tests.

(5.3.1) Concrete contractor to verify actual topping thickness to account for camber in steel joists/ Precast Deck.

(5.3.3.3) As-cast finishes:
5.3.3.3.b Smooth form finish required.

(5.3.3.4.a) Smooth rubbed finish on exposed sections of retaining walls, exposed foundations and curbs. Remove form marks prior to application. Commercial coating as approved by Architect.

(5.3.4.2) Tolerances: Concrete to be true to plane, plumb and level with true curves. Deviations from dimensions, pitches, contours may not exceed 1/4" when by adding to scratch coat this may be corrected. Deviations which require a reduction in total two inch thickness of tile and setting bed, as shown on the Drawings will not be allowed.

(5.3.4.2.d) Stiff broom finish on stair treads and areas to receive ceramic tile.

(5.3.5) Control Joints: saw cut or trowel as shown on plan or max size 14'-0" x 14'-0" curbing 10' o.c.

(5.3.6) Concrete Surface Sealer: At all slabs to remain exposed and noted as "Sealer" on Room Finish Schedule,
Lapidolith by Sonneborn
Aquapel by L&M Construction Chemicals.

Apply per manufacturer's specifications for new concrete immediately after finishing.

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SECTION 05 12 00 STRUCTURAL STEEL FRAMING

SCOPE Applicable provisions of the General and Supplementary Conditions and Division 1 govern work under this Section.

INDEX

PART 1 GENERAL

1.1 Description

A. Work Included
   1. Column/Bollards
   2. Misc. Steel

B. Related Work Specified Elsewhere

1. Structural metal stud framing	Section 05 41 00
2. Pre-Fabrication light gauge steel trusses	Section 05 44 00
3. Finish painting	Section 09 91 00
4. Metal Building System	Section 13 34 19

C. Work Furnished but Not Installed
   1. Anchor bolts, loose bearing plates which will be installed under Section 03 30 00.

D. Work Furnished by the Owner: Testing agency will be provided by the Owner.

1.2 Quality Assurance

A. Qualifications
   1. Steel fabricator:
      a. Fabricator shall have not less than 5 years experience in the fabrication of structural steel.
      b. Submit a written description of fabrication ability including facilities, personnel and list of similar completed projects.
   2. Steel Erection:
      a. Erector shall have not less than 5 years experience in the erection of structural steel.
   3. Welding: All welding shall be performed by operators who have been recently qualified as prescribed in "Qualification Procedure" of the American Welding Society.
   4. Design connections not detailed on the Drawings under direct supervision of a professional structural engineer experienced in design of this work and licensed in the State of Wisconsin.

B. Requirements of Regulatory Agencies: In addition to complying with all pertinent codes and regulations, comply with:
   1. "Specifications for the Design, Fabrication, and Erection of Structural Steel for Buildings" of the American Institute of Steel Construction.

2. "Code for Welding in Building Construction" of the American Welding Society.
3. Specifications for Structural Joints Using ASTM A 325 or A 490 Bolts, approved by the Research Council on Riveted and Bolted Joints of the Engineering Foundation.
4. Specification of the Structural Steel Painting Council.
5. Applicable Building Code.
6. In the event of conflict between pertinent codes and regulations and the requirements of the referenced standards or these Specifications, the provisions of the more stringent shall govern.

C. Source Quality Control
   1. Material Compliance: Manufacturer will supply on request of Architect, certificates showing mechanical, physical and strength properties of all materials supplied.
   2. Inspection of shop assembled high strength bolted construction.
   3. Inspection of field assembled high strength bolted construction shall be in accord with Section 6, AISC Specification for Structural Joints.
   4. Inspection of shop welds shall be in accordance with Section 6 of AWS Building Code and as follows:
      a. Visual inspection of shop welds in accordance with Article 605.
      b. Stud welding inspection of shop welded studs in accordance with Article 433.
   5. Testing Agency shall perform the following:
      a. Inspection of shop fabricated structural steel members and assemblies for conformance with the requirements specified.

1.3 Submittals: Within 35 days after award of Contract, and before any of the materials of this Section are delivered to the job site, submit complete to the Architect in accordance with these Specifications; the following:

A. Shop Drawings: Show all shop and erection details including cambers, cuts, copes, connections, holes, threaded fasteners, rivets and welds. All welds, both shop and field, shall be indicated by AWS "Welding Symbols" A 2.0.

The following shall be available upon request:

1. Erection Procedure: Submit descriptive data to illustrate the structural steel erection procedure, including the sequence of erection and temporary staying and bracing.

2. Welding Procedure: Submit written description as required to illustrate each welding procedure to be performed in the specified work.

3. Field welding equipment: Submit descriptive data for field welding equipment, including type, voltage and amperage.

4. Manufacturer's Literature: Submit description of each type of welding stud and arc shield.

1.4 Product Delivery, Storage and Handling

A. Protection: Use all means necessary to protect structural steel before, during and after installation and to protect the installed work and materials of all other trades.

B. Delivery of Materials to be Installed Under Other Sections:
   1. Anchor bolts and other anchorage devices which are embedded in cast-in-place concrete or masonry construction shall be delivered to the project site in time to be installed before the start of cast-in-place concrete operations or masonry work.

C. Storage of Materials
   1. Structural steel members which are stored at the project site shall be above ground on platforms, skids or other supports.
   2. Steel shall be protected from corrosion.
   3. Other materials shall be stored in a weather tight and dry place, until ready for use in the work.
   4. Packaged materials shall be stored in their original unbroken package or container.

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

PART 2 PRODUCTS

2.1 Materials

A. Steel Shapes, Bars and Plates
   1. Wide flange shapes – ASTM A992 (50 ksi)
   2. All other shapes – ASTM A 36

B. Structural Steel Tubing: Fy 46 ksi cold-formed round, ASTM A 500, Grade B.

C. Headed Stud Type, Shear Connectors:
   1. Cold finished carbon steel, ASTM A 108, forged steel, uncoated.
   2. Dimensions of shear connectors shall conform to Figure M-1 of AWS Building Code.

D. Anchor Bolts: conform to Section I. C. of ASTM A 307.

E. High-Strength Threaded Fasteners: ASTM A 325.
   1. Use high strength bolts for all bolted connections.
   2. Bolt Holes: 1/16" larger than bolt diameter.
   3. All bolts to have threads excluded from shear plane.

F. Filler Metals for Welding: Shielded metal-arc welding: AWS A 5.1.

G. Accessories: Include bridging, headers, end and side wall anchors, ceiling extensions, etc. to provide a complete installation.

H. Shop Paint Primer: Standard primer: SSPC Paint 13.

I. Sliding Bearing Plates: Teflon coated.

J. Grout: Non-shrink type, pre-mixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing additives, capable of developing a minimum compressive strengh of 4,000 psi at 28 days.

K. Other Materials: All other materials, not specifically described but required for a complete and proper installation of structural steel, shall be new, free from rust, first quality of their respective kinds, and subject to the approval of the Architect.

2.2 Fabrication

A. Fabricate Structural Steel in accord with the Shop Drawings and reference standards with the modifications and additional requirements specified in this Section.

B. Connections:
   1. Shop Connections: Welded or bolted.
   2. Field Connections:
      a. Provide bolted connections as follows:
         (1) High strength threaded fasteners shall be used for bolted connections, except where standard threaded fasteners are permitted.
         (2) High strength bolted construction assembly: tightening shall be done in accord with Section 5 of Specifications for Structural Joints.
         (3) Fabricator is responsible for design and strength of connections unless otherwise noted on the Drawings.

C. Holes:
   1. Punch holes as required for connection of other work per templates and directions of such trades.
   2. Steel requiring accurate alignment shall be provided with slotted holes and shims for trueing up steel, as required for alignment.

D. Welded Construction
   1. Welding process shall be limited to one or a combination of the following: Manual shielded-arc
   2. Welded assemblies shall be stress relieved by heat treatment.
   3. Use equipment which will supply proper current in order that operator may produce satisfactory welds. Welding machine: 200 to 400 amperes, 25-40 volts capacity.
   4. Field welding: by direct current. Remove paint within two inches of weld.

E. Column bases repairs shall be field verified.

F. Shop Painting: Shop paint all steel work, field welded, high strength bolted.

PART 3 EXECUTION

3.1 Surface Conditions

A. Inspection
   1. Prior to installation of the work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
   2. Verify that all structural steel may be fabricated and erected in strict accord with the original design, the approved Shop Drawings, and the referenced standards.

B. Discrepancies
   1. In the event of discrepancy, immediately notify the Architect.
   2. Do not proceed with fabrication or installation in areas of discrepancy until all such discrepancies have been fully resolved.

3.2 Preparation

A. Field Measurements: Take field measurements to verify or supplement dimensions. Be responsible for accurate fit of all work.

3.3 Erection

A. Repaired Column Bases and Bearing Plates:
   1. Attached column bases and bearing plates for beams and similar structural members shall be aligned with wedges or shims.
   2. Loose column bases and bearing plates which are too heavy to be placed without a derrick or crane shall be set and wedged or shimmed.

B. Erection Tolerances:
   1. Individual pieces shall be erected so that the deviation from plumb, level and alignment shall not exceed 1 to 500.

C. Field Assembly
   1. Structural steel frames shall be accurately assembled to the lines and elevations indicated, within the specified erection tolerances.
   2. The various members forming parts of a complete frame or structure after being assembled shall be aligned and adjusted accurately before being fastened.
   3. Fastening of splices of compression members shall be done after the abutting surfaces have been brought completely into contact.
   4. Bearing surfaces and surfaces which will be in permanent contact shall be cleaned before the members are assembled.
   5. Splices shall be permitted only where indicated.
   6. Use drift pins only for bringing members into position, not to enlarge or distort holes.
   7. Erection bolts used in welded construction shall be tightened and left in place.
   8. Give special attention to steel handling during construction to avoid overloading green floor slabs, adhere to Architect's instructions when criticisms are made in this regard.
   9. Provide temporary bracing as necessary, and leave in place as long as may be required.

D. Gas Cutting
   1. Field correcting of fabrication by gas cutting shall not be permitted on any major member in the structural framing without prior approval of the Architect.
   2. Cut out and reinforce, as indicated and/or required, holes through webs of members for mechanical work. Verify exact locations with heating and ventilating contractor.

E. After erection, prime welds, abrasions and surfaces not shop primed, except surfaces to be in contact with concrete and surface of crane rail.

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SECTION 05 30 00 METAL DECKING

SCOPE Applicable provisions of the General and Supplementary Conditions and Division 1 govern work under this Section.

INDEX

PART 1 GENERAL

1.1 Description

A. Work Included: This Section shall include all materials, equipment and labor necessary for the installation of metal roof decking, in accord with the Specifications and Drawings.

B. Related Work Specified Elsewhere

1. Structural Metal Framing	Section 05 12 00
2. Light gauge metal truss	Section 05 44 00
3. Rigid Insulation	Section 07 21 00
4. Flashing and Sheet Metal	Section 07 60 00
5. Painting	Section 09 91 00
6. Metal Building System	Section 13 34 19

1.2 Quality Assurance

A. Qualifications of Manufacturers
   1. Regularly engaged in the production of metal decking.
   2. The fabricator shall be a member of the Steel Deck Institute.

B. Erector Qualification: Minimum of 5 years experience on comparable metal deck projects.

C. Welding: All welding shall be performed by operators who hold a valid certification for the type of weld performed according to the American Welding Society.

D. Design Criteria:
   1. Decking less than 3 inches in depth and not over 10 feet in length: SDI Steel Roof Deck Design Manual and/or SDI Steel Deck Design Manual
   2. Decking over 3 inches in depth or over 10 feet in length, AISI Specification for the Design of Cold-Formed Steel Structural Members.
   3. Maximum unit design stress: 0.60 by minimum yield strength of steel.
   4. Maximum working stress: 20,000 psi.
   5. Moment coefficient:
      a. Simple and dual spans: 1/8.
      b. Three or more spans: 1/10.

6. Deflection coefficient:
   a. Simple span: 5/384.
   b. Two or more spans: 3/384.
7. Maximum deflection:
   a. Roof deck: Under live load - 1/240 span length, center to center of supports.
   b. Floor Deck: Under total uniform live and dead load - 1/360 span length, center to center of supports.
8. Anchorage to resist gross uplift loading:
   a. Eave overhangs: 45 psf less dead load.
   b. Other roof areas: 30 psf less dead load.
9. Design to be based upon loads indicated on Drawings.

E. Requirements of Regulatory Agencies:
   1. Install metal deck to meet requirements of all applicable codes.

F. Allowable Tolerances: Maximum variation in unit alignment - 1/4 inch in 40 feet. (1/1920).

G. Source of Quality Control: Inspection of welds shall be in accord with Section 9 of AWS Building Code.

H. Codes and Standards: In addition to complying with all pertinent codes and regulations, comply with:
   1. American Society for Testing and Materials (ASTM):
      a. A653, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
   2. American Welding Society (AWS):
      a. D1.1, Structural Welding Code.
   3. Steel Deck Institute (SDI):
      a. SDI Manual of Construction with Steel Deck – MOC2
      b. SDI Standard Practice Details – SPD2
      c. SDI Diaphragm Design Manual – DDM03

1.3 Submittals: Within 35 days after award of Contract, and before any metal decking is delivered to the job site, submit complete to the Architect in accordance with the provisions of these Specifications;

A. Shop Drawings:
   1. Deck layout, framing and supports, with unit dimensions and sections, including acoustical and composite units.
   2. Type and location of welds.
   3. Details of accessories, showing sump pans, cant strips, ridge and valley plates, closure strips and insulation supports.

B. Manufacturer's Literature: Recommended installation instructions.

C. Certificates: Manufacturer's certificate that painted decking passes 100-hour salt spray test, ASTM B117, available upon request.

1.4 Product Delivery, Storage and Handling

A. Protection: Use all means necessary to protect metal decking before, during and after

installation and to protect the installed work and materials of all other trades.

B. Storage of Materials
   1. Do not bend or mar decking.
   2. Store off ground with one end elevated for drainage.
   3. Cover deck with waterproof material.
   4. Do not deliver to site any sooner than needed for erection.
   5. Steel shall be protected from corrosion. Any deck showing signs of rust will be rejected by the Architect.

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

PART 2 PRODUCTS

2.1 Materials

A. Carbon Steel Metal Roof Deck: ASTM A1008, 33ksi minimum at all exposed painted ceilings as shown on plans. Exposed Ceilings to be field painted.
   1. Painted finish per manufacturer's standard.
   2. Baked-on rust inhibitive primer, applied to chemically cleaned phosphate coated surface.

B. Galvanized Steel Metal Roof Deck: ASTM A653, 33ksi minimum at all concealed ceilings as shown on plans.
   1. Electrogalvanized Finish – Class G90.
   2. Galvanized Repair Paint – MIL-P-21035

C. Flexible Closure Strips – As provided by deck manufacturer.

D. Joint Sealant Material: Non-skinning, gun-grade, bulk compound as recommended by deck Manufacturer.

2.2 Fabrication

A. General
   1. Form deck units in length to span three or more supports, with flush, telescoped or nested 2 inch end laps and nesting side laps.

B. SDI Standard Deck Configurations.
   1. Wide Rib (Type B):
      a. Depth approximately 1½ inch.
      b. Ribs spaced approximately 6 inches on center.
      c. Width of rib opening at roof surface not more than 2½ inches.
      d. Width of bottom rib surface not less than 1¾ inches.
      e. Gauge as noted on drawings.

C. Can’t Strips:
   1. Fabricate from galvanized sheet steel of same quality as deck units.
   2. Minimum thickness before galvanizing: 0.0359 inches (20 gauge).

3. Bend cant strips to form 45 degree slope not less than 5 inches wide, with top and bottom flanges not less than 3 inches wide.

D. Metal Closure Strips:
   1. Fabricate of galvanized sheet steel of same quality as deck units.
   2. Bend to provide tight-fitting closures at open ends and sides of decking.

E. Cover Plates:
   1. Sheet steel of same quality as deck units.
   2. 18 gauge minimum thickness before coating.

2.3 Approved Manufacturers

A. Acceptable Manufacturers:
   1. Canam
   2. Cordeck
   3. New Millennium Building Systems
   4. Vulcraft

PART 3 EXECUTION

3.1 Inspection

A. Surface Conditions: Carefully inspect the installed work of all other trades and verify that all such work is complete and that the work of this Section can be installed in accord with the original design and approved Shop Drawings. In the event of discrepancies, notify Architect immediately for clarification.

B. Check supporting member for correct layout and alignment. Verify that surfaces to receive roof deck are free of debris. Do not proceed with installation until defects are corrected.

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

3.2 Installation

A. General: Install metal deck units and accessories in accord with Manufacturer's recommendations and Shop Drawings.

B. Scheduling: Coordinate the schedule for erection of metal decking with the schedules for related work to ensure prompt erection of the decking as soon as supporting elements are in place.

C. Placing Metal Deck Units:
   1. Position floor deck units on supporting steel framework and adjust to final position with ends bearing on supporting members and accurately aligned end to end before being permanently fastened. Follow Manufacturer's recommendations for bearing length.

2. Lap ends not less than 2 inches.
3. Do not stretch or contract the side lap interlocks.
4. Place deck units flat and square and secure to adjacent framing without warp or deflection.

D. Fastening Deck Units
   1. Roof and Floor
      a. Secure roof deck units to supporting members with fastening pattern shown on drawings.
      b. Welding to conform to AWS D 1.0.
      c. Lock side laps between adjacent deck units at intervals not over 30 inches on center or as shown on drawings.
      d. Power driven fasteners are acceptable as shown on the drawings. Conform to fastener manufacturer installation practice. Take special care at deck splices to assure full penetration.

E. Joint Sealing:
   1. Remove dust, dirt and moisture from joint surfaces.
   2. Apply sealant in accord with Manufacturer's instructions.

F. Cutting and Fitting:
   1. Cut and fit floor deck units and accessories around projections through floor decking.
   2. Make cuts neat, square and trim.
   3. Cut openings in floor deck true to dimensions using metal saws drills or cutting torches.
   4. Do not used cutting torches if neat appearance is required.

G. Can’t Strips
   1. Weld can’t strip to top surface of roof decking at 12 inches on center.
   2. Lap end joints not less than 3 inches.

H. Closure Strips
   1. Roof
      a. Install metal closure strips at all open uncovered ends and edges of roof decking, and in voids between decking and other construction.
      b. Weld into position to provide complete decking installation.

I. Roof Insulation Support
   1. Provide metal closure strips for support of roof insulation where rib openings in top surface of roof decking occur adjacent to edges and openings.
   2. Weld closure strips into position.

J. Damaged Deck: Repair or replace all damaged deck.

K. Broken Welds: All broken welds must be repaired.

K. Touch-up Painting
   1. Wire brush, clean and paint scarred areas, welds and rust spots on top and bottom surfaces of deck units and supporting steel members.
   2. Touch-up galvanized surfaces with galvanizing repair paint applied in accord with Manufacturer's instructions.

3. Touch-up shop painted surfaces with same paint used in shop, and apply as recommended by Manufacturer.
4. Touch-up paint to match existing paint in exposed areas.

3.3 Protection

A. Do not use deck units for storage or working platforms until permanently secured in position.

B. Assure that construction loads do not exceed carrying capacity of deck.

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SECTION 05 41 00 STRUCTURAL METAL STUD FRAMING

SCOPE Applicable provisions of the General Conditions and Division 1 shall govern work under this Section.

INDEX

PART 1 – GENERAL

1.1 Description

A. Section Includes:
   1. Load-bearing metal stud walls and partition framing, with anchorage and bracing.

B. Related Documents: The Contract Documents, as defined in the Summary of Work, apply to the work of this Section. Additional requirements and information necessary to complete the Work of this Section may be found in other Documents.

C. Related work specified elsewhere:

1. Cast-In-Place Concrete	Section 03 30 00
2. Structural Steel Framing	Section 05 12 00
3. Pre-Fabricated Light Gauge Steel Trusses	Section 05 44 00
4. Rough Carpentry	Section 06 10 00
5. Gypsum Wallboard	Section 09 29 00

1.2 Reference Standards

A. American Iron and Steel Institute (AISI)
   1. Cold-Formed Steel Framing Design Guide
   2. Cold-Formed Steel Design Manual (Latest).

B. American Society of Civil Engineers (ASCE)
   1. ASCE 7 – Minimum Design Loads for Buildings and Other Structures.

C. American Society for Testing and Materials (ASTM):
   1. ASTM A653 – Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
   2. ASTM A1008 – Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable
   3. ASTM A1011 – Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength.

4. ASTM C955 - Standard Specification for Cold-Formed Steel Structural Framing Members.

D. American Welding Society (AWS):
   1. AWS D1.1 – Structural Welding Code – Steel
   2. AWS D1.3 – Structural Welding Code – Sheet Steel
   3. AWS - Standard Qualification Procedure

E. Federal Specification.
   1. FS MIL-P-53030 – Primer Coating, Synthetic, Rust-Inhibiting, Lacquer-Resistive.

1.3 System Description

A. Design Requirements: The supplier shall design and/or verify the size and strength of all light gauge cold-formed Metal Framing members and connections in accordance with the building code in effect in the jurisdiction where the project is being constructed.
   1. Design shall use the superimposed design loads specified in the building code and as shown on the drawings.
   2. Design shall be based upon information shown on the drawings and specified herein.
   3. Additional Design Criteria – ASCE 7 or:
      a. Interior Load-bearing partitions:
         (1) Lateral pressures: 5 psf
      b. Interior Non-load-bearing partitions:
         (1) Lateral pressures: 5 psf
      c. Exterior curtain walls:
         (1) Wind loads based on Applicable Building Code
      d. Maximum allowable deflection with brick veneer:
         (1) Calculated on 18 ga. stud capacity alone: 1/600.
   4. Design shall conform to: AISI Specification for the Design of Cold-Formed Steel Structural Members. Wall bridging shall be designed to provide resistance to minor axis bending and rotation of wall studs. Designated selected exterior and/or interior walls shall be designed to provide frame stability and lateral load Resistance. All connections (member to member and member to structure) shall be designed and detailed.
   5. Incidental structural steel such as clip angles, etc. not shown on the drawings shall be indicated on the shop drawings and provided by this contractor.

B. Qualification of Field Welding: Qualify welding process and welding operators in accordance with AWS Standard Qualification Procedure.

C. Bidding Requirements: Prior to bidding, carefully review the drawings for adequate structural support of the Metal Stud Framing. Notify the Architect immediately if additional structural steel will be required to support the work of this section.

1.4 Submittals

A. Submittal Procedures: Procedures for submittals.
   All shop drawings and calculations must bear the seal and signature of an engineer registered in the State of Wisconsin.
   Product Data: Manufacturers' literature containing product and Installation specifications and details.

Shop Drawings:

a. Documents illustrating materials, shop coatings, steel thickness, details of fabrication and erection, details of attachment, spacing of fasteners, required accessories and critical installation procedures.

Calculations:

a. Engineering calculations or data verifying the framing assembly's ability to meet or exceed design requirements as stated here-in and required by local codes; prepared under the supervision of a Professional Engineer licensed in the State of Wisconsin.

Assurance/Control Submittals:

a. Test Reports: Submit the following reports directly to Contracting Officer from Testing Laboratory, with a copy to Contractor. Prepare reports for Architects review:
   (1) Testing/Inspection reports conducted on shop and field-bolted and welded connections. Include data on type(s) of tests conducted and test results. Note inspection findings.
b. Certificates: Manufacturer's certificate that Products meet or exceed specified requirements.
c. Qualification Documentation: Submit documentation of experience indicating compliance with specified qualification requirements.

1.5 Quality Assurance

A. Qualifications:

Manufacturer and Installer: Company specializing in the manufacturing and installation of Products specified in this specification.

B. Pre-Installation Meetings:
   1. Convene a pre-installation meeting one week prior to commencing Work of this Section. Notify the Architect and Contracting Officer of the meeting date and time at least 7 days prior.
   2. Require attendance of parties directly affecting Work of this Section
   3. Review conditions of operations, procedures and coordination with related Work.
   4. Agenda:
      a. Tour, inspect, and discuss conditions of installation of other work including door and window frames and mechanical and electrical work.
      b. Review areas of potential interference and conflicts, and coordinate layout and support provisions for interfacing work.
      c. Review required submittals, both completed and yet to be completed.
      d. Review Drawings.
      e. Review and finalize construction schedule related to cold formed metal framing installation and verify availability of materials, personnel, equipment, and facilities needed to make progress and avoid delays.
      f. Review required inspections, testing, certifying, and material usage accounting procedures.
      g. Review weather and forecasted weather conditions, and procedures for coping with unfavorable conditions.
      h. Review safety precautions relating to operations.

1.6 Delivery, Storage, and Handling

A. Material and Equipment: Transport, handle, store and protect products according to industry standards

B. Protect metal framing units from rusting and damage. Deliver to project site in manufacturer's unopened containers or bundles, fully identified with name, brand, type and grade. Store off ground in a dry ventilated space or protect with suitable waterproof coverings and protect against mechanical damage to units. Store materials on a flat plane. Any damaged materials shall be removed from the site.

PART 2 PRODUCTS

2.1 Materials

A. All studs and/or joists and accessories shall be of the type, size, gauge and spacing shown on the plans or as required by manufacturer design, if called for. Studs, runners (track), bracing, and bridging shall be manufactured per ASTM Specification C-955.

B. All galvanized studs, joists and accessories shall be formed from steel that conforms to the requirements of ASTM A653, as set forth in the AISI Cold-Formed Steel Framing Design Guide (latest edition).

C. All galvanized studs, joists and accessories shall have a minimum G-60 coating.

D. All section properties shall be calculated in accordance with AISI Cold-Formed Steel Framing Design Guide (latest edition).

2.2 Fabrication

A. General: Framing components may be prefabricated prior to erection. Fabricate components plumb, square, true to line and braced against racking with joints welded. Perform lifting of prefabricated components in a manner to prevent damage or distortion.

B. Fastenings: Attach similar components by welding or mechanical fasteners. Attach dissimilar components by screw Fasteners, as standard with manufacturer.

C. Cutting of steel framing members may be accomplished with a saw or shear. Torch cutting of load carrying members is not permitted

D. Wire tying of framing components is not permitted.

PART 3 EXECUTION

3.1 Examination

A. Execution Requirements: Verification of existing conditions before starting work

B. Verification of Conditions: Verify that field measurements, surfaces, substrates and conditions are as required, and ready to receive Work

C. Report in writing to the General Contractor prevailing conditions that will adversely affect satisfactory execution of the Work of this Section. Do not proceed with Work until unsatisfactory conditions have been corrected

D. By beginning Work, Contractor accepts conditions and assumes responsibility for correcting unsuitable conditions encountered at no additional cost to the Owner.

3.2 Installation and Studwalls

A. Manufacturer's instructions: Install metal framing systems in accordance with manufacturer's printed or written Instructions and recommendations, unless otherwise indicated.

B. Stud Walls:
   1. Runner Tracks: Install continuous tracks sized to match studs. Align tracks accurately to layout at base and tops of studs. Secure tracks as recommended by stud manufacturer for type of construction involved, except do not exceed 24 inches on center spacing for nail or power-driven fasteners, or 16 inches on center for other types of attachment. Provide fasteners at corners and ends of tracks
   2. Position studs plumb in runners and space no greater than 16 inches and not more than 2 inches from abutting walls and at each side of openings. Connect studs to upper and lower tracks using self-drilling, screws or welding in accordance with Manufacturer's recommendations such that the connection meets or exceeds the design loads required at that connection
   3. Brace all studs at mid-height for added strength and stiffness.
   4. Construct corners using minimum of three studs. Double studs at door, window, and sidelight jambs. Install intermediate studs above and below openings to match wall stud spacing.
   5. Provide deflection allowance below supported horizontal building framing in ceiling or head track for non-load-bearing framing in a method recommended by stud manufacturer.
      a. Where walls and partitions must close out against the deck for smoke and fire separation provide a top track rigidly attached to vertical studs but free to move vertically in a break-formed deep leg track rigidly attached to deck with slack to accommodate structural live load deflections noted on drawings.
      b. Where wall or partition studs pass by the structural deck provide vertical slide clips welded or screw attached to the structural support but do not attach rigidly to studs.

3.3 Installation: Pre-Fabricated and Panelized Construction

A. Panels shall be designed to resist construction and handling loads as well as service loads.

3.4 Installation: Non-Panelized (Stick Built) Members

A. Align track accurately at supporting structure and fasten to structure as shown on shop drawings.

B. Track intersections shall butt evenly.

C. Studs shall be plumbed, aligned, and securely attached to flanges or webs of upper and lower tracks. Axially loaded studs shall be seated squarely in both top and bottom tracks.

3.5 Installation: Joists

A. Joist shall be located directly over bearing studs or a load distribution member shall be provided to transfer loads.

B. Provide web stiffeners where necessary at reaction points, and at points of concentrated loads, as shown on the shop drawings.

C. Bridging, either strap or solid, shall be provided as shown on the shop drawings.

D. Provide additional joists under parallel partitions where the partition length exceeds 1/2 of the joist span.

E. Provide additional joists around all floor/roof openings which are larger than the joist spacing and as noted on the shop drawings.

F. End blocking shall be provided where joist ends are not otherwise restrained from rotation.

3.6 Fastening and Attachments

A. Anchorage of the tracks to the structure shall be with methods designed for the specific application of sheet to that surface. Size, penetration, type and spacing shall be determined by design.

B. Welds shall conform to the requirements of AWS D1.1, AWS D1.3, and AISI requirements. Welds may be butt, fillet, spot, or groove type, the appropriateness of which shall be determined by, and within the design calculations. All welds shall be touched-up using zinc rich paint to galvanized members, and paint similar to that used by the manufacturer for painted members.

C. Steel drill screws shall be of the minimum diameter indicated by the design of that particular attachment detail. Penetration through joined materials shall not be less than 3 exposed threads.

D. Wire tying in structural applications is not permitted.

3.7 Construction

A. Site Tolerances:
   1. Vertical alignment (plumbness) of studs shall be within 1/960th (1/8 inch in 10.0 inches) of the span.
   2. Horizontal alignment (levelness) of walls shall be within 1/960th (1/8 inch in 10.0 inches) of their respective lengths.
   3. Spacing of studs shall not be more than $\pm$ 1/8 inch from the designed spacing providing that the cumulative error does not exceed the requirements of the finishing materials.

4. Squareness - Prefabricated panels shall not be more than 1/8 inch out of square within the length of that panel.

3.8 Field Quality Control

A. Quality Requirements: Field testing and inspection.
   1. Inspect all work in order to assure strict conformance to the shop drawings at all phases of construction.
   2. All members shall be checked for proper alignment, bearing, completeness of attachments, proper placement, reinforcement, etc.
   3. All attachments shall be checked for conformance with the shop drawings. All welds shall be touched-up as specified herein.
   4. General Inspection of structure shall be completed prior to applying loads to those members.
   5. Inspections where and as required by local codes shall be controlled inspections.

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SECTION 05 44 00 PRE-FABRICATED LIGHT GAUGE STEEL TRUSSES

SCOPE Applicable provisions of the General and Supplementary Conditions and Division 1 shall govern work under this Section.

INDEX

PART 1: GENERAL

1.1 Description

A. Section includes pre-engineered, pre-fabricated light gauge cold-formed steel framing elements. Work includes:
   1. Light gauge cold-formed steel roof trusses.
   2. Anchorage, bracing and bridging.

B. Related Work Specified Elsewhere

1. Cast-In-Place Concrete	Section 03 30 00
2. Structural Metal Stud Framing	Section 05 41 00
3. Rough Carpentry	Section 06 10 00
4. Gypsum Wallboard	Section 09 29 00

1.2 References

A. Reference standards:
   1. American Society for Testing and Materials (ASTM)
      a. ASTM A653 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
      b. ASTM A780 Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings."
   2. American Welding Society (AWS)
      a. AWS D1.1 "Structural Welding Code - Steel."
      b. AWS D1.3 "Structural Welding Code - Sheet Steel."

1.3 Performance Requirements

A. AISI Specifications: Calculate structural characteristics of cold-formed steel truss members according to AISI's "Cold-Formed Steel Design Manual", Latest Edition.
B. Structural Performance: Design, engineer, fabricate, and erect cold-formed steel trusses to withstand specified design loads within limits and under conditions required.
   1. Design Loads: As shown on the drawings.
   2. Deflections: Live load deflection meeting the following (unless otherwise specified):
      a. Roof Trusses: Vertical deflection less than or equal to 1/240 of the span

3. Design framing systems to provide for movement of framing members without damage or overstressing, sheathing failure, connection failure, undue strain on fasteners and anchors, or other detrimental effects when subject to a maximum ambient temperature change (range) of 120° F (67°C).
4. Specifically, the prefabricated light gauge steel roof truss manufacturer (vendor) shall provide the following services:
   a. Design and supply a complete light gauge steel roof system stamped by a registered engineer to include all of the following components:
      (1) Light gauge steel trusses for gravity and lateral loads with truss sizes, gauges and connections at truss joints.
      (2) Design and stamp truss to truss connections and truss to bearing connections for gravity, lateral and uplift loads.
      (3) Design and stamp the top cord, bottom cord and web permanent bracing locations.
      (4) Design and stamp the roof deck structural support at eave edge, valley, hip and ridge transition planes to support corrugated steel or plywood decking.
      (5) Design the roof deck shear transfer framing required to transfer the roof deck shear to the building structure. The Engineer-Of-Record or Architect is responsible to determine the roof diaphragm, to determine the location and magnitude of the roof shear transfer and to determine location within the building structure through which this shear will pass. Required lateral forces and locations are shown on the Drawings.
      (6) Provide stamped calculations and shop drawings for project submittal requirements.
5. Incidental structural steel such as clip angles, etc. not shown on the drawings shall be indicated on the shop drawings and provided by this contractor.

1.4 Submittals

A. Submit manufacturer's product data and installation instructions for each type of cold-formed steel framing and accessory required.

B. Submit shop drawings showing member, type, location, spacing, size and gauge of member, method of attachment to supporting members and all necessary details. Indicate supplemental bracing, strapping, splices, bridging, accessories and details required for proper installation

C. Submit detailed floor truss and roof truss layouts.

D. Submit truss drawings, sealed and signed by a qualified registered Professional Engineer, verifying the truss ability to meet local code and design requirements. Specifically include the engineering and design for all of the following:
   1. Description of design criteria.
   2. Engineering analysis depicting member stresses and truss deflection.
   3. Truss member sizes, gauges and connections at truss joints; truss to truss attachment details.
   4. Truss reaction at all bearing locations; truss to bearing attachment details.
   5. Top chord, bottom chord and web permanent bracing requirements; construction and temporary bracing per the American Iron and Steel Institute (AISI) Cold-Formed Steel Framing Design Guide – current version.

6. Eave edge, valley, hip and ridge structural support for roof corrugated or plywood decking.
7. Roof deck shear transfer framing required transferring the roof deck shear to the building structure.

1.5 Quality Assurance

A. Fabricator Qualifications: Fabrication shall be performed by a cold-formed steel truss fabricator with experience in designing and fabricating cold-formed steel truss systems equal in material, design, and extent to the systems required for this Project.
   1. Cold-formed steel truss system installation shall be performed by an experienced installer approved by the steel truss system fabricator.

B. Welding Standards: Comply with applicable provisions of AWS D1.1 "Structural Welding Code-Steel." And AWS D1.3 "Structural Welding Code-Sheet Steel."
   1. Quality welding processes and welding operators in accordance with AWS "Standard Qualification Procedure."
   2. Welding of any nature to these trusses is specifically prohibited unless permission is received from the manufacturer.

1.6 Delivery, Storage and Handling

A. Deliver materials in manufacturer's unopened containers or bundles, fully identified by name brand, type and grade. Exercise care to avoid damage during unloading, storing and erection.

B. Store trusses on blocking pallets, platforms or other supports off the ground and in an upright position sufficiently braced to avoid damage from excessive bending.

C. Protect trusses and accessories from corrosion, deformation, damage and deterioration when stored at job site. Keep trusses free of dirt and other foreign matter.

1.7 Project Conditions

A. During construction, adequately distribute all loads applied to trusses so as not to exceed the carrying capacity of any one joist, truss or other components.

PART 2 PRODUCTS

2.1 Manufacturers

A. Acceptable truss manufacturers for light gauge metal trusses:
   1. **MiTek** Industries, Inc. **"Ultra-Span"** truss system. Request for substitutions will be considered in accordance with provisions of Section 00 21 13 E.3. The Architect or Engineer of Record must approve all permitted equals in writing. All applications for substitutions must include samples and technical data.
   2. Other light gauge steel truss manufacturers meeting these specifications.

2.2 Components

A. System components: MiTek Industries, Inc. ULTRA-SPAN® light gauge steel roof trusses and floor truss components.
B. Provide manufacturer's standard steel truss members, bracing, bridging, blocking, reinforcements, fasteners and accessories with each type of steel framing required, as recommended by the manufacturer for the applications indicated and as needed to provide a complete light gauge cold-formed steel truss package.

2.3 Materials

A. Materials:
   1. All component gauges: Fabricate components of structural quality steel sheet per ASTM A653 with minimum yield strength of 45,000 psi.
   2. Bracing, bridging and blocking members: Fabricate components of commercial quality steel sheet per ASTM A653/A653M-95 with a minimum yield strength of 33,000 psi.

B. Ultra-Span steel truss components: Provide sizes, shapes and gauges indicated.
   1. Design Uncoated-Steel Thickness: 20 gauge, 0.0350 inch (0.91 mm).
   2. Design Uncoated-Steel Thickness: 18 gauge, 0.0460 inch (1.20 mm).
   3. Design Uncoated-Steel Thickness: 16 gauge, 0.0570 inch (1.52 mm).
   4. Design Uncoated-Steel Thickness: 14 gauge, 0.0730 inch (1.90 mm).

C. Finish: Provide components with protective zinc coating complying with ASTM A653, minimum G60 coating.

D. Fastenings:
   1. Manufacturer recommended self-drilling, self-tapping screws with corrosion-resistant plated finish. Fasteners shall be of sufficient size and number to ensure the strength of the connection.
   2. Welding of any nature to these trusses is specifically prohibited unless permission is received from the truss manufacturer.
   3. Other fasteners as accepted by truss engineer.

2.4 Fabrication

A. Factory fabricate cold-formed steel trusses plumb, square, true to line and with connections securely fastened, according to manufacturer's recommendations and the requirements of this Section.
   1. Fabricate truss assemblies in jig templates.
   2. Cut truss members by sawing or shearing or plasma cutting
   3. Fasten cold-formed steel truss members by screw fastening or other methods as standard with fabricator. Wire tying or welding of framing members is not permitted.
      a. Locate mechanical fasteners and install according to cold-formed steel truss component manufacturer's instructions with screw penetrating joined members by not less than 3 exposed screw threads.

B. Care shall be taken during handling, delivery and erection. Use of a crane or lull with a spreader bar is recommended for trusses longer than 30 foot. Brace, block or reinforce

truss as necessary to minimize member and connection stresses. Trusses shall be designed to resist the handling and erection stresses.

C. Fabrication Tolerances: Fabricate trusses to a maximum allowable tolerance variation from plumb, Level, and true to line of 1/8 inch in 10 feet (1:960) and as follows:
   1. Spacing: Space individual trusses no more than plus or minus 1/8 inch (3mm) from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.
   2. Sequences: Fabricate each cold formed steel truss to a maximum out-of-square tolerance of 1/8 inch (3mm).

PART 3 EXECUTION

3.1 Examination

A. Examine structure, substrates and installation conditions. Do not proceed with cold-formed steel truss installations until unsatisfactory conditions have been corrected. Verify that the bearing elevations are correct before trusses are installed.

B. Installation constitutes acceptance of existing conditions and responsibility for satisfactory performance.

3.2 Installation, General

A. General:
   1. Erection of trusses including proper handling, safety precautions, temporary bracing, and other safeguards or procedures is the responsibility of the General Contractor and the Installation Subcontractor. The use of a crane or lull with a spreader bar is recommended for trusses over 30 feet.
   2. Exercise care and provide erection bracing required to prevent toppling or “dominoeing” of trusses during erection as identified in the American Iron and Steel Institute (AISI) publication “North American Standard for Cold-Formed Steel Structural Framing” latest edition.

B. Erect trusses with plane of truss webs vertical and parallel to each other, accurately located at design spacing indicated.

C. Provide proper lifting equipment suited to sizes and types of trusses required, applied at lift points recommended by truss fabricator and use spreader bars for larger span trusses. Exercise care to avoid damage to truss members during erection and to keep horizontal bending of the trusses to a minimum.

D. Provide framing anchors as indicated or accepted on the engineering design drawing or erection drawings. Anchor trusses securely at bearing points and the anchor must be attached to the correct side of the truss as shown in the truss drawings and attachment details.

E. Install roof framing and accessories plumb, square, true to line, and with connections securely fastened, according to manufacturer's recommendations.
   1. DO NOT cut truss members without prior approval of truss manufacturer.

2. Fasten cold-formed steel roof framing by mechanical fasteners only per truss manufacturer's recommendation. Wire tying or welding of roof framing is not permitted.
    a. Welding of any nature to these trusses is strictly prohibited unless specific permission is received from the truss manufacturer.
    b. Locate mechanical fasteners and install according to cold-formed roof framing manufacturer's instructions with screw penetrating joined members by not less than 3 exposed screw threads.
    c. Install roof framing in one-piece lengths, unless splice connections are indicated.
    d. Provide temporary bracing per industry standard and leave in place until trusses are permanently stabilized.

F. Erection Tolerances: Install trusses to a maximum allowable tolerance variation from plumb, level, and true to line of 1/4 inch in 10 feet (1:480) and as follows:
    a. Space individual trusses no more than plus or minus 1/4 inch from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.

3.3 Open-Web Floor Truss Installation

A. Install perimeter joist tracks or belly band sized to match trusses. Align and securely anchor or fasten track to supporting structure at corners, end, and spacing indicated or as recommended by the manufacturer.

B. Install trusses bearing on supporting framing, level, straight, and plumb, adjust to final position, brace, and reinforce.
    1. Install trusses over supporting framing with a minimum end bearing of 1-1/2 inches (38mm)

C. Space trusses not more than 2 inches (51mm) from abutting walls and not greater than 24 inches on center or less as indicated on the plans.

D. Frame openings with built-up joist headers consisting of joist and joist track, nesting joists, or another combination of connected joists where indicated.

E. Install bridging at each end of trusses and at intervals indicated. Fasten bridging at each truss intersection as follows:
    1. Bridging:
        a. Cold-rolled steel channel or cold-formed steel section, fastened to truss bottom chord.
        b. Flat, steel-sheet straps of width and thickness indicated, fastened to truss bottom chord flange.
        c. Cold-formed steel section strongback (6" minimum), fastened to truss web or other means.

F. Secure trusses to load-bearing interior walls to prevent lateral movement of bottom flange.
G. Install miscellaneous truss framing and connections, including closure pieces, clip angles, continuous angles, hold-down angles, anchors, and fasteners, to provide a complete and stable truss-framing assembly.

3.4 Roof Truss Installation

A. Install, bridge, and brace trusses according to manufacture's recommendations and requirements of this Section.

B. Space trusses as shown on the plans.

C. Do not alter, cut, or remove truss members or connections of trusses.

D. Erect trusses with plane of truss webs plumb and parallel to each other, align, and accurately position at spacing indicated.

E. Erect trusses without damaging truss members or connections.

F. Align truss bottom chords with load-bearing studs or continuously reinforce track to transfer loads to structure. Anchor trusses securely at all bearing points.

G. Install construction continuous bridging, bracing, cross bracing and diagonal bracing per American Iron and Steel Institute (AISI) publication “North American Standard for Cold-Formed Steel Structural Framing” latest edition

H. Attach trusses to trusses per truss manufacturer’s recommendation.

I. Attach trusses to bearing per truss manufacturer’s recommendation.

J. Attach permanent truss lateral and diagonal bracing per manufacturer’s recommendation.

K. Attach roof deck or sheathing structural support per truss manufacturer’s recommendation.

L. Attach roof deck shear transfer framing per truss manufacturer’s recommendation.

3.5 Repairs and Protection

A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on fabricated and installed cold-formed steel framing with galvanizing repair paint according to ASTM A780 and the manufacturer's instructions.

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SECTION 06 10 00 ROUGH CARPENTRY

SCOPE Applicable provisions of the General and Supplementary Conditions and Division 1 govern work under this Section.

INDEX

PART 1 GENERAL

1.1 Description

A. Work Included: All wood, nails, bolts, screws, framing anchors and other rough hardware, and all other items needed for rough carpentry in this Work but not specifically described in other Sections of these Specifications; and the installation of all blocking Required for scope of work.

B. Related Work Specified Elsewhere

1. Concrete	Section 03 30 00
2. Structural metal stud framing	Section 05 41 00
3. Pre-Fabrication light gauge steel trusses	Section 05 44 00
4. Painting	Section 09 91 00
5. Metal Building System	Section 13 34 19

1.2 Quality Assurance

A. Qualifications of Workmen
   1. Provide sufficient skilled workmen and supervisors who shall be present at all times during execution of this portion of the Work and who shall be thoroughly familiar with the type of construction involved and the materials and techniques specified.
   2. Rejection: In the acceptance or rejection of rough carpentry, no allowance will be made for lack of skill on the part of workmen.

B. Codes and Standards
   1. Lumber grading rules and wood species to be in conformance with Voluntary Product Standard PS 20: Grading rules of the following associations apply to materials furnished under this Section:
      a. West Coast Lumber Inspection Bureau (WCLIB).
      b. Western Wood Products Association (WWPA).
   2. Requirements of Regulatory Agencies
      a. Pressure treated material: American Wood Preservers Bureau Standards.
      b. American Wood Preservers Bureau (AWPB):
         (1) LB-2, Standard for Softwood Lumber, Timber, and Plywood Pressure Treated with Water-borne Preservatives for Above Ground Use.
      c. Federal Specifications (FS):

(1) FF-B-561, Bolts (Screw), Lag.
(2) FF-B-575, Bolts, Hexagon and Square.
(3) FF-B-584, Bolts, Finned Neck; Key Head; Machine; Ribbed Neck; Square Neck; Tee Head.
(4) FF-N-105, Nails, Wire, Brads and Staples.
(5) FF-N-836, Nuts, Square, Hexagon, Cap, Slotted, Castellated, Clinch Knurled and Welding.
(6) FF-S-111, Screw, Wood.

d. Product Standards (PS)
(1) 20, American Softwood Lumber Standard.

3. Conflicting requirements: In the event of conflict between pertinent codes and regulations and the requirements of the referenced standards or these Specifications, the provisions of the more stringent shall govern.

1.3 Submittals

A. Certification (only on request of Architect)
1. Pressure-treated wood: Submit certification by treating plant stating chemicals and process used, net amount of salts retained, and conformance with applicable standards.

1.4 Product Delivery, Storage and Handling

A. Protection
1. Use all means necessary to protect the materials before and after delivery to the job site, and to protect the installed work and materials of all other trades.
2. Deliver the materials to the job site and store, all in a safe area, out of the way of traffic.
3. Store materials a minimum of 6 inches above ground on framework or blocking and cover with protective waterproof covering providing for adequate air circulation or ventilation.
4. Do not store seasoned materials in wet or damp portions of building.
5. Protect sheet materials from corners breaking and damaging surface, while unloading.
6. Identify all framing lumber as to grades and store all grades separately from other trades. Keep grade marks legible.
7. Protect all metal products with adequate weatherproof outer wrappings.
8. Keep all damaged material clearly identified as damaged, and separately store to prevent its inadvertent use.
9. Do not allow installation of damaged or otherwise noncomplying material.
10. Use all means necessary to protect the installed work and materials of all other trades.

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

PART 2 PRODUCTS

2.1 Grade Stamps: Identify all other materials of this Section by the appropriate stamp of the agency listed in the reference standards, or by such other means as are approved in advance by the Architect.

2.2 Materials

A. Lumber
   1. Dimensions
      a. Specified lumber dimensions are nominal.
      b. Actual dimensions to conform to PS 20.
   2. Moisture Content: Unseasoned or 19% maximum at time of permanent closing in of building or structure, for lumber 2 inches or less nominal thickness.
   3. Surfacing: Surface four sides (S4S), unless specified otherwise.
   4. End Jointed Lumber
      a. Structural purposed interchangeable with solid sawn lumber.
   5. Framing lumber, any commercial softwood species
      a. Light framing
         (1) General framing: Standard and Better or Stud grade. Chloride treated at roof blocking and where in contact with concrete.
         (2) Plates, blocking, bracing and nailers: Utility grade.
         (3) Bracing, blocking, bulk headings and general utility purposes: Economy grade.
      b. Beams and Headers – Size and Grade as noted on drawings.

B. Panel Sheathing
   1. Plywood – APA Rated; thickness or rating as shown on the drawings.
   2. Exterior graded where sheathing is exposed to the weather for long periods of time.
   3. Floor sheathing to have tongue and groove edge.
   4. Fire Treated Plywood – All exterior and interior plywood sheathing shall be Fire-Retardant-Treated Wood meeting the criteria outlined in Section 2303.2 of the International Building Code - 2015. As specified in the code, wood shall be tested in accordance with ASTM E84 or UL723, a listed flame spread index of 25 or less and show no evidence of significant progressive combustion when test is continued for an additional 20-minute period.

C. Building Paper
   1. Tyvek commercial wrap membrane or approved equal.

D. Preservative-Treated Wood Products
   1. Waterborne salt preservatives for painted, stained, or exposed natural wood product:
      a. AWPB LP-2, above ground applications.
      b. Lumber redried to maximum moisture content of 19%, stamped "DRY".

E. Rough Hardware
   1. Bolts
      a. FS FF-B-575.
      b. FS FF-B-584.
   2. Nuts: FS FF-N-836.
   3. Expansion shields: FS FF-B-561.
   4. Lag screws and bolts: FS FF-B-561.
   5. Toggle bolts: FS FF-B-588.
   6. Wood Screws: FS FF-S-111.
   7. Nails and staples: FS FF-N-105.
   8. Metal nailing discs:
      a. Flat caps, minimum 1 inch diameter.

b. Minimum 30 gauge sheet metal.
c. Formed to prevent dishing.
d. Bell or cup shapes not acceptable.

PART 3 EXECUTION

3.1 Surface Conditions

A. Inspection
1. Prior to all Work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
2. Verify that all rough carpentry may be performed in strict accord with the original design and all pertinent codes and regulations.

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

3.2 Workmanship

A. General: All rough carpentry shall produce joints true, tight and well secured with all members assembled in accord with the Drawings and with all pertinent codes and regulations.

B. Selection of lumber pieces.
1. Carefully select all members; select individual pieces so that knots and obvious defects will not interfere with placing bolts or proper nailing or making proper connections.
2. Cut out and discard all defects which will render a piece unable to serve its intended function; lumber may be rejected by the Architect, whether or not it has been installed, for excessive warp, twist, bow crook, mildew, fungus, or mold, as well as for improper cutting and fitting.

3.3 Installation

A. General Framing
1. General: In addition to all framing operations normal to fabrication and erection indicated on the Drawings, install all backing required for the Work of other trades.

3.4 Fastening

A. Nailing
1. Use only common wire nails or spikes, except where otherwise specifically noted in the Drawings.
2. Provide penetration into the piece receiving the point of not less than 1/2 the length of the nail or spike provided, however, that 16d nails may be used to connect two pieces of two inch (nominal) thickness.
3. Do all nailing without splitting wood, preboring as required; replace all

split members.

B. Bolting
   1. Drill holes 1/16 inch larger in diameter than the bolts being used; drill straight and true from one side only.
   2. Bolt threads must not bear on wood; use washers under head and nut where both bear on wood; use washers under all nuts.

C. Screws
   1. For lag-screws and wood screws, prebore holes same diameter as root of thread; enlarge holes to shank diameter for length of shank.
   2. Screw, do not drive, all lag screws and wood screws.

3.5 Nailing Schedule: Unless otherwise indicated on the Drawings or required by pertinent codes and regulations, provide at least the nailing shown in Table 2304.10.1 Fastening Schedule of the International Building Code – 2015 Edition.

3.6 Protection: Protect wood decking with protective waterproof covering until roofing has been installed.

3.7 Cleaning Up

A. General: Keep the premises in a neat, safe and orderly condition at all times during execution of this portion of Work, free from accumulation of sawdust, cut-ends, and debris.

B. Sweeping
   1. At the end of each working day, or more often if necessary thoroughly sweep all surfaces where refuse from this portion of the Work has settled.
   2. Remove the refuse to the area of the job site set aside for its storage.
   3. Upon completion of this portion of the Work, thoroughly broom clean all surfaces.

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SECTION 06 40 00 ARCHITECTURAL WOODWORK

SCOPE Applicable provisions of the General and Supplementary Conditions and Division 1 govern work under this Section.

INDEX

PART 1 GENERAL

1.1 Description

A. Work Included: Furnish all architectural woodwork shown on Drawings and specified herein. Architectural woodwork includes all exterior and interior woodwork exposed to view in finished building except as exempted in paragraph B below; and includes plywood, doors and high-pressure laminates.
   1. Standing and running trim
   2. Sink Tops
   3. Plastic laminate cabinetry, shelves & countertops

B. Related Work Specified Elsewhere

1. Rough Carpentry	Section 06 10 00
2. Plumbing utilities and Fixtures	Per Plans

1.2 Quality Assurance

A. Qualifications of Fabricators and Installers: Use only personnel who are thoroughly trained and experienced in the fabrication and installation of architectural woodwork. The approved woodwork Manufacturer must have a reputation for doing satisfactory work on time and shall have successfully completed comparable work. The Architect reserves the right to approve and woodwork Manufacturer selected to furnish all of the woodwork. In the acceptance or rejection of architectural woodwork, no allowance will be made for lack of skill on the part of workmen.

B. Reference Standards
   1. The "Quality Standards: of the Architectural Woodwork Institute shall apply and by reference are hereby made a part of this Specification. Any reference to Premium, Custom, or Economy in this Specification shall be a defined in the latest edition of the AWI "Quality Standards".
   2. Any item not given a specific quality grade shall be Custom grade as defined in the latest edition of the AWI "Quality Standards".
   3. Federal Specifications (FS):
      a. MM-L-736, Lumber, Hardwood
      b. MMM-A-130, Adhesive, Contact
   4. National Electrical Manufacturers Association (NEMA)
      a. LD3, High Pressure Decorative Laminates
   5. National Bureau of Standards (PS)

a. 1, Construction and Industrial Plywood
b. 20, American Softwood Lumber Standard
c. 51, Hardwood and Decorative Plywood

1.3 Submittals: Within 35 days after award of Contract, and before any of the materials of this Section are delivered to the job site, submit complete to the Architect in accordance with the provisions of these Specifications; the following:

A. Shop Drawings
1. Submit Shop Drawings in accord with Contract Conditions for all cabinets, identified with location, quality grade, type of finish and species of wood. Include component profiles, fastening methods, assembly methods, joint details, accessory listings and schedule of finishes.
2. Show cabinets in related and dimensional position with sections either full-size or 3 inches equal 1 foot scale.
3. The mill shall be responsible for details and dimensions not controlled by job conditions.
4. Show all required field measurements beyond control of the mill.
5. Drawings required for:
a. Shelving
b. Trim
c. Hardware
d. Cabinetwork

B. Brochures: Submit Manufacturer's descriptive literature of specialty items not manufactured by the architectural woodworker, and laminate color samples, as requested by the Architect.

