

December 21, 2020

**PROJECT MANUAL**  
for the work at:

**COLLEEN LONEY MANOR (CLM)**  
**Exterior Improvements 2021**

(which include bridge rails, community room asphalt shingle roof, third floor flat roof, decking & associated work).

For the:

**Dakota County CDA**

1228 Town Centre Drive  
Eagan, MN 55123

**Project No.**  
**CF06-1217**

**Contact:**

**Vince Markell**

**Dakota County CDA**

Office: (651) 675-4507

[vmarkell@dakotacda.org](mailto:vmarkell@dakotacda.org)

**00 0110**  
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End of 00 0110



Dakota County  
Community Development  
Agency

December 21, 2020

00 1116-

## REQUEST FOR BIDS (RFB)

Colleen Loney Manor (CLM)

1675 Livingston Ave.

W. St. Paul, MN 55118

**Re: CLM Exterior Improvements 2021 (which include bridge rails, community room asphalt shingle roof, third floor flat roof, decking & associated work).**

Qualified contractors are invited to submit a **bid** for the above noted public housing site. Bids will be received for a single contract for the complete work.

On site review: by contractor. Contractor may park on Livingston Ave. or in the marked "visitor" stalls on-site. Access the deck via the bridge at the rear of the building. Access can be made from the outside.

**Bids due: February 12, 2021—before 10AM**

Current tenant status: occupied

Contract goal dates:

Shop drawings for railings: March 20, 2021

Community room Roof: May 22, 2021

Railing installation: June 12, 2021

Flat roof & deck: July 17, 2021

Landscape restoration: July 17, 2021

**Project completion: July 17, 2021**

Project description: CLM Exterior Improvements 2021 (which include bridge rails, community room asphalt shingle roof, third floor flat roof, decking & associated work).

The project completion date can be extended and is subject to mutual agreement between the contractor and the CDA.

This is a formal bid process. Bids can't be e-mailed. Bids can be placed in our outside drop box or delivered to our office. Note that the CDA Office Building is currently closed to the public. For uniformity, please submit your price on the **Bid Form** included in this Project Manual. All bids must be signed.

### Bonding Requirements

- A. A bid guarantee from each bidder equivalent to five percent of the bid price. The bid guarantee shall consist of a firm commitment such as a bid bond, certified check, or other negotiable instrument accompanying a bid as assurance that the bidder will, upon acceptance of his bid, execute such contractual documents as may be required within the time specified.
- B. A performance bond on the part of the contractor for 100% of the contract price. A performance bond is one executed in connection with a contract to secure fulfillment of all the contractor's obligations under such contract.
- C. A payment bond on the part of the contractor for 100% of the contract price. A payment bond is one executed in connection with a contract to assure payment as required by law of all persons supplying labor and material in the execution of the work provided for in the contract.

(page two RFB continued)

There is no bonding requirement for bids under \$100,000.00.

**Project requirements:**

The Contractor and all subcontractors must submit signed MN IC-134 withholding forms at completion of the project as a condition of final payment.

The Contractor and all subcontractors are required to submit evidence of insurance \$1,500,000.00 in personal & advertising injury, \$1,500,000.00 commercial general liability per occurrence (\$2,000,000.00 general aggregate), and 1,500,000.00 in automobile liability combined single limit, and the name the Dakota County Community Development Agency (and also any funding agencies named by the CDA) as co-insured.

The CDA is exempt from the local .25% transit tax and there is no exemption certificate. The CDA pays the MN state tax of 6.875% but will seek sales tax rebates after the project is complete. The contractor shall provide the CDA with all records and documentation to claim this refund.

This is a **Davis-Bacon prevailing wage project**. Prevailing wages can be accessed on-line at: [www.wdol.gov](http://www.wdol.gov).

It should be noted that the principal contractor is responsible for full compliance of all the workers on-site (the contractor, sub-contractors and any lower-tier subcontractors) with the labor standards provisions applicable to the project.

**Certified weekly payroll will be required to be submitted to CDA offices every week and includes paying construction labor on a weekly basis (a Davis-Bacon requirement).**

Contractors or subcontractors that violate the labor standards provisions may face administrative sanction by HUD and/or DOL and may be subject to civil or criminal prosecution.

**Contractor requirements:**

The Contractor must be able to demonstrate that both the Contractor and its project superintendent have at least five years of experience constructing projects of the size and type of this one or larger. A list of at least five references and a minimum of five similar projects must be submitted to the CDA upon request.