1.4 Product Delivery, Storage and Handling: Deliver, store and handle wood cabinets in manner to prevent damage and deterioration.

A. Protection
1. Use all means necessary to protect the materials of this Section before, during and after installation and to protect the installed work and materials of all other trades.
2. Protect all surfaces of cabinets subject to damage while in transit.

B. Delivery of Materials: The woodwork Manufacturer and the Contractor shall be jointly responsible to make certain that woodwork is not delivered until the building and storage areas are sufficiently dry so that the woodwork will not be damaged by excessive changes is moisture content.

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

PART 2 PRODUCTS

2.1 Materials

A. Quality Grade: Materials and fabrication; custom grade for transparent finish, in accord with "Quality Standards Illustrated" of the Architectural Woodwork Institute, Latest Edition.

B. Wood Materials

1. Softwood Lumber: PS20; graded in accord with AWI; maximum moisture content of 6 percent.
2. Hardwood Lumber: FS MM-L-736; graded in accord with AWI; maximum moisture content of 6 percent.

C. Sheet Materials
1. Softwood Plywood: PS 1; graded in accord with AWI; core material of lumber or particleboard.
2. Hardwood Plywood: PS 51; graded in accord with AWI; core material of lumber or particleboard type of glue recommended for application.
3. Wood Particleboard: Per AWI standard composed of wood chips, made with high waterproof resin binders.

D. Laminate Materials
1. Plastic Laminate: NEMA LD3, GP 50 general purpose type; colors as selected.
   a. Architect to select from full range of colors.
   b. Manufacturers – Formica, Pionite, Wilsonart.
2. Laminate Backing Sheet: NEMA LD3: BK20 backing grade, undecorated plastic laminate.

E. Accessories
1. Adhesive: Type recommended by laminate manufacturer to suit application.
2. Edge Banding:
   a. Casework and shelf edges – 1mm PVC
   b. Drawers and doors – 3mm PVC

F. Hardware: All hardware shall be furnished and installed by the architectural woodwork Manufacturer.
1. Hardware to be as follows:
   a. Shelf standards, poles and brackets as shown on drawings
   b. Pulls and handles – Brushed Wire type
   c. Hinges
   d. Catches
   e. Locks
   f. Support Brackets – Factory Finished Steel for support of counters without base cabinets.

G. Casework AWI Section 400)
1. Casework with high pressure laminate finish
   a. AWI quality grade: Custom
   b. Construction: Details shall conform to design: Standard overlay.
   c. Exposed surfaces: Laminate
   d. Semi-exposed surfaces: As governed by selected AWI quality grade; melamine laminated.
3. Casework Doors: Doors 3/4" thick shall be laminate. Door edges to match 3mm PVC edging, no tape allowed.
4. High pressure laminate counter tops
   a. AWI quality grade: Custom
   b. Laminate selection: Color as selected by Architect.
5. Fabrication: Comply with Section 400 AWI Quality Standards.

H. Closet and Storage Shelving (AWI Section 600) 1. AWI quality grade: Custom

I. Miscellaneous Ornamental Items (AWI Section 700)
   1. AWI quality grade: Custom
   2. Solid Wood: Red Oak
   3. Plywood: Red Oak

J. Other Materials: All other materials, not specifically described but required for a complete and proper installation of architectural woodwork, shall be as selected by the Contractor subject to the approval of the Architect.

2.2 Fabrication

A. Fabricate all woodwork in accord with the approved Shop Drawings and referenced standards.

B. Machine sand at mill, make joints to conceal shrinkage. Set nails for putty stopping. Same mill to fabricate all cabinetwork. All cabinetwork to have one coat of preservative.

C. Shop assemble casework for delivery to site in units easily handled and to permit passage through building openings.

D. Fit shelves, doors and exposed edges with matching hardwood and matching veneer or plastic edging. Use full length pieces only.

E. Door and drawer fronts: 3/4 inch thick.

F. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cuttings.

G. Apply plastic laminate finish in full uninterrupted sheets consistent with manufacturer sizes. Make corners and joints hairline. Slightly bevel arises. Locate counter butt joints minimum 2 feet from sink cut-outs.

H. Mechanically fasten splashbacks to countertops with steel brackets at 16 inches on center.

I. Apply laminate backing sheet to reverse side of plastic laminate finished surfaces.

J. Provide cutouts for plumbing fixture, inserts, appliances, outlet boxes and other fixtures and fittings. Verify locations of cutouts from on-site dimensions. Seal contact surfaces of cut edges.

K. Factory Finishing (Per AWI Section 1 50 00)
   1. Field Touch-up: Field touch-up shall be the responsibility of the installing Contractor and shall include the filling and touch-up of exposed job made nail or screw holes. refinishing of raw surfaces resulting from job fittings, repair of job inflicted scratches and mars, and final cleaning up the finished surfaces.

PART 3 EXECUTION

3.1 Surface Conditions

A. Inspection: Prior to all Work of this Section, carefully inspect the installed work of all other trades and verify that the architectural woodwork may be fabricated and installed in accord with the original design, approved Shop Drawings and reference standards. Verify adequacy of backing and support framing.

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

3.2 Preparation

A. Field Dimensions: The woodwork Manufacturer is responsible for details and dimensions not controlled by job conditions and shall show on his Shop Drawings all required field measurements beyond his control. The Project Manager and the woodwork Manufacturer shall cooperate to establish and maintain these field dimensions.

B. Before installing any materials, woodwork shall be conditioned to average prevailing humidity conditions in areas of installation.

C. Examine pre-fabricated woodwork, before installation, and verify that back priming has been completed and all packing has been removed.

3.3 Installation

A. Install all woodwork true, square, plumb, level, true and straight without distortions, firmly anchored.

B. Tops and woodwork shall be scribed and trimmed to fit adjoining work.
   1. Accurately fit all face plates, filler strips and trim strips to irregularities of adjacent surfaces. Leave gaps of 1/32 inch maximum. Do not use additional overlay trim for this purpose.
   2. Where cuts occur, refinish surfaces and repair damaged finishes.

C. Secure woodwork to anchors or built-in blocking or blocking directly attached to substrates.

   1. Secure woodwork to grounds, furring, stripping and blocking as required with countersunk, concealed fasteners and blind nailing performing a complete installation.
   2. Use thin gauge finishing nails for exposed nailing, countersunk and filled flush with woodwork finished surface.
   3. Use purpose designed fixture attachments at concealed locations for wall mounted components.
   4. Use threaded steel concealed joint fasteners to align and secure adjoining cabinet units and counter tops.
   5. Conceal with solid plugs of species to match surrounding wood. Finish flush with surrounding surfaces.

D. Standing and Running Trim:
   1. Install trim with a minimum number of joints using maximum lumber lengths furnished to the jobsite.
   2. Stagger joints in adjacent and related members.

3. Comply with AWI Quality Standards for joinery.
4. Cope at returns and miter at corners.

E. Casework:
1. Install casework with distortion so that doors and drawers fit openings properly and are accurately and evenly aligned.
2. Adjust casework hardware centering the doors and drawers in the openings, and provide unencumbered operation.
3. Complete the installation of hardware and accessory items as indicated.
4. Maintain veneer sequence matching of casework with transparent finish, where so manufactured.
5. Secure cabinet and counter bases to floor using appropriate angles and anchorages.

F. Tops: Anchor tops securely to base units and to other support systems as required.

G. Finishing: Leave all woodwork ready for finishing by painter. Refer to the finishing sections in Division 9 for site finishing of installed woodwork.

3.4 Adjustments and Cleaning

A. Adjust doors, drawers, hardware, fixtures and other moving or operating parts to function smoothly and correctly.

B. Clean exposed and semi-exposed surfaces of casework, counters, shelves, hardware, fittings and fixtures. Touch-up shop-applied finishes to restore damaged or soiled areas, matching adjoining finish.

C. Repair damaged and defective woodwork where possible eliminating defects and blemishes. Where not possible to repair damaged or defective work, replace with matching new work at direction of the Architect and at no additional cost to the Owner.

D. Adjust joinery for uniform appearance. Adjust and lubricate hardware.

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SECTION 07 21 00 INSULATION

SCOPE Applicable provisions of the General and Supplementary Conditions and Division 1 govern work under this Section.

INDEX

PART 1 GENERAL

1.1 Description

A. Work Included: Building insulation required for this Work includes, but is not limited to:
   1. Roof Insulation
   2. Batt Insulation
   3. Below Grade Insulation
   4. Sound Insulation

B. Related Work Specified Elsewhere

1. Concrete	Section 03 30 00
2. Carpentry	Section 06 10 00
3. Fluid applied air and water barrier	Section 07 27 26
4. Metal Building System	Section 13 34 19
5. Mechanical System Insulation	Per Drawings

C. Work Furnished by Installer
   1. Below grade perimeter rigid insulation by Concrete Contractor.
   2. Roof insulation by 07 21 00.
   3. Wall panel insulation by 07 21 00.

1.2 Quality Assurance

A. Design Criteria: The Heating and Air Conditioning system for the Project was designed for the insulation values listed for each type of insulation in Part 2 of this Section. The Contractor will insure that all insulation used meets or exceeds those values. The Architect will order the removal of all material not meeting this Specification. All insulation will meet State Fire Code. Thickness of roof insulation supplied shall not exceed the space available that would require additional blocking, or raising of parapet, door sills, flashing or curbs.

B. Testing: Flame spread: ASTM E 84, 25 or less.

C. Reference Standards
   1. American Society for Testing and Materials (ASTM):
      a. E 84, Standard Method of Test for Surface Burning
      b. C 1289, closed cell polyisocyanurate foam core board.

c. ASTM C 518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus
d. ASTM C 177 - Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus
e. ASTM C 1338 - Standard Test Method for Determining Fungi Resistance of Insulation Materials and Facings.
f. ASTM E 96 - Standard Test Methods for Water Vapor Transmission of Materials.
g. ASTM E 283 - Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
h. ASTM D 1621 - Standard Test Method for Compressive Properties of Rigid Cellular Plastics
i. ASTM D 1622 - Standard Test Method for Apparent Density of Rigid Cellular Plastics
j. ASTM D 1623 - Standard Test Method for Tensile and Tensile Adhesion Properties of Rigid Cellular Plastics
k. ASTM D 2126 - Standard Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging
l. ASTM D 2842 - Standard Test Method for Water Absorption of Rigid Cellular Plastics.

2. Federal Specifications (FS):
   a. HH-I-521, Insulation Blankets, Thermal (Mineral Fiber for Ambient Temperatures)
   b. HH-I-524, Insulation Board, Thermal (Polystyrene)
   c. HH-I-1972, Insulation Board, Thermal (Urethane)
   d. L-P-375, Plastic Film, Flexible, Vinyl Chloride

1.3 Submittals: Within 35 days after award of Contract, and before any of the materials of this Section are delivered to the job site, submit complete to the Architect in accord with the provisions of these Specifications; the following:

A. Manufacturer's Literature: Manufacturer's recommended installation instructions.

B. Material List: Submit to the Architect for review a complete list of all insulation material proposed to be furnished. Any material which differs from that specified, shall have engineering data submitted to show that its performance is equal to insulation specified. See Section 01 30 00.

C. Technical Data: Submit technical data indicating thermal conductance factors of furnished insulation.

D. Certificates: Manufacturer's certification that materials meet Specification requirements.

1.4 Product Delivery, Storage and Handling

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

B. Deliver materials to Project site in Manufacturer's original unopened packaging.

C. Identify contents, Manufacturer, brand name, thermal values and applicable standards.

D. Store materials in area protected from weather, moisture, and open flame or sparks.

E. Replacements: In the event of damage, immediately replace materials at no additional cost to the Owner. Tears in foil face insulation will not be acceptable.

1.5 Job Conditions

A. Environmental Requirements: Do not install insulation when temperature is 40 degrees F. or below, during rain or wet weather, or when surfaces are wet.

B. Scheduling: Coordinate installation with other trades whose work may be affected or have effect.

1.6 Quality Assurance

A. Manufacturer Qualifications: Manufacturer with a minimum of ten years' experience manufacturing products in this section shall provide all products listed.

B. Installer Qualifications: Products listed in this section shall be installed by a single organization with at least five years experience successfully installing insulation on projects of similar type and scope as specified in this section.

C. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
   1. Finish areas designated by Architect.
   2. Do not proceed with remaining work until workmanship is approved by Architect.
   3. Refinish mock-up area as required to produce acceptable work.

1.7 PRE-APPLICATION MEETINGS

A. Convene minimum two weeks prior to starting work of this section.

1.8 SEQUENCING

A. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

1.9 PROJECT CONDITIONS

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

B. Do not apply insulation when substrate temperatures are under 40 degrees F (4.4 degrees C) prior to installation.

C. Surfaces must be dry prior to application of spray foam. Excess humidity may cause poor adhesion, and result in product failure.

D. To avoid overspray, product should not be applied when conditions are windy.

PART 2 PRODUCTS

2.1 Materials (See Drawing Details for applicable products)

A. Roof Insulation
   1. Expanded Polystryene (E.P.S.) Board
      a. E.P.S. roof insulation FS-HH-I-524, one pound density, R = 4.17 per inch. All roof cant insulation should be E.P.S.
      b. Size 4 feet by 8 feet
      c. Two layers with staggered joints, total thickness per Drawings.
      d. Install over 3/4" perlite board or other approved thermal barrier at metal deck. Use of EPS insulation approved for use without thermal barrier is also acceptable.
      e. .006" polyethylene vapor barrier on metal deck.
   2. Polyisocyanurate (ISO) Board
      a. Size 4 feet by 8 feet.
      b. Type II – 25 psi density minimum, R = -7.4/inch at 40 degrees F.
      c. Two layers (3 inches each) staggered joints, total thickness per drawings.
      d. Vapor Barrier – 0.006mil, polyethylene – loose laid.
   3. 4. Loose Insulation
      a. Fiberglass Batt or Blown-In
      b. Thickness (R-Value) and location per drawings
      c. 0.006 mil Vapor Barrier with GWB (by others)
      d. Heavy Duty Reinforced Vapor Barrier without GWB as detailed.

B. Building Insulation
   1.Rigid Below Grade Insulation
      a. Adhesive: As recommended by insulation Manufacturer.
      b. Extruded polystyrene board, ASTM C578 Type IV - 1.80 density minimum, 40 psi compressive strength, R – 5.00 per inch at 75 degrees F.
      c. Total thickness per drawings – 2 layers with staggered joints.
   2. Stud sound insulation shall be 3½" unfaced fiberglass sound attenuation batts. Sound batts shall comply with the property requirements of ASTM C665, Type I and ASTM E136 as well as all applicable codes for interior wall use.
   3. Wall Insulation at metal or wood stud walls.
      a. Cavity insulation - fiberglass batt - R = 19 for installation in a wall cavity.
      b. Vapor Barrier - 0.006 mil, at all exterior walls.
      c. Exterior wall insulation - extruded polystyrene insulation – thickness per drawing.
      d. Building wrap at all exterior walls

PART 3 EXECUTION

3.1 Surface Conditions

A. Inspection: Prior to all Work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may be installed in accord with original design and the Manufacturer's recommendation.

1. Examine space allocated for insulation for proper depth to receive material.
2. Check surfaces to receive rigid insulation to assure they are in uniform plane; and free of mortar chips, debris, grease, oil or other items detrimental to installation.

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

3.2 Preparation: Remove or protect against projections in construction framing that may damage or prevent proper installation.

3.3 Installation

A. Below grade perimeter insulation: mechanically bond to concrete.

B. Gypsum Wallboard: per manufacturer's recommendations.

C. CMU – Foam in place insulation installation guidelines:
1. Fill all open cells and voids in hollow concrete masonry walls where shown on drawings. The foam insulation shall be pressure injected through a series of 5/8" to 7/8" holes drilled into every vertical column of block cells (every 8" on center) beginning at an approximate height of four (4) feet from finished floor level. Repeat this procedure at an approximate height of ten (10) feet above the first horizontal row of holes (or as needed) until the void is completely filled. Patch holes with mortar and score to resemble existing surface. Insulation is not to be injected into wet walls.

3.4 Cleaning

A. Any installer using mastic will clean all excess material from all surfaces to be exposed or to receive the work of other trades. Follow criticisms of Architect completely.

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SECTION 07 27 26 FLUID-APPLIED MEMBRANE AIR BARRIERS, VAPOR PERMEABLE

SCOPE Applicable provisions of the General and Supplementary Conditions and Division 1 govern work under this Section.

INDEX

1.1 Description

A. This Section includes the following:

1. Materials and installation methods for fluid-applied, vapor permeable air barrier membrane system located in the non-accessible part of the wall.
2. Materials and installation methods to bridge and seal air leakage pathways in roof and foundation junctions, window and door openings, control and expansion joints, piping and other penetrations through the wall assembly.

B. Related Sections include the following:

1.	Cast-In-Place Concrete	Section 03 30 00
2.	Rough Carpentry	Section 06 10 00
3.	Flashing Sheet Metal	Section 07 60 00
4.	Sealants and caulking	Section 07 92 13

1.2 DEFINITIONS

A. Air Barrier Assembly: The collection of air barrier materials and auxiliary materials applied to an opaque wall, including joints and junctions to abutting construction, to control air movement through the wall.

1.3 PERFORMANCE REQUIREMENTS

A. General: Air barrier shall be capable of performing as a continuous vapor-permeable air barrier and as a liquid-water drainage plane flashed to discharge to the exterior incidental condensation or water penetration. Air barrier assemblies shall be capable of accommodating substrate movement and of sealing substrate expansion and control joints, construction material changes, and transitions at perimeter conditions without deterioration and air leakage exceeding specified limits.

B. The building envelope shall be designed and constructed with a continuous air barrier to control air leakage into, or out of the conditioned space. An air barrier shall also be provided for interior partitions between conditioned space and space designed to maintain temperature or humidity levels which differ from those in the conditioned space by more than 50% of the difference between the conditioned space and design ambient conditions. The air barrier shall have the following characteristics:

1. It must be continuous, with all joints made airtight.
2. It shall have an air permeability not to exceed 0.004 cfm/sq. ft. under a pressure differential of 0.3 in. water (1.57 psf) (equal to 0.02 L/s. x sq. m. @ 75 Pa), when tested in accordance with ASTM E2178.
3. It shall have an air permeability not to exceed 0.04 cfm/sq. ft. under a pressure differential of 0.3 in. water (1.57 psf) (equal to 0.2 L/s. x sq. m. @ 75 Pa), when tested in accordance with ASTM E2357.
4. It shall be capable of withstanding positive and negative combined design wind, fan and stack pressures on the envelope without damage or displacement, and shall transfer the load to the structure. It shall not displace adjacent materials under full load.
5. It shall be durable or maintainable.
6. The air barrier shall be joined in an airtight and flexible manner to the air barrier material of adjacent systems, allowing for the relative movement of systems due to thermal and moisture variations and creep. Connection shall be made between:

    a. Foundation and walls
    b. Walls and windows or doors
    c. Different wall systems
    d. Wall and roof
    e. Wall and roof over unconditioned space
    f. Walls, floor and roof across construction, control and expansion joints
    g. Walls, floors and roof to utility, pipe and duct penetrations

7. All penetrations of the air barrier and paths of air infiltration/exfiltration shall be made airtight.

1.4 REFERENCES

A. The following standards and publications are applicable to the extent referenced in the text. The most recent version of these standards is implied unless otherwise stated.

B. American Society for Testing and Materials (ASTM)

1. ASTM C1193 Guide for Use of Joint Sealants
2. ASTM D412 Standard Test Methods for Rubber Properties in Tension
3. ASTM D570 Test Method for Water Absorption of Plastics
4. ASTM D1004 Test Method for Initial Tear Resistance of Plastic Film and Sheeting
5. ASTM D1876 Test Method for Peel Resistance of Adhesives

6.	ASTM D1938	Test Method for Tear Propagation Resistance of Plastic Film and Sheeting
7.	ASTM D1970	Standard Specification for Self-Adhering Polymer Modified Bitumi-nous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection
8.	ASTM D4258	Practice for Surface Cleaning Concrete for Coating
9.	ASTM D4263	Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method
10.	ASTM D4541	Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers
11.	ASTM E96	Test Methods for Water Vapor Transmission of Materials
12.	ASTM E154	Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover
13.	ASTM E1186	Practice for Air Leakage Site Detection in Building Envelopes and Air Retarder Systems
14.	ASTM E2178	Standard Test Method for Air Permeance of Building Materials
15.	ASTM E2357	Standard Test Method for Determining Air Leakage of Air Barrier Assemblies
16.	NPFA 285	Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components

1.5 SUBMITTALS

A. Product Data: Include manufacturer's written instructions for evaluating, preparing, and treating substrate; technical data; and tested physical and performance properties of air barrier.

B. Shop Drawings: Show locations and extent of air barrier. Include details for substrate joints and cracks, counterflashing strip, penetrations, inside and outside corners, terminations, and tie-ins with adjoining construction.

1. Include details of interfaces with other materials that form part of air barrier
2. Include details of mockups

C. Samples: Submit representative samples of the following for approval:

1. Fluid-Applied membrane
2. Self-Adhered Transition Membrane
3. Self-Adhered Through Wall Flashing

D. Product Certificates: For air barriers, certifying compatibility of air barrier and accessory materials with Project materials that connect to or that come in contact with the barrier; signed by product manufacturer.

E. Qualification Data: For Applicator.

F. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for air barriers, submit certified test report showing compliance with requirements specified for ASTM E2178.

G. Warranty: Submit a sample warranty identifying the terms and conditions stated in Article 1.10.

1.6 QUALITY ASSURANCE

A. Manufacturer: Air barrier systems shall be manufactured and marketed by a firm with a minimum of 20 years' experience in the production and sales of waterproofing and air barriers. Manufacturers proposed for use, but not named in these specifications shall submit evidence of ability to meet all requirements specified, and include a list of projects of similar design and complexity completed within the past five years.

B. Source Limitations: Obtain primary air-barrier material and through wall flashing through one source from a single manufacturer. Should project require a vapor permeable and a vapor impermeable air barrier on same project, obtain vapor-permeable and vapor impermeable air barrier and through wall flashing from one source from a single manufacturer. See specification Section 07 60 00 for fully-adhered vapor impermeable air barrier.

C. Applicator Qualifications: A firm experienced in applying air barrier materials similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance.

D. Mockups: Before beginning installation of air barrier, provide air barrier work for exterior wall assembly mockups, incorporating backup wall construction, external cladding, window, door frame and sill, insulation, and flashing to demonstrate surface preparation, crack and joint treatment, and sealing of gaps, terminations, and penetrations of air barrier membrane.

1. Coordinate construction of mockup to permit inspection by Owner's testing agency of air barrier before external insulation and cladding is installed
2. If Architect determines mockups do not comply with requirements, reconstruct mockups and apply air barrier until mockups are approved

E. Pre-Installation Conference: A pre-installation conference shall be held prior to commencement of field operations to establish procedures to maintain optimum working conditions and to coordinate this work with related and adjacent work. Preinstallation conference shall include the Contractor, installer, Architect, and system manufacturer's field representative. Agenda for meeting shall include but not be limited to the following:

1. Review of submittals
2. Review of surface preparation, minimum curing period and installation procedures
3. Review of special details and flashings
4. Sequence of construction, responsibilities and schedule for subsequent operations
5. Review of mock-up requirements
6. Review of inspection, testing, protection and repair procedures

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials and products in labeled packages. Store and handle in strict compliance with manufacturer's instructions, recommendations and material safety data sheets. Protect from damage from sunlight, weather, excessive temperatures and construction operations. Remove damaged material from the site and dispose of in accordance with applicable regulations.

B. Do not double-stack pallets of fluid applied membrane components on the job site. Provide cover on top and all sides, allowing for adequate ventilation.

C. Protect fluid-applied membrane components from freezing and extreme heat.

D. Sequence deliveries to avoid delays, but minimize on-site storage.

1.8 PROJECT CONDITIONS

A. Environmental Limitations: Apply air barrier within the range of ambient and substrate temperatures recommended by air barrier manufacturer. Protect substrates from environmental conditions that affect performance of air barrier. Do not apply air barrier to a wet substrate or during snow, rain, fog, or mist.

1.9 WARRANTY

A. Submit manufacturer's warranty that air barrier and accessories are free of defects at time of delivery and are manufactured to meet manufacturer's published physical proper ties and material specifications.
B. Warranty Period: Five years from date of completion of the air barrier membrane installation.

PART 2 PRODUCTS

2.1 FLUID-APPLIED, VAPOR PERMEABLE MEMBRANE AIR BARRIER

A. BASIS OF DESIGN: Perm-A-Barrier® VPL, as manufactured by Grace Construction Products, 62 Whittemore Avenue, Cambridge, MA has been used as a basis for design. Products meeting or exceeding these specifications from other manufacturers will be acceptable. System must contain products of a single manufacturer's system.

B. FLUID-APPLIED AIR BARRIER MEMBRANE: Basis of Design: Perm-A-Barrier® VPL, as manufactured by Grace Construction Products, 62 Whittemore Avenue, Cambridge, MA; a fluid-applied, vapor permeable, acrylic membrane that cures to form a resilient, monolithic, fully bonded elastomeric membrane when applied to construction surfaces.

The membrane provides superior protection against the damaging effects of air and liquid water ingress on the building structures. Product shall meet the following requirements:

1. Membrane Air Permeance: ASTM E2178: Not to exceed 0.004 cfm/sq. ft. under a pressure differential of 0.3 in. water (1.57 psf) (equal to 0.02 L/s. x sq. m. @ 75 Pa)
2. Assembly Air Permeance: Provide a continuous air barrier assembly that has an air leakage not to exceed 0.04 cfm/sq. ft. of surface area under a pressure differential of 0.3 in. water (1.57 psf) (equal to 0.2 L/s. x sq. m. of surface area at 75 Pa) when tested in accordance with ASTM E2357.
3. Water Vapor Permeance: ASTM E96, Method B: Greater then 10 perms
4. Pull Adhesion: ASTM D4541: minimum 20 psi or substrate failure to glass faced wall board, minimum 100 psi to concrete/CMU
5. Low temperature flexibility: ASTM D1970: Pass at minus 20 degrees Fahrenheit (at minus 29 degrees Celsius).
6. Water resistance of in-place membrane: ASTM E331: Pass. No water penetration after 90 minutes @ 299 Pa (6.24 psf) tested over OSB and gypsum sheathing.
7. Nail seal ability: ASTM D1970: Pass UV Exposure Limit: Equal to or greater than 180 calendar days
8. Fire Propagation Characteristics: Passes NFPA 285 testing as part of an approved assembly

C. TRANSITION MEMBRANE: Basis of Design: Perm-A-Barrier Detail Membrane manufactured by Grace Construction Product; a 0.9 mm (36 mils) of self-adhesive rubberized asphalt integrally bonded to 0.1 mm (4 mil) of cross-laminated, high-density polyethylene film to provide a min. 1.0 mm (40 mil) thick membrane. Membrane shall be interleaved with disposable silicone-coated release paper until installed, conforming with the following:

1. Water Vapor Transmission: ASTM E96, Method B: 0.05 perms (2.9 ng/Pa s. sq. m.) maximum
2. Air Permeance at 75 Pa (0.3 in. water) pressure difference: 0.0006 L/s. sq. m (0.00012 cfm/ sq. ft.) maximum
3. Puncture Resistance: ASTM E154: 178 N (40 lbs.) minimum
4. Lap Adhesion at minus 4 degrees Celsius (25 degrees Fahrenheit): ASTM D1876: 880 N/m (5.0 lbs./in.) of width
5. Low Temperature Flexibility: ASTM D1970: Unaffected to minus 43 degrees Celsius (minus 45 degrees Fahrenheit)
6. Tensile Strength: ASTM D412, Die C Modified: minimum 2.7 MPa (400 psi)
7. Elongation, Ultimate Failure of Rubberized Asphalt: ASTM D412, Die C: minimum 200%

D. TRANSITION ALUMINUM MEMBRANE: Basis of Design: Perm-A-Barrier Aluminum flashing manufactured by Grace Construction Products; a 0.9 mm (35 mils) of self-adhesive rubberized asphalt integrally bonded to 0.1 mm (5 mil) of aluminum film to provide a min. 1.0 mm (40 mil) thick membrane. Membrane shall be interleaved with disposable silicone-coated release paper until installed, conforming with the following:
   1. Water Absorption: ASTM D570: max 0.1% by weight
   2. Puncture Resistance: ASTM E154: 355N (80 lbs) min.
   3. Lap Adhesion at minus 4 degrees Celsius (25 degrees Fahrenheit): ASTM D1876 Modified: 880 N/m (5.0 lbs./in.) of width

4. Low Temperature Flexibility: ASTM D1970 Modified: Unaffected to minus 26 degrees Celsius (minus15 degrees Fahrenheit)
5. Tensile Strength: ASTM D412, Die C Modified: minimum 4.1 MPa (600 Psi)
6. Elongation, Ultimate Failure of Rubberized Asphalt: ASTM D412, Die C Modified: minimum 200%

E. FLEXIBLE MEMBRANE WALL FLASHING: Basis of Design: Perm-A-Barrier Wall Flashing manufactured by Grace Construction Products; a 0.8 mm (32 mils) of self-adhesive rubberized asphalt integrally bonded to 0.2 mm (8 mil) of cross-laminated, high-density polyethylene film to provide a min. 1.0 mm (40 mil) thick membrane. Membrane shall be interleaved with disposable silicone-coated release paper until installed, conforming with the following:

1. Water Vapor Transmission: ASTM E96, Method B: 0.05 perms (2.9 ng/ Pa s. sq. m.) maximum
2. Water Absorption: ASTM D570: max. 0.1% by weight
3. Puncture Resistance: ASTM E154: 356 N (80 lbs.) minimum
4. Tear Resistance
    a. Initiation ASTM D1004: min. 58 N (13.0 lbs.) M.D.
    b. Propagation ASTM D1938: min. 40 N (9.0 lbs.) M.D.
5. Lap Adhesion at minus 4 degrees Celsius (25 degrees Fahrenheit): ASTM D1876: 880 N/m (5.0 lbs./in.) of width
6. Low Temperature Flexibility: ASTM D1970: Unaffected to minus 43 degrees Celsius (minus 45 degrees Fahrenheit)
7. Tensile Strength: ASTM D412, Die C Modified: minimum 5.5 MPa (800 psi)
8. Elongation, Ultimate Failure of Rubberized Asphalt: ASTM D412, Die C: minimum 200%

2.2 PRIMERS

A. Primer for Self-Adhered Transition Membrane and Flexible Membrane Wall Flashing: Basis of Design: Perm-A- Barrier WB Primer manufactured by Grace Construction Products; a water-based primer which imparts an aggressive, high tack finish on the treated substrate.

1. Flash Point: No flash to boiling point
2. VOC Content: Not to exceed 10 g/L
3. Application Temperature: minus 4 degrees Celsius (25 degrees Fahrenheit) and above
4. Freezing point (as packaged): minus 7 degrees Celsius (21 degrees Fahrenheit)

B. Primer for Self-Adhered Transition Membrane and Flexible Membrane Wall Flashing: Bias of Design: Perm-A-Barrier Primer Plus manufactured by Grace Construction Products; a water-based primer which imparts an aggressive, high

tack finish on the treated substrate. Product shall have the following minimum physical properties:

1. Color: Milky White (wet), Clear (dry)
2. Weight: 8.25 lbs./gal.
3. Solids Content (by weight): 53-57%
4. Solvent Type: Water
5. VOC Content: Not to excess 1 g/L
6. Application Temperature: 4 degrees Celsius (40 degrees Fahrenheit) and above

2.3 PENETRATIONS & TERMINATION SEALANT

A. Liquid Membrane for Details and Terminations and Substrate Patching: Bituthene Liquid Membrane manufactured by Grace Construction Products; a two-part, elastomeric, trowel grade material designed for use with fluid-applied membranes, self-adhered membranes and tapes. 10 g/L maximum VOC content.

B. Sealant for Details, Final Terminations and Sheathing Joint Treatment: Grace S100 Sealant manufactured by Grace Construction Products: a one-part, neutral curing, and ultra-low modulus material designed for use with fluid-applied membranes, self-adhered membrane and tapes. 98 g/L maximum VOC content.

2.4 ACCEPTABLE MANUFACTURERS

A. The following systems, meeting or exceeding the Basis of Design, shall be acceptable:
   1. Grace Construction Products - Perm-A-Barrier® VPL
   2. Polyguard Products – Polyguard Airlox Flex VP
   3. TK Products – TK-AirMax 2104
   4. WR Meadows – Air-Shield LMP

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that substrates and conditions are ready to accept the Work of this section. Notify Architect in writing of any discrepancies. Commencement of the Work or any parts there of shall mean acceptance of the prepared substrates.

B. All surfaces must be sound, dry, clean and free of oil, grease, dirt, excess mortar or other contaminants detrimental to the adhesion of the membranes. Fill voids, gaps and spalled areas in substrate to provide an even plane. Strike masonry joints full-flush. Curing compounds or release agents used in concrete construction must be resin based without oil, wax or pigments.

3.2 SURFACE PREPARATION

A. Refer to manufacturer's literature for requirements for preparation of substrates. Surfaces shall be sound and free of voids, spalled areas, and loose aggregate and sharp protrusions. Remove contaminants such as grease, oil and wax from exposed surfaces. Remove dust, dirt, loose stone and debris. Use repair materials and methods that are acceptable to manufacturer of the fluid-applied air barrier assembly.

B. Exterior sheathing panels: Ensure that the boards are sufficiently stabilized with corners and edges fastened with appropriate screws. Pre-treat all board joints with 50 – 75 mm (2-3 in.) wide, manufacturer's recommended mesh-style wallboard tape. Gaps greater than 6 mm (1/4 in.) should be filled with mastic or caulk, allowing sufficient time to fully cure before application of the mesh-style wallboard tape and fluid applied air barrier system.

C. Masonry Substrates: Apply air and vapor barrier over concrete block and brick with smooth trowel-cut mortar joints, struck full and flush. Fill all voids and holes, particularly in the mortar joints, with a lean mortar mix, non-shrinking grout or parge coat.

D. Related Materials: Treat construction joints and install flashing as recommended by manufacturer.

E. Clean, prepare, treat, and seal substrate according to manufacturer's written instructions. Provide clean, dust-free, and dry substrate for air barrier application.

F. Mask off adjoining surfaces not covered by air barrier to prevent spillage and overspray affecting other construction.

G. Remove grease, oil, bitumen, form-release agents, paints, curing compounds, and other penetrating contaminants or film-forming coatings from concrete.

H. Remove fins, ridges, mortar, and other projections and fill honeycomb, aggregate pockets, holes, and other voids in concrete with substrate patching membrane.

I. Remove excess mortar from masonry ties, shelf angles, and other obstructions.

J. At changes in substrate plane, apply sealant or Bituthene Liquid Membrane at sharp corners and edges to form a smooth transition from one plane to another.

K. Cover gaps in substrate plane and form a smooth transition from one substrate plane to another with stainless-steel sheet mechanically fastened to structural framing to provide continuous support for air barrier.

3.3 JOINT TREATMENT

A. Concrete and Masonry: Prepare, treat, rout, and fill joints and cracks in substrate according to ASTM C1193 and air barrier manufacturer's written instructions.

Remove dust and dirt from joints and cracks complying with ASTM D4258 before coating surfaces.

1. Prime substrate as required.

B. Gypsum Sheathing: Fill joints with Grace S100 Sealant per manufacturer's written instructions.

3.4 AIR BARRIER MEMBRANE INSTALLATION

A. Apply air barrier membrane to achieve a continuous air barrier according to air barrier manufacturer's written instructions.

B. Apply air barrier membrane within manufacturer's recommended application temperature ranges.

C. Apply a continuous unbroken air barrier to substrates according to the following minimum thickness. Apply membrane in full contact around protrusions such as masonry ties.

1. Vapor-Permeable Membrane Air Barrier: 70-mil (1.8-mm) wet film thickness, 40-mil (1.0-mm) dry film thickness.

D. Do not cover air barrier until it has been tested and inspected by Owner's testing agency.

E. Correct deficiencies in or remove air barrier that does not comply with requirements; repair substrates and reapply air barrier components.

3.5 TRANSITION MEMBRANE INSTALLATION

A. Install strips, transition membrane, and auxiliary materials according to air barrier manufacturer's written instructions to form a seal with adjacent construction and maintain a continuous air barrier.

B. Apply primer to substrates to receive transition membrane at required rate and allow to dry. Limit priming to areas that will be covered by transition tape in same day. Re-prime areas exposed for more than 24 hours.

1. Prime glass-fiber-surfaced gypsum sheathing not covered with air membrane material with number of prime coats needed to achieve required bond, with adequate drying time between coats.

C. Connect and seal exterior wall air barrier membrane continuously to roofing membrane air barrier, concrete below-grade structures, floor-to floor construction, exterior glazing and window systems, glazed curtain-wall systems, storefront systems, exterior louvers, exterior door framing, and other construction used in exterior wall openings, using accessory materials.

D. At end of each working day, seal top edge of strips and transition membrane to substrate with termination sealant.

E. Apply joint sealants forming part of air barrier assembly within sealant manufacturer's recommended application temperature ranges. Consult sealant manufacturer when sealant cannot be applied within these temperature ranges.

F. Wall Openings: Prime concealed perimeter frame surfaces of windows, curtain walls, storefronts, and doors. Apply transition membrane so that a minimum of 3 inches (75 mm) of coverage is achieved over both substrates.

1. Transition Membrane: Roll firmly to enhance adhesion.

G. Fill gaps in perimeter frame surfaces of windows, curtain walls, storefronts, and doors, and miscellaneous penetrations of air barrier membrane with foam sealant.

H. Repair punctures, voids, and deficient lapped seams in strips and transition membrane. Slit and flatten fish-mouths and blisters. Patch with transition membrane extending 6 inches (150 mm) beyond repaired areas in strip direction.

3.6 FIELD QUALITY CONTROL

A. Testing Agency: Owner may engage a qualified testing agency to perform tests and inspections and prepare test reports.

B. Inspections: Air barrier materials and installation are subject to inspection for compliance with requirements. Inspections may include the following:

1. Continuity of air barrier system has been achieved throughout the building envelope with no gaps or holes
2. Continuous structural support of air barrier system has been provided
3. Masonry and concrete surfaces are smooth, clean and free of cavities, protrusions, and mortar droppings
4. Site conditions for application temperature and dryness of substrates have been maintained
5. Maximum exposure time of materials to UV deterioration has not been exceeded
6. Surfaces have been primed, if applicable
7. Laps in strips and transition membrane have complied with minimum requirements and have been shingled in the correct direction (or mastic has been applied on exposed edges), with no fish-mouths
8. Termination sealant has been applied on cut edges
9. Strips and transition membrane have been firmly adhered to substrate
10. Compatible materials have been used
11. Transitions at changes in direction and structural support at gaps have been provided.
12. Connections between assemblies (membrane and sealants) have complied with requirements for cleanliness, preparation and priming of surfaces, structural support, integrity, and continuity of seal
13. All penetrations have been sealed

C. Tests: Testing to be performed will be determined by Owner's testing agency from among the following tests:

1. Qualitative Testing: Air barrier assemblies will be tested for evidence of air leakage according to ASTM E1186.

D. Remove and replace deficient air barrier components and retest as specified above.

3.7 CLEANING AND PROTECTION

A. Protect air barrier system from damage during application and remainder of construction period, according to manufacturer's written instructions.

B. Protect air barrier from exposure to UV light and harmful weather exposure as required by manufacturer. Remove and replace main air barrier material exposed for more than 180 days.

C. Clean spills, stains, and soiling from construction that would be exposed in the completed work using cleaning agents and procedures recommended by manufacturer of affected construction.

D. Remove masking materials after installation.

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SECTION 07 60 00 FLASHING AND SHEET METAL

SCOPE Applicable provisions of the General and Supplementary Conditions and Division 1 govern work under this Section.

INDEX

PART 1 GENERAL

1.1 Description

A. Work Included: Furnish and install all flashing and sheet metal not specifically described in other Sections of these Specifications but required to prevent penetration of water through exterior shell of the buildings.

B. Related Work Specified Elsewhere

1. Sealants and Caulking	Section 07 92 13
2. Metal Building System	Section 13 34 19
3. Plumbing	Per Plans
4. Louvers and Vents	Per Plans

1.2 Quality Assurance

A. Qualifications of Installers: Provide at least one person who shall be present at all times during execution of the Work of this Section and who shall be thoroughly trained and experienced in the materials and methods required and who shall direct the entire flashing and sheet metal fabrication and installation.

B. Mock-ups
1. Before work of this Section begins, fabricate for review a one (1) ft. mock-up of the edge flashing using identical project materials and methods.
2. Include seams, fasteners.
3. Maintain accepted mock-up for comparison with finished work.

C. Reference Standards
1. American Society for Testing and Materials (ASTM):
   a. A 525, Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process, General Requirements
   b. A 526, Steel Sheet, Zinc-Coated (Galvanized by the Hot-Dip Process, Commercial Quality
2. Federal Specifications (FS):
   a. FF-S-107, Screws, Tapping and Drive
3. Sheet Metal and Air Conditioning Contractors National Assn., Inc. (SMACNA)
   a. Sheet Metal Manual

1.3 Submittals: Within 35 days after award of Contract, and before any of the materials of this Section are delivered to the job site, submit complete to the Architect in accordance with these Specifications; the following:

A. Samples
   1. Two, 12 inch by 12 inch samples of each sheet metal material.
   2. Show pattern, finish color and thickness.

1.4 Product Delivery, Storage and Handling

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

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

1.5 Warranty: All sheet metal work done in conjunction with the roofing membrane shall be warranted for two years against defects in materials and workmanship.

PART 2 PRODUCTS

2.1 Materials

A. Materials and Gages: Where sheet metal is required and no materials or gage is indicated on the Drawing, furnish and install the highest quality and gage commensurate with the referenced standards.

B. Sheet Metal
   1. Aluminum:
      a. ASTM B 209, alloy 3003, temper H14
      b. Finish: AS-C22A41
      c. Minimum thickness of gage: 0.032 inches
   2. Wall Cap:
      a. Base Clip: 22 gauge galvanized steel, ASTM A 526 commercial quality, coating - G-90, ASTM A 525.
      b. Cap" Prefinished galvanized steel, 24 gauge, with Kynar 500 coating, smooth surface. "Colorklad" by Vincent Metals, color as selected from all standard colors.
   3. Galvanized Steel:
      a. ASTM A 526, commercial quality

C. Fasteners:
   1. Nails: galvanized, flathead roofing nails.
   2. Screws: Self-tapping sheet metal type, FS FF-S-107.

D. Gutters and Downspouts
   1. Seamless stock 5" aluminum with 3" x 4" stock rectangular downspouts. Pipe covers at grade connection to pipe. Pipe transition at storm connections required by this contractor.
   2. Color as selected.

E. Standing Seam Roofing Panels: Firestone – UNA-CLAD UC-6 or equal; installation per manufacturer standards/industry. Color as selected by Architect.
   1. Panel Description
      a. Panels shall be produced on a precision roll forming machine.
      b. Panels of maximum possible lengths shall be used to minimize end laps. Standard lengths shall be used to a nominal 40 foot (shipping restrictions).
      c. Roof panels shall be factory pre-punched at panel end to match pre-punched holes in the eave structural member. Panel end splices shall be prepunched and prenotched.
      d. Profile: Edges: Male/female, Double lock standing seam
      e. (2) rows of snow guards staggered on roof edge.
      f. Ice and Water Shield: ASTM D146, 60 mil, adhesive backed membrane, 36 inches wide over complete sub roof by this contractor.
   2. Panel Design:
      a. Panels shall be designed in accord with AISI Specifications for the Design of Light Gage Cold Formed Steel Structural Members and in accord with sound engineering methods and practices.
      b. Panels shall be designed to support design live loads and roof traffic during construction.
      c. The roof shall provide for expansion/contraction without detrimental effect on the roof panel when ambient air temperature varies ± 100 degrees F. from the temperature at which the roof was installed.
   3. Panel Material
      a. 24 gage galvanized steel (42,000 yield) conforming to ASTM A 525. Coating shall be G-90 to ASTM A 446 grade D or A 515.
      b. Gage aluminized steel - Type II MIL-S-4174A.
      c. Inch aluminum sheet.
   4. Snow Guards – Fence Style
      a. Quantity: 2 rows minimum, more as required by system design per roof size and slope.
      b. Continuous Bar: 6000 series aluminum, mill finish. Include splice plate. Designed to support retained snow loads.
      c. Attachment Clamp Bracket: Aluminum block to be attached to standing seam flanges in such a way as not to void roof warranty. Spacing as recommended by the roofing manufacturer. All hardware to be stainless steel or aluminum.
      d. Assembly: Provided manufactured system components specifically designed for this purpose. Components to be compatible with each other and the roofing system.

F. Ice and Water Shield: ASTM D146, 60 mil, adhesive backed membrane, 36” wide.

G. Roof Protection Board: High-performance glass-mat roof board, USG Securock or equal, ¼” thickness. Install where shown on the drawings.

H. Soffit Panels: Marquee–Lok Panel or equal - 12” wide flat panel, minimum 1 inch metal thickness; crimped profile. Color as selected by Architect.

PART 3 EXECUTION

3.1 Surface Conditions

A. Inspection Prior to all Work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence. Verify that flashing and sheet metal may be installed in accord with the original design, all pertinent codes and regulations, the reference standards, and the approved Shop Drawings.
   1. Verify that substrates are smooth and clean to extent needed for sheet metal Work.
   2. Verify that reglets, nails, cants and blocking to receive sheet metal are installed and free of concrete and soil.

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

3.2 Preparation: Before installing sheet metal verify shapes and dimensions of surface to be covered.

3.3 Installation

A. General
   1. Install work watertight, without waves, warps, buckles, fastening stresses or distortion, allowing for expansion and contraction.
   2. Angle bottom edges of exposed vertical surfaces to form drips.

B. Reglets: Install in accurate locations, straight, in-line and with leak proof joints.

C. Sealant Installation: Apply 1/4 inch diameter bead, centered on full length of joint.

D. Roof Counterflashing
   1. Overlap base flashing 4 inch minimum.
   2. Install bottom edge tight against base flashing.
   3. Lap seam vertical joints 3 inch minimum and apply sealant.
   4. Miter, lap seam and close corner joints with solder or sealant.

E. Copings
   1. Space drive lock or cover plate seam 8 feet apart maximum.
   2. Miter and join corners with seams to match others in coping.
   3. Parapet Walls
      a. Lock exterior edges over continuous cleats secured to substrate.
      b. Slope 3/4 in 12 toward inside of parapet.
      c. Lock interior edges to substrate with cleats anchored at seams.

F. Roof Penetration Flashing
   1. Base Flashing
      a. Extend flange onto roof 6 inches minimum away from penetration.
      b. Extend flange upward around penetration to at least 8 inches above roofing felts.
      c. Fold back upper and side roof flange edges 1/2 inch minimum.
      d. Solder-lap joints.
   2. Counterflashing
      a. Overlap base flashing one inch minimum with storm collar sloped away from penetration.

b. Secure to penetration with draw band and sealant.

G. Equipment Support Flashing
1. Full cap support.
2. Overlap base flashing 4 inches.
3. Solder-lap joint.
4. Provide sealant around penetration through flashing.

H. Gutters and Downspouts
1. Install where shown on drawings.
2. Provide metal cap at pipe connection at grade.

3.4 Repairing: Repair or replace damaged work at no additional cost to the Owner.

3.5 Cleaning

A. As work progresses, neutralize excess flux with 5 to 10% washing soda solution and thoroughly rinse.

B. Leave work clean and free of stains, scrap and debris.

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SECTION 07 92 13 SEALANTS AND CAULKING

SCOPE Applicable provisions of the General and Supplementary Conditions and Division 1 govern work under this Section.

INDEX

PART 1 GENERAL

1.1 Description

A. Work Included
1. The purpose of caulking in this work is to provide a positive barrier against penetration of air and moisture at joints between items where caulking is essential to continued integrity of the barrier.
2. Such caulking will normally be performed under the work of various Sections of these Specifications but shall be performed in strict accord with the provisions of this Section.
3. Exterior of Building: Joints and cracks around windows, aluminum entrances, door frames, columns, louvers, wall penetrations, connections and other joints necessary to seal off building from outside air and moisture.
4. Interior of Building:
   a. Inside jambs and heads of exterior door frames.
   b. Interior hollow metal door frames. Both sides of interior hollow metal frames at exposed masonry or precast concrete.
   c. Inside perimeter of windows.

B. Related Work Specified Elsewhere: Individual requirements for caulking are described in

1. Flashing and Sheet Metal — Section 07 60 00
2. Glazing — Section 08 80 00
3. Metal Building System — Section 13 34 19

1.2 Quality Assurance

A. Qualifications of Applicators: Installation of caulking shall be performed only by workers thoroughly skilled and specially trained in the techniques of caulking, and who are completely familiar with the published recommendations of the manufacturer of the caulking materials being used. Minimum two years experience and approved by manufacturer.

B. Rejection of Installed Caulking: Indication of lack of skill on the part of caulking installers shall be sufficient ground for the Architect to reject installed caulking and to require its immediate removal and complete recaulking at no additional cost to the Owner. This item will be strictly enforced and no excuses accepted.

C. Manufacturer's Representative: Arrange for manufacturer's technical representative to be on project site to advise installer of proper procedures and precautions for the use of materials and to check installation.

D. Reference Standards
   1. American Society for Testing and Materials (ASTM):
      a. C 790, Recommended Practices for Use of Latex Sealing Compounds.
      b. C 804, Recommended Practice for Use of Solvent-Release Type Sealants.
      c. C 920, Elastomeric joint sealants.
      d. D 1056, Flexible Cellular Materials - Sponge or Expanded Rubber.
      e. D 1565, Flexible Cellular Materials - Vinyl Chloride Polymers and Co-polymers (Open Cell Foam).

1.3 Submittals: Within 35 days after award of Contract, and before any of the materials of this Section are delivered to the job site, submit complete to the Architect in accord with the provisions of these Specifications; the following:

A. Product Data: Copies of product manufacturer's specification, recommendations and installation instructions for sealant, backing and associated materials.

1.4 Product Delivery, Storage and Handling

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

B. Delivery of Materials: Deliver materials in original, tightly sealed containers or unopened packages with Manufacturer's name, labels, product identification and lot numbers where appropriate.

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

1.5 Warranty

A. Provide Manufacturer's standard year 10 material warranty. Replace sealants which fail because of loss of cohesion or adhesion, or do not cure.

B. Guarantee workmanship against leakage for two years.

PART 2 PRODUCTS

2.1 Caulking Materials: All caulking materials shall be a single or double component, non-sagging type.

A. Sealants
   1. Silicone base, solvent curing conforming to requirements of C 920, Type S; Grade NS; Class 25; Use NT; Shore 'A' hardness of minimum 15 and maximum 50; non-staining; non-bleeding; color as selected.
   2. Polyurethane base, multi-component, chemical curing; self leveling type for application in horizontal joints and non-sagging type for application in vertical joints;

capable of being continuously immersed in water, withstand movement of up to 25 percent of joint width and satisfactorily applied throughout a temperature range of 40 to 80 degrees F.; uniform, homogeneous, and free from lumps, skins and coarse particles when mixed; Shore 'A' hardness of minimum 15 and maximum 50; non-staining; non-bleeding; color as selected.

B. Foams
   1. Precast wall joints shall be filled with a 2-component polyurethane spray foam – Touch ‘n Seal Standard Two Component Spray Foam manufactured by Convenience Products in Fenton, MO, or equal. Apply per manufacturer’s instructions.

C. Accessories
   2. Primer: Non-staining type, as recommended by sealant Manufacturer to suit application.
   3. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant Manufacturer; compatible with joint forming materials.
   4. Joint Filler: as recommended by sealant manufacturer to suit application.
   5. Bond Breaker: Pressure sensitive tape recommended by sealant Manufacturer to suit application.
   6. Masking Tape: Pressure sensitive adhesive paper tape.

2.2 Caulking Equipment: All caulking equipment shall be only such equipment as is specifically recommended by the manufacturer of the caulking material being installed.

2.3 Acceptable Manufacturers

A. Dow Chemical

B. General Electric

C. Tremco

PART 3 EXECUTION

3.1 Surface Conditions

A. Inspection
   1. Prior to all Work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
   2. Verify that caulking may be installed in accord with the manufacturer's recommendations.
   3. Examine joints to be sealed for construction defects which would adversely affect execution of work.
   4. Ensure that masonry and concrete have cured 28 days minimum.

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

3.2 Preparation

A. Cleaning: Clean joint surfaces, using joint cleaner as necessary to be free of dust, dirt, oil, grease, rust, lacquers, laitance, release agents, moisture, or other matter which might adversely affect adhesion of sealant.

B. Do not apply caulking to painted surfaces. Remove old paint and caulking material before applying new caulking.

C. Masking: Mask area adjacent to joints.

D. Very porous surfaces require priming.

E. Before caulking, clean and prime surfaces to receive caulking per manufacturer's recommendations.

F. Verify that joint shaping materials and release tapes are compatible with sealant.

G. Examine joint dimensions and size materials to achieve required width/depth ratios.

H. Use joint filler to achieve required joint depths, to allow sealants to perform properly.

I. Use bond breaker where required.

3.3 Installation

A. Application of Backing
   1. Verify the compatibility of filler material with caulking before installation.
   2. Polyurethane for open joints shall be at least 1-1/2 times width of open joint and of thickness to give solid backing.
   3. Backing shall fill up joint do depth of joint is approximately 1/2 of its width for joints from 1/2" to 1".
   4. Install backing material in joints using blunt instrument to avoid puncturing. Do not twist rod while installing. Install backing so that joint depth is 50% of joint width, but a minimum of 1/4" deep.

B. Mixing: (Two Part)
   1. Mix in exact proportions recommended by Manufacturer.
   2. Do not thin.
   3. Secure a perfect blend by thorough slow mixing.
   4. Mix five minutes mechanically (one gallon units) or ten minutes by hand.
   5. Do not mix in direct sunlight.

C. Application of Caulking
   1. General:
      a. Do not caulk under weather conditions or sun conditions potentially harmful to the set and curing of the caulking material.
      b. Perform work in accord with ASTM C 804 for solvent release.
   2. Installation
      a. Install caulking in strict accord with the manufacturer's recommendations, taking care to produce beads of proper width and depth, to tool as recommended by

the manufacturer, and to immediately remove all surface caulking.

b. Apply with hand caulking gun. Use gun nozzles of proper size to fit joints.
c. A minimum adhering surface should be as lease 1/2". For joints from 1/2" to 1" wide, depth of sealant shall be 1/2 the width. For joints over 1", maintain depth of sealant to 1/2". (For unusual requirements, consult supplier.)
d. Seal joint when it is normal;, not in a contracted or expanded condition.
e. Use masking tape to protect surrounding surfaces. Remove tape immediately after drawing bead with inner edge drawn away first to eliminate feather edging.
f. Tool with putty knife of suitable size within 10 minutes after gunning. Tool may be moistened with solvent to avoid sticking. Tool joints as indicated.
g. Do not apply caulking at temperatures under 50 degrees F.
h. Caulk entire perimeter of all openings unless otherwise indicated.
i. Joints: Free of air pockets, foreign embedded matter, ridges and sags.

D. Cleaning: Remove excess materials adjacent to joints by mechanical means or with xylol (xylene) or mineral spirits as work progresses to eliminate evidence of spillage or damage to adjacent surfaces. Note: When using flammable solvents, avoid heat, sparks and open flames. Always provide adequate ventilation and follow all precautions listed on solvent container label. Leave finished work in neat, clean condition with no evidence of spillovers onto adjacent surfaces.

3.4 Caulking Schedule

A. Carefully study the Drawings and furnish and install the proper caulking of each point where called for on the Drawings plus all other points where caulking is essential in maintaining the continued integrity of the watertight barrier. In general, caulk all joints of masonry meeting non-masonry surfaces including interior and exterior door and window frames, caulk all masonry expansion joints.
   1. Silicone base, "Silicone": Glazing systems, toilet rooms.

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SECTION 08 11 00 METAL DOORS AND FRAMES

SCOPE Applicable provisions of the General and Supplementary Conditions and Division 1 govern work under this Section.

INDEX

PART 1 GENERAL

1.1 Description

A. Work Included
1. The metal doors and frames required for this work are indicated on the Drawings and include non-labeled and labeled hollow metal doors and frames and hollow metal frames for borrowed lites.

B. Related Work Specified Elsewhere

1. Metal Door Frames	Section 08 11 00
2. Finish Hardware	Section 08 71 00
3. Glazing	Section 08 80 00
4. Finish Painting	Section 09 91 00
5. Metal Building System	Section 13 34 19
6. Electrical	Division 26

1.2 Quality Assurance

A. Qualifications of Installers: For actual installation of metal doors and frames and installation of finish hardware on metal doors and frames, use only personnel who are thoroughly trained and experienced in the skills required and who are completely familiar with the Manufacturer's current recommended methods of installation as well as the requirements of this Work. Minimum two years experience.

B. Requirements of Regulatory Agencies
1. Testing agency: Underwriters Laboratories, Inc.
2. Door assembly fire test
   a. Procedure: ASTM E 152.
   b. Exposure: As labeled on Door Schedule.

C. Reference Standards
1. American National Standards Institute (ANSI):
   a. A 115, Series on Door and Frame Preparation.
   b. A 151.1, Performance Test for Standard Steel Doors, Frames, Anchors, Hinge Reinforcing and Exit Device Reinforcings.

2. Hollow Metal Manufacturers Association (HMMA)
   a. Standard 800, Hollow Metal Manual
3. Steel Door Institute (SDI)
   a. 100, Recommended Specification, Standard Steel Doors and Frames.
   b. 105, Recommended Erection Instructions for Steel Frames.
   c. 107, Hardware on Steel Doors, (reinforcement application).
   d. 110, Standard Steel Doors and Frames for Modular Masonry Construction.
   e. 113, Standard Thermal Performance Tests ply Steel Door and Frame Assemblies.
4. In addition to complying with all pertinent codes and regulations:
   a. Manufacturer all labeled doors in strict accord with the specifications and procedures of Underwriters' Laboratories, Inc.
   b. In Warranty and Shop Drawings, comply with nomenclature established in American National Standards Institute publication A 123.1 "Nomenclature for Steel Doors and Steel Door Frames".

1.3 Submittals: Within 35 days after award of Contract, and before any of the materials of this Section are delivered to the job site, submit complete to the Architect in accordance with these Specifications; the following:

A. Samples
   1. A sample of door, showing edge, top and/or bottom construction, insulation, hinge reinforcement and face stiffening.
   2. A sample of a typical frame, showing welded corner joint, welded hinge reinforcements, dust cover boxes and floor anchor.
   3. All samples submitted shall be of the production type and shall represent in all respects the minimum quality of work to be furnished by the Manufacturer. No work represented by the samples shall be fabricated until the samples are approved and any downgrading of quality demonstrated by the samples may be cause for rejection of the work.

B. Shop Drawings: Illustrations and schedule of door and frame sizes, types, materials, construction, finishing, anchoring, accessories and preparation for installing hardware.

C. Product Data: Manufacturer's descriptive literature and installation instructions.

D. Certificates: Manufacturer's certificates that materials meet specification requirements.

1.4 Product Delivery, Storage and Handling

A. Protection:
   1. Deliver, store and handle all metal doors and frames in a manner to prevent damage and deterioration.
   2. Provide packaging such as cardboard or other containers, separators, banding, spreaders and paper wrappings as required to completely protect all metal doors and frames during transportation and storage.
   3. Store doors upright, in a protected dry area, at least one inch off the ground and with as least 1/4" air space between individual pieces; protect all prefinished and hardware surfaces as required.

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

PART 2 PRODUCTS

2.1 Acceptable Manufacturers: All metal doors and frames shall be the product of one Manufacturer.

A. Hollow metal doors and frames - Pioneer, Amweld, Ceco, Kewanee, Republic, Precision, Steelcraft, Curries.

B. FRP/Aluminum
   1. Series 100BE FRP, Cline Aluminum Doors, Bradenton, FL
   2. D9 heavy duty doors, U.S. Metal & Mfg. Corp, South Bend, IN
   3. SL-17 FRP Flush, Special-Lite, Inc. Decatur MI
   4. Flushline Series "FRP Faced", Kawneer Co., Inc., Frankline, WI.

2.2 Materials (Hollow Metal)

A. Steel Fabrications: Carbon Steel: Cold rolled, ASTM A 366.

B. Coating Materials: Primer: Manufacturer's standard rust inhibitive primer.

C. Core Filler Material: Manufacturer's standard.

D. Anchors, Fasteners, Hardware and Accessories: Manufacturer's standard.

2.3 Fabrication (Hollow Metal)

A. General
   1. Fabricate hollow metal work to be rigid, neat in appearance and free from defects, warp or buckle.
   2. Completed fabrications to meet ANSI A 151.1.
   3. Accurately form metal to required sizes and profiles, including astragals if utilized.
   4. Clearly identify work, that cannot be permanently factory assembled before shipment, to assure proper assembly at project site.
   5. Grind and dress exposed welds to form smooth, flush surfaces.
   6. Do not use metallic filler to conceal manufacturing defects.

B. Doors
   1. Form interior face sheets of 18 gauge and exterior face sheets of 16 gauge metal.
   2 . Stiffener and Core
      a. Stiffen face sheet with continuous vertical formed steel sections over full thickness of interior space between door faces.
      b. Stiffeners of 22 gauge minimum spaced not more than 6 inches apart, spot welded to both face sheets not more than 4 inches on center.
      c. Fill spaces between stiffeners with core material on interior doors.
      d. Fill spaces on exterior doors with urethane foam.

3. Join door faces at vertical edges by continuous weld extending full height of door, grind welds flush.
4. Form astragal on meeting edge of door.
5. Close top and bottom edges of doors with steel channel minimum 16 gauge, extending full width of door and spot welded to both faces.
6. Form door seal mortise on door bottom.
7. Edge profiles shall be provided on both vertical edges of doors as follows:
   a. Single-acting swing doors - beveled 1/8 inch in 2 inches.
   b. Double-acting swing doors - rounded on 2-1/8 inch radius.
8. Hardware reinforcements
   a. Doors shall be mortised, reinforced, drilled and tapped at the factory for fully templated hardware only, in accord with the approved hardware schedule and templates provided by the hardware contractor. Where surface-mounted hardware is to be applied, doors shall have reinforcing plates only; all drilling and tapping shall be done by others.
   b. Minimum gages for hardware reinforcing plates shall be as follows:
      (1) Hinge and pivot reinforcements: 7 gauge
      (2) Reinforcements for lock face, flush bolts, concealed holders, concealed or surface-mounted closers: 12 gauge
      (3) Reinforcements for all other surface-mounted hardware: 16 gauge
9. Vision Panels
   a. Openings to meet ADA requirements.(ADA code - 43” to bottom of the glass)
   b. Framed for glazing
   c. Glazing beads:
      (1) Manufacturer's standard mitered corners.
      (2) Form beads from minimum 20 gauge metal, prefitted for field glazing.
      (3) Locate beads on nonsecurity side of opening.
      (4) Locate screws within one inch of ends of beads and spaced not more than 8 inches apart.

C. Frames
   1. Anchors: T-strap or stirrup strap type.
   2. Dust cover boxes: Minimum 26 gauge at hardware mortises.
   3. Welded frames
      a. 14 gauge exterior and 16 gauge interior minimum.
      b. Weld frames to form rigid, neat, square and true units free of defects, warp or buckle.
      c. Close corner joints tight with trim faces mitered and continuously welded and ground smooth.
      d. Weld temporary steel brace to both feet of jambs to serve as brace during shipping handling.
      e. Head assemblies integrally reinforced and mitered joints with 18 gauge minimum channel section.

D. Edge Clearances
   1. Between doors and frame at head and jamb: 1/8 inch.
   2. At sills without thresholds: 3/4 inch maximum.
   3. At sills with thresholds: 1/4 inch maximum between threshold and door.
   4. Between meeting edges of pairs of doors: 1/8 inch.
E. Preparation for Hardware: ANSI A 115.

F. Finish
   1. Dress tool marks and surface imperfections to smooth surfaces and remove irregularities.
   2. Chemically treat and clean doors and frames.
   3. Apply Manufacturer's standard prime and finish coating. Frames to be painted by the dipping process.

PART 3 EXECUTION

3.1 Inspection

A. Assure that frame openings correspond to dimensions of frame furnished.

B. Check that surfaces to contact frame are free of debris.

C. Verify that metal doors and frames may be installed in strict accord with all pertinent codes and regulations, the original design, approved Shop Drawings and Manufacturer's recommendations.

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

3.2 Installation

A. Anchorage
   1. Attach anchor to opening.
   2. Minimum number of anchors.
      a. Masonry walls.
         (1) Frames up to 7 feet 6 inches: 3 anchors per jamb.
         (2) Frames 7 feet 6 inches to 8 feet 0 inches: 4 anchors per jamb.
         (3) Frames more than 8 feet 0 inches: 1 anchor for each 2 feet of jamb or fraction thereof.
      b. Stud partitions
         (1) Frames up to 7 feet 6 inches: 3 anchors per jamb.
         (2) Frames 7 feet 6 inches to 8 feet 0 inches: 4 anchors per jamb.
         (3) Frames more than 8 feet 0 inches: 4 anchors plus one additional anchor for each 2 feet of jamb or fraction thereof.

B. Frames
   1. Remove shipping spreaders if used.
   2. Attach frames square, plumb and true to line with adjacent construction.
   3. Frames to be mortar filled by mason.

C. Finish Hardware: Install all finish hardware supplied under Section 08 71 00 in strict accord with the Manufacturer's recommendations, eliminating all hinge-bound conditions and making all items smoothly operating and firmly anchored into position.

D. Doors: SDI 100.

E. Installation: Install hollow metal work in accordance with Manufacturer's instructions.

3.3 Adjustments and Cleaning

A. Remove dirt and excess sealants or glazing compound from exposed surfaces.

B. Touch up marred or abraided surfaces to match original finish.

C. Adjust moving parts for smooth operation.

D. Remove debris from project site.

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SECTION 08 30 00 SPECIAL DOORS

SCOPE Applicable provisions of the General and Supplementary Conditions and Division 1 govern work under this Section.

INDEX

PART 1 GENERAL

1.1 Description

A. Work Included: Special doors required for this Work are indicated on the Drawings and include, but are not necessarily limited to:
   1. Electrically Operable, Insulate Overhead Sectional Doors.

B. Related Work Specified Elsewhere

1. Concrete	Section 03 30 00
2. Finish Painting	Section 09 91 00
3. Metal Building System	Section 13 34 19
4. Electrical Hook-up (line voltage by electrical contractor and low voltage by door contractor). Door contractor to supply all equipment to Electrical contractor.	Per Plans

1.2 Quality Assurance

A. Qualifications of Installers: For actual installation of the special door, use only personnel who are thoroughly trained and experienced in installation of the selected products and who are completely familiar with the requirements of this Work.

B. Requirements of Regulatory Agencies: In addition to meeting all local standards and codes, comply with the provisions of Standards of the American Rolling Door Institute, National Electrical Manufacturer's Association and Factory Mutual.

C. Reference Standards
   1. American Society for Testing and Materials (ASTM):
      a. A 526, Steel Sheet, Zinc Coated (Galvanized) by the Hot Dip Process, Commercial Quality.
   2. American Institute of Steel Construction - "Manual of Steel Construction".
   3. American Iron and Steel Institute - "Light Gage Steel Design Manual".
   4. American Welding Society - "Code for Arc and Gas Welding".
   5. Metal Building Manufacturer Association - "Recommended Design Practices Manual".
   6. Aluminum Association - "Aluminum Construction Manual".

1.3 Submittals: Within 35 days after award of Contract, and before any of the materials of this Section are delivered to the job site, submit complete to the Owner in accordance with these Specifications; the following:

A. Shop Drawings: Indicate pertinent dimensioning, general construction, component connections and details, anchorage methods, hardware locations and installation details.

B. Operation and Maintenance information.

1.4 Product Delivery, Storage and Handling

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

B. Deliver doors in Manufacturer's packaging complete with installation instructions.

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

1.5 Warranty: Doors and motors - one year on workmanship and materials.

PART 2 PRODUCTS

2.1 Materials

A. Electrically Operable Insulated Overhead Sectional Doors
1. Door Panels: Panels shall be 2” or 3” thick, roll formed from commercial quality hot dip galvanized steel per ASTM A-525 and A-526. Door sections constructed of 26 gauge interior and exterior skins-mechanically interlocked and pressure bonded to an extruded polystyrene core. Door panels shall have a minimum thermal resistance value of R-17. Interior and exterior skins to be separated by a continuous dual durometer vinyl extrusion to form an effective thermal break and complete weather tight seal along section joint. Thermal break extrusion to be held in place by means of a mechanical interlock. End stiles to be minimum 14 gauge, separated from exterior skin with vinyl thermal break. Built in backup plates for attaching all end style hardware to be minim 14 gauge. Backup plates for attaching all other hardware to be minimum 16 gauge.
2. Finish: Exterior and interior of door skins pre-coated prior to roll forming with a two coat process of baked on Kynar Beige finish over epoxy primer.
3. All overhead doors to have lift clearance type track operation.
4. Weatherstripping: Doors to be furnished with complete weatherstripping system to reduce air infiltration. Top of door provided with EPDM rubber sealing strip. Bottom of door to have flexible U-shape vinyl seal encased in extruded aluminum retainer to conform to irregularities in floor. Jamb seal to be EPDM rubber blade type attached to track angle mounting with rigid vinyl snap-on extrusion. Weatherstripping to be replaceable without removal of track, angle mounting or door hardware. Maximum air leakage per foot of door perimeter (floor, jamb, and header) shall not exceed 0.19 cfm/sf @ 25 M.P. H. when tested in accordance with ASTM E-283.
5. Track: All tracks to be galvanized 3” type 11 gauge. Track to have Graduated Seal for weather tight closing. Tracks to be continuous angle mounted and fully

adjustable for sealing door to jamb. Continuous angle size to be not less than 3-1/2" x 6" x 1/8" – 3" tracks. Horizontal track to be adequately reinforced with continuous angle. Installation to be for operation as high as possible to room framing.

6. Hardware: All hinges and brackets made from galvanized hardened steel balls per roller (3"). Cylinder locks at manual doors only.
7. Springs: Heavy duty 100,000 cycle oil tempered wire torsion springs on continuous ball bearing cross header shaft. Galvanized aircraft type lifting cables with minimum safety of 7 to 1. All doors to have Heavy Duty Pusher Bumpers.
8. Wind Load: Doors designed to withstand 20 lbs. per square foot. Deflection of door in horizontal position to be maximum 1/120 of door width.
9. Glazing: Lite inserts to be 24" x 8" thermal type, 5/8" insulated glass. Glass unit to be encased in one piece vulcanized EPDM rubber frame. All doors to have lites in third section – maximum quantity available as per door width. Doors under 10 ft. wide use 2 vision strips. Doors over 10 ft. wide use 4 vision strips.
10. Electric Operators:
    a. Shall be heavy duty, gear-driven with a continuous-duty, relay logic, overload protected motor with high starting torque, jackshaft type with chain hoist – 480 volts, 3 phase. See electrical drawings for final voltage / phase requirements. Operator shall have heavy-duty industrial ball bearings, worm gear driven in oil bath and an electromechanical brake. Horse power determined by door size. All doors to have electric Millers safety edge to stop and reverse door upon striking an object and photo safety eyes. Activation Station – 1-3 button open close and stop NEMA 1 surface mounted with 24 volt circuit. Motion loop detectors to open doors only where indicated on plans. Timers to close door, by overhead door contractor. Required at all doors.
11. Wiring: All electrical wiring to be done by electrical contractor. Door Contractor to supply all materials necessary to Electrical Contractor. Low voltage wiring by Door Contractor. See details on electrical sheets.

2.2 Acceptable Manufacturers

A. Manufacturers must meet or exceed specifications.

B. Sectional Doors
   1. Clopay Building Products
   2. Overhead Door Corporation
   3. Raynor Manufacturing Company

PART 3 EXECUTION

3.1 Surface Conditions

A. Inspection Prior to all Work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.

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

3.2 Installation

A. Install all special doors in strict accord with all pertinent codes and regulations, the original design, the approved Shop Drawings and the Manufacturer's current recommendations, anchoring all components firmly into position for long life under hard use.

B. Fit, align and adjust complete door assemblies level and plumb and to provide smooth operation.
C. Securely brace overhead door tracks suspended from structure. Secure tracks to structural members only.

3.3 Touching Up: Upon completion of the installation, touch up all scuffs and abrasions in the shop priming coat, using primer specified above.

3.4 Instructions: Upon completion of the installing, and as a condition of its acceptance, instruct the Owner's maintenance and operation personnel with the operation and maintenance of the special door and grilles.

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SECTION 08 41 13 ALUMINUM ENTRANCES AND STOREFRONTS

SCOPE Applicable provisions of the General and Supplementary Conditions and Division 1 govern work under this Section.

INDEX

PART 1 GENERAL

1.1 Description

A. Work Included: Aluminum windows complete with finish hardware.

B. Related Work Specified Elsewhere

1. Rough Carpentry	Section 06 10 00
2. Caulking	Section 07 92 13
3. Cylinders for locks	Section 08 71 00
4. Glazing	Section 08 80 00
5. Metal Building System	Section 13 34 19
6. Electrical	Division 26

C. Work Installed but Furnished by Others:
1. Door hardware others than specified in this Section 08 71 00.

1.2 Quality Assurance

A. Qualifications of Installers
1. For actual installation of the work of this Section use only personnel who are thoroughly trained and experienced in the skills required and who are completely familiar with the Manufacturer's current recommended methods of installation as well as the requirements of this Work.
2. In acceptance or rejection of installed doors and frames, no allowance will be made for lack of skill on the part of installers.

B. Design Criteria
1. System to provide for expansion and contraction within system components caused by a cycling temperature range of 170 degrees F. without causing detrimental effects to system or components.
2. Design and size members to withstand dead loads and live loads caused by pressure and suction of wind as calculated in accord with the applicable building codes.
3. Limit mullion deflection to 1/200 or flexure limit of glass with full recovery of glazing materials, whichever is less.
4. Drain water entering joints, condensation occurring in glazing channels or migrating moisture occurring within system, to exterior.

5. Limit air infiltration through assembly to 0.06 cubic feet per minute per square foot of assembly surface area, measured at a reference differential pressure across assembly of 0.3 inches water gage as measured in accord with ASTM E 2831.
6. System to accommodate, without damage to system or components, or deterioration of perimeter seal; Movement within system; movement between system and perimeter framing components; dynamic loading and release of loads; and deflection of structural support framing.

C. Allowable Tolerances
1. Variation from Plane: 0.03 inches per foot maximum or 0.25 inches per 30 feet, whichever is less.
2. Misalignment of Two Adjoining Members Abutting in Plane: 0.015 inches.

D. Reference Standards
1. American Society for Testing and Materials (ASTM):
   a. A 164, Electrodeposited Coatings of Zinc on Steel
   b. A 386, Zinc Coating (Hot-Dip) on Assembled Steel Products
   c. B 221, Aluminum - Alloy Extruded Bars, Rods, Wire, Shapes and Tubes
   d. E 283, Air Performance
   e. E 330, Structural
   f. E 331, Water
2. Aluminum Association (AA): Designation for Aluminum Finishes.
3. American Architectural Manufacturers Association (AAMA):
   a. 501, Water
   b. 1503, Thermal

1.3 Submittals: Within 35 days after award of Contract, and before any of the materials of this Section are delivered to the job site, submit complete to the Architect in accordance with these Specifications; the following:

A. Samples: Submit a sample of the prefinished aluminum material illustrating the actual finish obtained in the specified anodizing.

B. Shop Drawings: Submit complete Shop Drawings showing all details of the fabrication and installation, including system and component dimensions; components within assembly; framed opening requirements and tolerances; anchorage and fasteners; glass and infills; door hardware requirements; and adequate provision for installation of the specified glass.

C. Certificates: Manufacturer's certificates that materials meet Specification requirements.

1.4 Product Delivery, Storage and Handling

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

B. Deliver materials in Manufacturer's packaging complete with installation instructions.

C. Provide wrapping or strippable coating to protect prefinished aluminum surfaces.

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

1.5 Warranty: Provide three year Manufacturer's warranty to cover complete system for failure to meet specified requirements.

PART 2 PRODUCTS

2.1 Materials

A. Extruded Aluminum: ASTM B 221, 6063 alloy, T5 temper.

B. Touch-up primer for galvanized surfaces: FS TT-P-641.

C. Fasteners, where exposed, shall be aluminum, stainless steel or zinc plated steel in accord with ASTM A 164.

D. Perimeter anchors shall be aluminum or steel, providing the steel is properly isolated from the aluminum.

E. Glazing gaskets shall be EPDM elastomeric extrusions.

F. Single acting entrance frame weatherstripping shall be a non-porous, polymeric material.

G. Fabricated Components
   1. General
      a. All assemblies for this Work, unless otherwise specifically approved by the Architect, shall be the product of one Manufacturer.
      b. All exterior frames and doors shall be of thermal break construction. Mullion and perimeter gutters shall be separated from mullion and perimeter faces by PVC members eliminating all metal to metal contact between exterior and interior of the frame so that it will perform in such a manner that condensation will first appear on the glass before the metal.
   2. Exterior Frames: 4-1/2 inch deep by 1-3/4 inch wide profile Kawneer Encore; of extruded aluminum alloy; ASTM B 221 complete with extruded aluminum security type snap-in glass stops for sidelights and transom lights, of profile to suit frame section.

H. Finish
   1. All exposed framing surfaces shall be free of scratches and other serious blemishes. Aluminum moldings shall be given a caustic etch followed by an anodic oxide treatment to obtain;
      a. Annodized Finish Permanodic coating conforming to Aluminum Association Standard AA-M12 C22 A44, Dark Bronze.
   2. Concealed Steel Items: Galvanized in accord with ASTM A 386 to 2 ounces per square foot.
   3. Apply one coat of bituminous paint to concealed aluminum and steel surfaces in contact with cementitious or dissimilar materials.

I. Other Materials: All other materials, not specifically described but required for a complete and proper installation shall be new, first quality of their respective kinds and subject to approval of the Architect.

2.2 Acceptable Manufacturers:

A. Kawneer

B. U. S. Aluminum

C. EFCO

D. CMI Architectural Products

E. Tubelite

2.3 Fabrication

A. Fabricate aluminum doors and frames to allow for clearances and shim spacing around perimeter of assemblies to enable installation.

B. Fabricate aluminum sills, head jamb, jamb closures at exposed precast, insulation as all doors and sash terminations, caps at extended sills, etc, as shown on Drawings.

C. Provide anchorage devices to securely and rigidly fit door and frame assemblies in place.

D. Accurately and rigidly fit together joints and corners. Match components ensuring continuity of line and design. Ensure joints and connections are flush, hairline and weatherproof.

E. Provide for moisture entering joints and condensation occurring within frame construction to drain to exterior.

F. Make provision for hardware and provide required internal reinforcing.

G. Shop prefabricate all doors and frames into complete units.

H. Fabricate in strict accord with the approved Shop Drawings and the Manufacturer's published recommendations.

I. Weld or mechanically fasten along entire line of contact on the unexposed side.

J. No discoloration of the face after anodizing will be acceptable.

PART 3 EXECUTION

3.1 Surface Conditions

A. Inspection
   1. Prior to all Work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
   2. Verify that doors and frames may be installed in complete accord with the original design and the approved Shop Drawings.
   3. Assure that frame openings correspond to dimensions of frame furnished.
   4. Beginning of installation means acceptance of existing conditions.

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

3.2 Preparation

A. Verify all measurements at the job site prior to fabrication.

3.3 Installation

A. Install aluminum doors and frames in accord with Manufacturer's recommendations. Ensure assemblies are plumb, level and free of warp or twist. Maintain dimensional tolerances and alignment with adjacent work.

B. Use sufficient anchorage devices to securely and rigidly fasten door and frame assemblies to the building.

C. Install all members with adequate provision for settling, expanding and contracting to occur without breaking glass.

D. Install hardware in accord with Manufacturer's recommendations, using proper templates. Adjust operating hardware.

E. Install batt insulation in shim spaces around perimeter of door and frame assemblies, to maintain continuity of thermal barrier.

F. Install interior and exterior perimeter sealant and related backing materials in accord with workmanship and installation requirements indicated in Section 07 92 00.

3.4 Adjustment and Cleaning

A. Remove protective material from prefinished aluminum surfaces.

B. Remove dirt from exposed surfaces using a solution of mild detergent in warm water, applied with soft, clean wiping cloths. Take care to remove dirt from corners. Wipe surfaces clean.

C. Remove excess sealants or glazing compounds from exposed surfaces by moderate use of mineral spirits or other solvent acceptable to sealant Manufacturer.

D. Touch up marred or abraded surfaces to match original finish.

E. Adjust moving parts for smooth operation.

F. Remove debris from project site.

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SECTION 08 71 00 HARDWARE

SCOPE Applicable provisions of the General and Supplementary Conditions and Division 1 govern work under this Section.

INDEX

PART 1 GENERAL

1.1 Description

A. Work Included: The required hardware for doors is indicated on the Drawings in the form of a hardware schedule.

B. Related Work Specified Elsewhere

1. Rough Carpentry	Section 06 10 00
2. Installation on metal doors and frames	Section 08 11 00
3. Aluminum entrances and storefronts	Section 08 41 13
4. Metal Building System	Section 13 34 19

1.2 Quality Assurance

A. Qualification of Supplier: The finish hardware supplier will employ a hardware consultant who will prepare all submittals and be available to the Owner for consultation should any problems arise during the course of the work; this consultation will be at no additional cost to the Owner. The hardware consultant shall check all installations and report to the Architect.

B. Quality of Hardware: All hardware will meet applicable materials and finishes standards of the Builders' Hardware Manufacturer's Assn., ANSI A156, and Underwriters' Laboratory for all hardware in fire rated assemblies.

C. Reference Standards
1. American National Standards Institute (ANSI):
   a. A115.1 - Door and Frame Preparation for Mortise Door Locks for 1-3/4 inch Doors.
   b. A115.2 - Door and Frame Preparation for Bored or Cylindrical Locks for 1-3/4 inch Doors.
   c. A115.4 - Door and Frame Preparation for Lever Extension Flush Bolts.
   d. A115.5 - Frame Preparation for 181 & 190 Series Deadlock Strikes.
   e. A115.9 - Door and Frame Preparation for Closer, Offset Hung, Single Acting.
   f. A115.13 - Door and Frame Preparation for Tubular Deadlocks.
   g. A115.14 - Preparation for Standard Steel Doors for Open Back Strikes.
   h. A156.1 - Butts and Hinges.
   i. A117.1 Accessible and Usable Buildings and Facilities.
   j. A156.2 - Locks and Lock Trim.

k. A156.3 - Exit Devices.
l. A156.4 - Door Controls (Closers).
m. A156.6 - Architectural Door Trim.
n. A156.7 - Template Hinges.
o. A156.8 - Door Controls (Overhead Holders).

1.3 Submittals: Within 35 days after award of Contract, and before any of the materials of this Section are delivered to the job site, submit complete to the Architect in accordance with these Specifications; the following:

A. Samples
1. Submit samples of each type of hardware required for job.
2. Indicate required style and finish.

B. Shop Drawings and Product Data
1. Submit Shop Drawings and product data for each style of hardware.
2. Indicate locations and mounting heights of each type of hardware.
3. Supply templates to door and frame manufacturers to enable proper and accurate sizing and locations of cutouts for hardware.

C. Material List: Before any finish hardware is ordered for this work, submit to the Architect, for approval, a complete list of all finish hardware proposed to be furnished, giving Manufacturer's name, catalog number with a picture of each item.

D. Operation and Maintenance Data: Provide Architect with Manufacturer's parts list and maintenance instructions for each type of hardware supplied and necessary wrenches and tools required for proper maintenance of hardware.

1.4 Product Delivery, Storage and Handling

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

B. Packaging
1. Furnish all finish hardware with each unit clearly marked or numbered in accord with the Hardware Schedule.
2. Pack each item complete with all necessary pieces and fasteners.
3. Properly wrap and cushion each item to prevent scratches during delivery and storage.

C. Delivery: Deliver all finish hardware to the installers in a timely manner to ensure orderly progress of the total work.

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

PART 2 PRODUCTS

2.1 Materials: All Hardware Finish is to be clear aluminum.

A. General
   1. Provide items as listed in this Section, complete to function as intended.
   2. Furnish all finish hardware with all necessary screws, bolts and other fasteners of suitable size and type to anchor the hardware in position securely.
   3. Furnish fastenings where necessary with expansion shields, toggle bolts, hex bolts and other anchors approved by the Architect, according to the material to which the hardware is to be applied and the recommendations of the hardware manufacturer.
   4. Design: All fastenings shall harmonize with the hardware as to material and finish.
   5. Fire label approved hardware to be used on all fire rated doors.

B. Hinges: 5 knuckle, button tip, full mortise, template type, butts with non-rising loose pins. See schedule for ball bearings. Finish 4-1/2 X 4-1/2.

C. Closures: Closures shall be LCN 4040XP Series or equal from Norton. Size all closers in accord with the Manufacturer's recommendations and good standard practice. All surface mounted closures shall be the product of a single manufacturer. Hold opens and door stops where scheduled. Provide Special Rust Inhibitor to door closure at the Salt Shed service door.

D. Door Holders: Surface mounted or integral with door closure where applicable.

E. Door stops:
   1. Wall mounted, rubber tipped, mount level with knob. 1" projection.
   2. Floor mounted: cast dome type, rubber cushion.
   3. Door mounted: Rubber tipped, 3-3/4" projection, mount where shown.
   4. Integral with closer where scheduled.

H. Kick-plates: Colored plastic to match Hardware.

I. Lockset
   1. Best Access Systems: 9K Series, or equal function as scheduled, Lever Style 15, Rose Style D, finish to be clear aluminum. Must be keyed to owners existing system.
   2. Schlage Locks: ND Series, function as scheduled, lever style "Rhodes", finish to be clear aluminum. Must be keyed to owners existing system.

J. Soundstop: Tear drop shape, Zero #188N or equal.

K. Door Bottoms: On schedule listed as “Door Bottom”; Hager #747S to isolate sound from vehicle areas.

L. Weatherstrip:
   1. Head and Jamb – Zero #326 aluminum to sizes, color and profiles to fit door application and hardware color.
   2. Sill Sweep – Zero #39W aluminum to color to fit hardware color.

M. Name Plates: ABS plastic with raised lettering. White letters; background color - selected from standard palette and symbols. ADA approved signs at toilet rooms. See drawings for details.

N. Threshold: Saddle type, aluminum 6063-T5 mill finish, aluminum color, size 4" X 1/2".

O. Keying
   1. All cylinders shall be construction masterkeyed. No substitutions will be allowed.
   2. Master key all locks in accord with Owner's Master Key system.
   3. Perform all keying at the factory. Have construction Master Keys only delivered to the job site. Send all other keys, tagged and identified directly to the Owner by registered mail. Stamp all permanent keys and key blanks: "Do Not Duplicate".
   4. Deliver two keys for each type of lock plus two master keys.

P. Electric strikes: H.E.S. 1006 Series, compatible with scheduled frames.

2.2 Acceptable Manufacturers

A. Exit Devices	Russwin, Von Duprin, Stanley Precision
B. Push-Pull	Brookline, Dor-Line, Russwin, Hiawatha, Rockwood, Ives
C. Cylinder	Schlage, Corbin
D. Closer	LCN, Norton, Stanley Precision
E. Wall Stop	Ives, Corbin Russwin
F. Threshold	Brookline, Reese, Zero, National Guard Products
G. Hinges	Hager, Ives
H. Weatherstrip	Gossen, Zero, National Guard Products
I. Kickplates	Brookline, Ives
J. Locksets	Best Access Systems, Schlage
K. Door Holders	Glynn-Johnson, Russwin
L. Soundstops	National Guard Products, Zero
M. Door Sweeps	National Guard Products, Zero

PART 3 EXECUTION

3.1 Deliveries: Stockpile all items sufficiently in advance to ensure their availability and make all necessary deliveries in a timely manner to ensure orderly progress of the total work.

3.2 Installation

A. Install all hardware securely in place, test, oil, grease, adjust for perfect operation.

B. Maintain following mounting heights for doors, from finished floor to center line of hardware item: Conform to applicable codes for accessibility requirements.
   1. Hinges
      a. Top - 5 inches from head of frame to top of hinge.
      b. Bottom - 10 inches from finished floor to bottom of hinge.
      c. Intermediate - centered between top and bottom hinges.

      d. On Dutch doors - 5 inches from head of frame to top of hinge; 10 inches from finished floor to bottom of bottom hinge. 5 inches from split line to top and bottom respectively of lower and upper intermediate hinges.

2. Unit and integral type locks and latches - 38 inches to centerline of knob.
3. Deadlocks - 48 inches to centerline of cylinder.
4. Panic hardware - 38 inches to centerline of cross bar.
5. Door pulls - 42 inches to center of grip.
6. Push-pull bars - 42 inches to centerline of bar.
7. Arm pulls - 47 inches to centerline.
8. Push plates - 48 inches to centerline of plate.
9. Roller latches - 45 inches to centerline.
10. Nameplates - 60 inches to centerline, on wall adjacent to latch side of door.

3.3 **Inspection of Installation:** Upon completion of the installation, and as a condition of its acceptance, deliver to the Architect a report signed by the hardware consultant stating that the consultant's inspection was made, that all adjustments recommended have been complete, and that all finish hardware furnished under this Section has been installed and is in optimum working condition.

3.4 **Setup and Training:** Upon completion of the installation of the electronic access hardware, install software and card encoder on site. Provide on site training and one-year of telephone support.

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SECTION 08 80 00 GLAZING

SCOPE Applicable provisions of the General and Supplementary Conditions and Division 1 govern work under this Section.

INDEX

PART 1 GENERAL

1.1 Description

A. Work Included: Glass and glazing required for this Work includes tempered and regular plate glass; insulating glass; and grey tint insulating glass.

B. Related Work Specified Elsewhere

1. Joint sealers	Section 07 92 13
2. Metal doors and frames	Section 08 11 00
3. Aluminum entrances and storefronts	Section 08 41 13
4. Metal Building System	Section 13 34 19

1.2 Quality Assurance

A. Qualifications of Manufacturers

B. Qualifications of Installers: Provide at least one person who shall be thoroughly trained and experienced in the skills required, who shall be completely familiar with the referenced standards and the requirements of this Work, and who shall personally direct all installation performed under this Section of these specifications.

C. Requirements of Regulatory Agencies: Install glass and glazing to meet requirements of State and Federal Building Codes.

D. Source Quality Control

E. Reference Standards
1. American National Standards Institute (ANSI):
   a. Z 97.1, Safety Performance Specifications and Methods of Test for Safety Glazing Material Used in Buildings
2. American Society for Testing and Materials (ASTM):
   a. E 84, Surface Burning Characteristics of Building Materials.
3. Federal Specifications (FS):
   a. DD-G-451, Glass, Float or Plate, Sheet, Figured (Flat, for Glazing, Mirrors and Other Uses).
   b. DD-G- 1403, Glass, Plate (Float), Sheet, Figured, and Spandrel (Heat Strengthened and Fully Tempered).

c. TT-S-230, Sealing Compound: Synthetic Rubber Base, Single Component, Chemically Curing for Caulking, Sealing and Glazing in Building Construction.
d. TT-S-1543, Sealing Compound: Silicone Rubber Base (for Caulking, Sealing and Glazing in Buildings and Other Structures).

4. Conform to Flat Glass Marketing Association (FGMA) Glazing Manual and Glazing Sealing Systems Manual for glazing installation methods.
5. Sealed Insulating Glass Manufacturers Association (SIGMA):
a. 64-7-2, Specification for Sealed Insulating Glass Units.

1.3 Submittals: Within 35 days after award of Contract, and before any of the materials of this Section are delivered to the job site, submit complete to the Owner in accordance with these Specifications; the following:

A. Shop Drawings: Sections and details of glass installation at framing members such as head, mullions, transoms, jambs and sills. Provide schedule of sizes, quantities, locations and mounting methods.

B. Manufacturer's Literature
1. Manufacturer's descriptive data of glass materials. Provide structural, physical and environmental characteristics, size limitations, special handling or installation requirements.
2. Provide data on glazing sealant identifying available colors.

1.4 Product Delivery, Storage and Handling

A. Protection
1. Use all means necessary to protect the materials of this Section before, during and after installation and to protect the installed work and materials of all other trades.
2. Keep glass free from contamination by materials capable of staining glass.

B. Delivery of Materials
1. Deliver glass with Manufacturer's labels intact. Do not remove labels until glass has been installed.
2. Deliver glazing compounds and sealants in Manufacturer's unopened, labeled containers.

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

1.5 Job Conditions

A. Environmental Requirements
1. Perform glazing when ambient temperature is above 40 degrees F.
2. Perform glazing on dry surfaces only.

1.6 Warranty
1. The subcontract for the glass will not be approved by the Owner until the subcontractor has submitted to the Owner, for approval, the proposed warranty on

the glass material to be supplied. This warranty should be supplied to the Owner on execution of the General Contract. This warranty should cover a period of 5 years.
2. Include coverage of sealed glass units from seal failure, interpane dusting or misting and replacement of same.
3. Mirror warranty to cover glass and coating against discoloration or manufacturing defects and against failure from mastic.

PART 2 PRODUCTS

2.1 Materials

A. Glass
1. Float Glass: FS DD-G-451; Type I, Class 1, quality; 1/4" and 3/8" inch thick.
2. Safety Glass: FS DD-G-451 and FS DD-G-1403; Type I; All floor to ceiling glass to be 3/8 inch tempered clear or bronze tint per elevations, all other interior glass walls to be 1/4" tempered clear or tint per elevations.
3. Safety Glass: FS DD-G-1403; Kind HS, Condition A. Type I, 1/4 inch thick minimum clear.
4. Tinted Glass: Float and safety glass - Grey tint heat absorbing: FS DD-G-451 and FS dd-G-1403 Style A. Type I, Class 2 - 1/4" inch thickness.
5. Insulated Glass Units: Double pane units with edge seal; outer pane 1/4 inch Grey tint, inner pane 1/4" clear, 1/2 inch interpane space purged with inert argon gas. Total unit thickness 1 inch. Low emensitivity #3 surface. Tempered pane each face where required by 1.2.C or if shown on Drawings or specified in addition to above code reference.
   Insulating glass to meet the following requirements:
   a. Transmittance: average daylight – 44%; solar -35%; UV – 23%
   b. External reflectance: average daylight – 8%; solar – 7%.
   c. Winter U-Value – 0.30
   d. Shading coefficient – 0.53
   e. Relative heat gain - 111
6. Exterior and interior glass edge finished for silicone butt glazing.
   a. Silicone Sealant: FS-S-1543, Type II, Class A, single component neutral cure medium modulus silicone for butt glazing, color as selected by Owner.
   b. Urethane Sealant: FS S-230-6, Type II, Class A, single component polymer for general glazing, color as selected by Owner.
7. Mirror Glass: FS DD-G-451; 1/4 inch thick, quality Q2 clear plate glass; full silver coating, copper coating and Manufacturer's standard organic coating at 7.5 grams/square foot.
8. Spandrel Glass: Ceramic frit type to match tinted glass.

B. Glazing Accessories
1. Setting Blocks: Neoprene; 70-90 Shore A durometer hardness; 4 inches long by 3/8 inch wide by 1/4 inch high, chemically compatible with sealant used.
2. Spacer Shims: Neoprene; 50 Shore A durometer hardness; 3 inches long by 1/4 inch wide by 1/4 inch thick; self adhesive one face, chemically compatible with sealant used.
3. Glazing Tape: Preformed butyl compound; 10-15 Shore A durometer hardness; coiled on release paper; Size and spacers where recommended by manufacturer; black color.

4. Glazing Splines: Resilient polyvinylchloride extruded shape to suit glazing channel retaining slot; color as selected.
5. Glazing Clips: Manufacturer's standard type.
6. Filler Rod: Compressible synthetic rubber of foam, chemically compatible with sealant use.
7. Primer-Sealers and Cleaners: As recommended by glass Manufacturer.

2.2 Acceptable Manufacturers

A. Glass: SIGMA Member

B. Glazing Compound: Tremco
   1. Butt glazing: Silicone sealant: Spectrum 2
   2. Standard glazing: Dymonic

C. Substitutions: Under provisions of Section 01 60 00.

2.3 Fabrication

A. Glass: All glass shall bear labels showing strength, thickness, type and quality and shall be relatively distortion free with all distortion waves in the horizontal direction and shall be in the following qualities.

B. Exterior Glazing
   1. Windows: One inch Grey tint insulating.
   2. Doors and sidelites: One inch insulating tempered.

D. Tempered Glass: Where tempered insulating glass is required by code, both lites will be tempered.

E. Insulating Glass: Exterior insulating glass construction shall be; 1/4 inch grey exterior, 1/2 inch air space and 1/4 inch clear interior lite. Low emensitivity #3 surface, inert argon gas, tempered where specified or required. Edges for butt glazing.

PART 3 EXECUTION

3.1 Surface Conditions

A. Inspection
   1. Prior to all Work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
   2. Verify that all glazing may be performed in accord with all pertinent codes and regulations, the original design and the reference standards.
   3. Check that glazing channels are free of burrs, irregularities and debris.
   4. Check that glass is free of edge damage or face imperfections.
   5. Do not proceed with installation until conditions are satisfactory.
   6. Beginning of installation means acceptance of substrate.

B. Discrepancies
   1. In the event of discrepancy, immediately notify the Owner.

2. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

3.2 Preparation

A. Field Measurements
   1. Measure size of frames to receive glass.
   2. Compute actual glass size, allowing for edge clearances.

B. Preparation of Surfaces
   1. Remove protective coatings from surfaces to be glazed.
   2. Clean glass and glazing surfaces, to remove dust, oil and contaminants and wipe dry.
   3. Seal porous glazing channels or recesses.
   4. Prime surfaces scheduled to receive sealant.

3.3 Installation - Application - Erection

A. General
   1. Positioning Glass
      a. Orient pattern and draw of glass pieces in same direction.
      b. Place glass waves parallel to floor.
      c. Set smooth side to exterior.
   2. Do not cut, seam, nip or abrade tempered, heat strengthened, coated or insulating glass.
   3. Slope exterior surfaces of gaskets, tapes and sealant beads to provide for water runoff.
   4. All glazing materials must be compatible.
   5. Provide weep holes to remove all water from the glazing assembly.

B. Exterior Dry Method (Preformed Glazing)
   1. Cut glazing tape spline to length; install on glass pane. Seal corners by butting tape and dabbing with butyl sealant.
   2. Place setting blocks at 1/4 points.
   3. Rest glass on setting blocks and push against fixed stop with sufficient pressure to attain full contact at perimeter of pane.
   4. Install removable stops without displacement of glazing spline. Exert pressure for full continuous contact.
   5. Trim protruding tape edge.

C. Interior Dry Method (Tape and Tape)
   1. Cut glazing tape to length and set against permanent stops, projecting 1/16 inch above sightline.
   2. Place setting blocks at 1/4 1/3 points.
   3. Rest glass on setting blocks and push against tape for full contact at perimeter of pane.
   4. Place glazing tape on free perimeter of pane in same manner described above.
   5. Install removable stop without displacement of tape. Exert pressure on tape for full continuous contact.
   6. Knife trim protruding tape.
   7.

3.4 Protection of Completed Work

A. Attach crossed streamers away from glass face.

B. Do not apply markers to glass surface.

C. Replace damaged glass.

3.5 Cleaning

A. Remove excess glazing compound from installed glass and frames.

B. Remove labels from glass surface as soon as installed.

C. Wash and polish faces of glass.

D. Remove debris from worksite.

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SECTION 09 29 00 GYPSUM WALLBOARD

SCOPE Applicable provisions of the General and Supplementary Conditions and Division 1 govern work under this Section.

INDEX

PART 1 GENERAL

1.1 Description

A. Work Included: Gypsum wallboard is required on interior wall and ceiling surfaces where so indicated on the Drawings.
   1. Metal Framing required for gypsum board.
   2. Gypsum board.
   3. Taped and sanded joint treatment.

B. Related Work Specified Elsewhere
   1. Stud Partition (sound batt) — Section 07 21 00
   2. Painting — Section 09 91 00

1.2 Quality Assurance

A. Qualifications of Installers
   1. Use only skilled and experienced gypsum wallboard installers for laying up the wall board, fastening, taping and finishing.
   2. In the acceptance or rejection of installed gypsum wallboard, no allowance will be made for lack of skill on the part of installers.

B. Requirements of Regulatory Agencies
   1. Underwriters' Laboratories, Inc.
      a. Fire Hazard Classification (40 U8.22).
      b. Fire Resistance Classification (40 U18).

C. Testing: Fire resistance: ASTM E 119.

D. Reference Standards
   1. American Society for Testing and Materials (ASTM):
      a. C 36, Gypsum Wallboard
      b. C 475, Joint Treatment for Gypsum Wallboard Construction.
      c. C 754, Specification for Installation of Steel Framing Members to Receive Screw-attached Gypsum Wallboard, Backing Board or Water-resistant Backing Board.
      d. E 119, Standard Methods of Fire Tests of Building Construction and Materials.
   2. Underwriters' Laboratories, Inc. (UL)
      a. UL U8-22, Wallboard, Gypsum
      b. UL 40 U18, Fire Resistance Classification.
   3. Gypsum Association (GA)

a. GA-214-M-97 - recommended levels of Gypsum Board Finish.

1.3 Submittals: Within 15 days after award of Contract, and before any of the materials of this Section are delivered to the job site, submit complete to the Architect in accordance with these Specifications; the following:

A. Manufacturer's Recommendations
   1. Submit two copies of the Manufacturer's current recommended method of installation for each item.
   2. The Manufacturer's recommended methods of installation, when approved by the Architect, shall be the basis for acceptance or rejection of actual installation methods used in this Work.

1.4 Product Delivery, Storage and Handling

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

B. Delivery and Handling
   1. Deliver materials to the project site with Manufacturer's labels intact and legible.
   2. Handle materials with care to prevent damage.
   3. Deliver fire-rated materials bearing testing agency label and required fire classification numbers.

C. Storage
   1. Store materials inside under cover, stack flat, off floor.
   2. Stack wallboard so that long lengths are not over short lengths.
   3. Avoid overloading floor system.
   4. Store adhesives in dry area, provide protection against freezing at all times.

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

1.5 Job Conditions

A. Environmental Conditions: Ventilation: Provide ventilation during and following adhesives and joint treatment applications.

B. Protection: Protect adjacent surfaces against damage and stains.

PART 2 PRODUCTS

2.1 Materials

A. Gypsum Wallboard: Provide gypsum wallboard materials in accord with recommendations of GA 216. Fire Partitions constructed per approved UL Design Number.
   1. Fire-rated board
      a. ASTM C 36, Type X
      b. Thickness: 5/8 inch.
   2. Sag resistant board at ceilings
      a. ASTM C 1395/ C 1396

b. Thickness: ½ inch
3. Moisture resistant board at toilet rooms.
4. Cement board backer at ceramic wall tile.
5. Vapor barrier – 6 mil at all exterior walls

B. Fasteners
1. Screws
a. Self-drilling, self-tapping, bugle head, for use with power driven tools.
(1) Type S for wallboard to sheet metal application.
(2) Type G for wallboard to wallboard application.
b. Length
(1) Single layer or base layer application.
(a) Type W: 1-1/4"
(2) Face layer of two layer application
(a) Type W: 1-5/8"
(3) Wallboard to wallboard in multiple application: Type G, 1-1/2".

C. Joint Treatment Materials
1. General: All joint system including tape and compounds, shall be a system recommended by the manufacturer of the gypsum panels used as compatible with the gypsum panels.
2. Joint Tape: ASTM C 475: Perforated tape.
3. Joint compound: Ready-mixed joint compounds.

D. Metal Cornerbead and Trim: All metal cornerbead and trim and all accessory items, shall be a system recommended by the Manufacturer of the gypsum panels used as being compatible with the gypsum panels.

E. Water: All water used in joint system shall be clean, fresh and free from deleterious amounts of foreign material.

F. Furring - Partition Runners
1. Floor and Ceiling Runners:
a. Cold formed galvanized steel.
b. Size: 3-5/8 inches.
c. Shape 1 ¼” base track, 3” slip track at wall head for floor/ceiling deflection.
d. Formed with inserts, slots, notches or perforations to hold lath or studs securely in place.

G. Non-Loadbearing Prefabricated Steel Screw Studs
1. Cold formed galvanized steel.
2. Thickness: 25 gauge.
3. Shape: Roll formed channel with punched openings along solid web and knurled flanges.
4. Furnish floor and ceiling tracks of acceptable stud manufacturer's regular type for stud specified.
5. Size: 3-5/8 inches.

H. Furring Channel, Screw Type
1. Cold formed galvanized steel.
2. Minimum thickness: 26 gauge
3. Plain or knurled face to receive screws.

4. Suitable for 1-1/2 inch thick rigid insulation.

I. Sound Seal: Manufacturer's standard, caulk type sound seal at floor and roof deck.

J. Metal Accessories
   1. General:
      a. Shapes used as grounds: Sized and dimensioned to provide for required plaster thicknesses.
      b. Flanges:
         (1) Designed to permit complete embedment of accessory in plaster.
         (2) Provide for alignment and attachment to underlying surface.
   2. Corner Beads:
      a. Fabrication: Minimum 26 gauge galvanized steel.
      b. Flexible type, perforated flanges.
   3. Casing beads:
      a. Fabrication: Minimum 24 gauge galvanized steel.
      b. Style: Square end
   4. Expansion Joints:
      a. Fabrication: minimum 26 gauge galvanized steel
      b. Provide with double stops.
      c. Flanges: expanded
      d. Provide adjustable opening with solid type flanges.
   5. No plastic accessories allowed.

K. Other Materials: All other materials, not specifically described but required for a complete and proper installation of gypsum drywall, shall be as selected by the Contractor subject to approval of the Architect.

PART 3 EXECUTION

3.1 Surface Conditions

A. Inspection
   1. Prior to all Work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
   2. Verify that gypsum wallboard may be installed in accord with the original design, all pertinent codes and regulations, and the Manufacturer's recommendations as approved by the Architect.
   3. Check framing for accurate spacing and alignment.
   4. Verify that spacing of installed framing does not exceed maximum allowable for thickness of wallboard to be used.
   5. Verify that frames are set for thickness of wallboard to be used.
   6. Do not proceed with installation of wallboard until deficiencies are corrected and surfaces to receive wallboard are acceptable.
   7. Protrusions of framing, twisted framing members or unaligned members must be repaired before installation of wallboard is started.

3.2 Installation

A. Furring and Lathing
   1. Erection of Non-loadbearing Screw Studs - Hollow Partitions:
      a. Floor and ceiling Tracks

(1) Align floor and ceiling tracks.
(2) Attach to concrete with power-driven fasteners.
(3) Wire-tie to structural framing.
(4) Attach tracks to structure at maximum of 24 inches on center.

b. Screw Studs:
(1) Plumb and align studs.
(2) Space studs 16 inches on center.
(3) Attach studs to floor and ceiling track by screwing
(4) If necessary, splice studs by nesting with minimum lap of 8 inches.

c. Horizontal Stiffeners:
(1) Brace studs with steel channel stiffeners place horizontally on inside of partition.
(2) Spacing: Maximum 4'-6" o.c. quarter points vertically.
(3) Secure as recommended by stud Manufacturer.

d. Framing Around Door Openings:
(1) Hollow metal door frames:
(a) Install stud at each jamb of hollow metal door frames continuous for full height of partition.
(b) Screw stud to jamb anchors of frame.
(c) Tack weld a second stud to stud at door jamb, nested to form box.
(2) Attach section of floor track horizontally to head of frame.
(a) Install jack studs at 16 inches on center over head of door frame.
(b) Attach jack studs to floor track and anchor top in same manner as provided for full studs.

e. Form corners and intersections of partitions with three studs.
f. Place studs forming internal corners 2 inches from point of partition intersection.
g. Provide headers above and below framed wall openings having area of 2 square feet or more.

B. Follow U.L. Specifications for Fire Rated Assemblies.

3.3 Application

A. General
1. Use wallboard of maximum lengths to minimize end joints.
2. Stagger end joints when they occur.
3. Framing and wallboard will fit tight to stems and flanges of existing precast concrete roof deck for two hour rated construction.
4. Support ends and edges of wallboard panels on framing members.
5. Perform gypsum wallboard work in accord with recommendations of ASTM C 754 and G A 216 unless otherwise specified in this Section.