The Contractor must have full knowledge of the services to be provided (as determined by the CDA). The Contractor must have a satisfactory credit standing, must have no delinquent tax liability, and must have the financial capability to perform under a contract for this project including the purchase of materials for the project. The Contractor must provide financial statements and credit references upon request.

The Contractor must not be in default on any contracts, must be in compliance with all tax laws of the State of Minnesota, must not be debarred by any institution or government agency as a result of performance of past contracts and must not be in violations of any provisions of contracts with the CDA.

The Contractor must not have been convicted for any criminal offense related to obtaining or attempting to obtain any public or private contract, or subcontract. The Contractor must not have been convicted, under any jurisdiction of law, for embezzlement, theft, forgery, bribery, falsification or destruction of records, receiving stolen property, or any other offense that, in the opinion of the CDA, is related to business integrity, honesty or performance under contract.

The Contractor must, if so requested by the CDA, submit evidence of ability to obtain the required insurance, must submit references and evidence of compliance with the above requirements within (72) hours of the request.

The Contractor agrees to provide any information requested by the CDA both before and during performance under a contract that the CDA feels is required to verify the Contractor's compliance with the conditions of the price proposal, the requirements of the Project Manual or the conditions of the Contract.

(page three RFB continued)

The public housing sites (the whole site) to be a tobacco free work zone.

**The Dakota County Community Development Agency:**

The CDA reserves the right to reject any/all price proposals received, and to waive any informalities and irregularities in this price proposal request. The CDA reserves the right to reject any contractor that, in the opinion of the CDA, does not meet the listed requirements or is not a responsible contractor or does not otherwise have the capability to perform under a contract.

Information supplied to the CDA is subject to the Minnesota Data Privacy Act (MN stat 13.01 et seq) and shall become public unless it falls within one of the exemptions of the act and is identified as such by the Contractor. The CDA assumes no responsibility to defend any action by a third party seeking to access material deemed to not be public information. The CDA will release any information to comply with a court order. The CDA assumes no responsibility for any damages claimed by a Contractor because of release of information provided by the Contractor to the CDA.

**Payment requests:**

The CDA processes payment requests within (30) days on receipt. The CDA will process up to (2) payment requests per month. Payment requests must have all properly completed paperwork accompanying the request to be processed. See Low Bid Checklist for the paperwork requirements. The payments to be sent out via USPS. Checks cannot be picked up.

**Change orders:**

All change order requests must have the signed (signed by both the contractor and CDA representative) change order paperwork prior to work taking place. Requests for change orders will not allowed without the proper paperwork.

**New Covid Policy:**

The Contractor must maintain the required minimum 6' social distancing rule at all times to all CDA employees and residents during any work on CDA properties. If there is work inside a CDA building, then social distancing and appropriate face masks must always be used. If the contractor, sub-contractors, workers, or reps have been found to violate this policy, then work can be stopped. Work may not restart until corrections and assurances have been made to follow this policy. The contractor must provide all appropriate face masks and PPE for the workers on site.

Respectfully,

Vince Markell

Facilities Contract Manager

office: 651-675-4507

e-mail: [vmarkell@dakotacda.org](mailto:vmarkell@dakotacda.org)

## 00 7300 Davis-Bacon Wage Determinations

Please re-check the web site during the proposal process for the latest wage determination.

The wage determinations and updates can be accessed on-line at:

<http://www.beta.sam.gov>

The current wage determinations are:

**General decision number:** MN20200020  
**Modification:** 8  
**Date of applicable wage decision:** 10/16/2020

or contact me if you want an updated printed copy of the wage determination. You will be required to abide by the above dated determination and modified dates.

Tips on the web site—

Double click on: **Selecting DBA WDs**

The next screen, select:

State: **Minnesota**  
County: **Dakota**  
Construction type: **residential**

Then press **select**.

Scan through the different construction job definitions for the wage determination.

Some of the abbreviations:

DBA is **Davis Bacon Act**  
WDs are **wage determinations**

**Note that the current Davis-Bacon Carpentry rate is:**

**Base (\$31.89) + Fringe (\$19.46) = \$51.35**

# EMPLOYEE RIGHTS UNDER THE DAVIS-BACON ACT

## FOR LABORERS AND MECHANICS EMPLOYED ON FEDERAL OR FEDERALLY ASSISTED CONSTRUCTION PROJECTS

THE UNITED STATES DEPARTMENT OF LABOR WAGE AND HOUR DIVISION

### PREVAILING WAGES

You must be paid not less than the wage rate listed in the Davis-Bacon Wage Decision posted with this Notice for the work you perform.