B. Joint System
1. Taping and finished joints
a. Taping or embedding joints
(1) Apply compound in thin uniform layer to all joints and angles to be reinforced.
(2) Apply reinforcing tape immediately.
(3) Center tape over joint and seat tape into compound.
(4) Leave approximately 1/64 to 1/32 inch compound under tape to provide bond.
(5) Apply skim coat immediately following tape embedment but not to function as fill or second coat.
(6) Dry embedding coat prior to application of fill coat.

b. Filling
   (1) Apply joint compound over embedding coat.
   (2) Fill taper flush with surface.
   (3) Apply fill coat to cover tape.
   (4) Feather out fill coat beyond tape and previous joint compound line.
   (5) Joints with no taper: Feather out at least 4 inches on eight side of tape.
   (6) Allow fill coat to dry prior to application of finish coat.
c. Finishing
   (1) Spread joint compound evenly over and beyond fill coat on all joints.
   (2) Feather to smooth uniform finish.
   (3) Apply finish coat to taped angles to cover tape and taping compound to provide surface ready for decoration.

2. Filling and finishing depressions
   a. Apply joint compound as first coat to fastener depressions.
   b. Apply at least two additional coats of compound after first coat is dry.
   c. Leave filled and finished depressions level with plane of surface.
3. Finishing beads and trim
   a. First fill coat
      (1) Apply joint compound to bead and trim.
      (2) Feather out from ground to plane of the surface.
      (3) Dry compound prior to application of second fill coat.
   b. Second fill coat
      (1) Apply joint compound in same manner as first fill coat.
      (2) Extend beyond first coat onto face of wallboard.
      (3) Dry compound prior to application of finish coat.
   c. Finish coat
      (1) Apply joint compound to bead and trim.
      (2) Extend beyond second fill coat.
      (3) Feather finish coat from ground to plane of surface.
      (4) Sand finish coat to provide flat surface ready for decoration.
4. Finish to be minimum levels according to the "recommended levels of gypsum board finish #GA-214-M-97.

3.4 Adjust and Clean

A. Nail Pop
   1. When face paper is punctured drive new nail or screw approximately 1-1/2 inches from defective fastening and remove defective fastening.
   2. Fill damaged surface with compound.
B. Fill cracks with compound and finish smooth and flush.
C. Cleaning Up: Do not allow the accumulation of scraps and debris arising from the work of this Section but maintain the premises in a neat and orderly condition at all times; in the event of spilling or splashing compound onto other surfaces, immediately remove the spilled or splashed material and all trace of the residue to the approval of the Architect.

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SECTION 09 51 00 ACOUSTICAL CEILINGS

SCOPE Applicable provisions of the General and Supplementary Conditions and Division 1 govern work under this Section.

INDEX

PART 1 GENERAL

1.1 Description

A. Work Included: The suspended acoustical ceiling systems required for this work are indicated on the Drawings and consist of suspended exposed metal grid with acoustical board panels. See "Ceiling" on Room Finish Schedule in the Drawings.

B. Related Work Specified Elsewhere

1. Gypsum Wallboard	Section 09 29 00
2. Sprinkler System	Division 22
3. Air distribution grilles	Division 22
4. Electrical Fixtures	Division 26

C. Work Furnished but Not Installed: Furnish hanger inserts in time to be installed in precast decking.

1.2 Quality Assurance

A. Qualification of Installers
   1. The suspended ceiling subcontractor shall have a record of successful installations of similar ceilings acceptable to the Architect and shall be currently approved by the Manufacturer of the ceiling suspension system.
   2. For the actual fabrication and installation of all components of the system, use only personnel who are thoroughly trained and experienced in the skills required and completely familiar with the requirements established for this work.

B. Allowable Tolerances
   1. Deflection:
      a. Suspension system components, hangers and fastening devices supporting light fixtures, ceiling grilles and acoustical units: Maximum deflection of 1/360 of the span.
      b. Deflection test: ASTM C 635. Allowable tolerance of finished acoustical ceiling system: level within 1/8 inch in 10 feet.
   2. Accessibility percentage: full

C. Reference Standards
   1. American Society for Testing and Materials (ASTM):
      a. C 635, Metal Suspension Systems for Acoustical Tile and Lay-in Panel Systems.

b. C 636, Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels.
c. D 1779, Adhesive for Acoustical Materials.

2. Federal Specifications (FS)
   a. SS-S-118, Sound Controlling Blocks and Boards (Acoustical Tiles and Panels, Prefabricated).

1.3 Submittals: Within 35 days after award of Contract, and before any of the materials of this Section are delivered to the job site, submit complete to the Architect in accordance with these Specifications; the following:

A. Samples
   1. Submit one full size samples of each type of acoustical material to illustrate color and range of appearance.
   2. Submit one full size sample of each suspension system member, moldings and hangers.

B. Manufacturer's Recommendations: Submit for review of Architect the Manufacturer's recommendation for installation of suspension system.

C. Maintenance Materials
   1. Furnish extra materials equal to 2 percent of each type of acoustical material supplied.
   2. Furnish suspension system components in amount sufficient to install extra ceiling units.
   3. Securely wrap and identify all extra materials.

1.4 Product Delivery, Storage and Handling

A. Delivery of Materials: Deliver materials in original, unopened, protective packaging, with Manufacturer's labels indicating brand name, pattern, size, thickness and fire rating as applicable, legible and intact.

B. Store materials in original protective packaging to prevent soiling, warpage, physical damage or wetting.

C. Do not begin installation until sufficient materials to complete a room are received.

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

1.5 Job Conditions

A. Environmental Requirements
   1. Installation of acoustical treatment shall not begin until all wet work, such as plastering, concrete and terrazzo work, is completely dry.
   2. Maintain relative humidity of not more than 70 percent in area where acoustical materials are to be installed, 25 hours before, during and 25 hours after installation.

   3. Maintain a uniform temperature in the space of 60 to 85 degrees F. prior to and during installation of materials.

PART 2 PRODUCTS

2.1 Materials

A. Suspension Materials
   1. Suspension Systems:
      a. Suspension Systems:
         (1) ASTM C 635.
         (2) Structural classification: 1-1/2" Intermediate duty systems for ¾" panels.
         (3) All components of system from one Manufacturer.
      b. Main, cross and concealed members:
         (1) Web design: Double
         (2) Cold-rolled steel, minimum thickness of 0.020 inch, electrozinc coated and factory painted low sheen satin white finish.
      c. Edge molding, minimum 0.020 inch steel channel or angle shaped, with minimum flange width of 15/16 inch.
      d. Rough Suspension:
         (1) Hanger wire: Minimum 12 gage, galvanized, soft-annealed, mild steel wire.
         (2) Wire ties: 18 gage, galvanized annealed steel wire.
   2. Adhesive: ASTM D 1779.
   3. Caulking: Non-staining type, .

B. Acoustical Unit Materials (Acoustical Tile ACT-1 on Schedule)
   1. FS SS-S-118. Acoustic Tiles: USG Orion 210: Conforming to the following:
      a. Size: 24 inches by 24 inches. Foil backed.
      b. Thickness: 1/2 inches.
      c. Composition: Mineral fiber
      d. Density: .67 pounds per cubic foot.
      e. Light Reflectance: ASTM C 523, LR-1 (0.75 or more).
      f. NRC Range: ASTM C 423 0.75 to 0.85.
      g. STC Range: AMA 1-11, 25-29.
      h. Edge: Square
      i. Surface Color: White, factory applied.

C. Acoustical Unit Materials (Acoustical Tile on Room Finish Schedule in Drawings)
   1. Acoustic Tiles: ClimaPlus - Vinyl: Conforming to the following:
      a. Size: 24 inches by 24 inches. Paper backed.
      b. Thickness: 1/2 inches.
      c. Composition: Sheet Rock
      d. Light Reflectance: ASTM C 523, LR-1 (0.77 or more).
      e. Edge: Square
      f. Surface Color: White, factory applied

D. Sound blanket: 6" fiberglas with foil face, standard density.

2.2 Acceptable Manufacturers

A. Suspension Systems
   1. Armstrong
   2. Chicago Metallic Corporation

3. Donn Corporation

B. Acoustical Units
1. Armstrong
2. Celotex
3. United States Gypsum

PART 3 EXECUTION

3.1 Surface Conditions

A. Inspection
1. Prior to all work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence. Verify that suspended ceiling systems may be installed in strict accord with all pertinent codes and regulations, the approved Shop Drawings and the Manufacturer's recommendations. Verify that layout of hangers will not interfere with other work.
2. Examine surfaces scheduled to receive suspended or directly attached acoustical units for unevenness, irregularities and dampness that would affect quality and execution of Work.
3. Mark access provisions as to size and location before beginning installation
4. Areas to which acoustical units will be cemented. Must be free of oils from residue or materials that will affect bond capabilities of adhesive.
5. Discrepancies: In the event of discrepancy, immediately notify the Architect. Do not proceed in areas of discrepancy until all such discrepancies have been fully resolved.
6. Beginning of installation means acceptance of existing conditions.

3.2 Installation

A. General
1. Installation of products in this Section shall occur after all components in the ceiling plenum are installed. The building shall be in proper condition to receive the acoustical materials and suspension system before any of the material shall be installed. The acoustical materials shall be installed under conditions of normal occupancy. All wet work shall be completely dry, and the building fully enclosed.

B. Suspension Systems: ASTM C 636.

C. Rough Suspension
1. Hangers:
a. Attach secure to structure/joist/deck/etc. thru plaster ceilings or metal pan ceilings hangers inserts installed as recommended by Manufacturer.
b. Space hanger wire 4’-0” on center.
c. Install additional hangers at ends of each suspension member and at light fixtures, 6 inches from vertical surfaces.
d. Do not splay wires more than 5 inches in a 4 foot vertical drops.
e. Wrap wire a minimum of three times horizontally, turning ends upward.
f. Provide lateral bracing with wire at 45 degree angles as required. Secure lateral bracing to structure above ceiling.

2. Install carrying channels with leveling clips to main structure for indirect hung suspension system.
3. Main and cross runners:
   a. Space main runners at 4 feet on center, at right angle to carrying channel.
      (1) Level and square to adjacent walls.
      (2) Wire clip to channels at all intersections.
   b. Space cross runners at 2 feet on center.
   c. Install at height shown on Room Finish Schedule.

D. Acoustical Units
1. Install in level plane in straight line courses, free from twist, warp and dents.
2. Cut out tile face at walls attached to grid for flat tile insertion.
3. Place materials to bear all around on suspension members.
4. Minimum width of border tiles: One-half unit dimension.
5. Sound barrier: Install fiberflas pads with foil face up.

3.4 Adjustments and Cleaning

A. Clean soiled or discolored unit surfaces after installation.

B. Touch up scratches, abrasions, voids and other defects in painted surfaces. At the Owner's discretion, remove and replace any repaired units that still do not have a like new appearance.

C. Remove and replace damaged or improperly installed units.

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SECTION 09 65 00 RESILIENT FLOORING

SCOPE Applicable provisions of the General and Supplementary Conditions and Division 1 govern work under this Section.

INDEX

PART 1 GENERAL

1.1 Description

A. Work Included: Resilient flooring required for this Work is indicated on the Room Finish Schedule in the Drawings and includes:
   1. Vinyl composition tile flooring
   2. Vinyl base cove

B. Related Work Specified Elsewhere

1. Finishes for concrete slabs and topping substrates	Section 03 30 00

1.2 Quality Assurance

A. Qualifications of Installers
   1. Use only skilled and experienced resilient flooring installers for preparation of substrate and actual installation of resilient flooring.
   2. In the acceptance or rejection of installed resilient flooring, no allowance will be made for lack of skill on the part of installers.

B. Manufacturer's Recommendations: The Manufacturer's recommended methods of installation, when approved by the Architect, shall be the basis for acceptance or rejection of actual installation methods used on this Work.

C. Reference Standards
   1. American Society for Testing and Materials (ASTM):
      a. E 84 Surface Burning Characteristics of Building Materials
      b. F 1913
   2. Federal Specifications (FS):
      a. SS-T-312, Tile, Floor: Vinyl Composition
      b. SS-W-40, Wall Base: Vinyl Plastic
      c. MMM-A-115, Adhesive, Asphalt, Water Emulsion Type (For Vinyl Emulsion Tile).

1.3 Submittals: Within 35 days after award of Contract, and before any of the materials of this Section are delivered to the job site, submit complete to the Architect in accordance with these Specifications; the following:

A. Samples

1. Submit minimum of 1 sample of each type and color or pattern of resilient flooring and base material.
2. Submit two inch long sample of base material for each color specified.

B. Manufacturer's Recommendations: Accompanying the samples, submit two copies of the Manufacturer's current recommended method of installation for each item.

C. Maintenance Data and Instructions: Upon completion and prior to acceptance of the Work, furnish 2 copies of a list of recommended maintenance products and recommended maintenance methods and procedures. Include suggested schedule for cleaning, stripping and re-waxing.

D. Maintenance Materials
1. Furnish additional floor covering materials for replacement and maintenance.
2. Furnish materials of each size, color, pattern and type of material included in the Work.
3. Furnish materials at the rate of one carton per 1000 square feet of each color and style. One carton minimum.

1.4 Product Delivery, Storage and Handling

A. Protection: Use all means necessary to protect resilient flooring materials before, during and after installation and to protect the installed work and materials of all other trades.

B. Deliver materials to project site in manufacturer's original, unopened containers with labels indicating brand names, colors and patterns and quality designations legible and intact.

C. Do not open containers or remove markings until materials are inspected and accepted.

D. Store and protect accepted materials in accord with Manufacturer's directions and recommendations.

E. Unless otherwise directed, store materials in original containers at not less than 70 degrees F. for not less than 3 days immediately before installation.

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

1.5 Job Conditions

A. Environmental Requirements:
1. Maintain temperature in space to receive tile between 70 and 90 degrees F. for not less than 24 hours before and 48 hours after installation.

2. Maintain minimum temperature of 55 degrees F. after flooring is installed except as specified in paragraph 1.5.A.1.

1.6 Warranty: Warranty installation against defects in material and workmanship for one year from acceptance of installation by the Architect. Warranty will cover all cost for labor and

materials required for replacement.

PART 2 PRODUCTS

2.1 Materials

A. General
1. All resilient floor tile and base of each type shall be the product of one Manufacturer and shall, to the maximum extent possible, be of a single batch number.
2. Colors and Patterns: All colors and patterns shall be as selected by the Architect for the standard range of colors and patterns of the selected Manufacturer; colors and patterns will be limited to not more than one field color per room or space and not more than a total of four field colors in the total Work. Patterns as shown on drawings.

B. Floor Covering Materials
1. General:
   a. Uniform in thickness and size.
   b. Edges cut accurately and square.
   c. Uniform color with variations in variegated patterns kept to a minimum.
2. Tile Flooring Materials:
   a. Vinyl Composition tile ("Resilient" on Schedule):
      (1) FS SS-T-312, Type III
      (2) 12 inch by 12 inch face size by 1/8 inch thick.

C. Base Materials
1. General:
   a. Uniform in thickness.
   b. As long lengths as practicable to suit conditions of installation.
2. Standard vinyl base (marked ‘4" Vinyl’ on Schedule):
   a. FS SS-W-40 a Type II.
   b. 4 inches high: style per schedule.

E. Application Materials
1. General: Provide type and brands of adhesive as recommended by Manufacturer of covering material for the conditions of the installation.

2.2 Acceptable Manufacturers

A. Tile
1. VCT
   a. Armstrong
   b. Azrock
   c. Mannington

B. Base
1. Johnsonite
2. Roppe
3. VPI

PART 3 EXECUTION

3.1 Surface Conditions

A. Inspection
   1. Prior to all Work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
   2. Verify that resilient flooring may be installed in accord with the original design and the Manufacturer's recommendations.

B. Examine substrate for excessive moisture content (7% maximum) and uneveness which would prevent execution and quality of resilient flooring as specified. Concrete floor slabs to be at least 6 weeks old at time of tile installation. Maximum variation of 1/8 inch in 10 feet.

C. Beginning of installation means acceptance of existing substrate and site conditions.

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

3.2 Preparation

A. Subfloor
   1. Do not begin Work until Work of other trades is complete.
   2. Sub-floor will be delivered to this Contractor broom clean.
   3. Remove dirt, oil, grease, non-compatible curing compounds or other foreign matter from surfaces to receive floor covering materials.
   4. Fill cracks less than 1/16 inch wide and depression less than 1/8 inch deep with crack filler.
   5. Apply, trowel and float filler to leave a smooth, flat, hard surface.
   6. Prohibit traffic from area until filler is cured.
   7. Prime surfaces other than wood if recommended by floor covering Manufacturer.
   8. Vacuum subfloor clean.

3.3 Application

A. Adhesives
   1. Mix and apply adhesives in accord with Manufacturer's instructions.
   2. Provide safety precautions during mixing and applications as recommended by adhesive Manufacturer.
   3. Apply uniformly over surfaces.
      a. Cover only that amount of area which can be covered by flooring material within the recommended working time of the adhesive.
      b. Remove any adhesive which dries or films over.
      c. Do not soil walls, bases or adjacent areas with adhesives.
      d. Promptly remove any spillage.
   4. Apply adhesives with notched trowel or other suitable tool.
   5. Clean trowel and re-work notches as necessary to insure proper application of adhesive.

3.4 Installation

A. General
   1. Install in accord with Manufacturer's instructions.
   2. Terminate flooring at centerline of door openings where adjacent floor finish is dissimilar.
   3. Install edge strips at unprotected or exposed edges and where flooring terminates.
   4. Scribe flooring to walls, columns, cabinets, floor outlets and other appurtenances to produce tight joints.
   5. Install feature strips, letter, numbers, shapes, and floor markings where indicated. Fit joints tightly.
   6. Prohibit traffic on floor finish for 48 hours after installation.

B. Tile Materials
   1. Mix tile from container to ensure shade variations are consistent.
   2. Lay tile to center of room or space.
   3. Work toward perimeter.
   4. Do not lay tile less than 1/2 the width of a field tile except where accepted by the Architect for irregularly shaped rooms or spaces.
   5. Cut border tile neatly and accurately to fit within 1/64 inch of abutting surfaces.
   6. Fit flooring material nearly and tightly into breaks and recesses, against bases, around pipes and penetrations, and around permanent cabinets and equipment.
   7. Install tile aligned with pattern grain parallel for all units and parallel to width of room. Allow minimum 1/2 full size tile width at room or area perimeter.
   8. Feature strips and inserts:
      a. Cut to shapes, sizes and profiles as shown on Drawings.
      b. Carefully scribe into positions on field.
   9. Properly roll all tiled areas to eliminate bubbles, ripples and uneven areas.

3.5 Finish and Cleaning

A. Upon completion of the installation of floor covering, adjacent work and after materials have set, clean surfaces with a neutral cleaner as recommended by the Manufacturer for the type of floor covering material installed.

B. Apply non-slip wax or other finish as recommended by the floor covering manufacturer and buff to a sheen.

C. Protect completed work from traffic and damage until acceptance by the Owner.

D. Provide a non-staining paper pathway taped to the resilient Flooring in direction of foot traffic throughout the Work. Prohibit traffic in other areas.

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SECTION 09 91 00 PAINTING

SCOPE Applicable provisions of the General and Supplementary Conditions and Division 1 govern work under this Section.

INDEX

PART 1 GENERAL

1.1 Description

A. Work Included
1. The Painting Contractor shall furnish all material, labor and equipment required to complete all painting and finishing as shown on the Drawings, Plans and Specifications.
2. The Painting Contractor shall examine the Specifications for the various other trades and shall thoroughly become familiar with all provisions regarding painting. All surfaces that are left unfinished by the requirements of other Specifications shall be painted or finished as a part of this Work.
3. In general, paint all wood, metal surfaces, doors, frames, masonry; omit aluminum and prefinished products.
4. Following Specifications cover complete painting, finishing of wood and other surfaces throughout interior and exterior of building, unless otherwise noted.
5. The types of paint to be used and the number of coats to be applied are listed in the Painting Schedule in Part 3.7 of this Section of these Specifications.
6. Furnish tools, ladders, scaffolding, other equipment necessary for work completion.

B. Related Work Specified Elsewhere
1. Prefinishing: Shop priming and factory prefinishing are required on some, but not all of the items described in other Sections of these Specifications.
2. Structural Steel, Miscellaneous Metals and Metal Doors and Frames; one shop coat and touching up in field.
3. Sealants and Caulking — Section 07 92 13
4. Metal Building System — Section 13 34 19
5. Painting of Exterior Roof Vents/Louvers — Per Plans

C. Definitions
1. The term "Paint", as used herein, includes enamels, paints, sealers, fillers, emulsions, and other coatings, whether used as prime, intermediate of finish coats.
2. "Coats" described later are based on roller, brush or spray application. Above does not refer to processes that require spraying only for their application or where specifically specified to be sprayed.
3. Conform to ASTM D16 for interpretation of terms used in this Section.

1.2 Quality Assurance

A. Qualifications of Painters
   1. Maintain a crew of painters throughout the duration of the work who shall be qualified to fully satisfy the requirements of this Specification.
   2. Use only qualified journeyman painters for the mixing and application of paint on exposed surfaces. Apprentices may be employed to work under the direction of qualified journeymen, in accord with trade regulations. In the acceptance or rejection of installed painting, no allowance will be made for lack of skill on the part of painters.

B. Requirements of Regulatory Agencies
   1. Occupational Safety and Health and pollution Regulations: Conform to the Federal and State requirements for painting work applicable to this Project.
   2. Permits: Obtain and pay for any special permits required by local governmental agencies.

C. Reference Standards
   1. American Society for Testing and Materials (ASTM):
      a. D 16, Definitions of Terms Relating to Painting, Varnish, Lacquer and Related Products.
   2. In addition to complying with all pertinent codes and regulations, comply with "Standard (Type 1)" as defined by the Painting and Decorating Contractors of America in their "Modern Guide to Paint Specifications", current Edition.

1.3 **Submittals**: Within 35 days after award of Contract, and before any of the materials of this Section are delivered to the job site, submit complete to the Owner in accordance with these Specifications; the following:

A. Samples: Accompanying the materials list, submit to the Owner two copies of the full range of colors, textures and finishes available in each of the proposed products.

B. Manufacturer's Recommendations: In each case where material proposed is not the material specified or specifically described as an acceptable alternate in this Section of these Specifications, submit for the Owner's review the current Manufacturer of the proposed material.

C. Material List
   1. A complete list of all materials proposed to be furnished and installed under this portion of the Work.
   2. This shall in no way be construed as permitting substitution of materials for those specified or approved for this Work by the Owner.

D. Color Charts: Include color charts for selection by Owner.

E. Extra Stock: Upon completion of this portion of the Work, deliver to the Owner an extra stock of paint equaling approximately 10% of each color used in each coating material used, with all such extra stock tightly sealed in clearly labeled containers. Extra stock to be from batch mix furnished for Work.

1.4 Product Delivery, Storage and Handling

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

B. Delivery of Materials: Deliver all paint materials to the job site in their original unopened containers with all labels intact and legible at time of use.

C. Storage of Materials
   1. Store only the approved materials at the job site, and store only in suitable and designated area restricted to the storage of paint materials and related equipment.
   2. Use all means necessary to ensure the safe storage and use of paint materials and the prompt and safe disposal of waste.
   3. Store paint materials at minimum ambient temperature of 45 degrees F. and a maximum of 90 degrees F., in well ventilated area, unless required otherwise by Manufacturer's instructions.

D. Handling Materials and Equipment
   1. Take precautionary measures to prevent fire hazards and spontaneous combustion.
   2. All soiled or used rags, waste and trash must be removed from the building each night and every precaution taken to avoid the danger of fire.
   3. Toxic Materials:
      a. Where toxic materials, including both toxic and explosive solvents are used, take appropriate precautions as a regular procedure, conforming to the Manufacturer's recommendations and to the requirements of the applicable safety regulatory agencies.
      b. In applying acid etch coating or solutions and toxic materials, provide ventilation and take protective measures to conform to the requirements of regulatory agencies.

E. Replacements: The painting trade is responsible for making repairs of their own Work when due to defective workmanship or materials. Repair of damaged paint finish caused by other trades will be done by this Contractor but paid for by the contractor causing such damage. See Section 01 70 00.

1.5 Job Conditions

A. Environmental Requirements
   1. Comply with Manufacturer's recommendations as to environmental conditions under which coatings and coating systems can be applied.
   2. Do not apply finish in areas where dust is being generated.
   3. Provide continuous ventilation and heating facilities to maintain surface and ambient temperatures above 45 degrees F. for 24 hours before, during and for 48 hours after application of finishes, unless required otherwise by Manufacturer's instructions.
   4. Do not apply exterior coatings during rain or snow or when relative humidity is above 50 percent, unless required otherwise by Manufacturer's instructions.
   5. Minimum Application Temperatures for Latex Paints: 45 degrees F. for interiors; 50 degrees F. for exteriors; unless required otherwise by Manufacturer's instructions.

6. Minimum Application Temperature for Varnish Finishes: 65 degrees F. for interior, unless required otherwise by Manufacturer's instructions.
7. Provide lighting level of 80 foot candles measured mid-height at substrate surface.
8. Do not do exterior work on unprotected surfaces if it is raining or moisture from any other source is present or expected before applied materials can dry or attain proper cure.
9. Allow surfaces wetted by rain or other moisture source to dry and to attain temperatures and conditions specified before proceeding or continuing with coating application.

B. Protection
1. Cover or otherwise protect finished work of other trades and surfaces not being painted concurrently or not to be painted.
2. The Painting Contractor shall protect surfaces and objects inside and outside the building, as well as the grounds, lawns, shrubbery and adjacent properties against damage. The Painting Contractor shall be held responsible for damage to adjacent furnishings.
3. Drop Cloths: Provide sufficient drop cloths, shields and protective equipment to prevent spray or drippings from fouling surfaces not being painted including surfaces within the paint storage and preparation areas.
4. Exposed Concrete Floors: Floor slabs that will not be covered by other finishes will be protected against staining or damage by the work of the Painting Contractor. Repair of such damage may include replacement of the slab if so determined by the Architect or Owner.

PART 2 PRODUCTS

2.1 Materials

A. Select primary products of the coating system from products of a single manufacturer.

B. Secondary products not specified by name and required for the job such as oils, thinners, patching, compounds, putty, shall be "best grade" or "first line" products of a reputable manufacturer.

C. Compatibility
1. All paint materials and equipment shall be compatible in use; finish coats shall be compatible with prime coats; prime coats shall be compatible with the surface to be coated; all tools and equipment shall be compatible with the coating to be applied.
2. Thinners, when used, shall be only those thinners recommended for that purpose by the Manufacturer of the material to be thinned.
3. All shop primers are required to be approved by finish coat paint manufacturer.

D. Colors and glosses: All colors shall be as selected by the Owner and will be limited to not more than six paint colors in the total Work.
1. Colors of paints and stains match color chips submitted to the Owner.

2.2 Acceptable Manufacturers
A. Materials selected for coating systems for each type surface shall be the product of a single manufacturer.

2.3 Mixing and Tinting

A. Deliver paints and enamels ready-mixed to job site.

B. Accomplish job mixing and job tinting only when acceptable to the Owner.

C. Fungicidal agent shall be incorporated into the paint by the Manufacturer.

PART 3 EXECUTION

3.1 Surface Conditions

A. Inspection
   1. Prior to all Work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
   2. Verify that paint finishes may be applied in strict accord with all pertinent codes and regulations and the requirements of these Specifications.
   3. Examine surfaces schedules to receive paint and finishes for conditions that will adversely affect execution, permanence or quality of work and which cannot be put into an acceptable condition through preparatory work as included in Article 3.2 Preparation.
   4. If woodwork, metal or any other surface to be finished cannot be put in proper condition for finishing by customary cleaning, filling, sanding, dusting, puttying operation, notify Owner immediately for clarification.
   5. Do not proceed with installation in areas of discrepancy until such discrepancies have been fully resolved.
   6. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums or as required by paint materials manufacturer: (submit written documentation by paint manufacturer).
      a. Plaster and Gypsum Wallboard: 12 percent.
      b. Masonry, Concrete and Concrete Unit Masonry: 12 percent.
      c. Interior Located Wood: 15 percent, measured in accord with ASTM D 2016.
   7. Beginning of installation means acceptance of existing surfaces or substrate.

3.2 Preparation

A. General
   1. Protection: Prior to all surface preparation and painting operation, completely mask, remove or otherwise adequately protect all hardware, accessories, machined surfaces, plates, lighting fixtures and similar items in contact with painted surfaces, but not scheduled to receive paint.
   2. Priming:
      a. Spot prime all exposed nails and other metals which are to be painted with emulsion paints using a primer recommended by the Manufacturer of the coating system.
      b. Back prime interior trim before installation, with interior trim primer.
   3. Cleaning:
      a. Before applying paint or other surface treatment, thoroughly clean all surfaces involved.

b. Previously Painted Surfaces:
   (1) Remove all blistered, peeling and scaling paint to bare substrate. Remove heavy chalk by scrubbing with seal and water. Sand or etch any glossy areas and dust clean. Clean and spot prime any failed areas. Rinse clean and let. dry. Any existing mildew on the surface must be completely killed and remove before applying paint.
   (2) Efflorescence should be removed from masonry surfaces. Rusted or abraded areas on painted metal should be thoroughly hand or power toll cleaned and spot primed. For optimum performance in more corrosive areas, entire metal surface should be abrasive blast cleaned. In all cases if the old paint shows poor adhesion, it shall all be removed and the entire surface primed.
   (3) Where new work joints existing work, prepare existing surfaces extending to the nearest break in the plane.
   (4) Wash surfaces with detergent and water or other solution as required to remove any accumulated dirt, oil, grease or other foreign matter which would impair bond or bleed through new finishes. After washing, rinse with water and allow to dry thoroughly.

c. Schedule all cleaning and painting so that dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.
d. Work will be received broom clean only from General Contractor. Note protection and cleaning required by Painting Contractor.

B. Wood Surfaces
1. Cleaning: Clean all wood surfaces until they are free from dirt, oil and other foreign substances. Remove all pencil marks and grade stamps, sanding when a semi-transparent finish is to be applied. All loose wood fibers or dust should be removed by brushing.
2. Smoothing:
   a. Unless specifically noted to be left rough, smooth all finished wood surfaces exposed to view, using the proper sandpaper, the dust off.
   b. Where so required, use varying degrees of coarseness in sandpaper to produce uniformly smooth and unmarred wood surfaces.
3. Dryness: Unless specifically approved by the Owner, do not proceed with the painting of wood surfaces

C. Ferrous Metal Surfaces
1. Thoroughly clean all surfaces until they are completely free from dirt, oil, rust, scale or grease. When heavy coatings of scale are evident, remove by wire brushing or sandblasting; clean by washing with solvent. Apply a treatment of phosphoric acid solution, ensuring weld joints, bolts and nuts are similarly cleaned. Spot prime paint after repairs.
2. Allow to dry thoroughly before application of paint.
3. Shop Primed Steel Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Prime metal items including shop primed items.

3.3 Paint Application

A. General
1. Workmanship: Very best, spread materials evenly, glow on smoothly without runs, sags, employ skilled mechanics.

2. Use materials only as specified by Manufacturer's direction label on container.
3. Where interior or exterior wood and metal are primed in the mill or ship, use material in every case same as the specified for such surfaces; use as per Manufacturer's directions for first or priming coat.
4. Finish door tops, bottoms, edges, same as balance of doors after they are fitted.
5. Cover surfaced to be stained with uniform stain coat; wipe off as required.
6. Sand smoothly woodwork to be finished with stain. Clean surface before proceeding with first coat application. Use fine sand paper between coats. Finish wood or metal to produce even, smooth finish.
7. Do not apply finishes to surfaces that are not dry.
8. Each coat shall cover preceding coat, so that preceding coat shall not show through. Each coat of paint shall be slightly darker than preceding coat unless otherwise directed. Undercoats shall be tinted similar to finish coats. Color of priming shall be lighter than body coat. Body coat shall be same color but lighter than finish coat.
9. Paint all surfaces, except glass, flat concrete and similar items, not pre-finished and not called out as unfinished.
10. Apply paint enamel stain and varnish with suitable brushes, or rollers, or spraying equipment.
    a. Rate of application shall not exceed that as recommended by paint Manufacturer for the surface involved.
    b. Keep brushes, and rollers, and spraying equipment clean, dry, free from contaminates and suitable for the finish required.
    c. Apply stain by brush.
11. Finish coats shall be smooth, free of brush marks, streaks, laps or pile up of paints, and skipped or missed areas.
    a. Finished metal surfaces shall be free of skips, voids or pinholes in any coat when tested with a low voltage detector. Test required on first application.
12. Make edges of paint adjoining other materials or colors clean and sharp with no overlapping.
13. Apply primer on all work before glazing.
14. Refinish whole wall where portion of finish has been damaged or is not acceptable.
15. Finish metal doors and frames to be Manufacturer's standard primed (not finish coated); finish coats by Painting Contractor.
16. No overhead doors or rolling steel doors should be painted. Rolling steel door track and all tube steel door jambs are scheduled to be painted.
17. All ceilings to be painted except acoustical tile ceilings. See schedules.

B. Drying
    1. Allow sufficient drying time between coats.
    2. Modify the period as recommended by the material Manufacturer to suit adverse weather conditions.

C. Environmental Conditions
    1. Comply with the Manufacturer's recommendations as to environmental conditions under which the coating system may be applied. No painting allowed when temperatures are below 50 degrees F., above 120 degrees F. or with 90% or above relative humidity.
    2. Do not apply paint in areas where dust is being generated.

D. Defects: Sand and dust between coats to remove all defects visible to the unaided eye from a distance of five feet.

E. Dry Mil Thickness
   1. General: Apply all coatings to the dry mil thickness indicated in the "Painting Schedule". In general all painted surfaces to have a DFT as listed unless noted otherwise.

F. Recoating
   1. Whenever possible, notify Architect between coats.

3.4 Reinstallation of Removed Items: Following completion of painting, in each space, promptly reinstall all items removed for painting or wall covering using only workmen skilled in the particular trade.

3.5 Cleaning Up

A. General
   1. During profess of the Work, do not allow the accumulation of empty containers or other excess items except in areas specifically set aside for the purpose.
   2. Prevent accidental spilling of paint materials and in event of such spill, immediately remove all spilled material and the waste or other equipment used to clean up the spill, and wash the surfaces to their original undamaged condition, all at no additional cost to the Owner.
   3. Collect cotton waste, cloths and material which may constitute a fire hazard, place in closed metal containers and remove daily from site.
   4. Touch up and restore finish where damaged.
   5. Do not mar surface finish of item being cleaned.
   6. Leave storage space clean and in condition required for equivalent spaces in project.

B. Prior to Final Inspection: Upon completion of this portion of the Work visually inspect all surfaces and remove all paint and traces of paint from surfaces not scheduled to be painted.

3.6 Painting Schedule

A. Surfaces Not to be Painted.
   1. Pre-finished wall, ceiling and floor coverings.
   2. Items with factory applied final finish.
   3. Concealed ducts, pipes and conduit.
   4. Glass, flat concrete (Floors) and similar items, not pre-finished.

B. Exterior Work (use only exterior quality materials)
   1. Exterior Ferrous Metals:
      a. Touch-up: Rust-inhibitive waterborne acrylic primer, free of heavy metals;
         Min. DFT: 2.5 - 5.0 mils
         Min. Volume Solids: 44%
      b. 2nd Coat: Non-blocking, 100% acrylic gloss coating
      c. 3rd Coat: Non-blocking, 100% acrylic gloss coating; Min. DFT: 1.3 mils per coat;
         Min. Volume Solids: 31%;
         Sheen: 70-90 units at 60 degrees.

C. Interior Work
   1. Interior Wood - transparent finish:
      a. First Coat: VOC compliant wiping stain; spreading rate: as needed to match Owner's sample.
      b. 2nd Coat: Polyurethane satin varnish
      c. 3rd Coat: Polyurethane satin varnish:
         Min DFT: 1.7 mils per coat;
         Min. Volume Solids: 41%;
         Sheen: 20-35 units at 60 degrees.
   2. Interior Wood - painted
      a. First Coat: 100% acrylic primer;
         Min. DFT: 1.6 mils; Min. Volume Solids: 39%
      b. 2nd Coat: Non-blocking, acrylic semi-gloss
      c. 3rd Coat: Non-blocking, acrylic semi-gloss Pencil Hardness (ASTM D3363): H or harder;
         Min. DFT: 1.3 mils per coat;
         Min. Volume Solids: 33%;
         Sheen: 35-45 units at 60 degrees.
   3. Interior Ferrous Metal:
      a. Touch-up: Rust-inhibitive waterborne acrylic primer, free of heavy metals; Min. DFT: 2.5 - 5.0 mils Min. Volume Solids: 44%
      b. 2nd Coat: Non-blocking, acrylic semi-gloss
      c. 3rd Coat: Non-blocking, acrylic semi-gloss coating; Pencil Hardness (ASTM D3363): H or harder
         Min. DFT: 1.3 mils per coat; Min. Volume Solids: 33%;
         Sheen: 35-45 units at 60 degrees.
   4. Interior Zinc-coated metal:
      a. First Coat: Rust-inhibitive waterborne acrylic primer, free of heavy metals;
         Min. DFT: 2.5 - 5.0 mils
         Min. Volume Solids: 44%
      b. 2nd Coat: Non-blocking, acrylic semi-gloss
      c. 3rd Coat: Non-blocking, acrylic semi-gloss
         Pencil Hardness (ASTM D3363): H or harder
         Min. DFT: 1.3 mils per coat; Min. Volume Solids: 33%
         Sheen: 35-45 units at 60 degrees.
   5. Exposed Overhead Work:
      a. Touch-up Rust-inhibitive Oil- Based acrylic primer, free of heavy metals.
      b. DFT: 2.5 - 5.0 mils
      c. Min. volume solids: 44%
      d. 2nd Coat: Oil- Based flat dryfall
      e. DFT: 3.0 - 5.0 mils
      f. Min. volume Solids: 40%
      g. Sheen: 0-5 at 80 degrees.

D. Finishing Mechanical and Electrical Equipment

1. Paint in finished areas only and on exterior of building, exposed or visible galvanized metal ducts, hangers, sheet metal work, conduit boxes, brackets, collars, supports, exposed covered and uncovered plumbing, heating and other piping and conduit. See Mechanical and Electrical Drawings for extent of such work. Do not include painting of pipes, ducts, conduit, etc. in mechanical rooms and other unfinished areas unless specifically noted.
2. Piping or ducts to be hidden above ceilings or in pipe chases will not be painted.

3. Paint plumbing, heating, ventilating and electrical equipment not furnished with factory finish e.g. grilles, louvers, covers and access panels. Equipment furnished with a prime coat shall receive 2 coats of enamel in colors as selected.
4. Paint bright metal portion and interior surfaces of ductwork convectors and baseboard heating cabinets that is visible through grilles and louvers with one coat of flat black paint to the limits of sight lines. Paint dampers exposed behind louvers, grilles and convectors and baseboard cabinets to match face panels.
5. Remove oil or grease from piping and ductwork and apply one coat of primer compatible with surface being finished and with painting material being used for finished coats.
6. In general, exposed covered or uncovered piping and ductwork will be finished with the same materials, number or finish coats of paint and color as the surface to which they are attached.
7. Replace identification markings on mechanical or electrical equipment when painted accidentally.
8. Paint both sides and edges of plywood backboards for electrical and telephone equipment before installing equipment.

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SECTION 13 34 19 METAL BUILDING SYSTEMS

SCOPE Applicable provisions of the General and Supplementary Conditions and Division 1 govern work under this Section.

INDEX

PART 1 GENERAL

1.1 Description

A. Work Included: This Specification covers the material for and the fabrication of metal building components required for the rework of the existing structure as described herein and shown on the Drawings. The materials to be furnished and installed shall include the roofing panels, wall panels, door opening trim, window opening trim, fasteners, sealants, and/or caulking, accessories, anchor bolts, connections, gutters, downspouts, roof leaders, sleeves, reinforcing at mechanical equipment, insulation, and any other component parts for the metal building. This Contractor will also obtain approvals from all regulatory agencies and provide erection of the complete building.

B. Related Work Specified Elsewhere

1. Concrete	Section 03 30 00
2. Sheet Metal	Section 07 60 00
3. Aluminum Entrances & Storefronts	Section 08 41 13
4. Glass and Glazing	Section 08 80 00
5. Painting	Section 09 91 00
6. HVAC	Per Plans
7. Electrical	Per Plans

C. Work Installed but Furnished by Others:

D. Work Furnished but not Installed

1. Rework Anchor bolts - base plates	Section 03 30 00

E. Description of System
1. Clear span rigid frame.
2. Primary Framing: Rigid frame of rafter beams and columns, braced end frames, end wall columns, and wind bracing.
3. Secondary Framing: Purlins, girts, eave struts, flange bracing, sill supports, clips, and other items detailed.
4. Wall and Roof System: Preformed metal panels of vertical profile, with sub-girt framing/anchorage assembly, insulation, liner sheets, and accessory components.

F. Definitions: Refer to "Metal Building Systems Nomenclature" of the Metal Building Manufacturers Association.

1.2 Quality Assurance

A. Qualifications of Manufacturers: The Manufacturer of the building system used shall have been in the manufacture of metal buildings for at least 5 years; shall have the capabilities of supplying the specified materials in the quantities required to meet the construction schedule; shall have full engineering capabilities to meet all design requirements; and shall be able to transport the material to the job site.

B. Qualifications of Metal Building Contractor
1. 5 years experience in the sale and erection of metal building type specified.
2. A licensed supplier of the Manufacturer whose system is selected for the Work.
3. Incorporated to do work in the State of Wisconsin.
4. Have the resources necessary to maintain the construction schedule.

C. Qualifications of Installer
1. A firm with a least 5 years experience in the type of work required that will be under the direct supervision of the Metal Building Contractor.
2. Qualifications of Welders: AWS D 1.1

D. Design Criteria
1. Structural Design
   a. Design Responsibility: The entire building system shall be designed by a Registered Professional Engineer employed by the Manufacturer. Any system requiring State of Wisconsin approval shall bear the stamp of a professional engineer registered in Wisconsin.
   b. Foundation Design: The foundations shown on the bidding documents are given as a guide to the required design. The final design is the responsibility of this contractor. Any load changes to the footings will be the responsibility of this contractor and the General Contractor.
   c. Loading
      (1) Initial handling and erection stresses.
      (2) All dead and live loads as specified on the Contract Drawings and as required by the State of Wisconsin Building Code.
      (3) All other loads specified for members where they are applicable.
      (4) Wind load: Applied to the main frame as specified in the Wisconsin Commercial Building Code and ASCE 7-10.
      (5) Load combinations shall be as required by the building code.
      (6) Equipment loads shown on Roof Framing Plan or the Mechanical Plans.
      (7) No live load reductions allowed in computing column loads for future floors.
      (8) Exterior wall and roof system to withstand imposed loads with maximum allowable deflection of span: Roof LL = L/180; Roof TL = L/120; Wall = L/120.
2. Provide drainage to exterior for water entering or condensation occurring within cladding system.
3. Thermal Resistance of Wall System: "R" value of R-25 square feet per hour per degree F.
4. Thermal Resistance of Roof System: "R" value of R-38 square feet per hour per degree F.
5. Assembly to permit movement of components without buckling, failure of joint seals, undue stress on fasteners or other detrimental affects, when subject to temperature range of minus 20 to plus 100 degrees F.
6. Size and fabricate wall and roof systems free of distortion or defects detrimental

to appearance or performance.

7. Permissible Design Deviations:
   a. Design deviations will be permitted only after the Architect's written approval of the Manufacturer's proposed design supported by complete design calculations and Drawings.
   b. Design deviations shall provide an installation equivalent to the basic intent without incurring additional cost to the Owner.

E. Allowable Tolerances: American Institute of Steel Construction, "Code of Standard Practice of Steel Buildings and Bridges".

F. Source Quality Control
1. Material Compliance: Manufacturer will supply on request of Architect, certificates showing mechanical, physical and strength properties of all materials supplied.
2. Inspection of Welds shall be in accord with AWS Building Code.
3. Inspection of Shop Painting:
   a. Surface preparation prior to painting shall be visually evaluated for degree of cleaning by comparison with SSPC pictorial standards.
   b. Measurement of dry film thickness of each coat of ship applied paint shall be in accord with ASTM D 1005.
4. Inspection of field assembled high strength bolted construction shall be in accord with Section 6, AISC Specification for Structural Joints.

G. Reference Standards
1. State of Wisconsin Building Code.
2. Metal Building Manufacturers Association (MBMA)
   a. Metal Building Systems Manual
   b. Recommended Design Practices Manual
3. American Institute of Steel Construction (AISC)
   a. Specifications for the Design, Fabrication, and Erection of Steel for Buildings
   b. Code of Standard Practices for Steel Buildings and Bridges
4. American Welding Society (AWS)
   a. Standard Code for Arc and Gas Welding in Building Construction
   b. D 1.1, Structural Welding Code
5. American Iron and Steel Institute (AISI)
   a. Specification for the Design of Cold-formed Steel Structural Members
   b. Design of Light Gage Steel Diaphragms
6. Aluminum Association (AA)
   a. Specification for Aluminum Structures
   b. Aluminum Formed Sheet Building Sheathing Design Guide
7. American Society for Testing and Materials (ASTM)
   a. A 1, Carbon-Steel Rails
   b. A 36, Structural Steel
   c. A 53, Pipe, Steel, Black and Hot-Dipped, Zinc Coated Welded and Seamless Steel Pipe
   d. A 164, Electrodeposited Coatings of Zinc on Steel
   e. A 165, Electrodeposited Coatings of Cadmium on Steel
   f. A 325, High Strength Bolts for Structural Steel Joints
   g. A 386, Zinc-coating (Hot-Dip) on Assembled Steel Products
   h. A 446, Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process, Structural (Physical) Quality
   i. A 490, Quenched and Tempered Alloy Steel Bolts for Structural Steel Joints

1. A 500, Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
m A 501, Hot-Formed Welded and Seamless Carbon Steel Structural Tubing
n. A 515,
o. A 525, Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process, General Requirements.
p. A 529, Structural Steel with 42,000 psi Minimum Yield Point
q. F-1554 – 36, Standard Specification for Anchor Bolts, Stee, 36ksi Yield Strength

8. American National Standards Institute (ANSI)
   a. B 27.2
   b. B 27.4
9. Commercial Standards (CS)
   a. 214,
10. Federal Specifications (FS)
   a. HH-I-521, Insulation Blankets, Thermal, Mineral Fiber
   b. TT-E-496, Enamel, Semi-gloss, Rust-inhibiting
   c. TT-P-31, Paint, Oil: Iron-Oxide, Ready Mixed, Red and Brown
11. Military Specifications (MIL)
   a. P-6883, Paint, Blended-type, Coal-tar-pitch Base, Bituminous
   b. S-4174, Steel, Sheet and Strip, Flat, Aluminum Coated, Low Carbon

1.3 Submittals: Within 35 days after award of Contract, and before any of the materials of this Section are delivered to the job site, submit complete to the Architect in accord with Section 01 30 00 of these Specifications; the following:

A. Samples: Submit color samples for approval.

B. Shop Drawings: Before foundation work begins, submit Shop Drawings for all the Work to be performed under this Section.
1. Structural Steel: Show all shop and erection details including cuts, copes, connections, holes, cambers, loads, threaded fasteners, rivets, and welds. All welds, both shop and field, shall be indicated by AWS "Welding Symbols" A 2.0. Separate drawing sheet showing anchor bolt locations and installation.
2. Erection Procedure: Submit descriptive data to illustrate the structural steel erection procedure, including the sequence of erection and temporary staying and bracing.
3. Welding procedure: Submit written description as required to illustrate each welding procedure to be performed in specified Work.
4. Field welding equipment: Submit descriptive data for field welding equipment, including type, voltage and amperage.

C. Calculations: The designer will submit to the Architect one set of design calculations for review. Also sets will be; sent to the State of Wisconsin for approval.

1.4 Product Delivery, Storage and Handling

A. Protection: Use all means necessary to protect the materials of this Section before, during, and after installation and to protect the installed Work and materials of all other trades.

B. Delivery and Handling: Handle all components in a manner consistent with their shape and design. Lift or support units only at points shown on erection drawings. Protect components from dirt and damage during transport and handling. Protect and support units during shipping.

C. Storage at Jobsite: Deliver to job site in quantities only as needed for erection. Store in a location set aside by General Contractor. Store components to protect from contact with soil, staining, abrasions and general physical damage. Protect finished roof and wall panels, trim, doors, frames and sash by covering with plastic sheets.

D. Delivery of Materials to be Installed Under Other Sections: Anchor bolts and other anchorage devices which are embedded in cast-in-place concrete or masonry construction shall be delivered to the project site in time to be installed before the start of cast-in-place concrete operations or masonry work.

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

1.5 Job Conditions

A. Site Conditions and Scheduling: Immediately after award of the Contract this Contractor will verify with General Contractor the requirements for site access for erection and the scheduling for erection. The General Contractor will be responsible for providing this Contractor access to the site so that all erection equipment can be used.

1.6 Alternatives: The Work of this Section is affected by alternatives as described on the Drawings and in Section 01030 of these Specifications.

1.7 Warranties: At completion of Work, Manufacturer will provide Owner with written warranties as follows:

A. Manufacturer's standard warranty covering complete assembly.

B. Weather tightness endorsement.

C. Extended life endorsement on coated steel.

PART 2 PRODUCTS

2.1 Materials

A. General: All materials furnished shall meet or exceed the stated design requirements.

B. Steel
1. General: Steel shall meet or exceed the physical requirements of AISC, "Specifications for the Design" Fabrication and Erection of Structural Steel for Buildings" and/or American Iron and Steel Institutes, "Specification for the Design of Cold-Formed Steel Structural Members," whichever is applicable.
2. Steel Shapes, Bars and Plates: ASTM A 36.
3. Structural Steel Tubing: ASTM A 500 Grade B.
4. Pipe Columns: ASTM A 53, Grade B.
5. All cold formed structural material shall have minimum yield strength of 50,000 psi.
6. All rods and angles shall have a minimum yield of 36,000 psi, except the angle stock used in open web framing, which shall have a minimum yield of 50,000 psi.
7. Standard Threaded Fasteners:

a. Standard bolts and nuts: ASTM A 325.
b. Plain washers: ANSI B 27.2, Type
c. Beveled washers: ANSI B 27.4.

8. Anchor Bolts: Conform to ASTM F1554-36.
9. High-Strength Threaded Fasteners: ASTM A 325.
   a. Use high strength bolts for all bolted connections.
   b. Bolt Holes: 1/16" larger than bolt diameter.
   c. All bolts to have threads excluded from shear plane.
   d. Avoid bolts in tension.
10. Welding Electrodes: ASTM A 233 E 70 Series. Suitable for position and other conditions of intended use, as per container instructions.
11. Plate or bar stock: ASTM A36 or A 529.
12. Primer: FS-TT-P-31 - Red.

C. Aluminum: The Aluminum Association's, "Specification for Aluminum Structures" and "Aluminum Formed Sheet Building Sheathing Design Guide" shall be the guide in the design of aluminum parts for building components.

D. Plastic: Translucent roof and wall covering shall conform to Commercial Standard CS-214.

E. Non-shrink Grout: Premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents, developing minimum compressive strength of 2400 psi in two days and 7000 psi in 28 days.

F. Minimum Standards for Thickness (except as specified elsewhere)
1. Individual structural members of steel other than roof and wall covering to be a minimum of 18 gage.
2. Roof and Wall Covering:
   a. Steel: minimum of 26 gage.
   b. Aluminum: minimum of 0.032 inch thickness.
   c. Plastic: minimum of 0.045 inch thickness.
3. Gable and eave trim, fascia closure strips, rake flashing, and copings:
   a. Steel: minimum of 26 gage.
   b. Aluminum: minimum of 0.032" thickness.
   c. Plastic: minimum of 0.045" thickness.
4. Interior Gutters:
   a. Steel: minimum of 24 gage.
   b. Aluminum: minimum of 0.040 inch thickness.
5. Eave Gutters and Downspouts:
   a. Steel: minimum of 26 gage.
   b. Aluminum: minimum of 0.032 inch thickness.
6. Use of materials of less thickness than that given above, may be allowed upon the submission of test data from approved authorities and/or calculations verifying the structural adequacy and erection feasibility of members formed from such material

G. Primary Framing - Existing

H. Secondary Framing - Existing

1. Girts - Existing
2. Eave Members - Existing
3. Bracing – Existing
4. Base Angle – Replace existing: A continuous steel angle will be supplied to which the base of the wall covering may be attached to slap or foundation with expansion bolts or

equivalent anchors.

I. Roof Covering – Replace Existing
   1. Panel Description (Varco Pruden SLR II - 2” rib / 16” wide panel or equal).
      a. Panels shall be produced on a precision roll forming machine.
      b. Panels of maximum possible lengths shall be used with no end laps. Lengths shall be used min. 25’-0” (or) maximum final design length.
      c. Roof panels shall be factory pre-punched at panel end to match pre-punched holes in the eave structural member. Panel end splices shall be pre-punched and pre-notched.
      d. Profile: Match Existing roof panel
      e. Edges: Male/female, Double lock standing seam
   2. Panel Design – Replace Existing:
      a. Panels shall be designed in accord with AISI Specifications for the Design of Light Gage Cold Formed Steel Structural Members and in accord with sound engineering methods and practices.
      b. Panels shall be designed to support design live loads and roof traffic during construction.
      c. The roof shall provide for expansion/contraction without detrimental effect on the roof panel when ambient air temperature varies ± 100 degrees F. from the temperature at which the roof was installed.
   3. Panel Material
      a. 24 gage galvanized steel (42,000 yield) conforming to ASTM A 525. Coating shall be G-90 to ASTM A 446 grade D or A 515. color choices – manufacturer’s standard colors.
      b. Gage aluminized steel - Type II MIL-S-4174A.
      c. Inch aluminum sheet.
   4. Energy Conservation: Purlins shall be insulated so as to eliminate "thermal short circuits" circuits" between purlins and roof panels caused by compression of the blanket insulation between structural and panel.
   5. U.L. Uplift Ratings: The roof system shall carry a U. L. wind-uplift Class 90 rating, U.L. construction No.

J. Snow Guards: Fence Style
   1. Quantity: 2 rows minimum at all roof vent pipes. 2 rows minimum, more as required by system design per roof size and slope.
   2. Continuous Bar: 6000 series aluminum, mill finish. Include splice plate. Designed to support retained snow loads.
   3. Attachment Clamp Bracket: Aluminum block to be attached to standing seam flanges in such a way as not to void roof warranty. Spacing as recommended by the roofing manufacturer. All hardware to be stainless steel or aluminum.
   4. Assembly: Provided manufactured system components specifically designed for this purpose. Components to be compatible with each other and the roofing system.

K. Wall Panels – Replace Existing:
   1. Vertical Ribbed Panels
      a. VP Tech Four Wall Panel by Varco Pruden Buildings or equal
         i. 16” wide panels, 2” deep profile
         ii. Concealed fasteners system
         iii. Standard manufacturer’s warranty
         iv. 24” gage panel – Kynar 500 finish, color as selected from standard manufacturer colors.

L. Insulation System

1. Roof Insulation – Replace Existing: R-38 fiberglass system with liner panel.
   a. Insulation: Formaldehyde free, 12” total thickness fiberglass batt insulation; thermal resistance R=38; ASTM C-991, Type I / ASTM E-136 / ASTM E-84; Flame Spread Classification of 25/50 or less flame spread / smoke developed rating. Lower layer 8” and upper layer 4”
2. Wall Insulation - Replace Existing: R-25 fiberglass system
   a. Insulation: Formaldehyde free, 8” thick fiberglass batt insulation; thermal resistance R=25; ASTM C-991, Type I / ASTM E-136 / ASTM E-84; Flame Spread Classification of 25/50 or less flame spread / smoke developed rating.
   b. Vapor Barrier: 6 mil polyethylene on warm side of walls.

3. Fabric Liner System (Roof and Walls) - Replace Existing:
   a. Strapping: Corrosion resistant, 1” wide x 0.020 UVMAX strapping, 100,000 psi tensile strength. No field splicing. Color matched to fabric.
   b. Fasteners: Color matched with sealing washers, size and type appropriate for substrate use.
   c. Tapes and Sealants: As recommended by system manufacturer, compatible with system components.
   d. Fabric Liner: Woven, high density polyethylene fabric which provides a Class A fire retardant rating.

M. Interior Finish- Walls – Innerliner - Replace Existing as needed

1. White Steel: Uni-Rib - 29 Gauge, ASTM A 653 (A 653 M), Structural Quality, Grade 80 (550) formerly Grade E), galvanized steel with G60 (Z180) zinc coating both sides, Triple Spot Test.

N. Fasteners: Manufacturer's standard type, galvanized to ASTM A 386, 2.0 ounces per square foot; finish to match adjacent surfaces when exterior exposed.
1. Self-tapping screws:
2. Lock-rivets:
3. Hidden clip:
4. Seaming:

O. Sealants
1. Closure strips:
2. Tape Mastic
3. Sealant: Manufacturer's standard, non-staining, elastomeric, skinning.
4. Joint Seal Gaskets: Manufacturer's standard type.

M. Accessories
1. Trim: Standard
2. Windows: As specified in Section 08 41 13. Metal Building Contractor to provide all trim and closures.
3. Personnel Doors: As specified in Section 08 11 00. Metal Building Contractor to provide all trim and closures.
4. Overhead Doors: As specified in Section 08 30 00. Metal Building Contractor to provide all trim and closures.
5. Wall Louvers: As noted on the Mechanical Plans. Coordinate framing at all openings. Provide all necessary trim and closures.
6. Gutters-Downspouts:
   a. Fabricate of same material and finish as roofing metal.
   b. Form gutters and downspouts and scuppers of profile and size to collect and

remove water. Fabricate with connection pieces.
c. Form sections in maximum possible lengths. Hem exposed edges. Allow for expansion at joints

7. Internal and External Corners: Same material thickness and finish as adjacent material; profile shop cut and factory mitered to required angles.
8. Expansion Joints: Same material and finish as adjacent
9. Flashings, Closure Pieces, Fascia, Infills, and Caps: Same material and finish as adjacent material; profile to suit system.

N. Minimum Finish (except as specified elsewhere)
1. Galvanized (Zinc Coated) Steel Covering when specified shall be a minimum coating class of 1.25 ounces per square foot according to ASTM A 525. In addition, a mill treatment shall be added to aid in the prevention of oxidation on the zinc coated surfaces.
2. Aluminum Coated Steel Covering shall be a minimum of Type II Federal Specification MIL-S-4174-A (0.75 ounce per square foot).
3. Aluminum Cladding over Aluminum Covering shall be in accord with "Aluminum Standards and Data," of the Aluminum Association.
4. Pre-painted Covering-factory applied: The primer on pre-treatment shall be the building Manufacturer's standard, compatible with the metal surface to be painted as well as the finish coat of paint. The finish coat of paint, on the exposed exterior surface shall consist of a properly stabilized synthetic base coating oven dried and pigmented to obtain optimum performance. The dry film thickness shall be one mil (0.001 inch) with a tolerance of minus two tenths mil (0.0002 inch). Color shall conform to the building Manufacturer's standards.
5. Covering Fasteners: The minimum coating thickness for covering fasteners of carbon steel shall be 0.0003 inch electro-galvanized in accord with ASTM A 164 or 0.0003 inch cadmium plated in accord with ASTM A 165.
6. Structural Painting: All structural framing of the metal building systems, not protected by a corrosion resistant coating, is painted one coat of shop primer by the Manufacturer. All surfaces to receive shop primer are cleaned of loose rust, loose mill scale, and other foreign material by the Manufacturer prior to painting. The Manufacturer is not required to sandblast, flame clean or pickle the steel framing. The coat of primer is intended to protect the steel framing for only a short period of exposure to ordinary atmoshperic conditions.
7. Dissimilar materials which are not compatible with the adjoining materials when exposed to moisture must be separated by means of coatings, gaskets or other effective means. Aluminum surfaces which may contact unprotected steel should be separated by brush-on coatings such as per Federal Specification TT-E-496, Type 1, MIL-P-6883, JAN-P-735 or equal. Aluminum alloys shall be considered compatible with zinc and cadmium coated surfaces and the 300 and 400 AISI Series Stainless Steel Alloys and do not require application of barrier material.

2.2 Acceptable Manufacturers

A. Butler Buildings
B. Ceco Building Systems
C. Inland Buildings
D. Kirby Buildings
E. Nucor Building Systems Group
F. Varco Pruden Buildings
G. Others as approved prior to bid.

2.3 Fabrication

A. General: Fabricate all Work in accord with the approved Shop Drawings and referenced standards. Be responsible for accurate fit of all Work.

B. Connections
1. Shop Connections: Welded or bolted.
2. Field Connections:
a. Provide bolted connections as follows:
(1) High strength threaded fasteners shall be used for bolted connections, except where standard threaded fasteners are permitted.
(2) High strength bolted construction assembly: tightening shall be done in accord with Section 5 of Specifications for Structural Joints.

(3) Fabricator is responsible for design and strength of connections unless otherwise noted on the Drawings.
3. Holes :
a. Punch holes as required for connection of other Work per templates and directions of such trades.
b. Steel requiring accurate alignment shall be provided with slotted holes and shims for truing up steel, as required for alignment.
4. Welded Construction:
a. Welding process shall be limited to one or a combination of the following:
(1) Manual shielded-arc
(2) Submerged arc
b. Welded assembles shall be stress relieved by heat treatment.
c. Use equipment which will supply proper current in order that operator may produce satisfactory welds. Welding machine: 200 to 400 amperes, 25-40 volts capacity.
d. Field welding: by direct current. Remove paint within two inches of weld.
5. Column bases shall be milled and attached to columns.
6. Bearing plates:
a. Bearing plates shall be provided under beams, girders, columns and trusses resting on footings, piers and walls.
b. Bearing plates shall be either attached or loose.

C. Identifying Marks: All fabricated or purchased items shall have an identifying number corresponding to marking shown on erection drawings. The marking shall be stamped, stenciled, tagged, or printed on these items after shop paint has been applied.

D. Shipping: The size and weight of the building components as packaged and shipped shall be such that will permit transportation by common carrier.

E. Painting
1. Prior to painting, the fabricator shall clean the steel of loose rust, loose mill scale, dirt, and other foreign material. Unless otherwise specified the fabricator shall not sandblast, flame clean or pickle prior to painting. The fabricator shall then factory coat all steel with one coat of zinc chromate alkyd primer (red oxide zinc chromate may be ordered as an alternate) formulated to equal or exceed the performance requirements of Federal Specifications TT-P-636.
a. All purlins shall be dip tank coated by an electro-deposition method (light color only).
b. All other structural steel components and sub-assembly parts shall be spray painted.
2. The shop coat of paint is a primer and is intended to protect the steel for a short period of exposure. Subsequent finish painting, if required, is to be performed in the field by others.

PART 3 EXECUTION

3.1 Surface Conditions

A. Inspection: The existing structure can be reused. This contractor will be responsible for all the required work to keep the building plumb and true after all the existing roof and wall panels are removed. Before fabrication or erection of any new components examine the Site, inspect bearing surfaces, take field measurements, and carefully inspect the installed Work of all other trades and verify that all such Work is complete and that the Work of this Section can be installed in accord with the original design and approved Shop Drawings. In the event of discrepancies, notify Architect immediately for clarification. Do not proceed with the work of this Section until all such discrepancies have been fully resolved.

3.2 Preparation

A. Supply all new anchor bolts, setting plates, bearing pads or other Built-in items required for this Work.

B. Site Access: The General Contractor shall be responsible for providing suitable access to the building and firm level bearing for the hauling and erection equipment to operate under their own power.

C. The General Contractor shall be responsible for providing true, level bearing surfaces on all field placed bearing walls and other field placed supporting members.

3.3 Erection

A. Column Bases and Bearing Plates:
1. Add / repair existing anchor rods as detailed on the drawings.

B. Framing
1. Erect framing in accord with AISC Specifications.
2. Provide for erection and wind loads. Provide temporary bracing to maintain structure plumb and in alignment until completion of erection and installation of permanent bracing.
3. Structural steel frames shall be accurately assembled to the lines and elevations indicated, within the specified erection tolerances.
4. The various members forming parts of a complete frame or structure after being assembled shall be aligned and adjusted accurately before being fastened.
5. Fastening of splices of compression members shall be done after the abutting surfaces have been brought completely into contact.
6. Bearing surfaces and surfaces which will be in permanent contact shall be cleaned before the members are assembled.
7. Splices shall be permitted only where indicated.
8. Use drift pins only for bringing members into position, not to enlarge or distort holes.
9. Erection bolts used in welded construction may be either tightened securely and left in place or removed and the holes filled with plug welds.
10. Give special attention to steel handling during construction to avoid overloading green floor slabs; adhere to Architect's instructions when criticisms are made in this regard.
11. Gas Cutting:
    a. Field correcting of fabrication by gas cutting shall not be permitted on any major member in the structural framing without prior approval of the Architect.
    b. Cut out and reinforce, as indicated and/or required, holes through webs of

members for mechanical Work. Verify exact locations with heating

C. Wall and Roofing Systems
1. Install in accord with Manufacturer's instructions.
2. Exercise care when cutting prefinished material to ensure cuttings do not remain on finish surface.
3. Fasten cladding system to structural supports, aligned level and plumb.
4. Locate end laps over supports. End lap panels minimum per panel manufacturer. Place side laps over bearing.
5. Provide expansion joints where indicated.
6. Use concealed fasteners.
7. Install sealant and gaskets to prevent weather penetration.
8. System: Free of rattles, noise due to thermal movement and wind whistles.

D. Accessories
1. Install in accord with Manufacturer's instructions.
2. Seal wall and roof accessories watertight and weathertight with sealant.

E. Gutter and Downspout Erection
1. Rigidly support and secure components. Join lengths with formed seams sealed watertight. Flash and seal gutters to downspouts.

F. Touch up: At completion of erection touch-up prime coat of paint at all welds, abrasions, bolts etc. with same material used for shop coat.

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SECTION – 27 00 00 COMMUNICATION CABLE AND EQUIPMENT

PART 1 – GENERAL

GENERAL
Applicable provisions for Division 1 shall govern work of this section.

DEFINITIONS
Manufacturer: The Company that owns controlling interest in the factory actually producing the cable furnished for this project.

WORK INCLUDED
Furnishing and installing communication cable, raceway and provide various equipment including pulling, racking, terminating, testing and labeling. Also, provide miscellaneous equipment as specified below.

The systems, which shall be affected by this section, are as follows:
Computer and Phone cabling and termination

Work provided by the Owner is as follows:
Single user PC equipment
Network equipment at IT Room 108.

WORK SEQUENCE
This Contractor shall coordinate work with the Construction Manager and continue to completion following the project. During the construction period coordinate telecommunications schedule and operations with Owner, and Construction Manager.

CABLING SYSTEMS DESCRIPTION
The system shall include PLENUM rated horizontal data and voice cabling installed in the cable tray where indicated. Conduit raceway system shall be routed to each telecommunications outlet box as supplied by the electrical contractor. There shall be a single dedicated home run cable run to each location in the numbers indicated on the drawings, unless otherwise specified.

PROJECT RECORD DOCUMENTS
Documentation shall accurately record locations of cables.

QUALITY ASSURANCE
The manufacturer shall be a company specializing in communication cable and/or accessories with a minimum of five years documented experience in producing cable and/or accessories similar to those specified below.

CODE REQUIREMENTS
ANSI/IEEE C2 National Electrical Safety Code
NFPA 70-1993 National Electrical Code 4
DILHR Chapter 16 Wisconsin Electrical Code
EIA/TIA Standards 568, 569, TSB-40

DELIVERY, STORAGE AND HANDLING
Cable shall be stored according to manufacturer's recommendations as a minimum. In addition, cable must be stored in a location protected from vandalism and weather. If cable is stored outside, it must be covered with opaque plastic or canvas with provision for ventilation to prevent condensation and for protection from weather. If air temperature at cable storage location shall be below 40 degrees F., the cable shall be moved to a heated (50 degrees F. minimum) location. If necessary, cable shall be stored off site at the contractor's expense.

PART 2 - PRODUCTS

CABLE AND EQUIPMENT
All cables and equipment shall be furnished, installed, wired and tested by the Contractor. All cable runs shall be homerun to IT Room 108.

The data cable for this system shall meet the following specifications:

Data cables shall be CAT 6, blue in color, unshielded (UTP) four (4) pair twisted, PLENUM for use with data rates up to 1000 MHz.

The cable shall be restricted to four-pair size to support a broad range of applications. The pair twists of any pair shall not be exactly the same as any other pair. The pair twist lengths shall be selected by the manufacturer to ensure compliance with the near-end crosstalk requirements of EIA/TIA 568 and NEMA.

Cable shall meet specifications of NEMA (low loss), EIA/TIA 568, UL 444 and ICEA.

MODULAR JACKS, WALL PLATES, AND PATCH PANELS
The modular jacks shall be A minimum 1 gang (2RJ45 connections) at each location as noted on plans an RJ 45 configuration. They shall consist of one, eight (8) conductor jack attached to quick connect terminals for easy termination of horizontal wiring.

1. Cable and Equipment – Modify as follows:
    a. All home run cables to IT Room 108 shall be punched down to patch panels as described in below.
    b. Cable to carry video signal will be for CATV only, security camera cable will be CAT 6 as described. Coaxial cable shall be quad shielded, aluminum braid.
    c. Cables shall be color coded per use according to the following:
        - Data – Blue
    d. Speaker cabling shall be 16/2.
2. Modular Jacks, Wall Plates, and Patch Panels:
    a. All jacks shall be CAT 6, colored to follow section above.
    b. Terminate all cables in IT Room 108 to rack mounted patch panels. Provide separate 24-port panels for each type of cabling in sufficient size and number for all cables to be run. Provide and install a free standing rack for mounting of the patch panels. Leave room for expansion between cable types. Coordinate location of rack in room with Owner. Leave sufficient room to walk around rack. Provide and install horizontal ladder rack at ceiling spanning the room from end to end in one direction.

Data jacks shall be Leviton or equal for CAT 6 cable.

Voice jacks shall be Leviton or equal for CAT 6 cable.

Universal patch panels shall be Leviton or equal.
The modular jacks at each location shall be designed to snap into a single-gang modular faceplate, Leviton or equal, white in color.

PART 3 – EXECUTION

GENERAL WIRE AND INSTALLATION REQUIREMENTS
All voice horizontal distribution cables shall be UL PLENUM rated Wiring Cables consisting of twisted four pair, 24 AWG annealed copper conductors. The outer jacket shall be PLENUM rated. All cables shall be capable of supporting all applications as listed above. No exposed wires are allowed.

HORIZONTAL DATA CABLE REQUIEREMENTS

THE CABLE FOR THIS SYSTEM SHALL MEET THE FOLLOWING REQUIREMENTS:

The cable shall be rated for category 6 performance, UTP (unshielded twisted pair) 24AWG, plenum rated CMP type for use with, but not limited to, 100 MHz LAN (100 base T), 155.52 Mbs NRZ ATM, 622 Mbs LAN, etc. Category 6 cable shall be terminated, all four (4) pair on both ends, to Category 6 (TSB-40) compliant hardware. No splitting of the cable will be allowed behind the proper termination of the workstation or the TC / ER (IT Room 108). All cables shall meet the specified performance characteristics as defined in TIA/EIA-568-B.2-2001 standards and tested to these standards upon completion.

Note the following clarification regarding the running of cable:

a. Cables are not required to be in cable tray, however it is expected that all cable work will be installed in a neat and orderly fashion keeping as many cables bundled tightly together.

b. Cable may be run exposed in open ceilings, conduit drops required at all areas below ceiling joist were exposed.

c. Bidders shall review other mechanical plans to verify available chases and coordinate the use of these chases with those trades. Other penetrations must be made by the Communication Cable and Equipment Contractor. Fire stopping is the responsibility of this contractor.

Modular jacks shall be terminated as follows: Data and Voice shall be wired utilizing the TIA-568B concept Wiring Standards.

All four cable pairs are to be terminated on each modular jack. at each location. The phone jacks shall be located on the top two positions of the 4-position faceplate, and the data on the bottom two positions.

Each voice jack shall be wired with CAT 6 cables. Two voice jacks shall be wired at every location, with the jacks themselves being blue in color. Voice cables shall be pulled from each jack location and terminated on a blue CAT 6 jack. The jacks shall be mounted on a 24-port Systimax universal modular patch panel.

Each data jack shall be wired with CAT 6 cables, blue in color. Two jacks are to be wired at every location, with the jacks themselves being orange in color. Data cables shall be pulled from each jack location and terminated on an orange CAT 6 jack. The jacks shall be mounted on a 24-port Systimax universal modular patch panel.

Voice and data shall be on their own separate patch panel.

All cables shall be terminated and tested. All lines shall be marked consistently, so they able to be identified at the wall jack.

Cable shall be terminated in IT Room 108.

The Engineer requests a brief on site walk through, at each location, just before actual work is started. At that time, head-end location information shall be finalized and the contractor shall be provided a jack-numbering scheme.

SYSTEMS REQUIREMENTS
Furnish and install all cables, connectors and equipment as shown on drawings and as specified above.

Qualified personnel utilizing state of the art equipment and techniques shall complete all cable terminations.

New Cables shall be tested as follows:

> Test Equipment – Systems Contractor is responsible for supplying all test equipment to conduct the acceptance test.
>
> Systems Contractor Responsibility – Systems Contractor shall conduct acceptance testing.
> Procedures – Systems Contractor shall describe how they shall conduct the tests and provide copies of all test results to the Architect/Engineer.
>
> Tests to be conducted:
> All cable pairs shall be verified for paired validity, continuity, and polarity through toning of each conductor.

CABLE PULLING
Beginning installation means systems contractor accepts existing conditions.

Systems Contractor shall furnish all required installation tools to facilitate cable pulling without damage to the cable jacket. Such equipment is to include, but not limited to, sheaves, winches, cable reels, cable reel jacks, duct entrance funnels, pulling tension gauge, and similar devices. All equipment shall be of substantial construction to allow steady progress once pulling has begun. Makeshift devices, which may move or wear in a manner to pose a hazard to the cable, shall not be used.

Cable pulling shall be done in accordance with cable manufacturer's recommendations and ANSI/IEEE C2 standards. Manufacturer's recommendations shall be a part of the cable submittal. Recommended pulling tensions and pulling bending radius shall not be exceeded. Any cable bent or kinked to radius less than recommended dimension shall not be installed.

During pulling operation an adequate number of workers shall be present to allow able observation at all points of duct entry and exit as well a the feed cable and operate pulling machinery.

Avoid abrasion and other damage to cables during installation.

CABLE ROUTING

All wiring shall be run in the plenum ceiling utilizing the cable tray whenever possible. The cable shall be run through the plenum ceiling in a professional manner and be installed into the appropriate raceway, which is stubbed into the ceiling space for the appropriate outlet. All cable shall be free of tension at both ends. In cases where the cable must bear some stress, Kellem grips may be used to spread the strain over a longer length of cable.

Cables shall run at right angles while exiting the cable tray and be supported at intervals not to exceed four (4) feet by D-ring type hangers.

Sufficient cable shall be pulled with a coil of 4 feet placed in the ceiling. This service loop shall be coiled from 100% to 200% of its recommended minimum bend radius. The coil then shall be tie-wrapped to the conduit used for the vertical station drop.

To reduce or eliminate EMI", the following minimum distances shall be adhered to:

Five (5) inches (125 mm) from power lines of 2kVa.

Eighteen (18) inches (450 mm) from high voltage lighting (including fluorescent).

Thirty-nine (39) inches (1125 mm) from power lines of 5kVa or greater.

Thirty-nine (39) inches (1125 mm) from transformers and motors.

LABEL IDENTIFICATION

Provide the following information on cable identification label and record name on form to be given to Architect/Engineer.

Install cable labels on each cable termination.

Labels shall be placed on the modular outlet faceplates and patch panels.

All labels shall be machine generated and be permanent. NO HAND WRITTEN OR NON-PERMANENT LABELS SHALL BE ALLOWED, verify label identification with Owner

WARRANTY

Contractor shall provide a manufacturer's warranty of at least twenty years for all cable, connectors and blocks and per industry standards. Proof of certifications will be required prior to starting work on the structured cabling.

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SECTION 31 20 00 EARTHWORK

SCOPE Applicable provisions of the General and Supplementary Conditions and Division 1 govern work under this Section.

INDEX

PART 1 GENERAL

1.1 Description

A. Work Included: Excavating, filling and grading required for this Work includes, but is not necessarily limited to:
1. Excavating for footings and foundations.
2. Building excavation.
3. Filling and backfilling to attain indicated grades.
4. Trenching and trench backfilling.
5. Rough and finish grading of the site.
6. Furnishing and installing granular cushion under all concrete slabs on grade.
7. Soil compaction.
8. Drainage of site for work in progress.
9. Erosion control.
10. Removal of excess topsoil and sub base earth materials off site.

B. Related Work Specified Elsewhere

1. Concrete	Section 03 30 00
2. Metal Building System	Section 13 34 19
3. Landscaping	Section 32 90 00

1.2 Quality Assurance

A. Testing Agency
1. In-place soil compaction tests to be performed by testing laboratory employed by Owner.
2. Test on material for controlled fill to be performed by testing laboratory employed by Contractor.

B. Allowable Tolerances
1. Grading tolerances:
a. Rough grade: Building and parking areas – plus or minus 0.1 foot.
b. Finish grade
(1) Granular cushion under concrete slabs – plus or minus 0.1 foot.

(2) Parking areas: See Section 32 12 00.
(3) Landscaped areas: See Section 32 90 00 or Landscape Plan.

C. Reference Standards
1. American Society for Testing and Materials (ASTM):
a. D 698 Moisture-Density Relations of Soils Using 5 pound Rammer and 12-inch Drop, Standard Proctor Method.
b. D 2922 Nuclear Density Testing of Soil in Place, Shallow Depth.

1.3 **Submittals**: Within 35 days after award of Contract, and before any of the materials of this Section are delivered to the job site, submit complete to the Architect in accordance with these Specification; the following.

A. Samples of Granular Backfill
1. Submit sample for under slab fill. See Soils report for approved design recommendations.
2. A seventy-five (75) pound bag of any imported granular fill.

B. State of WI and local ordinance specification for soil erosion control.

C. Test Reports.

1.4 Job Conditions

A. Environmental Requirements
1. The site preparation Contractor will provide for erosion control over entire site in a manner that will satisfy all applicable regulations for same by the City of Madison, County of Dane, the State of WI, and the Federal Government. The cost for the requirement will be included in the contractor's proposal. This system will remain in effective operation until project is complete.
2. A written plan listing methods, materials, and means to satisfy all of the above will be submitted to the Owner within 14 days of receiving a Letter of Intent to enter into a contract from the Owner.
3. Provide dewatering and drainage as required to accomplish Work of this Section.
4. Dust Control: provide as necessary to meet requirements and local ordinances.
a. Use all means necessary to control dust on and near the Work and on and near all off-site borrow areas if such dust is caused by the Contractor's operations during performance of the Work or if resulting from the conditions in which the Contractor leaves the site.
b. Thoroughly moisten all surfaces as required to prevent dust being a nuisance to the public, neighbors and concurrent performance of other work on the Site.

B. Protection
1. Use all means necessary to protect all materials of this Section before, during and after installation and to protect all objects designated to remain.
2. Provide site erosion control per jurisdictional requirements as noted above.
3. Erect sheeting, shoring and bracing as necessary for protection of persons, improvements and excavations.
4. In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

PART 2 PRODUCTS

2.1 Fill Material

A. General
   1. Approval required: All fill material shall be subject to the acceptance of the Soils Engineer.
   2. Notification: For approval of fill material, notify the Soils Engineer at least four days in advance when using excavated materials.

B. Fill Material:
   1. General: All fill material shall be of a nature with sufficient binder to form a firm and stable unyielding subgrade.
   2. Crushed stone and sand may be substituted with the acceptance by Soils Engineer.
   3. Expansion: All fill earth shall have a coefficient of expansion of not more than 3 percent from air dry to saturation under a surcharge of 60 pounds per square foot at 98 percent compaction.
   4. Cleanliness: All fill earth shall be clean and free from debris and from rock larger than three inches in maximum dimension.
   5. The cushion under exterior slabs, drains and walks shall be clean granular soil material with no more than 5% passing the No. 200 sieve and at least 90% passing the 1” sieve. Soils meeting Unified Soil Classification (USCC) categories SP, GP or GW may qualify.

C. Interior Fill Material: Fill under all interior concrete slabs on grade shall be clean well graded crushed limestone with particle size grading within the follow limits.
   1. Passing the one inch mesh: 100 percent.
   2. Passing the number four sieve: 25-60 percent.
   3. Passing the number 200 sieve: 3-12 percent.
   4. Depth: as shown on Drawings.

D. Trench and Structural Backfill
   1. On-Site fill material: All on-site material used for trench and structural backfill shall meet the requirements of Article 2.1.B above.
   2. Imported Material: All imported material used for trench and structural backfill shall meet the requirements of Article 2.1.B above.
   3. Maximum Lift Thickness: Nine (9) inches.

E. Exterior Foundation Wall Backfill: Compacted on-site clay soil as approved by the Soils Engineer or as specified in 2.1 B. above.

F. Fill Beneath Foundations: All fill material has been placed and approved by the Soils Engineer.

G. Contractor can use on-site compactable materials to bring soil up to subgrade elevations below limestone fill under slabs; and for use in backfill. On-site materials may be used if tested by the Soils Engineer and verified to contain the proper composition and is dry enough for proper compaction.

2.2 Other Materials: All other materials, not specifically described but shown on drawings or as required for proper completion of the work of this Section, shall be as selected by the Contractor subject to the approval of the Architect.

PART 3 EXECUTION

3.1 Surface Conditions

A. Inspection
   1. Verify that preceding work affecting work of this Section has been satisfactory completed.
   2. Prior to all work of this Section, become thoroughly familiar with the site, site conditions and all portions of the Work falling within this Section.

3.2 Preparation

A. Field Measurements
   1. Finish Elevations and Lines: For the setting and establishing finish elevations and lines, establish two independent bench marks, carefully preserve all data and all bench marks. If displaced or lost, immediately replace to the approval of the Architect and at no additional cost to the Owner. Remove at completion of project.
   2. This contractor will be required to submit in writing that the existing grades have been verified and are within acceptable tolerances. If such verification is NOT received by the Architect prior to the start of excavation, contractor accepts ALL responsibility.

B. Brush and tree removal: as indicated on the site plan. Remove trees and brush: dispose of off-site in accordance with all applicable codes and ordinances. Leave excavation free of roots and debris. Do not cause damage to trees not scheduled for removal.

3.3 Excavation

A. Site Construction Areas: Strip off organic top soil and stock pile that amount needed to complete the work as shown on the site plan. Excess compactable soil and top soil to be removed from site.

B. Depressions resulting from removal of obstructions: Where depressions result from, or have resulted from, the removal of surface or subsurface obstructions, open the depression to equipment working width and remove all debris and soft material as directed by the Architect or Soils Engineer.

C. Remove any frozen soil prior to placement of any additional fill.

D. Structure Excavation
   1. Excavation: Remove all materials of every nature, description encountered, required, in obtaining indicated lines, grades, which, in Architect's opinion, can be loosened, removed by hand with hand tools, or with power shovels. Assume that all excavations to indicated lines, grades, can be done by aforementioned means. All excavated material will be removed from the Site except that material needed for backfill.

E. Excavating for Footings
   1. Preparation
      a. To minimize differential settlement, it is essential that earth surfaces upon which footings will be placed be compacted to the acceptance of the Soils Engineer and in accord with the compaction requirements established in this Section of these Specifications.
      b. Verify that all compaction is complete and accepted by the Soils Engineer prior to excavating for footings.
   2. Excavating
      a. Excavate to the established lines and grades.
      b. Cut off bottom of trenches level and then remove all loose soil.
      c. Where soft spots are encountered, remove all defective material and replace with lean concrete or suitable compacted fill.
      d. Bearing soil conditions to be verified by the Soils Engineer prior to concrete placement on same.

F. Below Floor Slabs and Adjacent Walks and Slabs:
   1. Under all floor slabs and all adjacent walks and slabs, remove and replace the existing soil as required for finish subgrades.

G. Other Areas
   1. Excavate to grades shown on the Drawings.
   2. Where excavation grades are not shown on the Drawings, excavate as required to accommodate the installation.
   3. On cut banks, neatly trim to the required finish surface as the cut progresses. As and alternative, the Contractor may leave the cuts full and the finish grade by mechanical or hand equipment to produce the finish surfaces as shown on the Drawings.

H. Overexcavation: Back fill and compact all overexcavated areas as specified for fill below and at no additional cost to the Owner.

I. Removal of Unsuitable Materials
   1. Remove unsuitable material from within the limits of the work specified in this Section.
   2. Stockpile materials meeting requirements for controlled fill.
   3. Remove from the Site all rock larger than three inches in maximum dimension.

J. Proofrolling: Within the limits of the concrete slabs, and yard area, roads, and limestone areas per site plan and before placement of underslab fill, proofroll the existing grade in two mutually perpendicular directions. Proofrolling shall be accomplished by heavily loaded 25 ton minimum weight rubber-tired tandem-axle dump truck. Areas exhibiting excessive deflection shall be undercut and stabilized prior to constructing concrete slabs and pavements.

3.4 Trenching

A. General
   1. Perform all trenching required for the installation of items where the trenching is not specifically described in other Sections of these Specifications.

2. Make all trenches open vertical construction with sufficient width to provide free working space at both sides of the trench and around the installed item as required for caulking, joining, backfilling and compacting.

B. Depth
   1. Trench as required to provide the elevations shown on the Drawings.
   2. Where elevations are not shown on the Drawings, trench to sufficient depth to give minimum of 18 inches of fill above the top of the pipe measured from the adjacent finished grade.

C. Correction of Faulty Grades: Where trench excavation is inadvertently carried below proper elevation, backfill with approved material compacted to provide a firm and unyielding subgrade and/or foundation to the approval of the Architect and at no additional cost to the Owner.

D. Grading and Stockpiling Trenched Material
   1. Control the stockpiling of trenched material in a manner to prevent water running into excavations.
   2. Do no obstruct the surface drainage but provide means whereby storm and waste waters are diverted into existing gutters, temporary drains, or surface drains.
   3. Do not stockpile materials adjacent to open trenches.

3.5 Excavation Bracing and Sloping: The soil report indicates that sloping or bracing of the excavation walls may be necessary to prevent caving in excavations.

A. Properly support all trenches in strict accord with all OSHA pertinent rules and regulations or local Codes, whichever is more strict. The Contractor will be responsible for the design of the bracing system. Employ a Registered Engineer for the design of all bracing systems.

B. Brace, sheet and support walls in such a manner that they will be safe and that the ground alongside the excavation will not slide or settle, and that all existing improvements of every kind, whether on public or private property, will be fully protected from damage.

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

D. Arrange all bracing, sheeting and shoring so as to not place stress on any portion of the completed Work until the general construction thereof has proceeded far enough to proved sufficient strength. Brace excavations along the existing buildings to prevent undermining of floor slabs and footings.

E. Removal of Bracing: Exercise care in the drawing and removal of sheeting, shoring, bracing and timbering to prevent collapse or caving of the excavating faces being supported.

3.6 **Unanticipated Subsurface Conditions:** The Owner has had a subsurface investigation performed by a soils engineer, the results of which are contained in the consultant's report.

The Contractor acknowledges that he has reviewed the consultant's report and any addenda thereto and that his bid for earthwork operations is based on the subsurface conditions, as described in that report. At any point during earthwork, and foundation construction operations, that the contractor encounters conditions that are different than those anticipated by the Soils Engineer report, he shall immediately (within 24 hours) bring this fact to the Architect and Soil Engineer's attention. Once a fact of unanticipated conditions has been brought to the attention of the Owner, Architect, and the Soils Engineer has concurred, immediate negotiations will be undertaken between the Owner and the Contractor to arrive at a change in Contract price for additional work or reduction at a change in Contract price for additional work or reduction at a change in work because of the unanticipated conditions. The Contractor agrees that the unit prices shown on the Bid Form would apply for additional or reduced work under the Contract. For changed conditions for which unit prices are not provided, the additional work shall be paid for on a time and material basis.

3.7 Excess Water Control

A. Unfavorable Weather
   1. Do not place, spread or roll any fill material during unfavorable weather conditions.
   2. Do not resume operations until moisture content and fill density are satisfactory to the Specifications.

B. Flooding: Provide berms or channels to prevent flooding of subgrade; promptly remove all water collecting in depressions including foundation excavations.

C. Softened subgrade: Where soil has been softened or eroded by flooding or placement during unfavorable weather, remove all damaged areas and recompact as specified for fill and compaction below. For softened foundation subgrade refer to Section 3.3 E.1.a.

D. Dewatering: Provide and maintain at all times during construction, ample means and devices with which to promptly remove and dispose of all water from every source entering the excavations or other parts of the Work. Dewater by means which will ensure dry excavations and the preservation of the final lines and grades of bottoms of excavations.

3.8 Preparation of Subgrade

A. Leveling: Remove all ruts, hummocks, and other uneven surfaces by surface grading prior to placement of fill.

B. Wet Soil Conditions: At bearing elevations where unstable bearing soils are encountered for support of shallow foundations, over excavate and place at least a 6" layer of coarse crushed limestone to create a firm working base. Provide firm base for support of equipment described in Article 3.11 of this Section if required. Soils Engineer will review the base prior to concrete placement.

3.9 Backifilling

A. Backfilling Prior to Approvals

1. Do not allow or cause any or the Work performed or installed to be covered up or enclosed by work of this Section prior to all required inspections, tests, and approvals.
2. Should any of the work be so enclosed or covered up before it has been approved, uncover all such work at no additional cost to the Owner.
3. After the work has been completely tested, inspected and approved, make all repairs and replacements necessary to restore the work to the condition in which it was found at the time uncovering, all at no additional cost to the Owner.

B. Filling
1. After subgrade compaction has been reviewed by the Architect, spread approved fill material in layers not exceeding nine inches in uncompacted thickness. Promptly backfill excavations as work permits, but not before concrete walls, piers, have attained full design strength, and are properly braced.
2. Bring each layer to the moisture content described herein prior compaction.
3. At fill banks, grade fill and then compact at least five feet beyond the grade of the finish bank. After the banks have been filled, trim to the finish grades and limits shown on the Drawings.

C. Placing Granular Cushion: Carefully place and compact the granular cushion in areas to receive concrete slabs on grade, uniformly attaining the thickness indicated on the Drawings and providing all required transition planes.

3.10 Compaction

A. Moisture-conditioning
1. Water or aerate the fill material as necessary and thoroughly mix to obtain a moisture content which will permit proper compaction.
2. For all on-site clay soils designated to be compacted, bring to between minus 1 and 3 percent over optimum moisture content.
3. For all relatively non-expansive and predominately granular soils to be compacted, bring to within 2 percent below or above optimum moisture content.

B. Compaction, General: Compact soil layer to at least the specified minimum degree; repeat compaction process until plan grade is attained. Percentage of compaction indicated shall be that percentage of maximum dry density obtainable by the ASTM designation D 698 method of compaction.

C. Degree of Compaction Requirements
1. Structural fill: Densify all structural fill, including recompacted existing fill and backfill, to a minimum degree of compaction of 95%.
2. Pavement areas: Compact the upper twelve (12) inches of fill in pavement areas to a minimum degree of compaction of 98%.
3. Trenches in building areas:
   a. Building and pavement areas are defined, for the purpose of this Paragraph, as extending a minimum of five feet beyond the building and or/pavement.
   b. Compact cohesive backfill material to a minimum degree of compaction of 95%.
   c. Compact the upper twelve (12) inches of backfill in pavement areas to a minimum degree of compaction of 98%.
   d. Densify cohesionless backfill material to a minimum relative density of 70% as determined by the ASTM test designated as D 2049.

4. At the upper two feet in areas to receive planting, compact to at least 90% maximum dry density. Compact all fill in these areas, beneath the upper two feet, to 95% maximum dry density.
5. The base of all footing foundations supported on fill are to be compacted to a minimum of 98% of the maximum density.

D. Soil Compaction Control
1. Inspections: Contractor will notify the Soils Engineer daily before starting soil compaction. Contractor will not start any soil compaction without Soils Engineer approval. Soils Engineer will make daily inspection to insure proper compaction. Any material found to be improperly compacted will be removed at the Soils Engineer direction.
2. Operators: All compaction will be performed only by qualified mechanics experienced in the use of equipment and techniques to be used.
3. Compaction methods: Compaction methods used must be accepted by the Architect and Soils Engineer prior to commencement of work. Contractor will be prepared to demonstrate any methods used prior to Architect's approval.
4. Samples and Test: The Owner will employ a qualified engineer to perform required site and laboratory tests to verify conformance of compaction requirements. Contractor will verify with Architect the nature of tests before starting work to assure sample can be taken in locations and at time interval required.

E. Flooding and Jetting: Compaction by flooding and jetting is expressly prohibited.

3.11 Site Access for Other Contractors: The General Contractor will determine during the bidding period and include in the Base Bid all costs required to provide access to the Site for:

A. Concrete transportation and placing equipment.

B. Metal Building System.

C. Mechanical Contractors.

D. The above Contractors are not responsible for <u>any</u> sitework to get their equipment into position. The Architect will not hear of any excuses for the General Contractor not having the Site accessible for these Contractors.

3.12 Surplus Earth Material: Stockpile all surplus earth, not needed to complete filling and grading, on the property and outside the limits of work as directed by the Architect. At completion of the project, remove from the site all surplus earth materials. See note at 3.3 A. Same applies to excess excavated subgrade materials.

3.13 Grading

A. General: Except as otherwise directed by the Architect, perform all rough and finish grading required to attain the elevations indicated on the Drawings.

B. Treatment after completion of grading

1. After grading is completed and the Architect has finished his inspection, permit no further excavation, filling or grading except with the approval and inspection of the Architect.
2. Use all means necessary to prevent the erosion of freshly graded areas during construction and until such time as permanent drainage and erosion control measures have been installed.

3.14 Cleanup and Damage

A. At completion of work, clean and remove from site all debris, materials from work, machines, etc.

B. Any damage done to foundations, utilities, etc., by this Contractor, or his subcontractors, during work under this Contract, shall be repaired or replaced to the satisfaction of the Owner and Architect, without additional costs.

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SECTION 32 90 00 LANDSCAPING

SCOPE Applicable provisions of the General and Supplementary Conditions and Division 1 govern work under this Section.

INDEX

PART 1 GENERAL

1.1 Description

A. Work Included: Planting required for this Work in indicated on the Drawings and, in general, includes planting and other ground cover throughout the Work.

B. Related Work Described Elsewhere
1. Excavating, filling, and grading Section 31 20 00

1.2 Quality Assurance

A. Qualifications of Installers: Provide at least one person who shall be present at all times during execution of this portion of the Work and who shall be thoroughly familiar with the type of materials being installed and the best methods for their installation and who shall direct all work performed under this Section.

B. Standards
1. All plants and planting material shall meet or exceed the specifications of Federal, State, and County laws requiring inspection for plant disease and insect control.
2. Quality and size shall conform with the current edition of "Horticultural Standards" for number one grade nursery stock as adopted by the American Association of Nurserymen.
3. All plants shall be true to name and one of each bundle or lot shall be tagged with the name and size of the plants in accord with the standards of practice of the American Association of Nurserymen. In all cases, botanical names shall take precedence over common names.
4. Substitutions: These will be permitted with written approval if good cause can be given as to why they must be made.

1.3 Submittals: Within 35 days after award of Contract, and before any of the materials of this Section are delivered to the job site, submit complete to the Architect in accordance with these Specifications; the following:

A. Materials List: Submit a complete list of all plants and other items proposed to be installed. Include complete data and source, size, and quality. This shall in no way be construed as permitting substitution for specific items described in the Drawings of these Specifications unless the substitution has been approved in advance by the Architect.

B. As-built Drawings: During course of the installation, carefully record in red line on a print of the planting Drawings all changes made to the Planting system layout during installation.

C. Maintenance Instruction: Send to Architect on completion of installation. Instructions should include lawn and plant watering requirements, lawn mowing, weed and aeration, plant pruning, fertilizing and raking.

1.4 Product Delivery, Storage and Handling

A. Deliver all items to the site in their original containers with all labels intact and legible at time of Architect's inspection.

B. Immediately remove from the site all plants that are not true to name and all materials that do not comply with the provisions of this Section of these Specifications.

C. Use all means necessary to protect plant materials before, during and after installation and to protect the installed work and materials of all other trades.

D. Provide adequate means for protection from damage through excessive erosion, flooding, heavy rains, etc.

E. Replacements: If there is damage or rejection, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

1.5 Alternatives: The Work of this Section is affected by alternatives as described on the Drawings and in these Specifications.

1.6 Warranty: The landscape contractor agrees to guarantee all plants for one year from the time of planting. This guarantee includes furnishing new plants, as well as the labor and materials for installation of replacements. The contractor will not be liable for losses due to vandalism or improper maintenance.

PART 2 PRODUCTS

2.1 Materials

A. Fertilizer
1. General: All fertilizer shall be a commercial balanced 16-8-8 fertilizer delivered to the site in bags labeled with the Manufacturer's guaranteed analysis.
2. Special protection: If stored at the site, protect fertilizer from the elements at all times.

B. Grass Seed
1. General: All grass seed shall be:
   a. Free from noxious weed seeds and recleaned;
   b. Grade A recent crop seed;
   c. Treated with appropriate fungicide at time of mixing;
   d. Delivered to the site in sealed containers with dealer's guaranteed analysis and season certification of weight, purity and germination.
2. Proportions by weight:

a. Baron bluegrass: 20%
b. Majestic bluegrass 20%
c. Touchdown bluegrass 20%
d. Pennlawn fescue 20%
e. Fiesta rye grass 20%
f. Or approved equal

E. Topsoil: Good, clean, fertile, humus-bearing topsoil free of toxic materials, noxious weed, stones, clods or other objectionable materials. Soil brought in shall have a qualified commercial soil test approved by the Architect. Approved material from the site maybe used.

F. Other Materials: All other materials, not specifically described but required for a complete and proper planting installation, shall be as selected by the Contractor subject to the approval of the Architect.

PART 3 EXECUTION

3.1 Surface Conditions

A. Inspection
1. Before all Work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
2. Verify that all planting may be completed in accord with the original design and the reference standards.

B. Discrepancies
1. If there is discrepancy, immediately notify the Architect.
2. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

3.2 Preparation

A. Dimensions on Drawings are approximate. Before proceeding with work, carefully check and verify dimensions and quantities. Report variations between Drawings and site to the Architect before proceeding with work.

B. Plant totals are for convenience only and are not guaranteed.

C. All planting indicated on Drawings will be required unless indicated otherwise.

3.3 Installation

A. Finish Grading
1. The site will be brought to rough grade by the General Contractor. Finish grading will be done by landscaping contractor.
2. Make minor adjustments of finish grades at the direction of the Architect, if needed. Exterior planters shall receive a minimum of 2 feet of top soil.
3. Finish grading shall consist of:

a. Redistribution of any top soil stored on site and/or additional soil required to bring surface to proper elevation.
b. Tilling of planting, lawn and ground cover areas as specified.
c. After tilling, bring areas to uniform grade by floating or hand raking.
d. Slope grade around building away from walls for a distance of not less than 10' at a slope not less than 1/2" per foot, unless otherwise noted.
e. Surface drainage shall be directed in manner indicated on the Drawing or Site Plan by molding surface to facilitate the natural run-off of water. Fill low spots and pockets with top soil and grade to drain properly.
f. Finish grade of all planting, lawn and turf areas shall be 1-1/2 inches below grade of adjacent pavement of any kind.

B. Soil Preparation
1. All lawn and groundcover planting areas must receive a minimum of 3 inches of topsoil.
2. Report any unusual subsoil conditions requiring special treatment to Architect.
3. In all areas where shrubs, trees, ground covers of lawns are to planted, an application of no less than 10 pounds of commercial fertilizer shall be thoroughly dug into the top 3 inches of soil at the above rate per 1,000 square feet. Work areas into a smooth and even grade.
4. During preliminary grading, weeds shall be dug out from all planting areas by their roots and removed from the site.
5. All rocks of undue size and nonconforming foreign matter such as building rubble, wire, cans, sticks, etc., shall be removed from the site.
6. Beds shall be raked smooth and put in first class condition before final acceptance by Architect.
7. Lawn - Sod
   a. Preparation
      (1) Grade all seed beds, thoroughly removing all ridges and depressions and making all areas into smooth, continuous, firm planes that ensure proper drainage.
      (2) Remove all soil lumps, rocks, and other deleterious material.
   b. Fertilizing: Apply the specified fertilizer at the rate of 10 pounds per 1,000 square feet, raking lightly into the soil.
   c. Sowing
      (1) Sow with a seeder approved for that purpose by the Architect.
      (2) Sow at the rate of five pounds per 1,000 square feet.
      (3) Promptly after seeding, wet the seed bed thoroughly, keeping all areas moist throughout the germination period.
      (4) Seeded areas may also be hydro-seeded.
   d. Mulching: After sowing, rake or broom seed gently and roll area to firm in seed. After rolling, cover area evenly with a top dressing of clean straw or marsh hay.
   e. After Mulching: Thoroughly water seeded areas with a fine spray. Reseed areas that do not show prompt germination at 15 day intervals until an acceptable stand of grass is assured.
   f. Sodding
      (1) Prepare and fertilize areas to be sodded as described above.
      (2) Sod rolls should be fitted tightly with staggered joints when installed. It should then be rolled and watered adequately before any drying or shrinking of the sod can take place.
      (3) After placement, fertilize sod at the rate of 10 pounds per 1,000 square feet.

g. Protection: Protect all turf areas by erecting temporary fences, barriers, signs, etc., as necessary to prevent trampling.

3.4 Inspection: Besides normal progress inspections, schedule and conduct the following formal inspections, giving the Architect at least 24 hours notice of readiness for inspection:

A. Inspection of plants in containers before planting.

B. Inspection of plant locations, to verify compliance with the Drawings.

C. Final Inspection After Completion of Planting: Schedule this inspection sufficiently in advance, and in cooperation with the Architect, so that the final inspection may be conducted within 24 hours after completion of planting.

D. Final inspection at the end of the maintenance period, provided that all previous deficiencies have been corrected.

3.5 Maintenance

A. General: Maintain all planting and lawn areas, starting with the landscaping operations and continuing for 30 calendar days after all landscaping is complete and approved by the Architect.

B. Work Included
1. Maintenance shall include all watering, weeding, cultivating, spraying, and pruning necessary to keep the plant materials in a healthy growing condition and to keep the planted areas neat and attractive throughout the maintenance period.
2. Provide all equipment and means for proper application of water to those planted areas not equipped with an irrigation system.
3. Protect all planted areas against damage, including erosion and trespassing. by providing and maintaining proper safeguards.
4. Mow lawn areas, if necessary, for not more than 14 days after installation.

C. Replacements
1. At the end of the maintenance period, all plant material shall be in a healthy growing condition
2. During the maintenance period, should the appearance of any plant indicate weakness and probability of dying, immediately replace that plant with a new and healthy plant of the same type and size without additional cost to the Owner.

D. Extension of Maintenance Period: Continue the maintenance period at no additional cost to the Owner until all previously noted deficiencies have been corrected, at which time the final inspection shall be made.

* * * * * * * * *

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CODE SUMMARY

SECTION	REMARKS
304.1 311.2	OCCUPANCY CLASS = B - BUSINESS OCCUPANCY CLASS = S1 - STORAGE - MODERATE HAZARD
506.2	TABULAR ALLOWABLE AREA = 17,500 S.F.
	ACTUAL AREA = 4,250 S.F. < 17,500 S.F.
601.1	CONSTRUCTION CLASS = TYPE IIB
1004.1.2	S1 OCCUPANT LOAD = 3,000 S.F. / 100 = 30 OCCUPANTS. B OCCUPANT LOAD = 1,250 S.F. / 100 = 13 OCCUPANTS. TOTAL OCCUPANT LOAD = 43
1005.3.2	REQUIRED EGRESS WIDTH = 43 x 0.2 = 9". PROVIDED EGRESS WIDTH = 144".
1006.2.1	TWO EXITS ARE REQUIRED, FOUR ARE PROVIDED
1007.1.1	EXITS ARE SEPARATED BY A DISTANCE > 1/2 DIAGONAL DIMENSION.
1017.2	EXIT TRAVEL DISTANCE LIMIT = 200'. MAX. ACTUAL DISTANCE = 60'.

SITE MAP

GENERAL NOTES

1. Verify all dimensions, access, utilities and working conditions in the field.
2. Conform to all applicable codes, ordinances and safety standards.
3. Obtain and pay for all required permits and fees.
4. Notify Architect immediately if work cannot proceed as shown on Drawings or as described in the Specifications.
5. No concrete to be poured without Architect's prior review.
6. All Contractor's to co-operate with all trades, Owner's and Architect's representatives.
7. Leave site clean, neat and free of debris at all times.
8. Each Prime and Sub-contractor is responsible for having read each page of the Specifications, Drawings, Addenda and Change Orders.
9. Guard against interfering with Owner's operations.
10. These Drawings contain no provisions or procedures for on-site safety. Each Contractor and their employees are responsible to follow all laws and ordinances and provide their own engineering to provide a safe work place.
11. The locations of existing underground utilities, shown on these Drawings, are shown in an approximate way only and have not been independently verified by the Owner or its representatives. The Contractor shall determine the exact location of all existing utilities before commencing work, and agrees to be fully responsible for any and all damages which might be occassioned by the Contractor's failure to exactly locate and preserve any and all underground utilities.
12. Services perform for this project have been conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing in this area under similar budget and time constraints. No warranty, expressed or implied, is made.

MATERIAL INDICATIONS

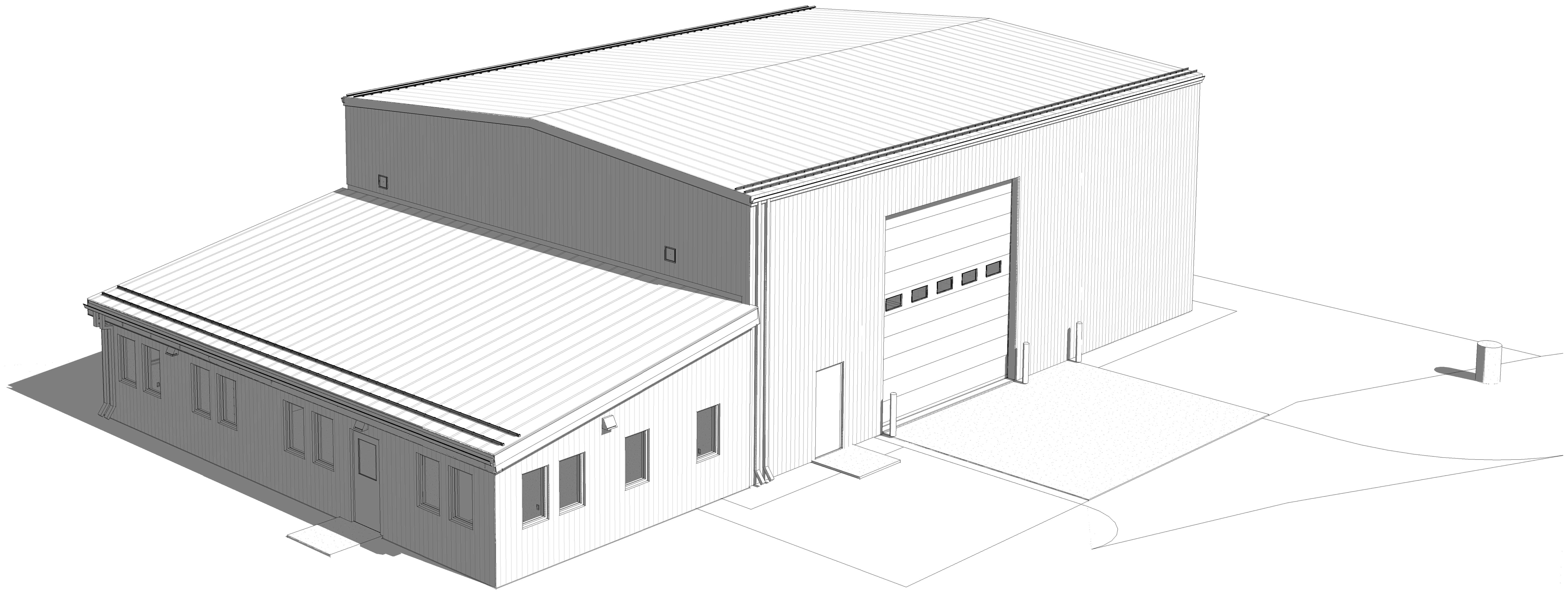
Earth Backfill	Sand Fill
Rigid Insulation	Concrete
Concrete Block	Finished Wood
Aluminum	Stone Fill
Lumber (Rough)	Plywood
Steel	Batt Insulation

DRAWING LEGEND

+ 100.0	New or Required Point Elevation
+ 100.0	Existing Point Elevation
+ 100.0	Existing Contours
+ 100.0	New or Required Contours
A	Grid Lines
Room Name #	Room/Space Number
101A	Door Number
OH 101A	OH Door Number
#	Wall Tag
1 / 5.1	Detail Number / Page Number
1 / 3.1	Building Section
1 / 4.1	Wall Section
1 / 5.1	Detail Section
1 / 7.1	Interior Elevation
1 / 2.1	Exterior Elevation

CONSULTANTS

ARCHITECT **Kueny Architects**
(262) 857-8101
Architect of Record - Jon P. Wallenkamp
10505 Corporate Drive, Suite 100
Pleasant Prairie, Wisconsin 53158



SHEET INDEX

1.0 Title Sheet

ARCHITECTURAL
- A100 Existing Site Plan
- A101 Overall Site Plan
- A102 Architectural Site & Grading Plan
- A103 Existing Site Utilities Demo Plan
- A104 New Site Utilities Plan
- A200 Existing Demo Plans
- A201 Overall Floor Plan and Schedules
- A202 Detail Plans and Elevations
- A203 Exterior Elevations
- A301 Building Sections
- A401 Wall Sections
- A402 Wall Sections
- A501 Building Details
- A502 Building Details

STRUCTURAL
- S901 Structural Plan and Details

PLUMBING
- P201 Plumbing Plans

MECHANICAL
- M201 HVAC Plans

ELECTRICAL
- E201 Electrical Lighting and Power Plan
- E202 Electrical Schedules and Details

IT
- IT201 IT Plan

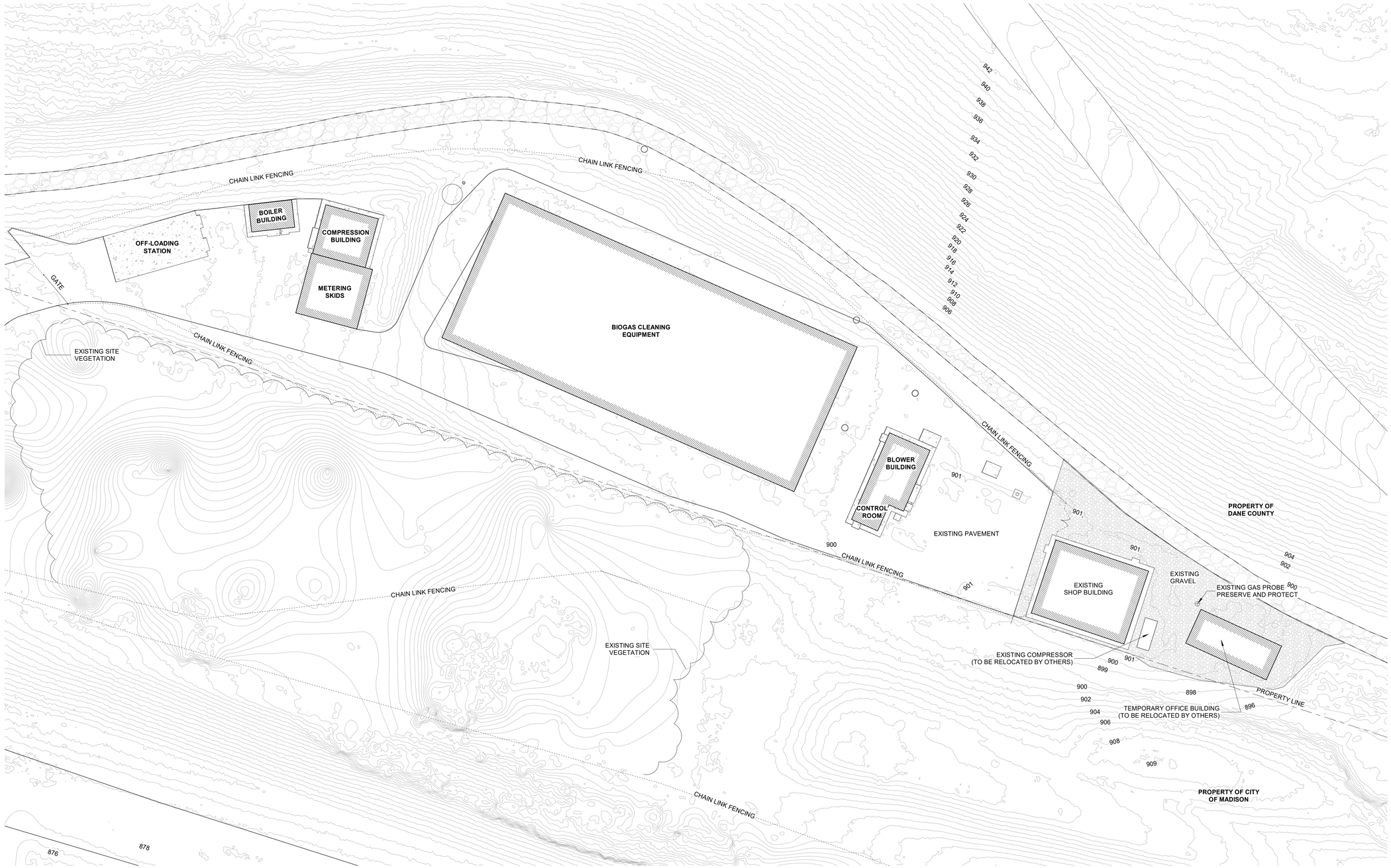
RFB 322026 – Maintenance / Office Building Construction

Dane County

7102 US HWY 12/18 Madison, WI 53718

KUENY ARCHITECTS,
10505 CORPORATE DRIVE - SUITE 100 PLEASANT PRAIRIE, WI 53158
PHONE (262) 857-8101 FAX (262) 857 8103

Dane County
RFB 322026 – Maintenance / Office Building Construction
July 12, 2022



TRUE NORTH

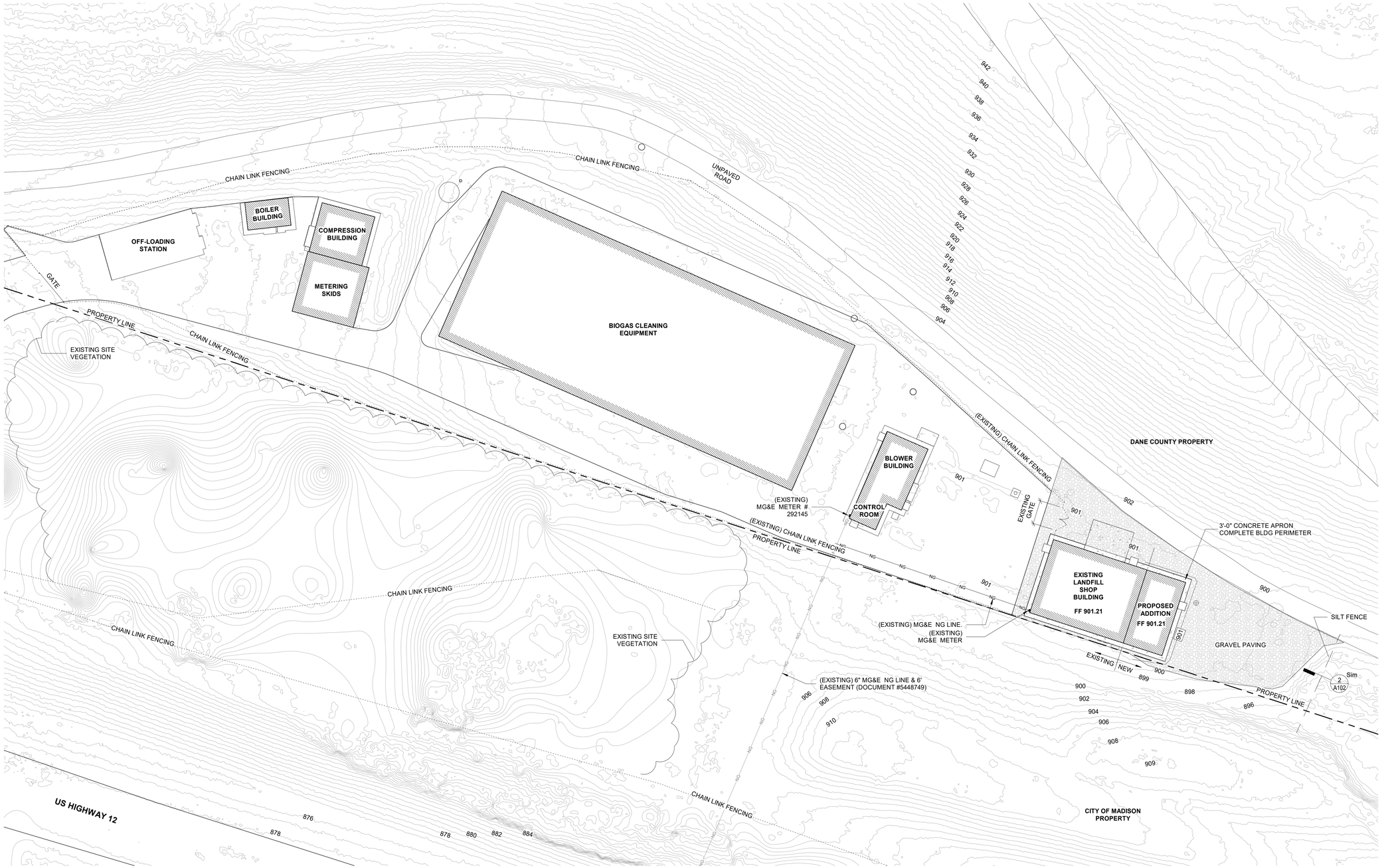
PLAN NORTH

SCALE: 1" = 30'-0"

Existing Site Plan

Dane County - RFB 322026 – Maintenance / Office Building Construction
7102 US HWY 12/18 Madison, WI 53718
July 12, 2022

A100



TRUE NORTH

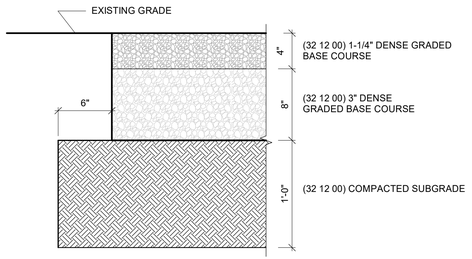
PLAN NORTH

SCALE: 1" = 30'-0"

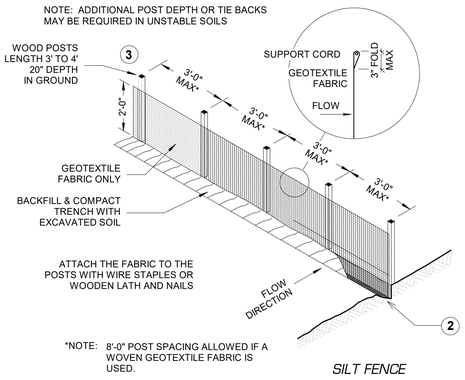
Overall Site Plan

Dane County - RFB 322026 – Maintenance / Office Building Construction
7102 US HWY 12/18 Madison, WI 53718
July 12, 2022

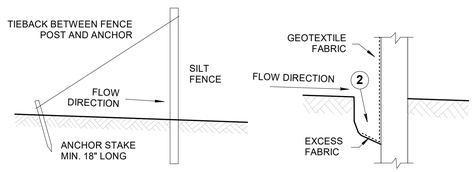
A101



3 New Gravel
1 1/2" = 1'-0"

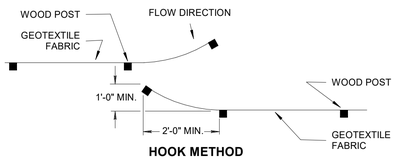


SILT FENCE

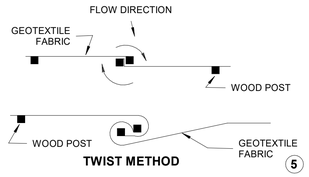


SILT FENCE TIE
(WHEN ADDITIONAL SUPPORT REQUIRED)

TRENCH



HOOK METHOD



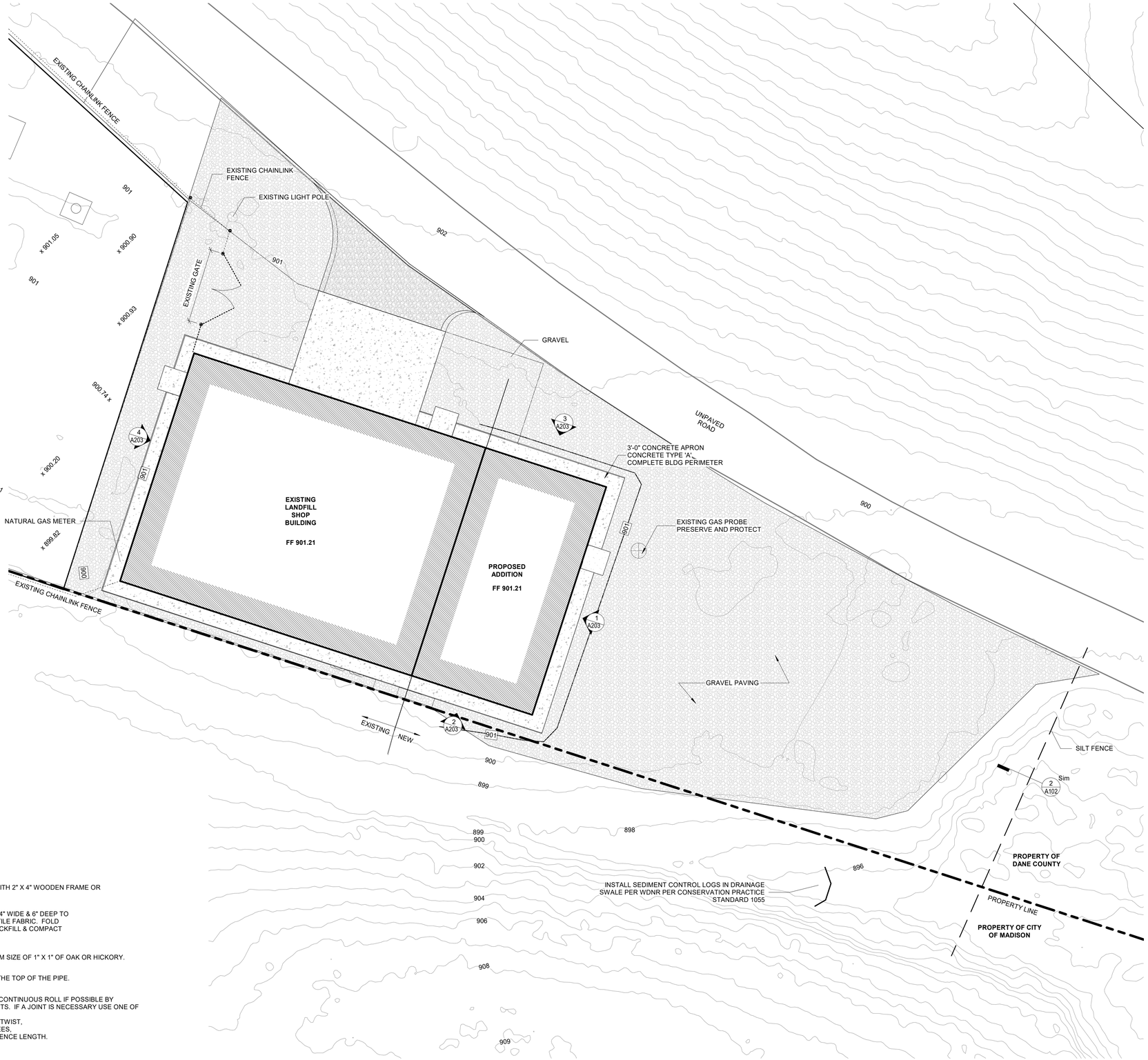
TWIST METHOD

SILT FENCE

GENERAL NOTES

1. HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL BE A MINIMUM SIZE OF 1" X 1" OF OAK OR HICKORY.
4. SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
5. CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS;
   A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES.
   B) HOOK THE END OF EACH SILT FENCE LENGTH.

2 Silt Fence Details



1 Site Plan
1" = 10'-0"

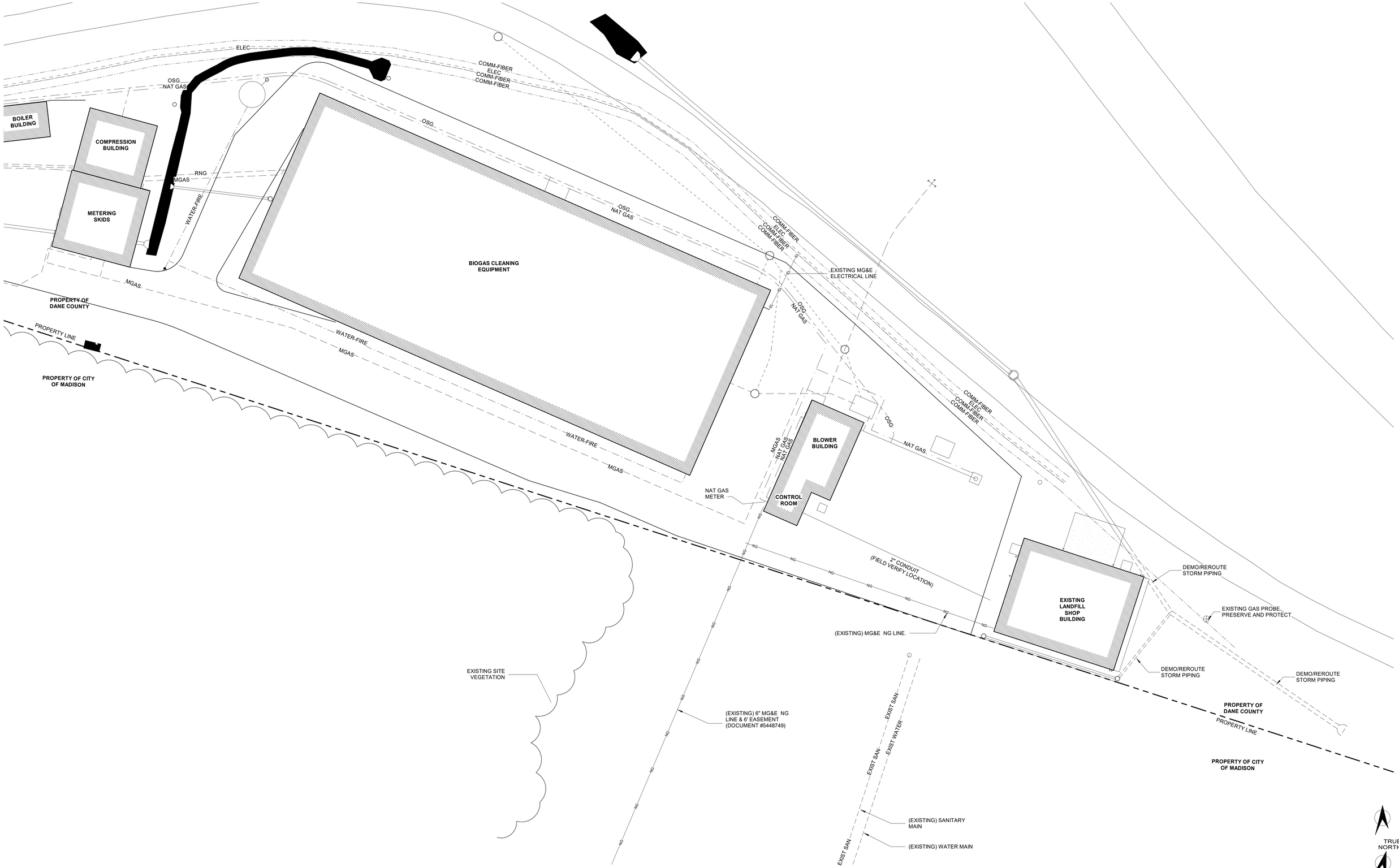
TRUE NORTH

PLAN NORTH
SCALE: As indicated

Architectural Site & Grading Plan

Dane County - RFB 322026 – Maintenance / Office Building Construction
7102 US HWY 12/18 Madison, WI 53718
July 12, 2022

A102

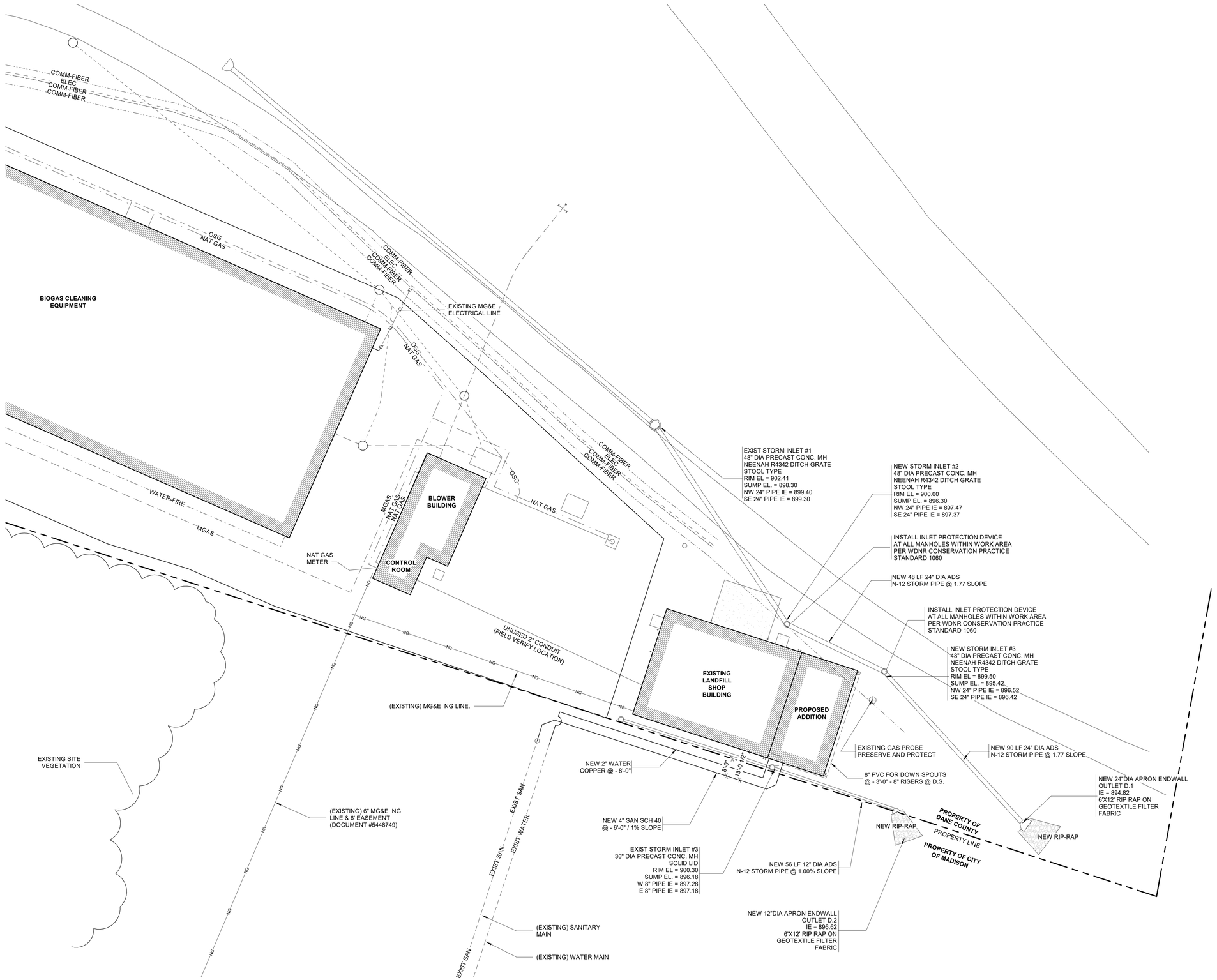


Existing Site Utilities Demo Plan

Dane County - RFB 322026 – Maintenance / Office Building Construction
7102 US HWY 12/18 Madison, WI 53718
July 12, 2022

SCALE: 1" = 20'-0"

A103



1 *Site Plan - New Utilities*
1" = 20'-0"

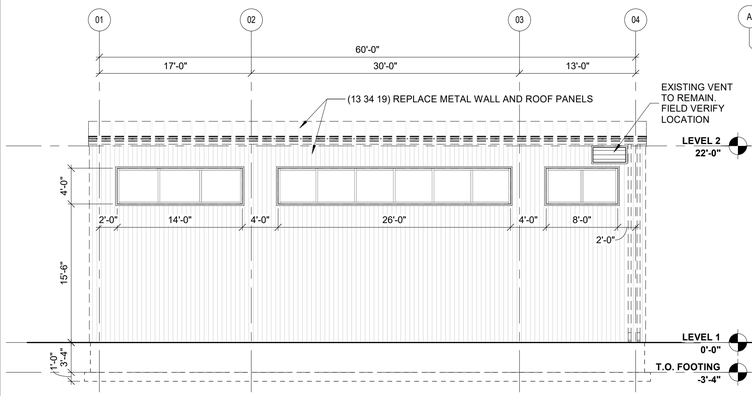
TRUE NORTH

PLAN NORTH
SCALE: 1" = 20'-0"

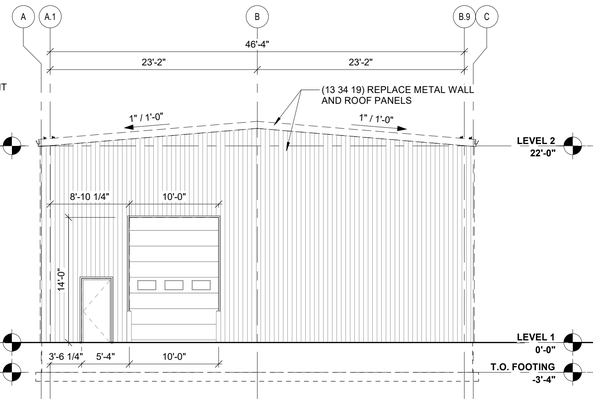
New Site Utilities Plan

Dane County - RFB 322026 – Maintenance / Office Building Construction
7102 US HWY 12/18 Madison, WI 53718
July 12, 2022

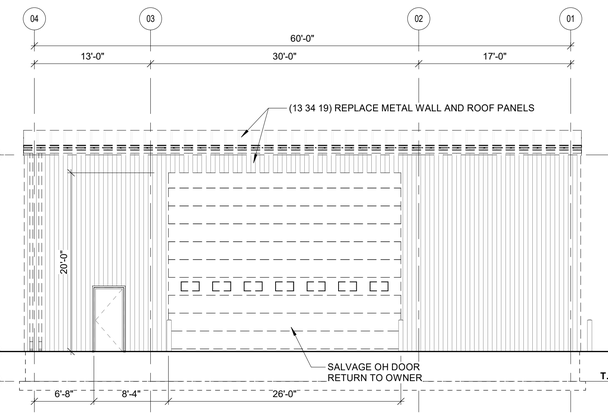
A104



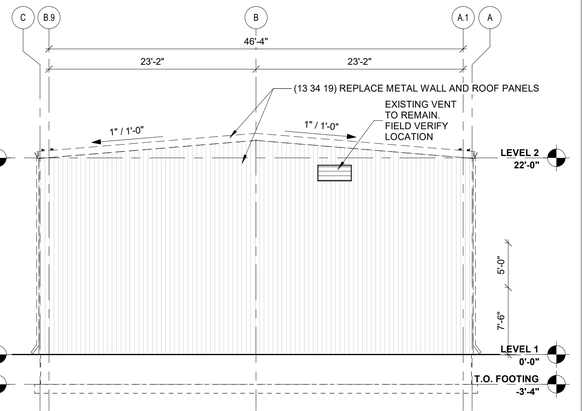
6 *Existing South Elevation*
1/8" = 1'-0"



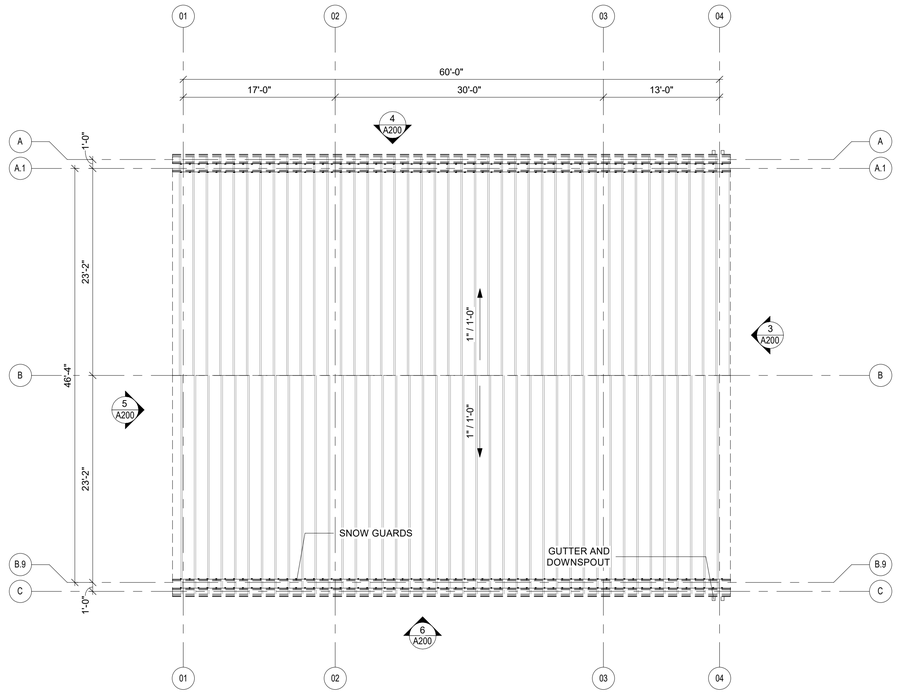
5 *Existing West Elevation*
1/8" = 1'-0"



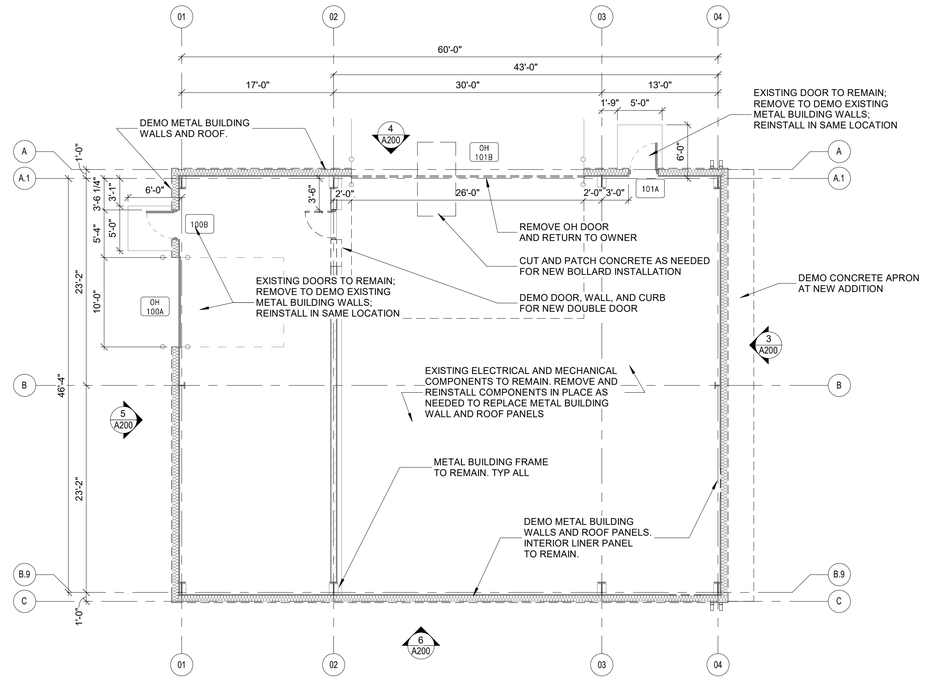
4 *Existing North Elevation*
1/8" = 1'-0"



3 *Existing East Elevation*
1/8" = 1'-0"



2 *Existing Roof Plan*
1/8" = 1'-0"



1 *Existing Demo Floor Plan*
1/8" = 1'-0"

TRUE NORTH

PLAN NORTH

SCALE: 1/8" = 1'-0"

Existing Demo Plans

Dane County - RFB 322025 – Maintenance / Office Building Construction
7102 US HWY 12/18 Madison, WI 53718
July 12, 2022

A200

DOOR SCHEDULE

MARK	FROM ROOM NUM	FROM ROOM NAME	TO ROOM NUM	TO ROOM NAME	LABEL	DOOR TYPE	DOOR MATERIAL	DOOR SWING	DOOR WIDTH	DOOR HEIGHT	DOOR THICKNESS	DOOR LOUVER	DOOR GLASS	FRAME TYPE	FRAME MATERIAL	FRAME GLASS	REMARKS
101	-	exterior	101	open office	-	HG	HM	RHRB	3'-0"	7'-0"	1 3/4"	-	1" INS	A	HM	-	
102	101	open office	102	office	-	F	WOOD	RH	3'-0"	7'-0"	1 3/4"	-	-	A	HM	-	
103	101	open office	103	office	-	F	WOOD	LH	3'-0"	7'-0"	1 3/4"	-	-	A	HM	-	
104	105	kitchen	104	office	-	F	WOOD	LH	3'-0"	7'-0"	1 3/4"	-	-	A	HM	-	
105	105	kitchen	112	storage	-	F	HM	RH	3'-0"	7'-0"	1 3/4"	-	-	A	HM	-	
106	101	open office	106	toilet	-	F	WOOD	RHRB	3'-0"	7'-0"	1 3/4"	-	-	A	HM	-	
107	101	open office	107	closet	-	F	WOOD	RHRB	3'-0"	7'-0"	1 3/4"	-	-	A	HM	-	
108	101	open office	108	IT	-	F	WOOD	LHRB	3'-0"	7'-0"	1 3/4"	X	-	A	HM	-	
109	101	open office	109	office	-	F	WOOD	RH	3'-0"	7'-0"	1 3/4"	-	-	A	HM	-	
110	101	open office	110	office	-	F	WOOD	RH	3'-0"	7'-0"	1 3/4"	-	-	A	HM	-	
111	101	open office	111	office	-	F	WOOD	LH	3'-0"	7'-0"	1 3/4"	-	-	A	HM	-	
112	-	exterior	112	storage	-	F	HM	-	3'-0"	7'-0"	1 3/4"	-	-	A	HM	-	
113	113	storage	112	storage	-	F (2)	HM	L/RHRB	3'-0"	7'-0"	1 3/4"	-	-	B	HM	-	-

ROOM SCHEDULE

NUMBER	NAME	FLOOR TYPE	BASE	WALL FINISH NORTH	WALL FINISH SOUTH	WALL FINISH EAST	WALL FINISH WEST	CEILING TYPE	CEILING HEIGHT	REMARKS
101	open office	VCT	VB	GWB1	GWB1	GWB1	GWB1	ACT-1	8'-0"	
102	office	VCT	VB	GWB1	GWB1	GWB1	GWB1	ACT-1	8'-0"	
103	office	VCT	VB	GWB1	GWB1	GWB1	GWB1	ACT-1	8'-0"	
104	office	VCT	VB	GWB1	GWB1	GWB1	GWB1	ACT-1	8'-0"	
105	kitchen	VCT	VB	GWB1	GWB1	GWB1	GWB1	ACT-1	8'-0"	
106	toilet	TILE	TB	GWB2/TILE	GWB2	GWB2	GWB2	ACT-2	8'-0"	
107	closet	VCT	VB	GWB1	GWB1	GWB1	GWB1	-	-	
108	IT	VCT	VB	GWB1	GWB1	GWB1	GWB1	-	-	
109	office	VCT	VB	GWB1	GWB1	GWB1	GWB1	ACT-1	8'-0"	
110	office	VCT	VB	GWB1	GWB1	GWB1	GWB1	ACT-1	8'-0"	
111	office	VCT	VB	GWB1	GWB1	GWB1	GWB1	ACT-1	8'-0"	
112	storage	existing	existing	existing	existing	existing	existing	existing	existing	
113	storage	existing	existing	existing	existing	existing	existing	existing	existing	

HARDWARE SCHEDULE

MARK	LOCKSET	PUSH-PULL	HOLD OPEN	CLOSER	HINGE	DOOR STOP	THRESHOLD	WEATHER STRIP	KICK PLATE	SOUND STOP	NAME PLATE	NOTES
101	ENTRANCE	-	X	X	BB	-	X	X	-	X	-	-
102	OFFICE	-	-	-	X	X	-	-	-	X	-	-
103	OFFICE	-	-	-	X	X	-	-	-	X	-	-
104	OFFICE	-	-	-	X	X	-	-	-	X	-	-
105	ENTRANCE	-	X	X	BB	-	-	-	-	X	-	-
106	PRIVACY	-	X	X	X	X	-	-	-	X	-	-
107	CLASSROOM	-	-	-	X	X	-	-	-	X	-	-
108	CLASSROOM	-	-	-	X	X	-	-	-	X	-	-
109	OFFICE	-	-	-	X	X	-	-	-	X	-	-
110	OFFICE	-	-	-	X	X	-	-	-	X	-	-
111	OFFICE	-	-	-	X	X	-	-	-	X	-	-
112	ENTRANCE	-	X	X	BB	-	X	X	-	-	-	-
113	ENTRANCE	-	X	X	BB	-	X	X	X	X	-	-

PAINT SCHEDULE

ROOM NUM	ROOM NAME	FLOOR	WALLS NORTH	WALLS SOUTH	WALLS EAST	WALLS WEST	CEILING	METAL	WOOD	REMARKS
101	open office	-	LATEX-S	LATEX-S	LATEX-S	LATEX-S	-	ENAMEL	VARNISH	
102	office	-	LATEX-S	LATEX-S	LATEX-S	LATEX-S	-	ENAMEL	VARNISH	
103	office	-	LATEX-S	LATEX-S	LATEX-S	LATEX-S	-	ENAMEL	VARNISH	
104	office	-	LATEX-S	LATEX-S	LATEX-S	LATEX-S	-	ENAMEL	VARNISH	
105	kitchen	-	LATEX-S	LATEX-S	LATEX-S	LATEX-S	-	ENAMEL	VARNISH	
106	toilet	-	LATEX-SG	LATEX-SG	LATEX-SG	LATEX-SG	-	ENAMEL	VARNISH	
107	closet	-	LATEX-S	LATEX-S	LATEX-S	LATEX-S	-	ENAMEL	VARNISH	
108	IT	-	LATEX-S	LATEX-S	LATEX-S	LATEX-S	-	ENAMEL	VARNISH	
109	office	-	LATEX-S	LATEX-S	LATEX-S	LATEX-S	-	ENAMEL	VARNISH	
110	office	-	LATEX-S	LATEX-S	LATEX-S	LATEX-S	-	ENAMEL	VARNISH	
111	office	-	LATEX-S	LATEX-S	LATEX-S	LATEX-S	-	ENAMEL	VARNISH	
112	storage	existing	existing	existing	existing	existing	existing	existing	existing	
113	storage	existing	existing	existing	existing	existing	existing	existing	existing	

OH DOOR SCHEDULE

MARK	FROM ROOM NUM	FROM ROOM NAME	TO ROOM NUM	TO ROOM NAME	DOOR WIDTH	DOOR HEIGHT	DOOR THICKNESS	DOOR GLASS	REMARKS
OH 112			112	storage	18'-0"	18'-0"	1 3/4"	INSULATED	HARDWARE PER SPEC SECTION 08 30 00

MATERIAL KEY

CODE	ITEM	DESCRIPTION
CEILING TYPE		
ACT-1	Acoustical Ceiling Tile	2x2 Acoustical Ceiling Panels (or 2x4 panels with 2x2 appearance)
ACT-2	Acoustical Ceiling Tile	2x2 Vinyl Faced Gypsum Panels
FLOOR TYPE		
CONC	Concrete	Sealed Concrete
CPT-1	Carpet	Carpet Tile
EPOXY	Epoxy	Epoxy Resin Flooring
TB	Tile Base	6" Bullnose Tile Base
TILE	Tile	8" x 8" Tile Flooring
VB	Vinyl Base	4" Vinyl Base
PAINT SCHEDULE KEY		
EPOXY	PAINT	Epoxy Paint
LATEX-E	PAINT	Latex Wall Paint - Enamel
LATEX-S	PAINT	Latex Wall Paint - Satin Finish
LATEX-SG	PAINT	Latex Wall Paint - Semi Gloss
WALL TYPE		
CMU	Concrete Masonry	Painted Concrete Masonry Unit
GL-1	Glass	3/8" Glass
GL-2	Glass	1" Insulated Glass
GWB1	Gypsum Wallboard	5/8" G.W.B. Taped and Finished on Stud Framing per Wall Type
GWB2	Gypsum Wallboard	5/8" Moisture & Mold Resistant Gypsum Wallboard Taped & Finished on Stud Framing per Wall Type
PC	Precast Concrete	Painted Precast Concrete
TL	Ceramic Tile	6x6 Ceramic Wall Tile

SINGLE CYLINDER CLASSROOM LOCK
Deadbolt locked or unlocked by key from outside. Deadbolt unlocked by thumbturn only from inside.

LEVER CLASSROOM LOCK
Outside lever locked and unlocked by key. Inside lever always unlocked.

LEVER STOREROOM LOCK
Outside lever fixed, unlocked by key. Inside lever always unlocked.

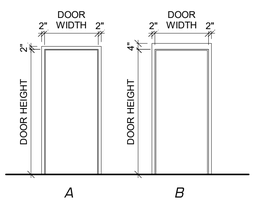
LEVER PRIVACY LOCK
Push-botton locking. Can be opened from outside by emergency key, scredriver, or similar tool.

LEVER OFFICE LOCK
Push-button locking. Pushing button locks outside lever until unlocked by key outside or by turning inside lever.

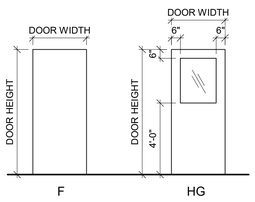
LEVER ENTRANCE LOCK
Turn/Push-button locking. Pushing and turning button locks outside lever requiring use of key until button in manually unlocked.
Push-button locking. Push button locks outside lever until locked by outside key or by turning inside lever.

COMBINATION LOCK
Outside lever fixed. Entrance by use of multi-digit combination. Inside lever always unlocked.

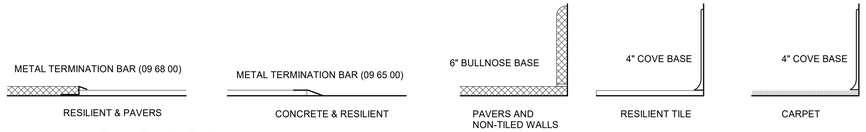
LOCKSET TYPES
1/8" = 1'-0"



DOOR FRAME TYPES
1/4" = 1'-0"

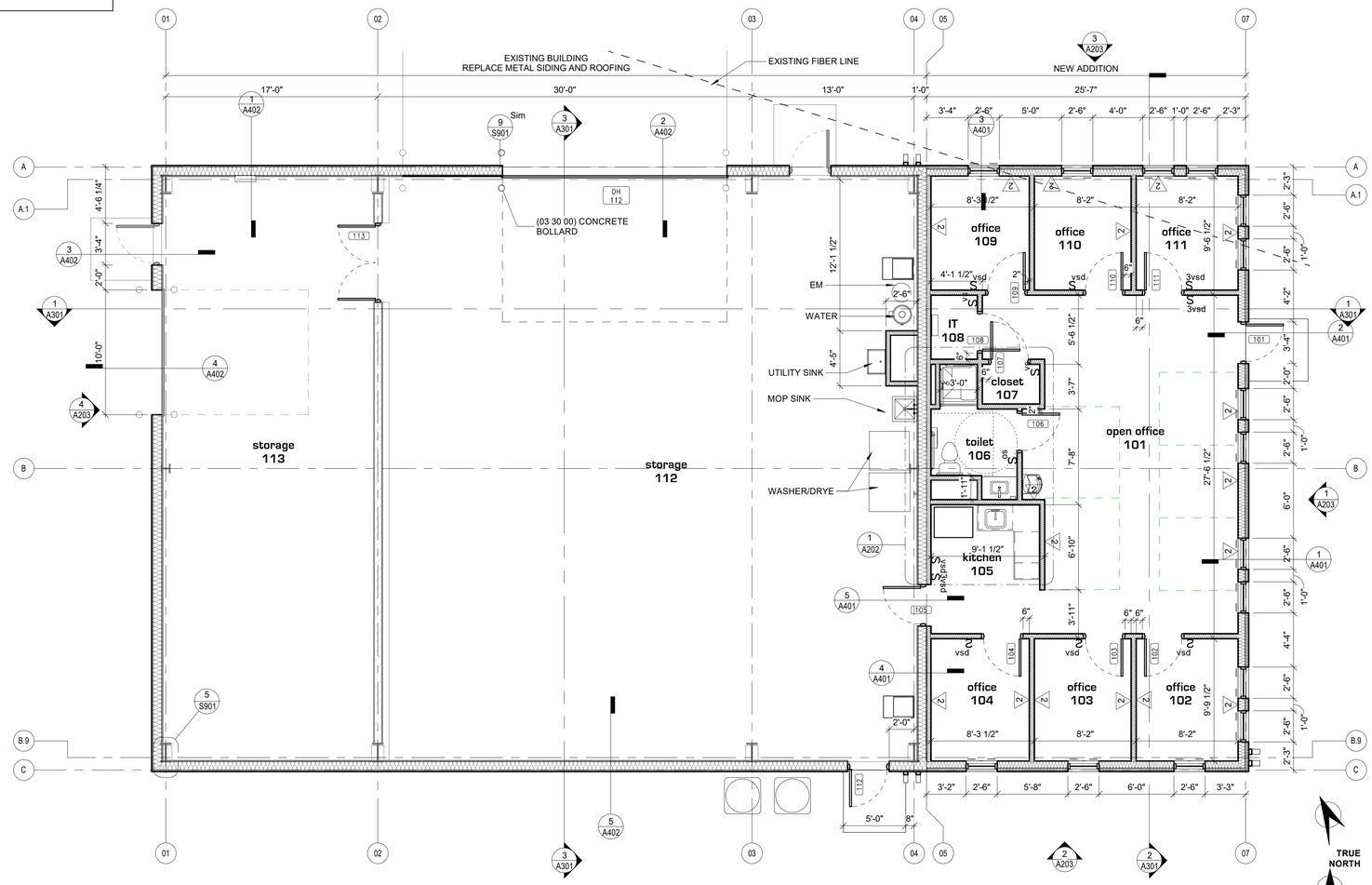


DOOR PANEL TYPES
1/4" = 1'-0"



THRESHOLD DETAILS

TRANSITION NOTES:
1" OR GREATER - LEVELING BY GENERAL CONTRACTOR
LESS THAN 1" - LEVELING DONE BY FLOORING SUBCONTRACTOR



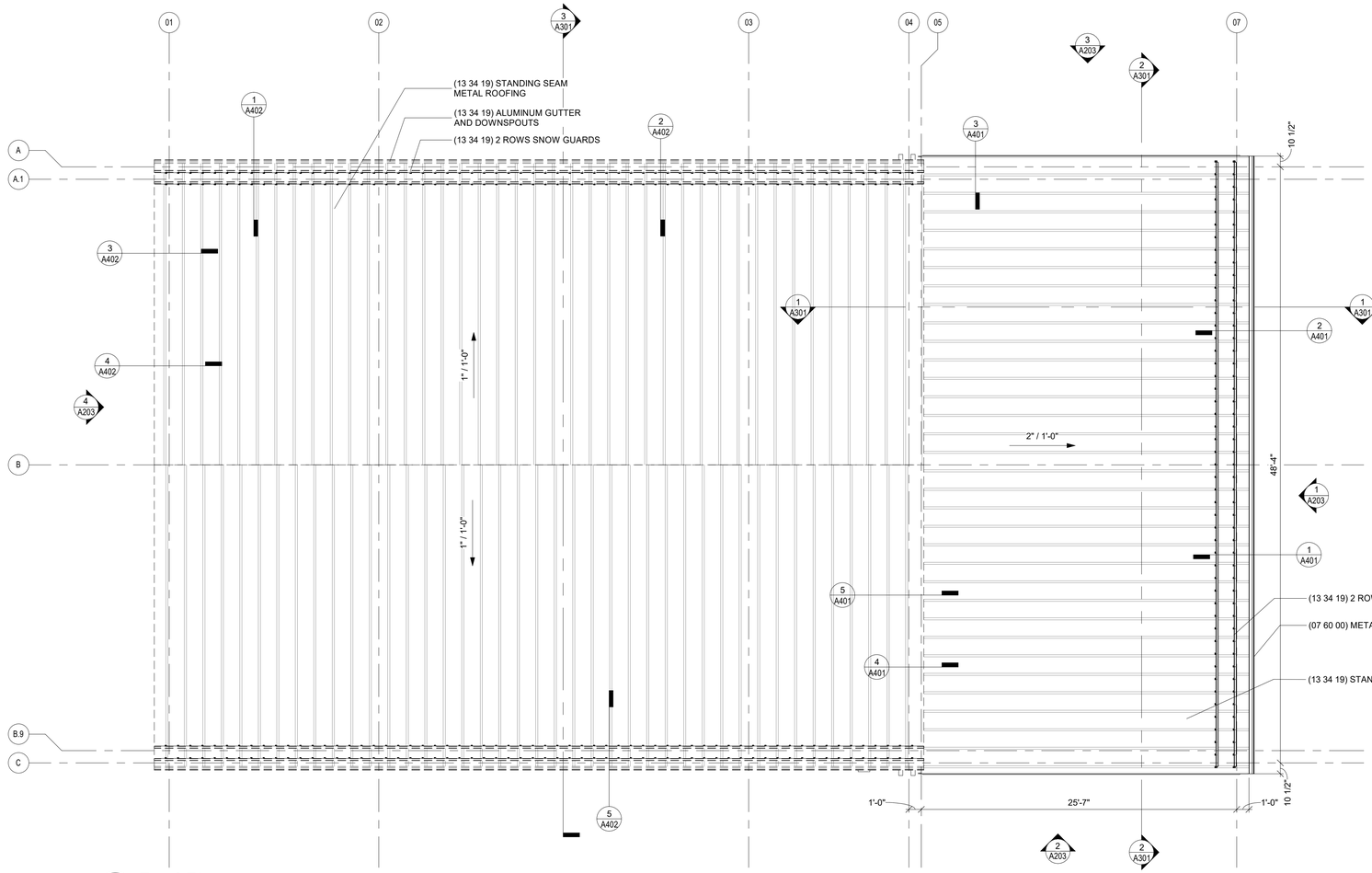
1 *Floor Plan - Overall w/ Addition*
3/16" = 1'-0"

Overall Floor Plan and Schedules

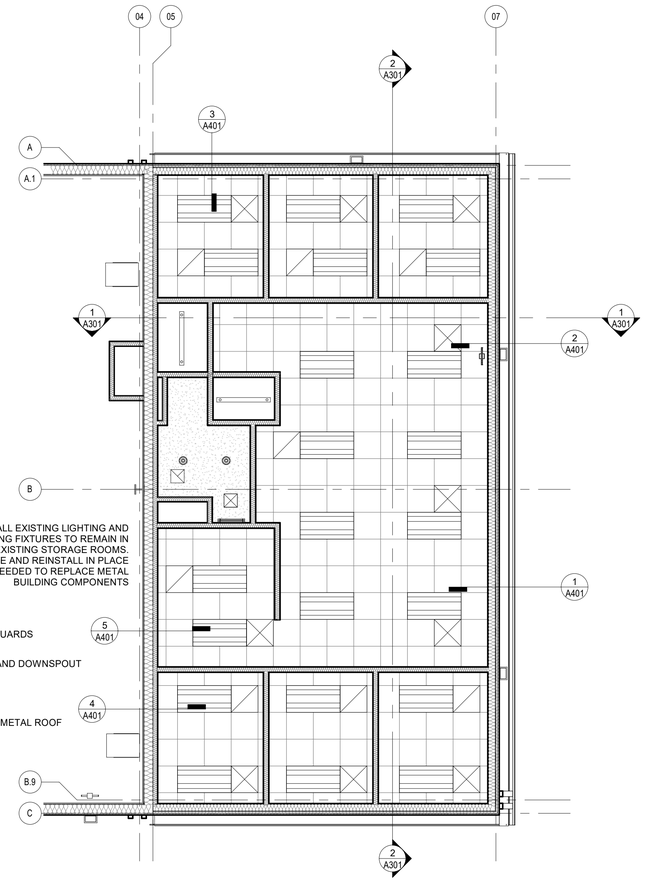
Dane County - RFB 322026 – Maintenance / Office Building Construction
7102 US HWY 12/18 Madison, WI 53718
July 12, 2022

PLAN NORTH
SCALE: As indicated

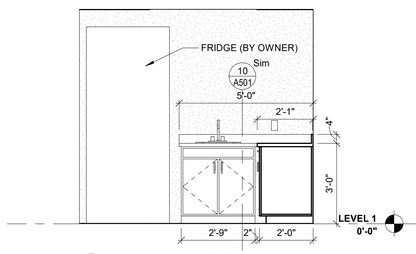
A201



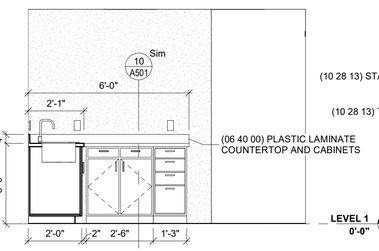
7 *Roof Plan*
3/16" = 1'-0"



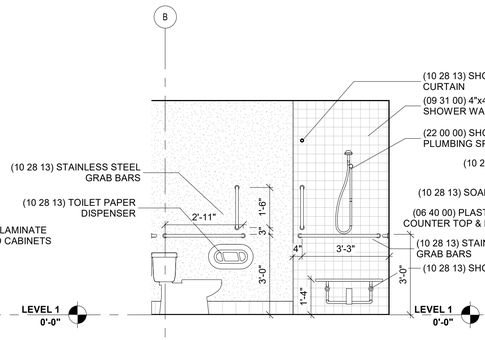
6 *Reflected Ceiling Plan*
3/16" = 1'-0"



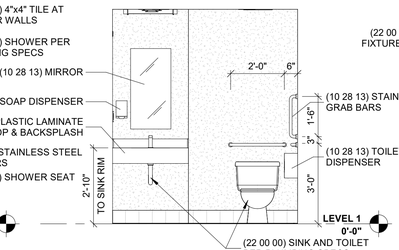
3 *kitchen 105 - north*
3/8" = 1'-0"



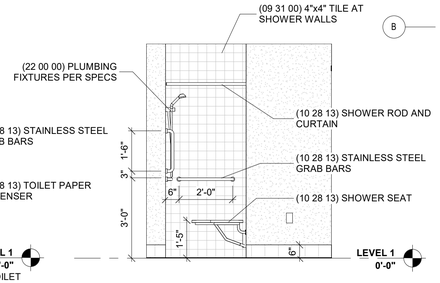
2 *kitchen 105 - east*
3/8" = 1'-0"



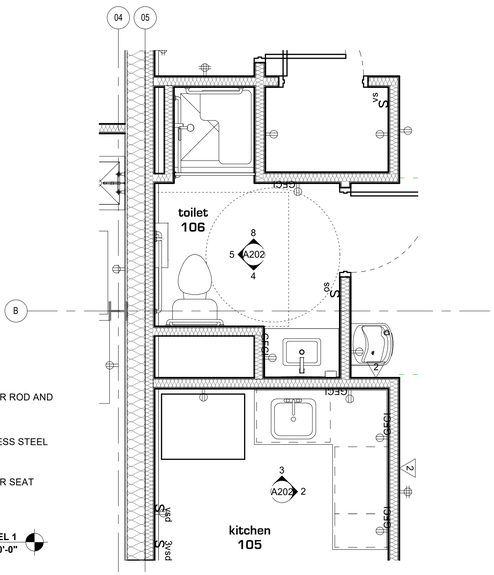
5 *toilet 106 - west*
3/8" = 1'-0"



4 *toilet 106 - south*
3/8" = 1'-0"



8 *Toilet 106 - North*
3/8" = 1'-0"



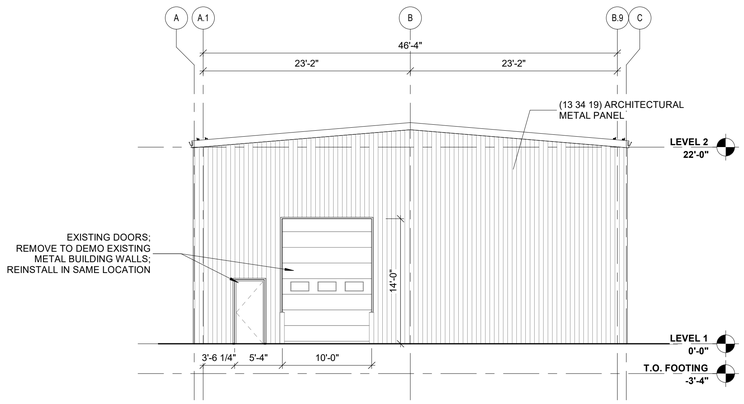
1 *Floor Plan - Enlarged Kitchen and Toilet*
3/8" = 1'-0"

Detail Plans and Elevations

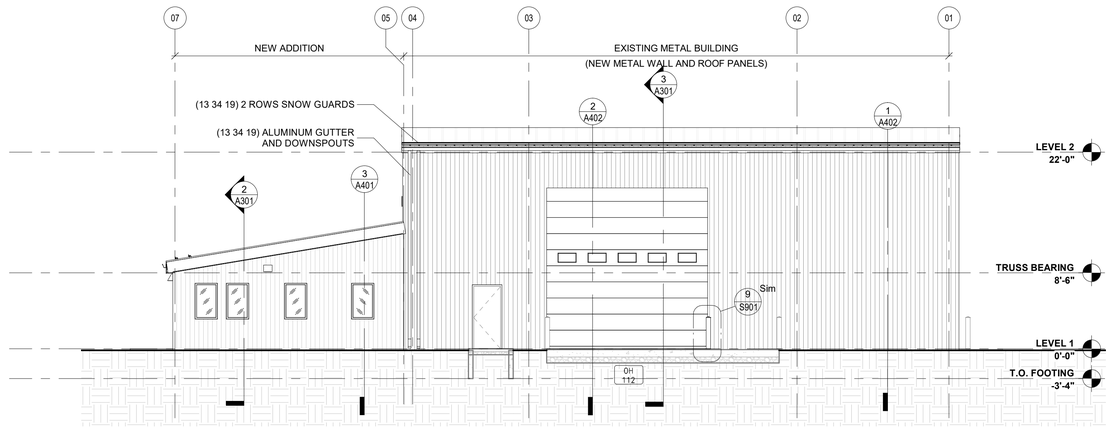
Dane County - RFB 322026 – Maintenance / Office Building Construction
7102 US HWY 12/18 Madison, WI 53718
July 12, 2022

PLAN NORTH
SCALE: As indicated

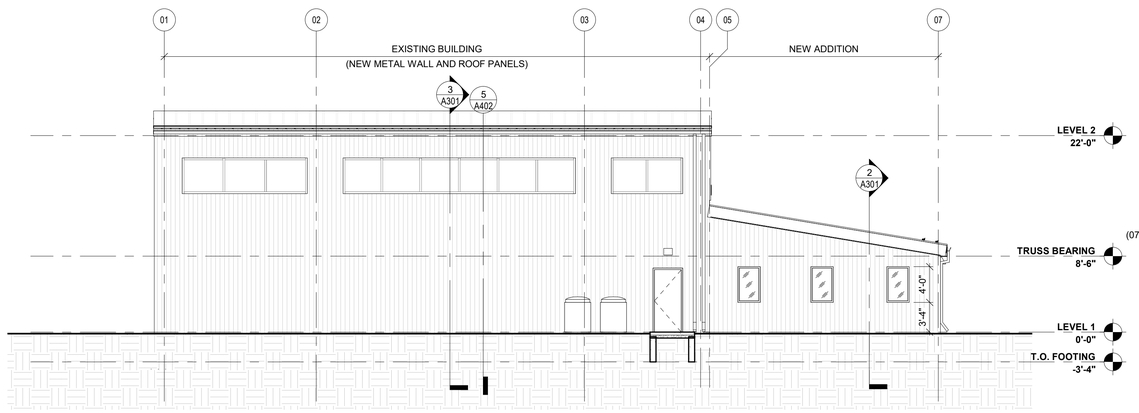
A202



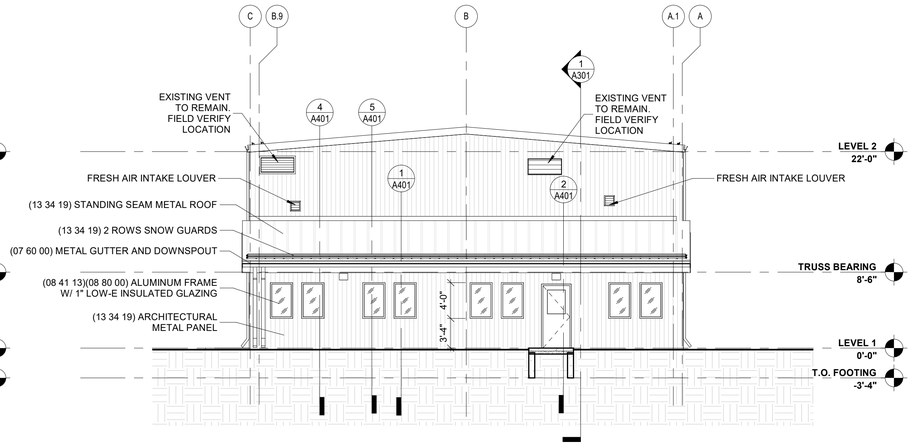
4 *West Elevation*
1/8" = 1'-0"



3 *North Elevation*
1/8" = 1'-0"



2 *South Elevation*
1/8" = 1'-0"



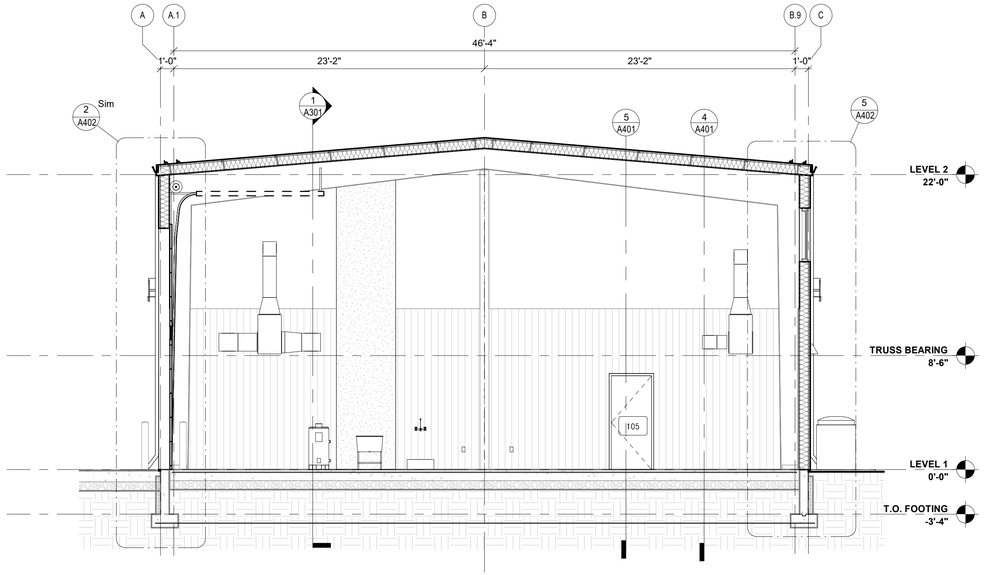
1 *East Elevation*
1/8" = 1'-0"

Exterior Elevations

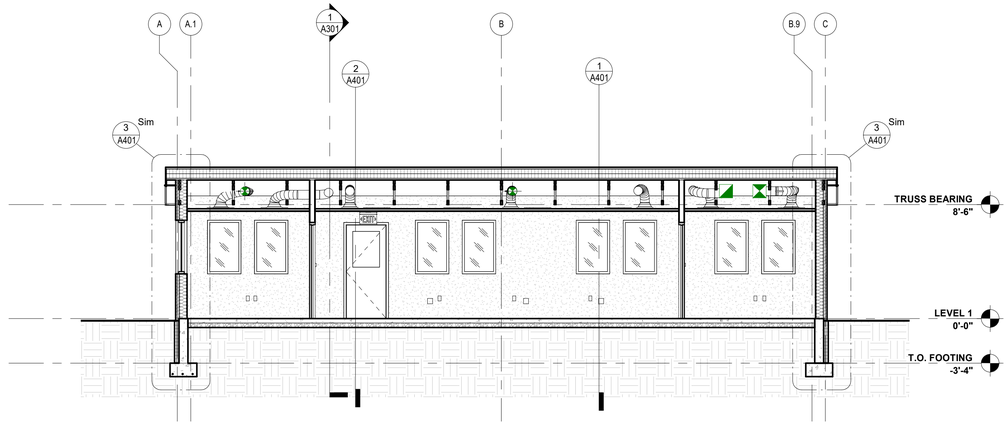
Dane County - RFB 322026 – Maintenance / Office Building Construction
7102 US HWY 12/18 Madison, WI 53718
July 12, 2022

SCALE: 1/8" = 1'-0"

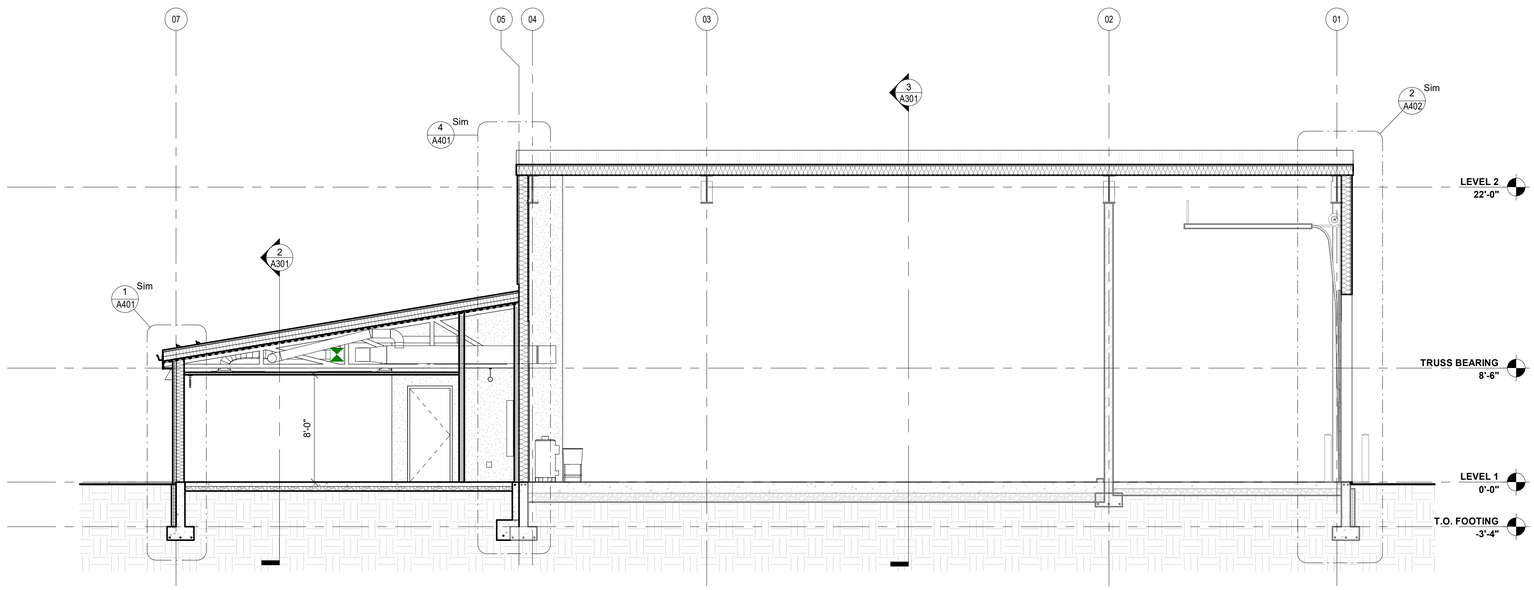
A203



3 *North-South Building Section - Storage*
3/16" = 1'-0"



2 *North-South Building Section - Office*
3/16" = 1'-0"



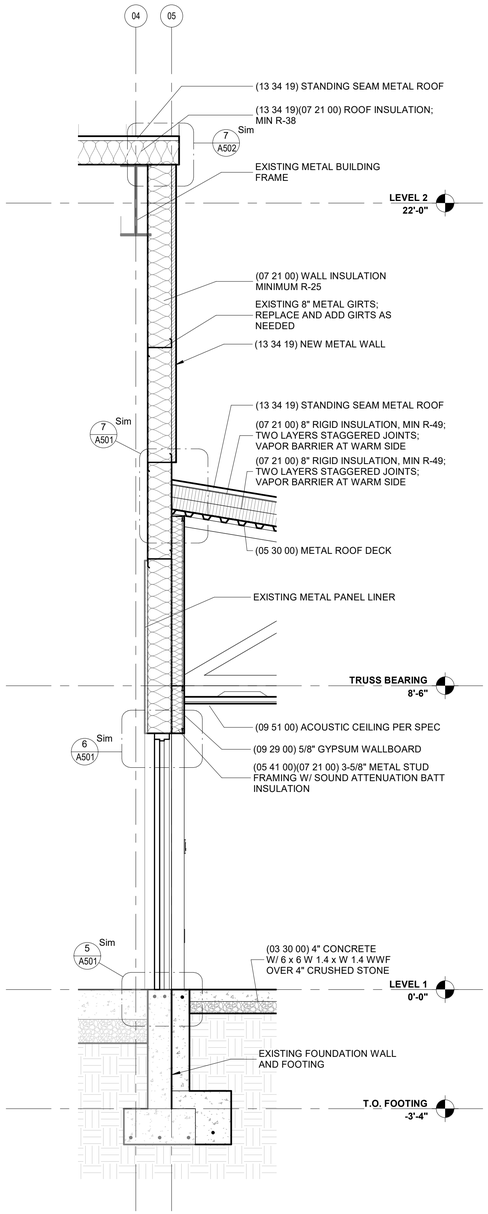
1 *East-West Building Section*
3/16" = 1'-0"

Building Sections

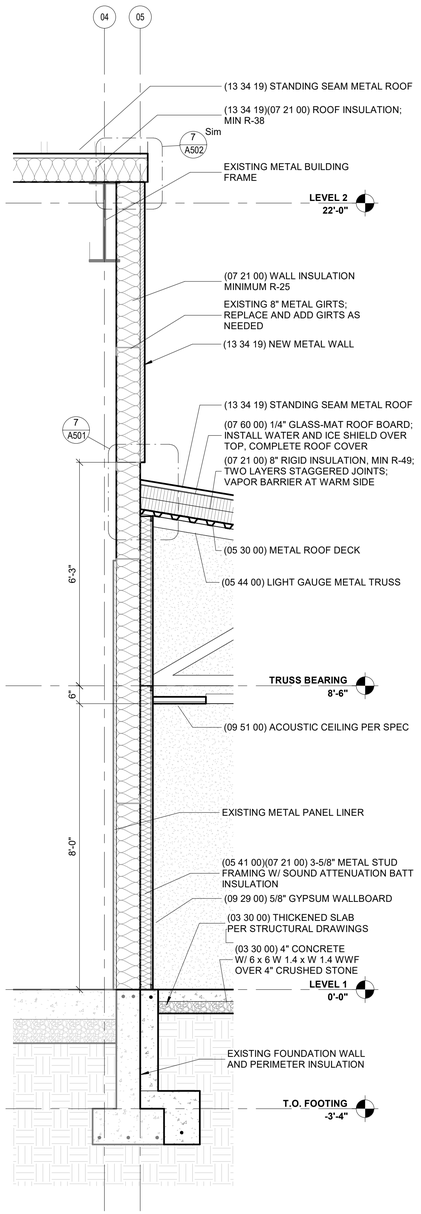
Dane County - RFB 322026 – Maintenance / Office Building Construction
7102 US HWY 12/18 Madison, WI 53718
July 12, 2022

SCALE: 3/16" = 1'-0"

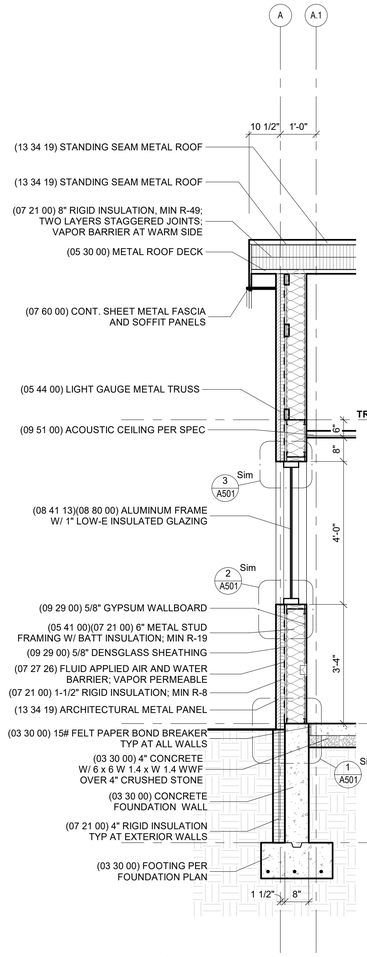
A301



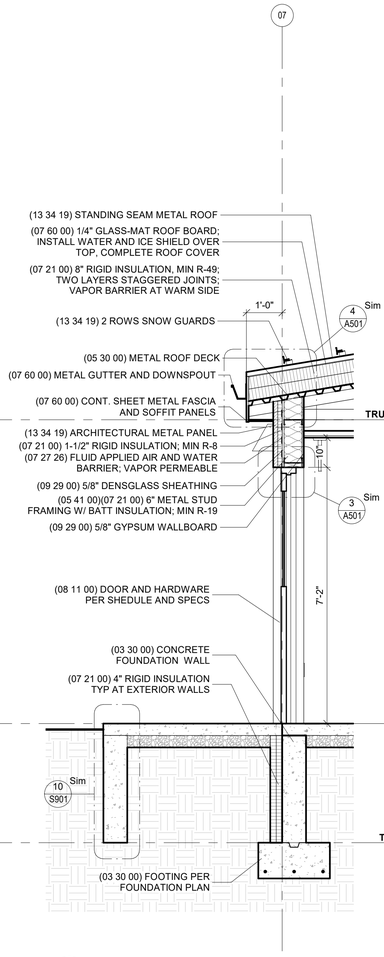
5 West Wall @ Door
1/2" = 1'-0"



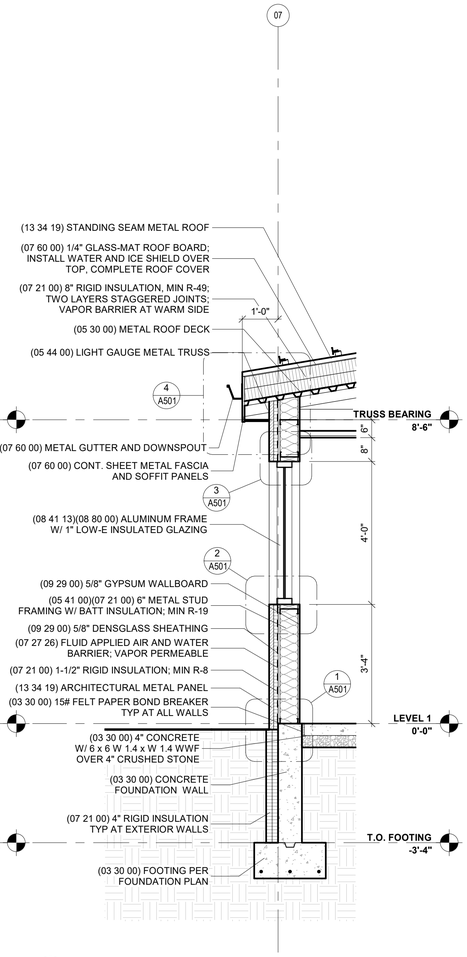
4 Typ West Wall
1/2" = 1'-0"



3 North/South Wall @ Window
1/2" = 1'-0"



2 East Wall @ Door
1/2" = 1'-0"



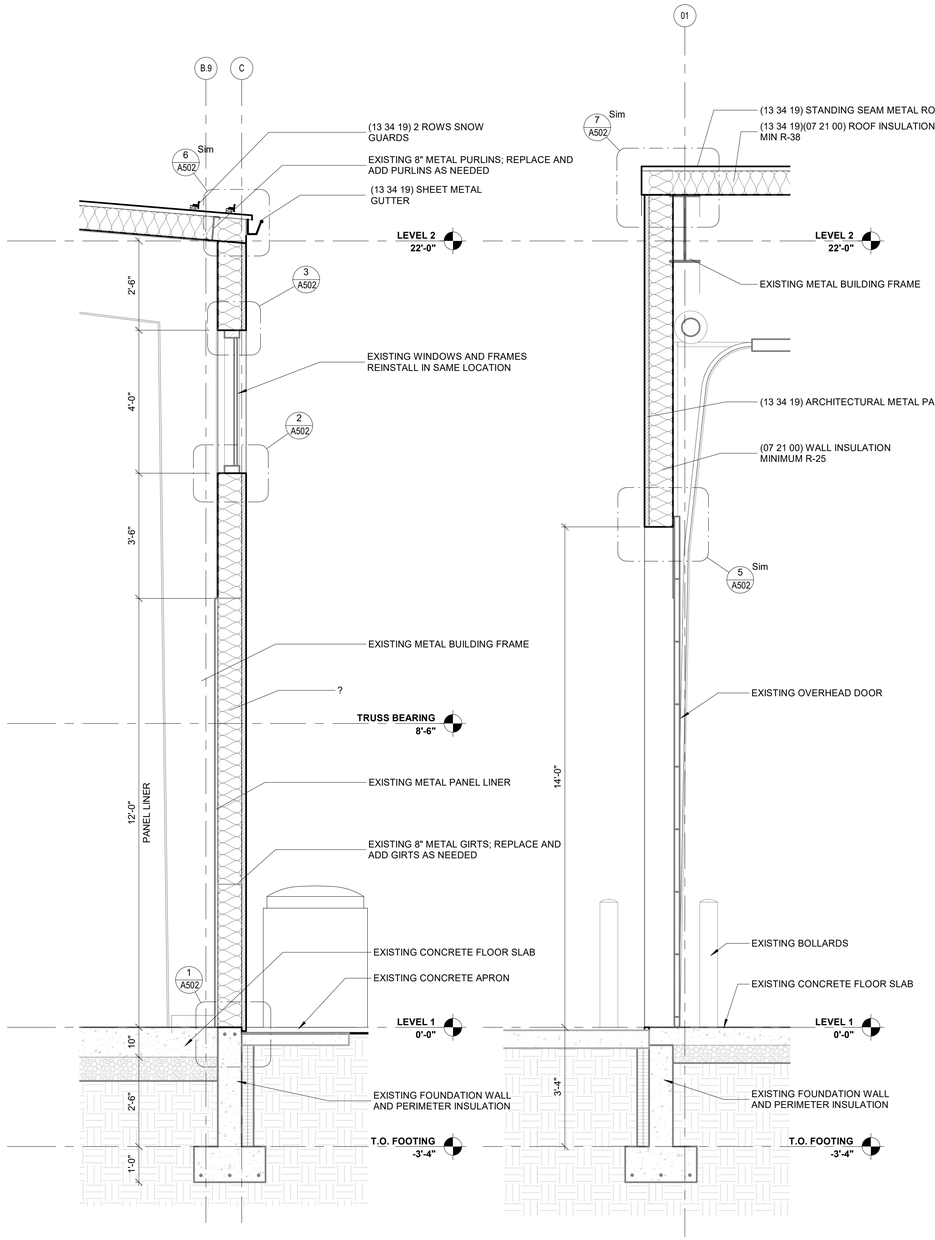
1 East Wall @ Window
1/2" = 1'-0"

Wall Sections

Dane County - RFB 322026 – Maintenance / Office Building Construction
7102 US HWY 12/18 Madison, WI 53718
July 12, 2022

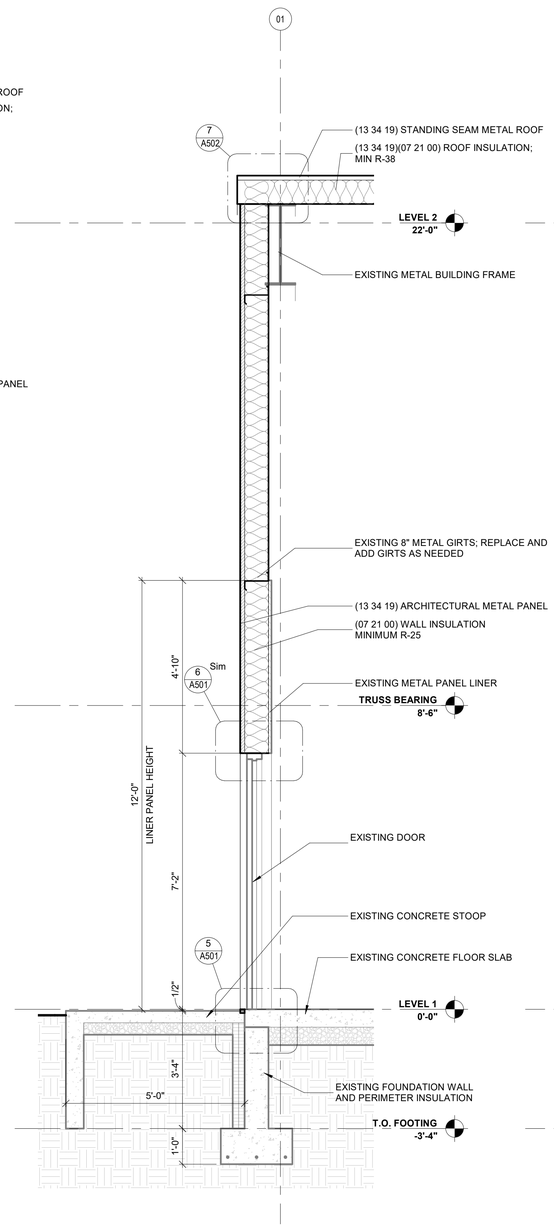
SCALE: 1/2" = 1'-0"

A401

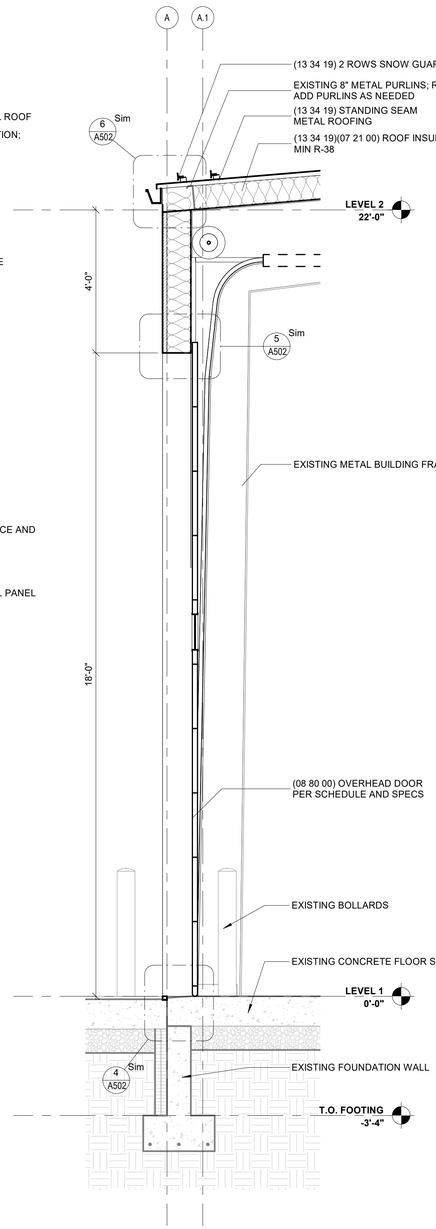


5 *Wall Section*
1/2" = 1'-0"

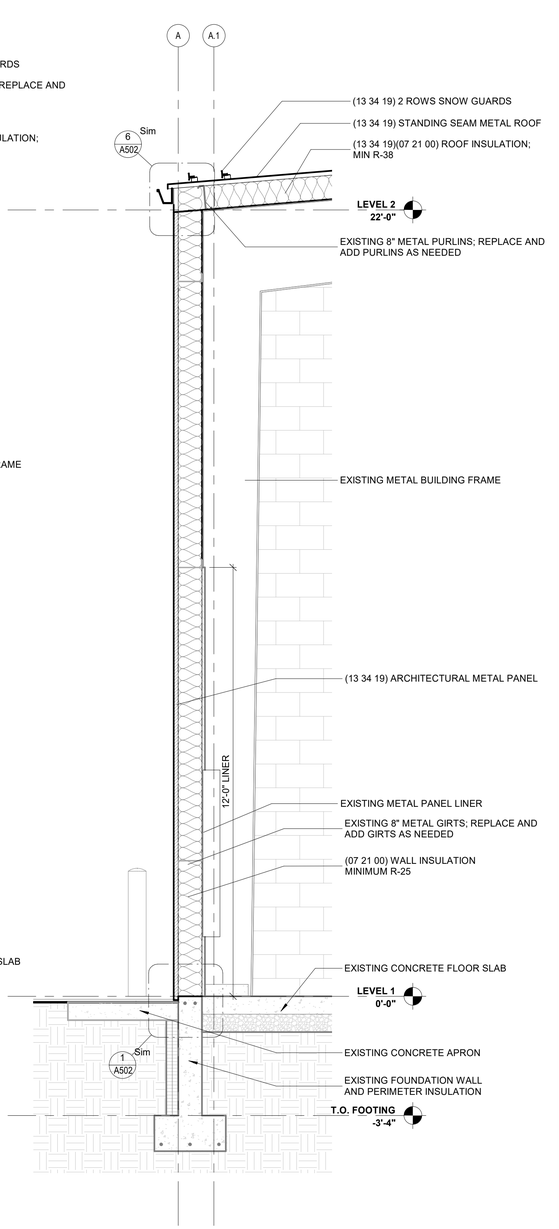
4 *Wall Section*
1/2" = 1'-0"



3 *Wall Section*
1/2" = 1'-0"



2 *Wall Section*
1/2" = 1'-0"



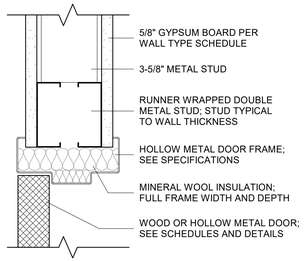
1 *Wall Section*
1/2" = 1'-0"

Wall Sections

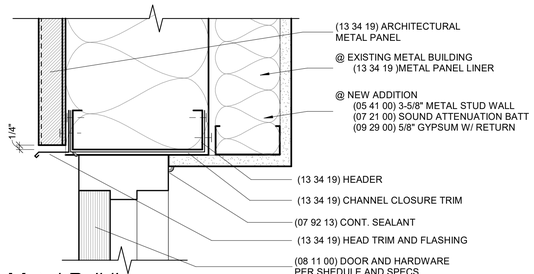
Dane County - RFB 322026 – Maintenance / Office Building Construction
7102 US HWY 12/18 Madison, WI 53718
July 12, 2022

SCALE: 1/2" = 1'-0"

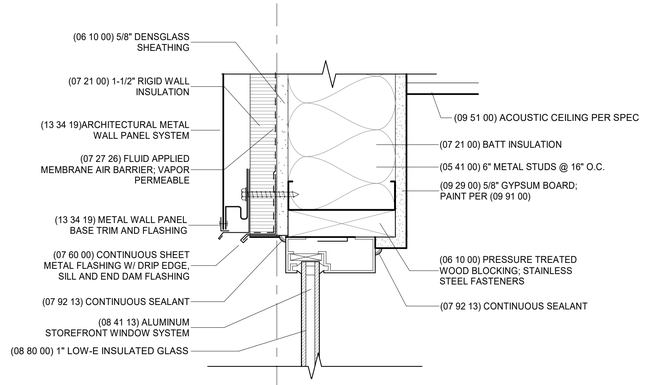
A402



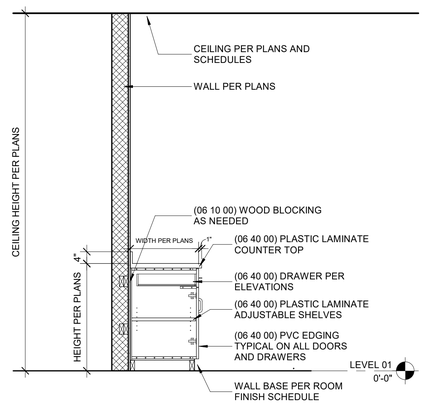
9 *3-5/8" METAL STUD HEAD*
3" = 1'-0"



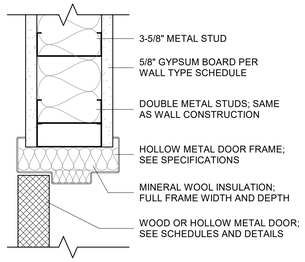
6 *Door Head @ Metal Building*
3" = 1'-0"



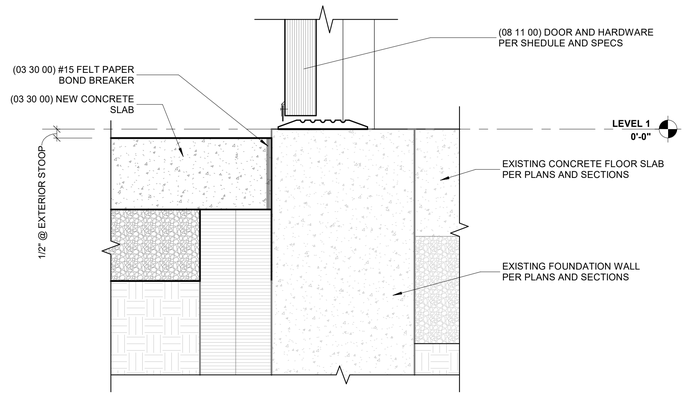
3 *Typ. Window Head*
3" = 1'-0"



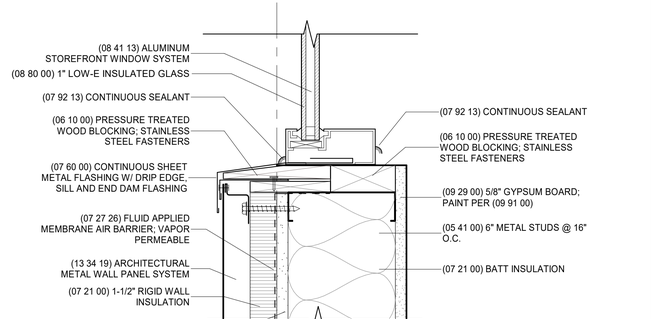
10 *CABINET SECTION - TYP.*
1/2" = 1'-0"



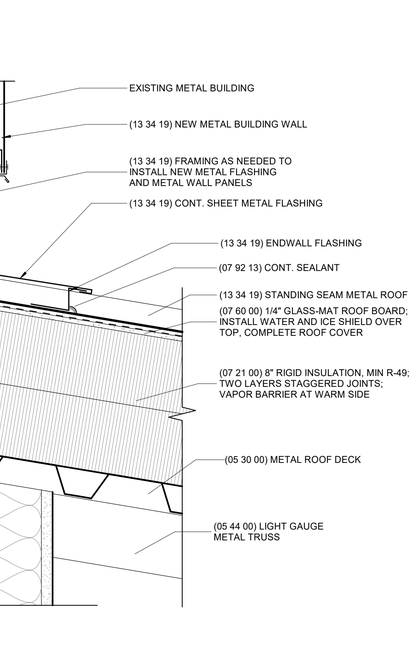
8 *3-5/8" METAL STUD JAMB*
3" = 1'-0"



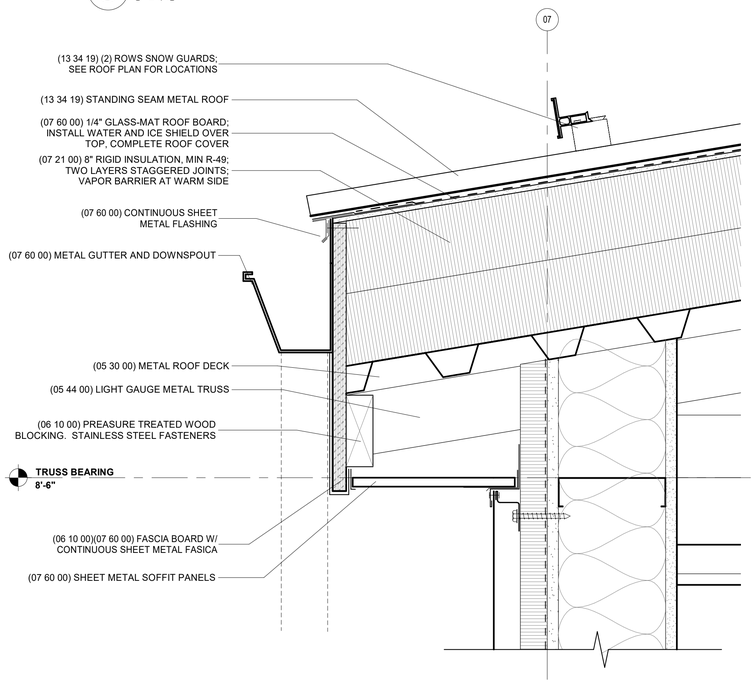
5 *Door Threshold @ Metal Building*
3" = 1'-0"



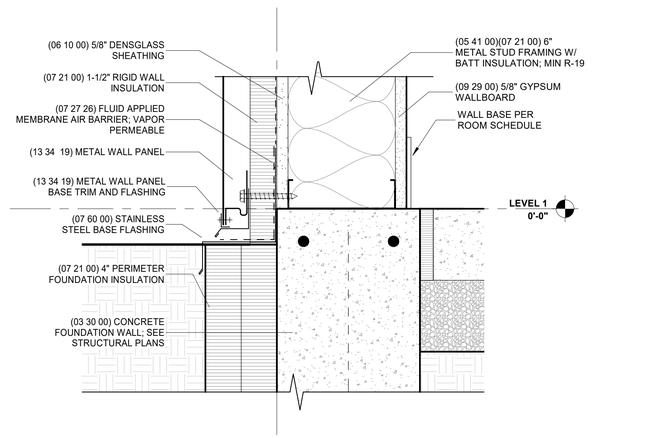
2 *Typ. Window Sill*
3" = 1'-0"



7 *Roof Edge @ Existing*
3" = 1'-0"



4 *Typ. Gutter*
3" = 1'-0"



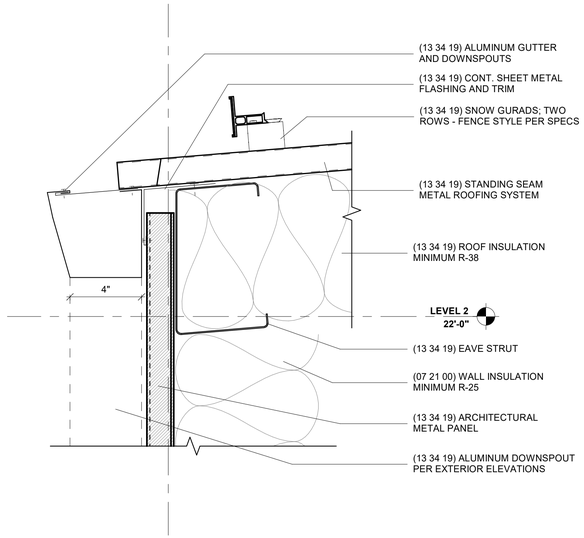
1 *Typ Wall Base*
3" = 1'-0"

Building Details

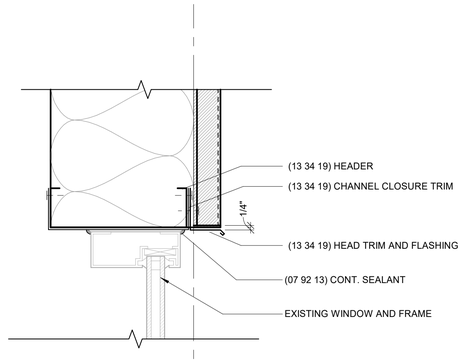
Dane County - RFB 322026 – Maintenance / Office Building Construction
7102 US HWY 12/18 Madison, WI 53718
July 12, 2022

SCALE: As indicated

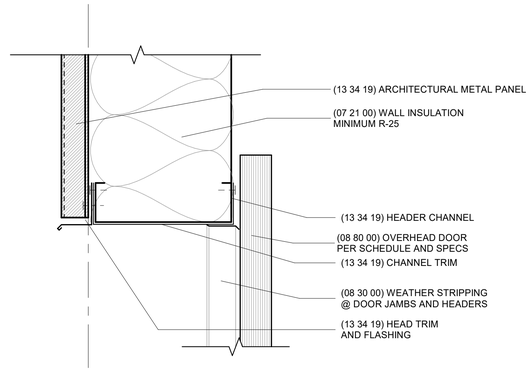
A501



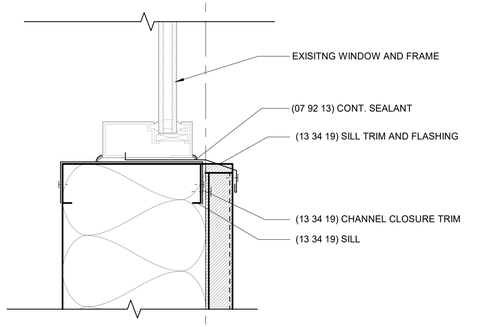
6 *Metal Building Gutter*
3" = 1'-0"



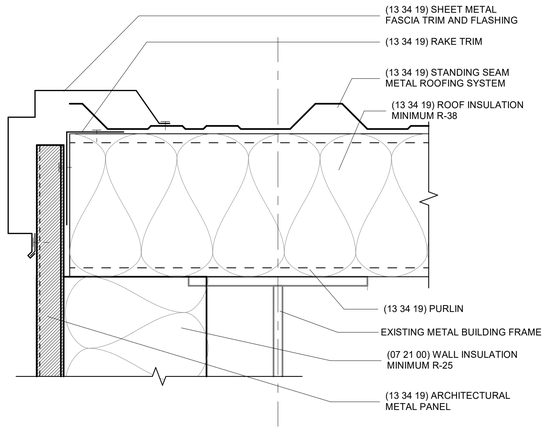
3 *Metal Building Window Head*
3" = 1'-0"



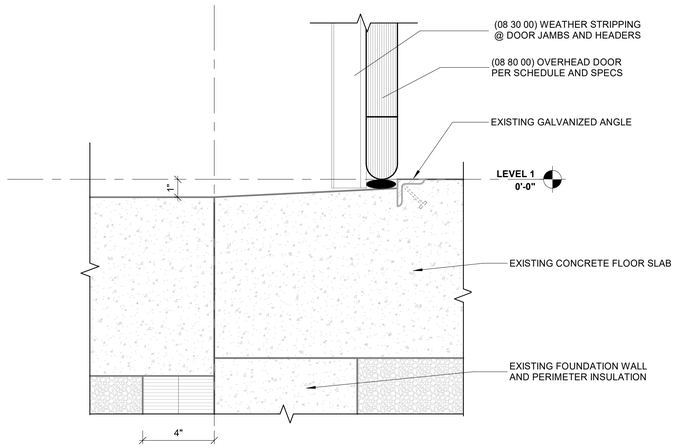
5 *Metal Building OH Door Head*
3" = 1'-0"



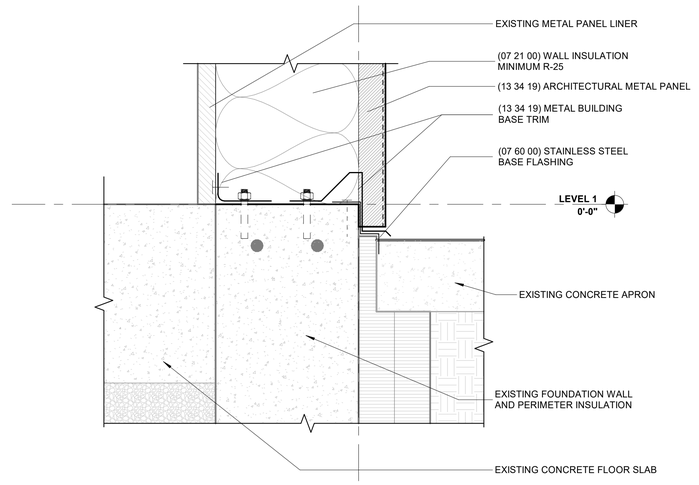
2 *Metal Building Window Sill*
3" = 1'-0"



7 *Metal Building Fascia*
3" = 1'-0"



4 *Metal Building OH Door Threshold*
3" = 1'-0"



1 *Metal Building Wall Base*
3" = 1'-0"

Building Details

Dane County - RFB 322026 – Maintenance / Office Building Construction
7102 US HWY 12/18 Madison, WI 53718
July 12, 2022

SCALE: 3" = 1'-0"

A502

WIND LOADS

WIND LOAD DATA

ULTIMATE WIND SPEED	115 MPH
IMPORTANCE FACTOR	1.00
OCCUPANCY CATEGORY	II
EXPOSURE CATEGORY	C
ENCLOSURE CLASSIFICATION	ENCLOSED

MAIN WIND FORCE RESISTING SYSTEM

INTERIOR ZONE - WALL:	18.6 PSF
INTERIOR ZONE - ROOF:	-8.6 PSF
END ZONE - WALL:	28.0 PSF
END ZONE - ROOF:	-14.6 PSF
END ZONE:	9.6 FEET

COMPONENTS AND CLADDING

ROOF SURFACE PRESSURE (PSF)			
AREA	**10 S.F.**	**50 S.F.**	**100 S.F.**
NEGATIVE ZONE 1	-31.8	-29.9	-26.7
NEGATIVE ZONE 2	-53.4	-40.2	-34.5
NEGATIVE ZONE 3	-80.4	-48.3	-34.5
POSITIVE ZONES	16.0	16.0	16.0
WALL SURFACE PRESSURE (PSF)			
AREA	**10 S.F.**	**100 S.F.**	**500 S.F.**
NEGATIVE ZONE 4	-31.6	-27.3	-26.0
NEGATIVE ZONE 5	-38.8	-30.3	-27.7
POSITIVE ZONES	29.1	24.8	23.6

FOOTING SCHEDULE

MARK	SIZE	REINFORCING
ST-1	24" x 12"	(3) - #5 BARS, CONTINUOUS
ST-2	20" x 18"	(1) - #5 BARS, CONTINUOUS; #5 EPOXY SET DOWELS @ 24" O.C., 6" EMBED INTO EXISTING FOOTING

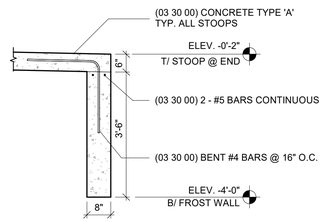
ROOF LOADS

SNOW LOAD		26 P.S.F.
DEAD LOAD		10 P.S.F.
METAL ROOF	2.0	
INSULATION	2.0	
MECHANICAL	3.0	
MISCELLANEOUS	3.0	
	10.0	
DESIGN LOAD		36 P.S.F.

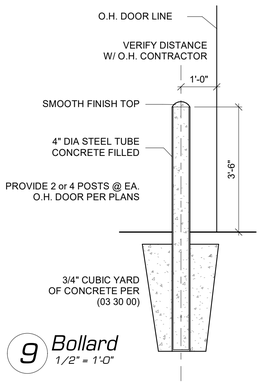
CONCRETE SLAB SCHEDULE

CONCRETE TYPE "A"

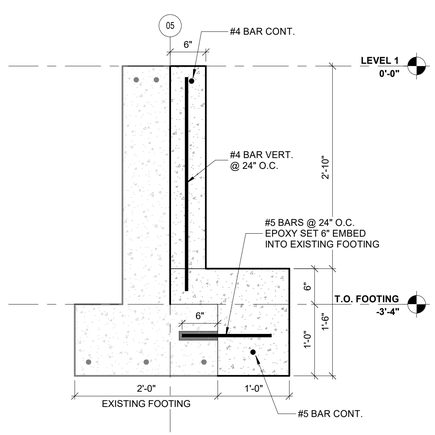
4" CONCRETE SLAB - 6 x 6 W 1.4 x W 1.4 WWF
W/ 10 MIL POLYETHYLENE VAPOR BARRIER
OVER 4" COMPACTED CRUSHED STONE



10 *Stoop Frost Wall*
1/2" = 1'-0"

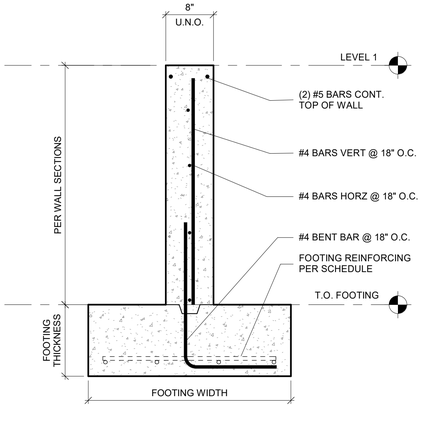


9 *Bollard*
1/2" = 1'-0"

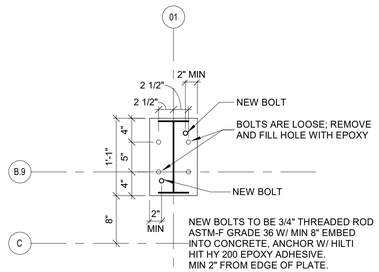


8 *ST-1 Footing*
1" = 1'-0"

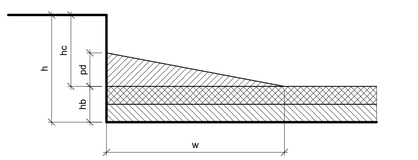
7 *ST-2 Footing and Foundation Wall*
1" = 1'-0"



6 *Typ. Foundation Wall*
1" = 1'-0"

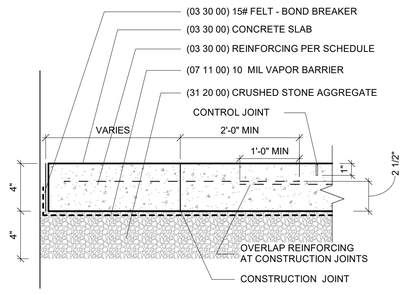


5 *Base Plate Repair*
1" = 1'-0"

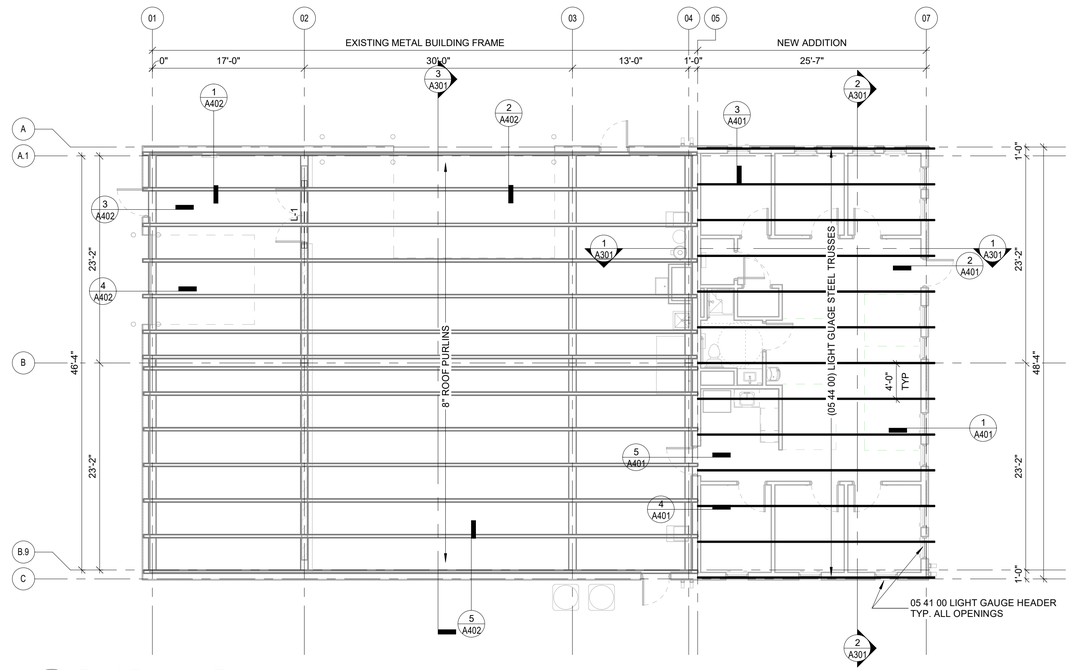


AREA	h (ft.)	hb (ft.)	hc (ft.)	hd (ft.)	w (ft.)	pd (psf.)
DRIFT AGAINST EXISTING WALL	10.50	1.17	9.33	2.78	11.12	49.8

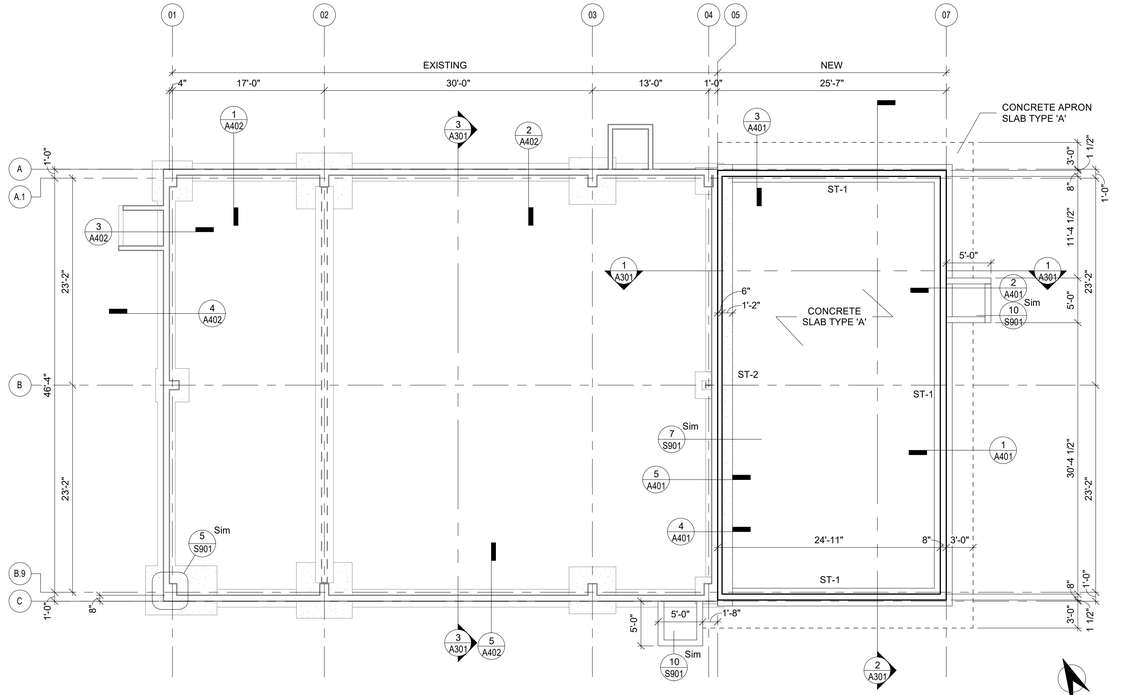
4 *Drift Load Diagram*
1 1/2" = 1'-0"



3 *Concrete Slab - Type A*
2" = 1'-0"



2 *Roof Framing Plan*
1/8" = 1'-0"



1 *Foundation Plan*
1/8" = 1'-0"

TRUE
NORTH

PLAN NORTH
SCALE: As indicated

Structural Plan and Details

Dane County - RFB 322026 – Maintenance / Office Building Construction
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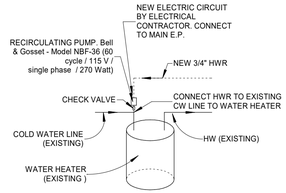
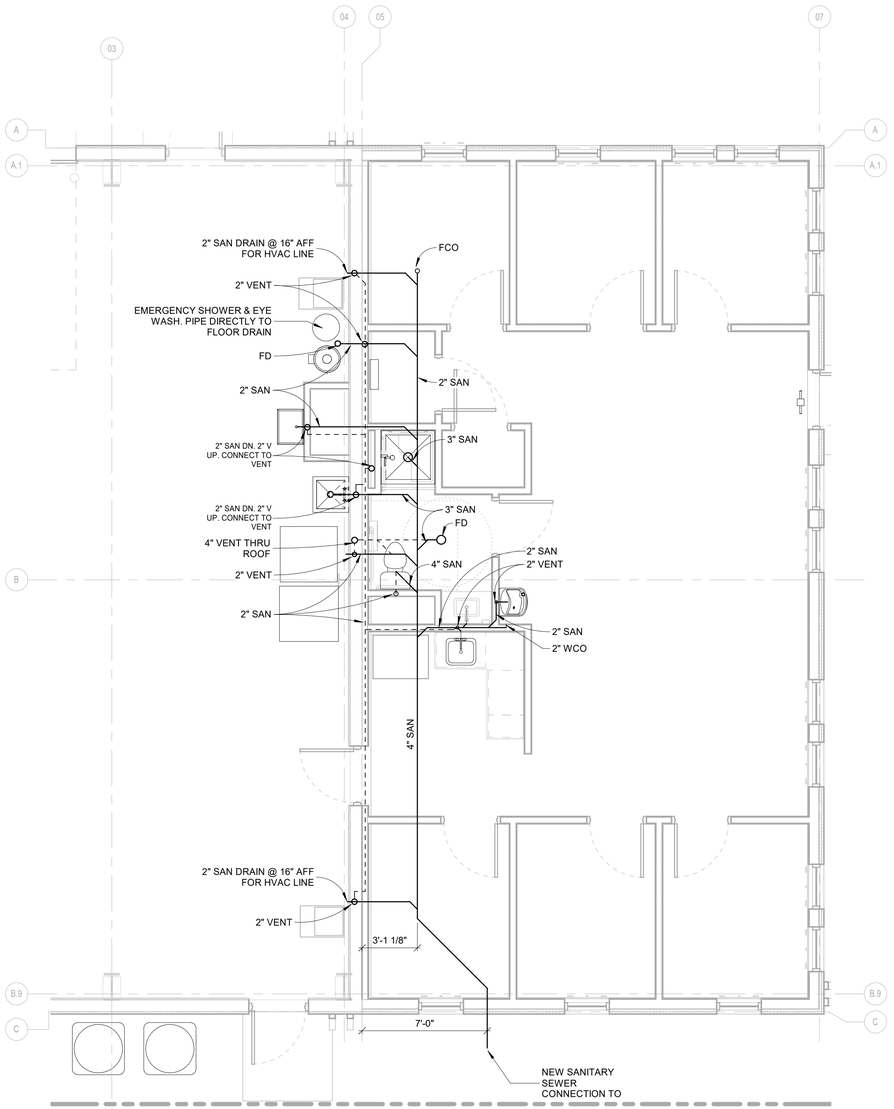
S901



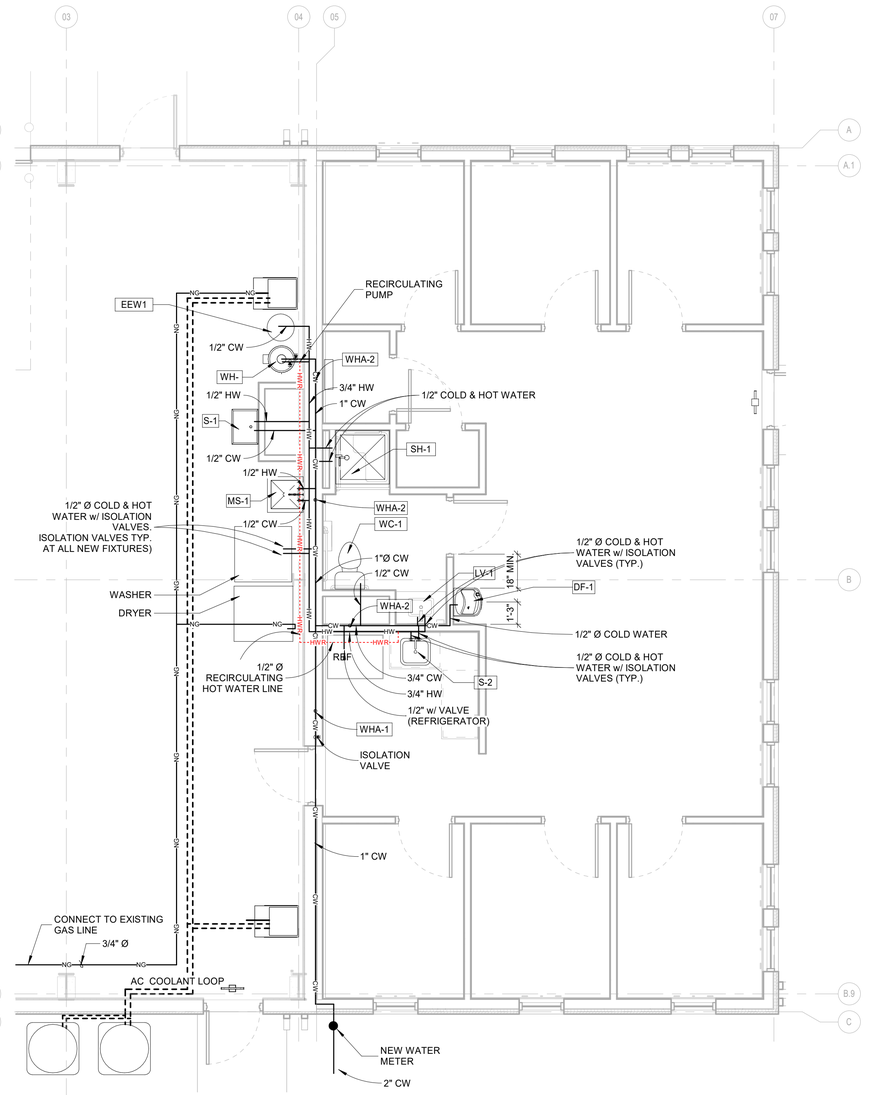
3 *Detail @ Water Heater*
1/4" = 1'-0"

PLUMBING FIXTURE SCHEDULE

LV-1	ADA LAVATORY: SOLID SURFACE TOP w/ INTEGRAL SYSTEM BY (06 61 00) BY PLUMBING CONTRACTOR: FAUCET: SYMMONS SYMMETRIX S-20-0-0.5 SINGLE HANDLE FAUCET, POLISHED CHROME, 0.5GPM / DRAIN: MCGUIRE 155A, DRAIN WITH PERFORATED STRAINER AND 1 ¼" TAILPIECE / (TRAP): MCGUIRE PW-2150, SEMI-CAST BRASS ADJUSTABLE, POLISHED CHROME "P" TRAP AND DEEP PATTERN ESCUTCHEON, 1 ¼" X 1 ½". / SUPPLY & STOP: (2) MCGUIRE 2165CC. / TRAP WRAP: TRUBO JACKET AND INSULATION WRAP
DF-1	DRINKING FOUNTAIN: ADA DRINKING FOUNTAIN: ELKAY EZH2O LZS8WSLK FILTERED WATER BOTTLE REFILLING STATION, WALL MOUNT, GRAY. MOUNT TOP OF RIM AT 33 7/16" AFF.
WC-1	ADULT WC: ADA ADULT WC: STANDARD CONSUMPTION FLOOR MOUNT, ELONGATED BOWL, PRESSURE ASSISTED FLUSH TANK WATER CLOSET. AMERICAN STANDARD "CADET" 2467.016. TRIP LEVER TO BE LEFT MOUNTED. FURNISH AND INSTALL WITH 1/2" BALL VALVE SUPPLY STOP. BEMIS SOLID PLASTIC ANTIBACTERIAL OPEN FRONT SEAT. TOP OF SEAT 18" AFF.
MS-1	MOP SINK: MOP SINK WITH SERVICE FAUCET AND VACUUM BREAKER MOUNTED. MUSTEE M/N 63M AMERICAN STANDARD 8344.012.002 FAUCET. INCLUDE HOSE, HOSE BRACKET, MOP HANGER, AND WALL GUARDS.
S-1	(UTILITY SINK) LT1 – SINGLE COMPARTMENT, 23" X 23" X 15", MOLDED STONE SINGLE COMPARTMENT. 1. FIXTURE: MUSTEE #17 2. FAUCET: CHICAGO 895-317ABCP CHROME PLATED FAUCET GOOSE NECK SPOUT, AERATOR AND LEVER HANDLES. 3. DRAIN: PART OF FIXTURE 4. TRAP: MCGUIRE 8912 1 ½" X 1 ½" CHROME PLATED 17 GAUGE ADJUSTABLE GROUND JOINT "P" TRAP AND CHROME DEEP PATTERN ESCUTCHEON. 5. SUPPLY & STOP: MCGUIRE 2165CC ½" CHROME PLATED CAST BRASS ANGLE STOPS WITH WHEEL HANDLE, 3/8" CHROME PLATED FLEXIBLE TUBE RISER AND CHROME ESCUTCHEON.
S-2	(KITCHEN) SINGLE COMPARTMENT SINK 25"X21"X7-1/2" 18GAUGE STAINLESS STEEL SINK, SELF-RIMMING SATIN FINISH WITH BASKET DRAIN AND PULL OUT SPRAY FAUCET. 1. FIXTURE: ELKAY LR2521 8" ON CENTER FACET HOLES 2. FAUCET: KOHLER K-15160 PULL OUT SPRAY FAUCET, 1.8GPM AERATOR 3. DRAIN: MCGUIRE 151AM HEAVY GAUGE STAINLESS STEEL DUO-STRAINER DRAIN OUTLET W/ CUP STRAINER AND 1 ½" STAINLESS STEEL TAILPIECE. 4. TRAP: MCGUIRE 8912 1 ½" X 1 ½" CHROME PLATED 17 GAUGE ADJUSTABLE GROUND JOINT "P" TRAP AND CHROME DEEP PATTERN ESCUTCHEON. 5. SUPPLY & STOP: MCGUIRE 2165CC ½" CHROME PLATED CAST BRASS ANGLE STOPS WITH WHEEL HANDLE, 3/8" CHROME PLATED FLEXIBLE TUBE RISER AND CHROME ESCUTCHEON.
WHA-1	WATER HAMMER ARRESTOR: JR SMITH WATER HAMMER ARRESTOR MODEL 5005
WHA-2	WATER HAMMER ARRESTOR: JR SMITH WATER HAMMER ARRESTOR MODEL 5010
FD	FLOOR DRAIN: JR SMITH M/N 2010A. SQUARE NI-BR TOP. 4" TRAP. INCLUDE TRAP GUARD.
FCO	FLOOR CLEANOUT: JR SMITH M/N 4021, NICKEL BRONZE TOP.
WCO	WALL CLEANOUT: JR SMITH MODEL 4402, CHROME COVER.
WH-1	GAS WATER HEATER: AO SMITH GDHE-75 VERTEX POWER DIRECT VEN GAS WATER HEATER, T&P VALVE, AND VACUUM BREAKER. ROUTE T&P TO FLOOR/HUB DRAIN OR MOP/SERVICE SINK WITH AIR GAP. SET AT 140F
SH-1	ADA SHOWER STALL: FREEDOM - 36"X36" SINGLE OCCUPANT BARRIER FREE ACRYLIC ONE PIECE SHOWER. INCLUDE BRUSHED S/S GRAB BARS, SHOWER DRAIN, SHOWER CURTAIN ROD AND CURTAIN. KOHLER M/N K-1689, K-9459, K-1665. SHOWER HEAD AND MIXING VALVE TO BE COMPLIANT. INCLUDE SHOWER VALVE, TRIM. ORDER WITH POWERS E710J10000 FAUC
EEW1	EMERGENCY FIXTURE FLOOR MOUNTED G1902 SHOWER AND EYEWASH SAFETY STATION WITH EYEWASH, STAINLESS STEEL BOW TRAP WITH TUBULAR WALL RETURN, CHROME PLATED. 1. FIXTURE: GUARDIAN G1902 2. MIXER: GUARDIAN G3602 THERMOSTATIC MIXING VALVE WITH SURFACE MOUNTED STAINLESS STEEL LOCKABLE CABINET.



2 *Plumbing Plan - Waste and Vent*
1/4" = 1'-0"



1 *Plumbing Plan - Water and Gas*
1/4" = 1'-0"

Plumbing Plans

Dane County - RFB 322026 – Maintenance / Office Building Construction
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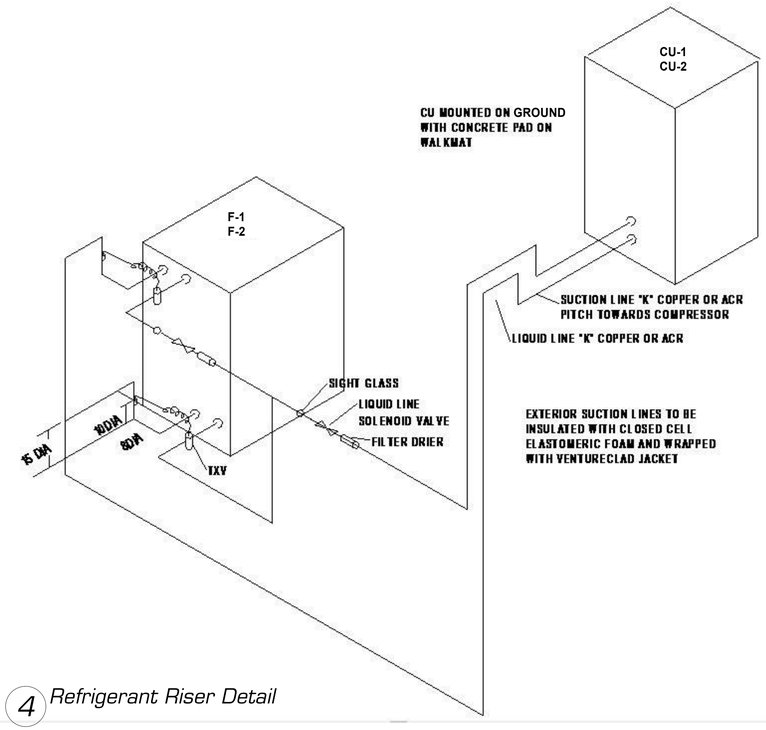
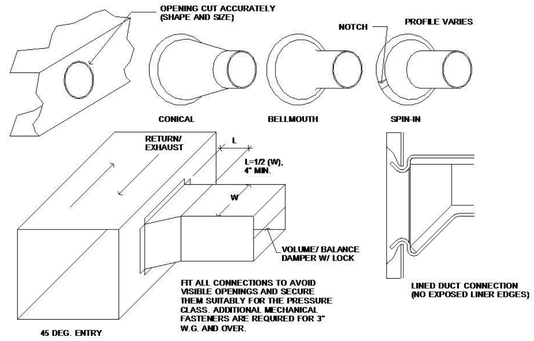
PLAN NORTH
SCALE: 1/4" = 1'-0"

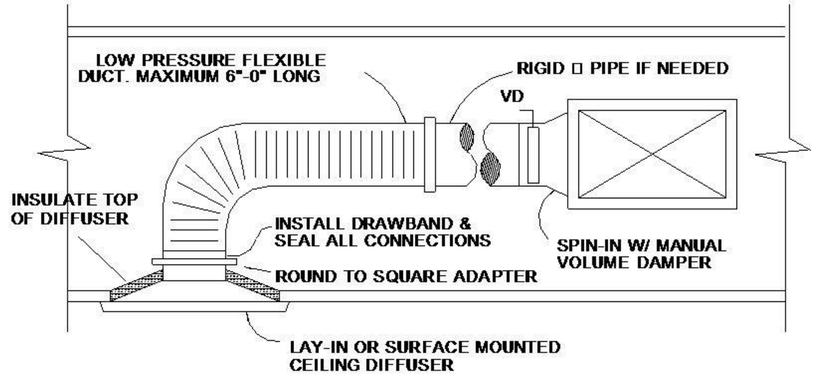
P201



4 *Refrigerant Riser Detail*



3 *Duct Installation Details*



2 *Diffuser Installation Detail*

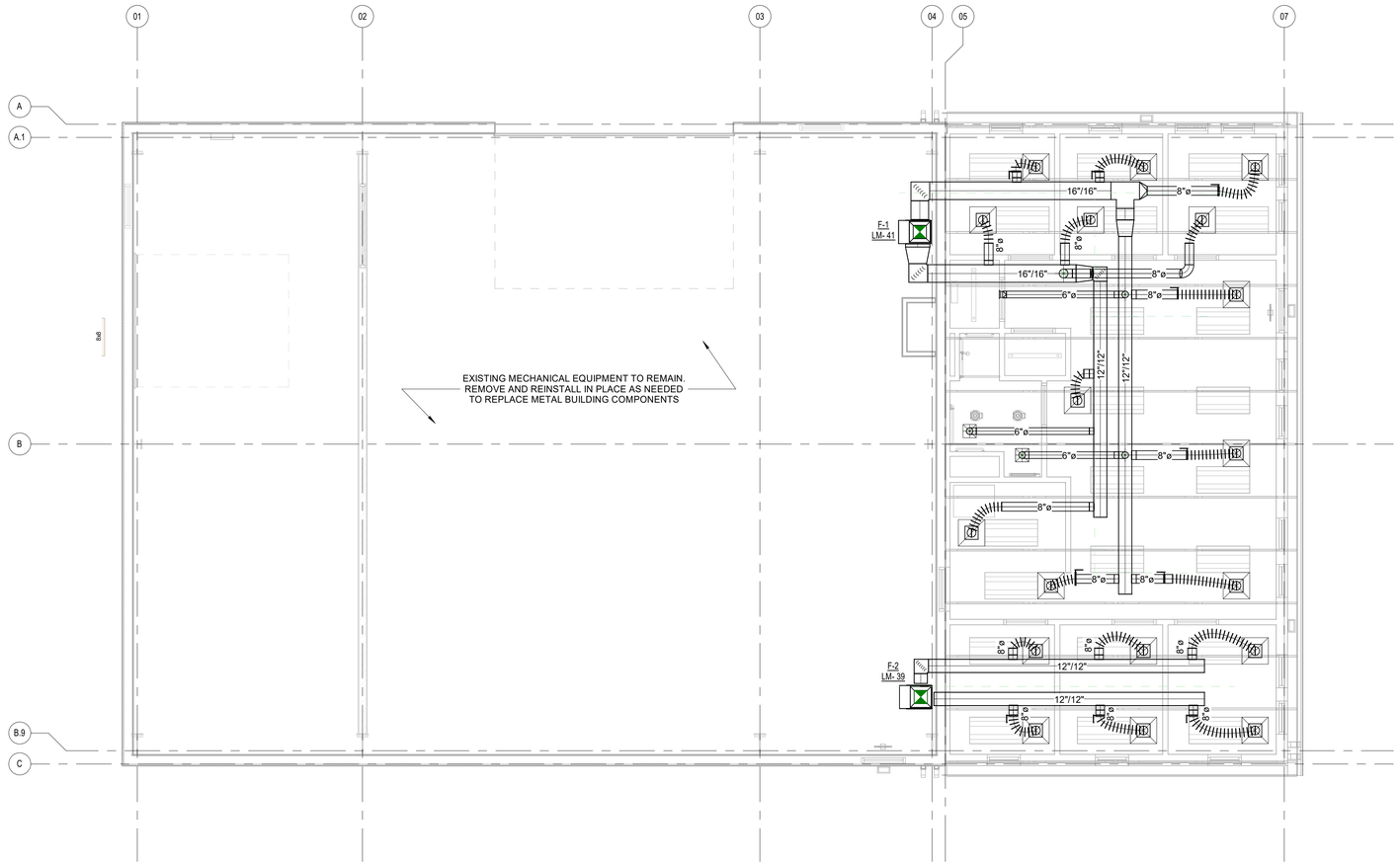
MECHANICAL SCHEDULE

F-1 **FURNACE:**

- 4 TON RESIDENTIAL MULTIPOISE VARIABLE SPEED CONDENSING GAS FURNACE AND VARIABLE SPEED 4 TON CONDENSING UNIT
- CARRIER VARIABLE SPEED FURNACE MODE 59MN7B-080C17-11-12. 80 MBH HEAT IN. 1,200 CFM @ .375" ESP. CONVERT UNIT TO VERTICAL MOUNTING CONFIGURATION. INCLUDE SECONDARY DRAIN PAN, CONDENSATE NEUTRALIZATION KIT, CONCENTRIC VENT KIT (VENT TO ROOF), GAS PRESSURE REGULATOR, CASED COIL CAPMP, 2" FILTER CABINET. MC TO FURNISH DISCONNECT. EC TO WIRE. 1 HP ECM MOTOR, 95% EFFICIENCY.
- CARRIER VARIABLE SPEED CONDENSING UNIT MODEL 24VNA648A0030. INCLUDE DYNAMICALLY AND STATICALLY BALANCED CONDENSER FAN, COMPRESSOR START ASSIST AND RELAY, CRANKCASE HEATER, CYCLE PROTECTOR, EVAPORATOR FREEZE STAT, LIQUID LINE, SOLENOID VALVE, FILTER DRYER, SIGHT GLASS, HARD SHUT OFF TXV. MC TO FURNISH DISCONNECT. EC TO WIRE. REFER TO PIPING RISER

F-2 **FURNACE:**

- 4 TON RESIDENTIAL MULTIPOISE VARIABLE SPEED CONDENSING GAS FURNACE AND VARIABLE SPEED 4 TON CONDENSING UNIT
- CARRIER VARIABLE SPEED FURNACE MODE 59MN7B-080C17-11-12. 80 MBH HEAT IN. 1,200 CFM @ .375" ESP. CONVERT UNIT TO VERTICAL MOUNTING CONFIGURATION. INCLUDE SECONDARY DRAIN PAN, CONDENSATE NEUTRALIZATION KIT, CONCENTRIC VENT KIT (VENT TO ROOF), GAS PRESSURE REGULATOR, CASED COIL CAPMP, 2" FILTER CABINET. MC TO FURNISH DISCONNECT. EC TO WIRE. 1 HP ECM MOTOR, 95% EFFICIENCY.
- CARRIER VARIABLE SPEED CONDENSING UNIT MODEL 24VNA648A0030. INCLUDE DYNAMICALLY AND STATICALLY BALANCED CONDENSER FAN, COMPRESSOR START ASSIST AND RELAY, CRANKCASE HEATER, CYCLE PROTECTOR, EVAPORATOR FREEZE STAT, LIQUID LINE, SOLENOID VALVE, FILTER DRYER, SIGHT GLASS, HARD SHUT OFF TXV. MC TO FURNISH DISCONNECT. EC TO WIRE. REFER TO PIPING RISER



1 *Mechanical Plan*
3/16" = 1'-0"

HVAC Plans

Dane County - RFB 322026 – Maintenance / Office Building Construction
7102 US HWY 12/18 Madison, WI 53718
July 12, 2022

PLAN NORTH
SCALE: As indicated

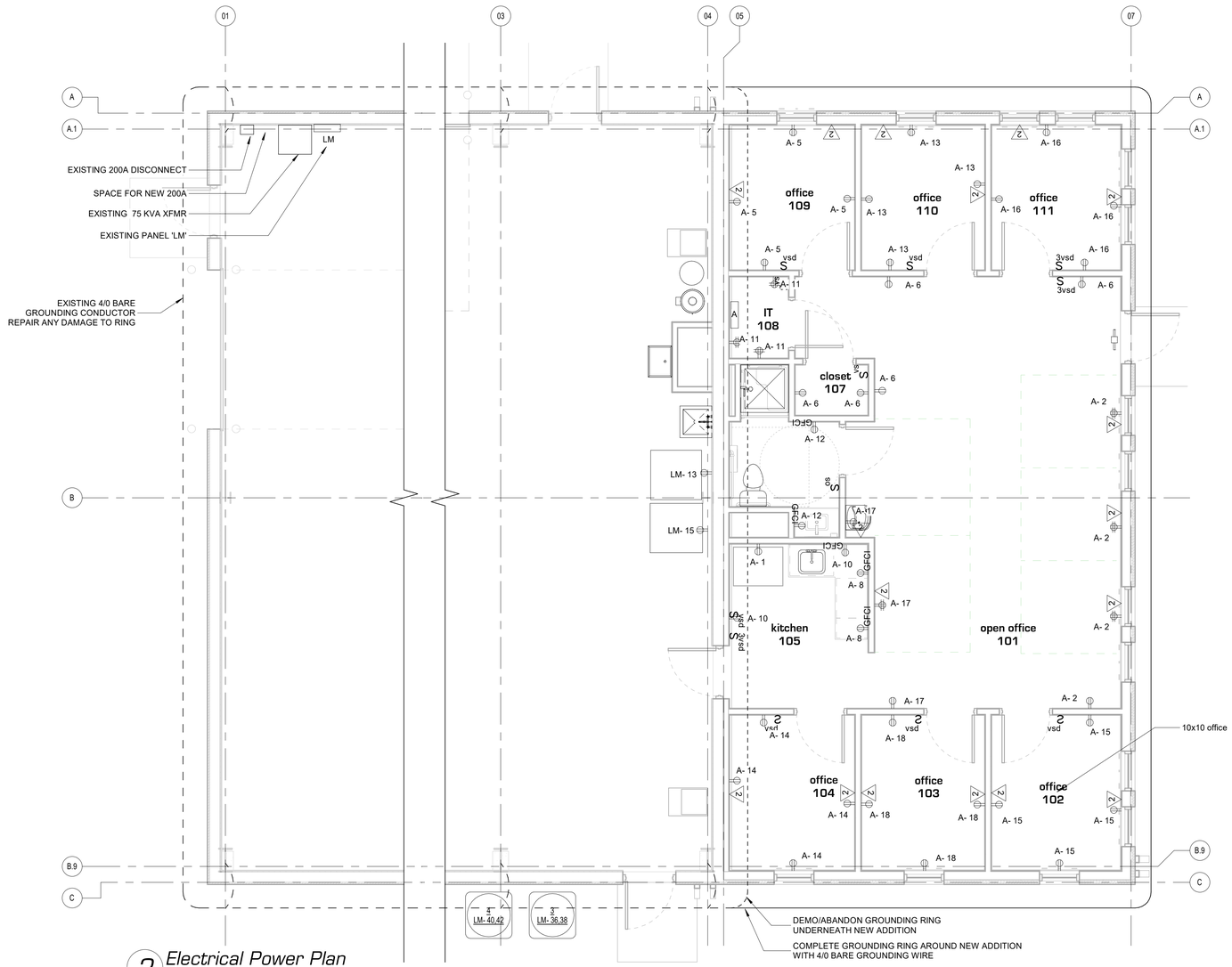
M201

LIGHTING FIXTURE SCHEDULE

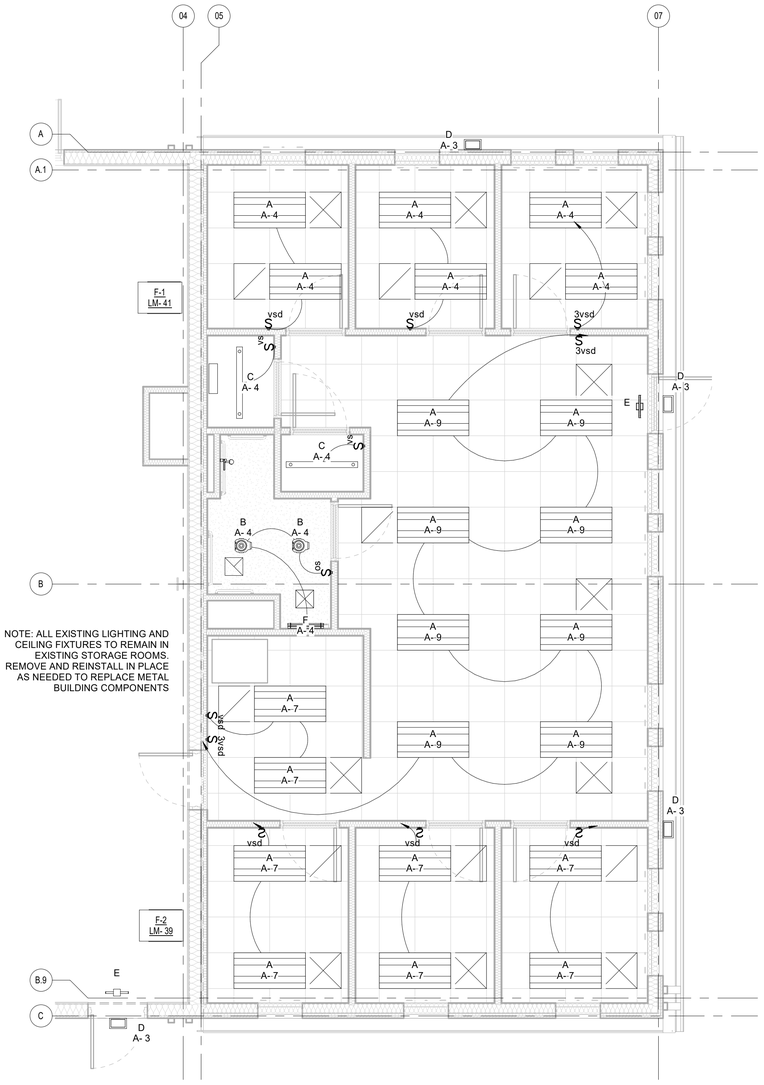
TAG	MOUNTING	VOLTAGE	LOAD	MAKE	DESCRIPTION	MODEL
A	GRID	MVOLT	47 VA	Acuity Brands Lighting	2RTL4 2X4 Volumetric Grid Mount LED, 4800 Nominal Lumens, 4000K	2RTL4 48L GZ10 LP840
B	RECESSED	MVOLT	10 VA	Lithonia	6" Round downlight, standard 1000 delivered lumens,dimmable to 10% (0-10V dimming) 80 CRI 4000 K color temperature. Has a Semi Specular finish.	LDN6 40/10 LO6 AR LSS MVOLT GZ10
C	PENDANT	MVOLT	11 VA	Lithonia	4FT LED Wraparound, Nominal 1500 LM high efficiency, Square, linear prisms, 120V, Natural aluminum	BLWP4 15LHE SPD 120 DNA
D	WALL	MVOLT	15 VA	Lithonia	Wedge Architectural Wall Sconce Visual Comfort Optics	WDGE2 LED
E	GRID	MVOLT	5 VA	Ecoglo	Emergency Exit Sign	Exit Sign
F	WALL	MVOLT	13 VA	Lithonia	WALL BRACKET AND SERFACE MOUNT LED 23 3/8 LONG WITH 1200 NOMINAL LUMENS 13W	WL2 1200L GZ10 LP840

LIGHTING CONTROL SCHEDULE

Type	DESCRIPTION	MANUFACTURER	MODEL
3vsd	Wall Mount Line Volt Dimmer With Occupancy/Vacancy Sensor, Manual On, Mult-way Operation.	SensorSwitch	WSXA MWO PDT D SA
os	Wall Mount Occupancy Sensor Line Volt Switch	SensorSwitch	WSXA PDT
vs	Wall Mount Line Volt Vacancy Sensor Switch, Manual On.	SensorSwitch	WSXA PDT SA
vsd	Wall Mount Line Volt Dimmer With Occupancy/Vacancy Sensor, Manual On.	SensorSwitch	WSXA D PDT SA



2 *Electrical Power Plan*
1/4" = 1'-0"



1 *Electrical Ceiling Lighting and Power Plan*
1/4" = 1'-0"

Electrical Lighting and Power Plan

Dane County - RFB 322026 – Maintenance / Office Building Construction
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July 12, 2022

PLAN NORTH
SCALE: 1/4" = 1'-0"

E201

PANELBOARD: A

LOCATION: | **VOLTS:** 120/208Y | **A.I.C. RATING:**
SUPPLY FROM: | **PHASES:** 3 | **TYPE:**
MOUNTING: | **WIRES:** 4 | **MAIN BUS RATING:**
ENCLOSURE: | **SUBFEED LUGS:** | **MCB RATING:**
DISTRIBUTION BRANCH: | **ISOL. GROUND BUS:** | **NEUTRAL BUS:**

NOTES:

CKT	CIRCUIT DESCRIPTION	TRIP	POL...	A		B		C		POL...	TRIP	CIRCUIT DESCRIPTION	CKT
1	Receptacle	20 A	1	180...	1260...					1	20 A	Open Office - SE	2
3	Lighting - Exterior	20 A	1			60 VA	339...			1	20 A	LIGHTING - DWELLING UNIT	4
5	Offices - North	20 A	1					720...	900...	1	20 A	Receptacle	6
7	LIGHTING - DWELLING UNIT	20 A	1	378...	360...					1	20 A	Receptacle	8
9	LIGHTING - DWELLING UNIT	20 A	1			378...	360...			1	20 A	Receptacle	10
11	Receptacle	20 A	1					1080...	360...	1	20 A	Receptacle	12
13	Receptacle	20 A	1	720...	720...					1	20 A	Offices - South	14
15	Receptacle	20 A	1			720...	720...			1	20 A	Receptacle	16
17	Receptacle	20 A	1					720...	720...	1	20 A	Receptacle	18
19													20
21													22
23													24
25													26
27													28
29													30
31													32
33													34
35													36
37													38
39													40
41													42
		TOTAL LOAD:		3618 VA		2577 VA		4500 VA					
		TOTAL...		31 A		21 A		39 A					

LEGEND:

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	CALCULATED LOAD	PANEL TOTALS	
LIGHTING	1134 VA	125.00%	1418 VA		
Receptacle	9540 VA	100.00%	9540 VA	**TOTAL CONNECTED LOAD:**	10695 VA
LIGHTING - DWELLING UNIT	22 VA	100.00%	22 VA	**TOTAL CALCULATED...**	10979 VA
				TOTAL CONNECTED AMPS.:	30 A
				TOTAL CALCULATED...	30 A

PANELBOARD: LM

LOCATION: exterior - | **VOLTS:** 120/208Y | **A.I.C. RATING:**
SUPPLY FROM: | **PHASES:** 3 | **TYPE:**
MOUNTING: | **WIRES:** 4 | **MAIN BUS RATING:**
ENCLOSURE: | **SUBFEED LUGS:** | **MCB RATING:**
DISTRIBUTION BRANCH: | **ISOL. GROUND BUS:** | **NEUTRAL BUS:**

NOTES:

CKT	CIRCUIT DESCRIPTION	TRIP	POL...	A		B		C		POL...	TRIP	CIRCUIT DESCRIPTION	CKT
1	EXISTING LOAD	50 A	2	0 VA	0 VA					1	30 A	EXISTING LOAD	2
3						0 VA	0 VA			1	20 A	EXISTING LOAD	4
5	EXISTING LOAD	50 A	2					0 VA					6
7				0 VA									8
9	EXISTING LOAD	50 A	2			0 VA							10
11								0 VA					12
13	Washer	20 A	1	180...									14
15	Dryer	20 A	1			180...							16
17													18
19	EXISTING LOAD	20 A	1	0 VA	0 VA					1	15 A	EXISTING LOAD	20
21	EXISTING LOAD	20 A	1			0 VA	0 VA			1	20 A	EXISTING LOAD	22
23	EXISTING LOAD	20 A	1					0 VA	0 VA	1	30 A	EXISTING LOAD	24
25	EXISTING LOAD	20 A	1	0 VA	0 VA					1	15 A	EXISTING LOAD	26
27	EXISTING LOAD	20 A	1			0 VA	0 VA			1	15 A	EXISTING LOAD	28
29	EXISTING LOAD	20 A	1					0 VA	0 VA	1	15 A	EXISTING LOAD	30
31	EXISTING LOAD	20 A	1	0 VA									32
33	EXISTING LOAD	20 A	1			0 VA							34
35	EXISTING LOAD	20 A	1					0 VA	1072...	2	20 A	AC-1	36
37	EXISTING LOAD	20 A	1	0 VA	1072...								38
39	F-2	20 A	1			1692...	1072...			2	20 A	AC-2	40
41	F-1	20 A	1					1692...	1072...				42
		TOTAL LOAD:		1252 VA		2944 VA		3836 VA					
		TOTAL...		10 A		27 A		34 A					

LEGEND:

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	CALCULATED LOAD	PANEL TOTALS	
Other	7672 VA	100.00%	7672 VA		
Receptacle	360 VA	100.00%	360 VA	**TOTAL CONNECTED LOAD:**	8032 VA
				TOTAL CALCULATED...	8032 VA
				TOTAL CONNECTED AMPS.:	22 A
				TOTAL CALCULATED...	22 A

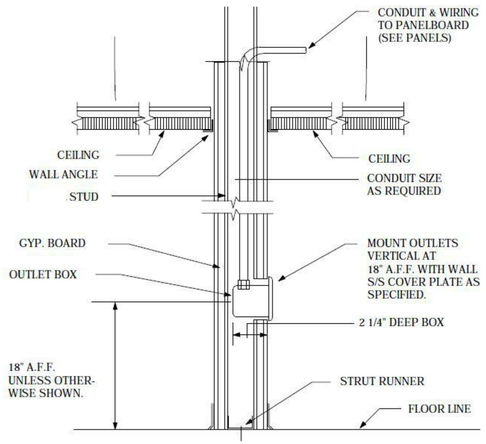
WIRE SIZE SCHEDULE.

WIRE SIZES FOR BRANCH CIRCUITS OF 100' LENGTH OR LESS SHALL BE:
20A BREAKER - #12 CU
25-35A - #10 CU
40-50A - #8 CU
55-65A - #6 CU
LARGER AS LISTED BY NEC, OR AS SHOWN BY RISER.

BRANCH CIRCUITS OF 101-200' IN LENGTH SHALL USE ONE LARGER SIZE OF WIRE (IE A CIRCUIT 150' IN LENGTH WITH A 20A BREAKER SHALL USE #10).

BRANCH CIRCUITS GREATER THAN 200' SHALL USE WIRE TWO SIZES LARGER (IE A 20A BRANCH CIRCUIT 275' IN LENGTH SHALL USE #8).

Wire Size



Typ. Power/Data Receptacle Detail

GENERAL ELECTRICAL NOTES DESIGN BASED ON 2014 NEC

1. THE ELECTRICAL SUBCONTRACTOR SHALL PROVIDE A COMPLETE AND USABLE SYSTEM WITHIN THE INTENT AND SPIRIT OF THAT INDICATED BY THESE DRAWINGS. WORK OR MATERIALS NOT SHOWN BY THE DRAWINGS, BUT NECESSARY TO COMPLETE THE SYSTEM SHALL BE INCLUDED AT NO ADDITIONAL COST. THE ELECTRICAL SUBCONTRACTOR SHALL FURNISH AND INSTALL ALL ELECTRICAL SYSTEM REQUIREMENTS INCLUDING FIRE ALARM DEVICES, SWITCHES, RACEWAY, DEVICES, CONDUCTOR, SPECIALTIES, CUTTING AND PATCHING, ETC.
2. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS, MAKE ADJUSTMENTS TO AVOID CONFLICT. NOTIFY THE ENGINEER IN WRITING OF SIGNIFICANT CONSTRUCTABILITY ISSUES.
3. TELEPHONE/DATA OUTLETS, UNLESS NOTED, SHALL BE CIRCUITED BY OTHERS. THE ELECTRICAL CONTRACTOR SHALL PROVIDE A CONDUIT TO AN ACCESSIBLE SPACE.
4. THE ELECTRICAL SUBCONTRACTOR SHALL VERIFY PLACEMENT OF ALL RECEPTACLES, WIRING DEVICES, SWITCHES, AND DISCONNECTS WITH ARCHITECTURAL, MECHANICAL AND PLUMBING DRAWINGS AND TRADES BEFORE ROUGHING IN.
5. WIRING MEANS AND METHODS SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL SUBCONTRACTOR. THE ELECTRICAL SUBCONTRACTOR SHALL VERIFY CEILING TYPE WITH FIXTURE SELECTION BEFORE ORDERING.
6. PANEL BOARDS SHALL BE SQUARE D NQOD OR EQUAL FROM CUTLER HAMMER, OR GE. BREAKERS SHALL BE BOLT-IN TYPE QOB OR EQUAL. 10kaic MINIMUM.
7. CONDUCTOR SHALL BE THW, THWN, OR THHN. CONDUIT SHALL BE GALV. EMT, IMC OR RIGID.
8. POWER RECEPS, WALL SWITCHES, COVER PLATES, ETC. SHALL BE COMMERCIAL GRADE 20 RATED MATCHING THE STYLE AND APPEARANCE OF THE EXISTING DEVICES.
9. EQUIPMENT SIZES ARE AS DESIGNED. CIRCUIT BREAKERS, CONDUIT, JUNCTION BOXES, DISC. SWITCHES, CONDUCTOR SIZES. DEVICE LOCATIONS, ETC., SHALL BE ADJUSTED TO THE EQUIPMENT SUBMITTED AND APPROVED FOR INSTALLATION ON THIS PROJECT
10. THE ELECT SUBCONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION BETWEEN THE ELECTRICAL AND MECHANICAL TRADES TO PROVIDE CLEARANCES ABOVE CEILING BETWEEN RECESSED LIGHT FIXTURES AND THERMAL INSULATION OR COMBUSTIBLE MATERIALS IN ACCORD WITH N.E.C. PARAGRAPH 410-65 & 66.
11. THE ELECTRICAL SUBCONTRACTOR SHALL PREPARE A SUBMITTAL PACKAGE WHICH DETAILS PROPOSED EQUIPMENT (FIVE COPIES). AT MINIMUM THE SUBMITTAL PACKAGE WILL CONTAIN DETAILED DATA ON LIGHTING FIXTURES, PANELBOARDS, AND ACCESSORIES. EQUAL EQUIPMENT TO THAT SPECIFIED WILL BE CONSIDERED IF PERFORMANCE, APPEARANCE, SERVICEABILITY AND QUALITY ARE JUDGED BY THE ENGINEER AND/OR ARCHITECT TO BE EQUAL.
12. ALL WORK SHALL COMPLY WITH COGNIZANT CODES, REGULATIONS, LAWS AND THE DETERMINATIONS OF THE LOCAL BUILDING OFFICIAL AT NO EXTRA COST. THE CONTRACTOR SHALL INFORM THE ENGINEER IN WRITING OF ANY CONFLICT BETWEEN THE PLANS AND APPLICABLE CODES.
13. ALL MATERIALS WILL BE NEW AND IN NEW CONDITION.
14. ALL ELECTRICAL CONNECTIONS 120V OR HIGHER SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL SUBCONTRACTOR. MECHANICAL SHALL FURNISH DUCT SMOKE DETECTORS AS REQUIRED TO ELECTRICAL FOR FIRE ALARM INSTALLATION. MECHANICAL SHALL PROVIDE HVAC CONTROL WIRING. ELECTRICAL SHALL COORDINATE EQUIPMENT CONNECTION WITH MECHANICAL AND PLUMBING.
15. WHEN SYSTEMS ARE COMPLETE AND OPERATIONAL, A 'PUNCH LIST' INSPECTION SHALL BE REQUESTED BY THE CONTRACTOR. SUCH AN INSPECTION SHALL NOT BE CONDUCTED ON INCOMPLETE OR NON-OPERATIONAL SYSTEMS.
16. UPON COMPLETION OF WORK, SUBMIT FOUR COPIES OF OPERATION AND MAINTENANCE MANUALS, AS BUILT DRAWINGS, GUARANTIES AND WARRANTIES. AT MINIMUM, THE CONTRACTOR WILL WARRANTY ALL WORK, EQUIPMENT AND MATERIALS FOR ONE YEAR PAST BENEFICIAL OCCUPANCY.
17. ALL RECEPS, LOCATED IN AREAS SUBJECT TO MOISTURE, OR ON THE EXTERIOR OF THE BUILDING SHALL BE G.F.I. TYPE, IN WEATHERPROOF, TYPE-FS, BOX WITH WEATHERPROOF COVER.
18. NO RECEP. OR DEVICE SHALL BE LOCATED WITHIN 4'-0" OF SINKS. OUTLETS NEAR SINKS, OR IN LOCATIONS SUBJECT TO MOISTURE SHALL BE G.F.I. TYPE.
19. ALL ELECTRICAL WIRING IN OR ON THE BUILDING SHALL BE IN IMC, RMC, OR EMT, IN ACCORDANCE WITH LOCAL CODE AMENDMENT. ALL EXTERIOR WIRING SHALL BE BURIED IN CONDUIT APPROVED FOR THE ENVIRONMENT IN ACCORDANCE WITH LOCAL CODE AMENDMENT.
20. ALL PATIENT CARE AREAS AS DEFINED BY NEC SHALL HAVE HOSPITAL GRADE RECEPTACLES. PATIENT CARE AREAS SHALL BE WIRES IN ACCORDANCE WITH WITH NEC SECTION 517, INCLUDING BUT NOT LIMITED TO REDUNDANT GROUNDING (517.13).

General Electrical Notes

Electrical Schedules and Details

Dane County - RFB 322026 – Maintenance / Office Building Construction
7102 US HWY 12/18 Madison, WI 53718
July 12, 2022

SCALE: As indicated

E202

TECHNOLOGY LEGEND

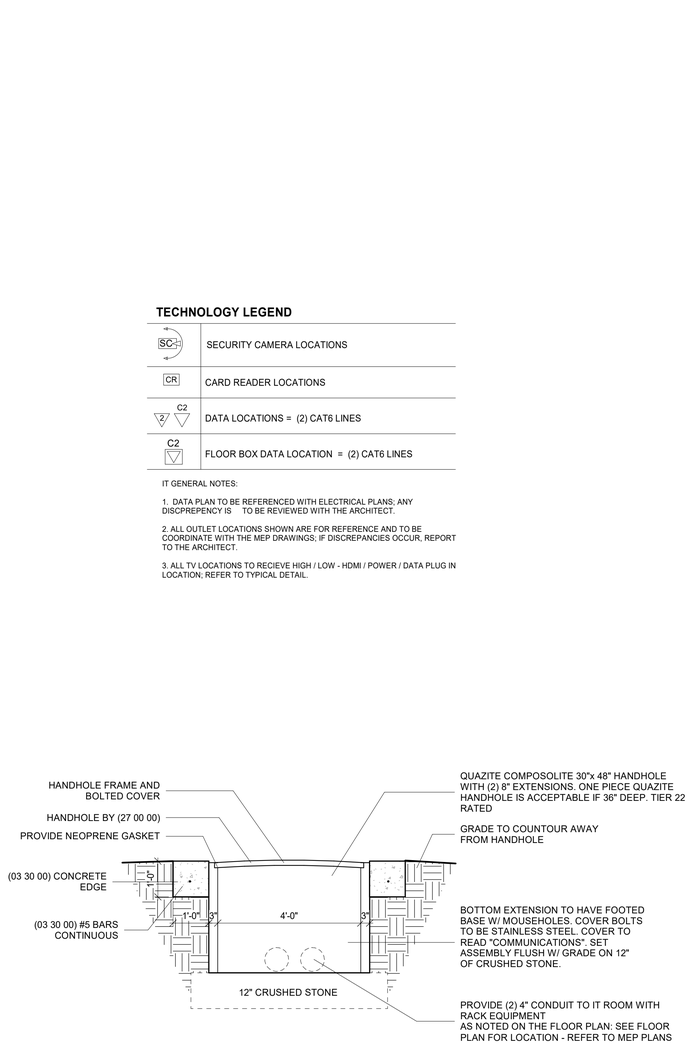
SC	SECURITY CAMERA LOCATIONS
CR	CARD READER LOCATIONS
C2 / 2	DATA LOCATIONS = (2) CAT6 LINES
C2	FLOOR BOX DATA LOCATION = (2) CAT6 LINES

IT GENERAL NOTES:

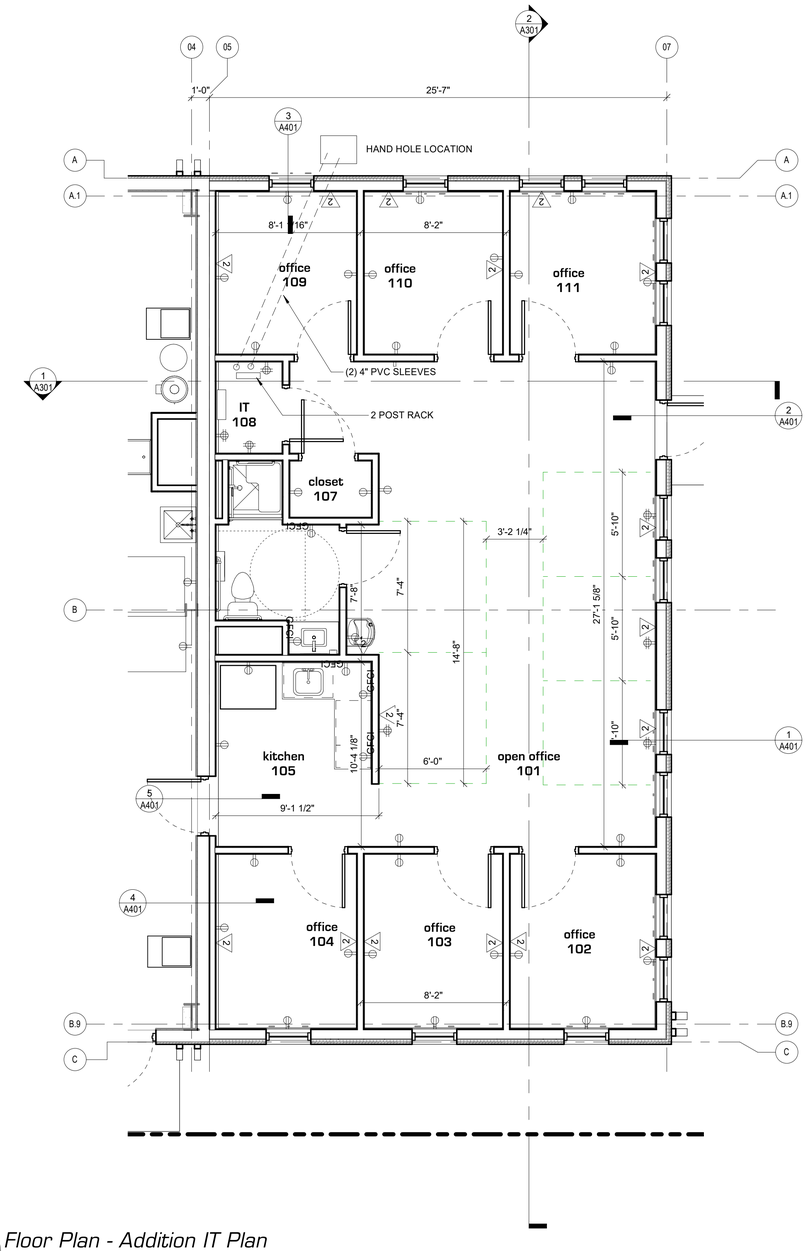
1. DATA PLAN TO BE REFERENCED WITH ELECTRICAL PLANS; ANY DISCPREPENCY IS TO BE REVIEWED WITH THE ARCHITECT.

2. ALL OUTLET LOCATIONS SHOWN ARE FOR REFERENCE AND TO BE COORDINATE WITH THE MEP DRAWINGS; IF DISCREPANCIES OCCUR, REPORT TO THE ARCHITECT.

3. ALL TV LOCATIONS TO RECIEVE HIGH / LOW - HDMI / POWER / DATA PLUG IN LOCATION; REFER TO TYPICAL DETAIL.



2 *Communications Handhole Detail*
1/2" = 1'-0"



1 *Floor Plan - Addition IT Plan*
1/4" = 1'-0"

IT Plan

Dane County - RFB 322026 – Maintenance / Office Building Construction
7102 US HWY 12/18 Madison, WI 53718
July 12, 2022

PLAN NORTH
SCALE: As indicated

IT201