### OVERTIME

You must be paid not less than one and one-half times your basic rate of pay for all hours worked over 40 in a work week. There are few exceptions.

### ENFORCEMENT

Contract payments can be withheld to ensure workers receive wages and overtime pay due, and liquidated damages may apply if overtime pay requirements are not met. Davis-Bacon contract clauses allow contract termination and debarment of contractors from future federal contracts for up to three years. A contractor who falsifies certified payroll records or induces wage kickbacks may be subject to civil or criminal prosecution, fines and/or imprisonment.

### APPRENTICES

Apprentice rates apply only to apprentices properly registered under approved Federal or State apprenticeship programs.

### PROPER PAY

If you do not receive proper pay, or require further information on the applicable wages, contact the Contracting Officer listed below:

or contact the U.S. Department of Labor's Wage and Hour Division.



For additional information:

**1-866-4-USWAGE**  
(1-866-487-9243) TTY: 1-877-889-5627



**WWW.WAGEHOUR.DOL.GOV**

# EMPLOYEE RIGHTS

## UNDER THE NATIONAL LABOR RELATIONS ACT

The NLRA guarantees the right of employees to organize and bargain collectively with their employers, and to engage in other protected concerted activity. Employees covered by the NLRA<sup>1</sup> are protected from certain types of employer and union misconduct. This Notice gives you general information about your rights, and about the obligations of employers and unions under the NLRA. Contact the National Labor Relations Board, the Federal agency that investigates and resolves complaints under the NLRA, using the contact information supplied below, if you have any questions about specific rights that may apply in your particular workplace.

### Under the NLRA, you have the right to:

- Organize a union to negotiate with your employer concerning your wages, hours, and other terms and conditions of employment.
- Form, join or assist a union.
- Bargain collectively through representatives of employees' own choosing for a contract with your employer setting your wages, benefits, hours, and other working conditions.
- Discuss your terms and conditions of employment or union organizing with your co-workers or a union.
- Take action with one or more co-workers to improve your working conditions by, among other means, raising work-related complaints directly with your employer or with a government agency, and seeking help from a union.
- Strike and picket, depending on the purpose or means of the strike or the picketing.
- Choose not to do any of these activities, including joining or remaining a member of a union.

### Under the NLRA, it is illegal for your employer to:

- Prohibit you from soliciting for a union during non-work time, such as before or after work or during break times; or from distributing union literature during non-work time, in non-work areas, such as parking lots or break rooms.
- Question you about your union support or activities in a manner that discourages you from engaging in that activity.
- Fire, demote, or transfer you, or reduce your hours or change your shift, or otherwise take adverse action against you, or threaten to take any of these actions, because you join or support a union, or because you engage in concerted activity for mutual aid and protection, or because you choose not to engage in any such activity.
- Threaten to close your workplace if workers choose a union to represent them.
- Promise or grant promotions, pay raises, or other benefits to discourage or encourage union support.
- Prohibit you from wearing union hats, buttons, t-shirts, and pins in the workplace except under special circumstances.
- Spy on or videotape peaceful union activities and gatherings or pretend to do so.

### Under the NLRA, it is illegal for a union or for the union that represents you in bargaining with your employer to:

- Threaten you that you will lose your job unless you support the union.
- Refuse to process a grievance because you have criticized union officials or because you are not a member of the union.
- Use or maintain discriminatory standards or procedures in making job referrals from a hiring hall.
- Cause or attempt to cause an employer to discriminate against you because of your union-related activity.
- Take other adverse action against you based on whether you have joined or support the union.

If you and your coworkers select a union to act as your collective bargaining representative, your employer and the union are required to bargain in good faith in a genuine effort to reach a written, binding agreement setting your terms and conditions of employment. The union is required to fairly represent you in bargaining and enforcing the agreement.

**Illegal conduct will not be permitted.** If you believe your rights or the rights of others have been violated, you should contact the NLRB promptly to protect your rights, generally within six months of the unlawful activity. You may inquire about possible violations without your employer or anyone else being informed of the inquiry. Charges may be filed by any person and need not be filed by the employee directly affected by the violation. The NLRB may order an employer to rehire a worker fired in violation of the law and to pay lost wages and benefits, and may order an employer or union to cease violating the law. Employees should seek assistance from the nearest regional NLRB office, which can be found on the Agency's website: [www.nlr.gov](http://www.nlr.gov).

Click on the NLRB's page titled "About Us," which contains a link, "Locating Our Offices." You can also contact the NLRB by calling toll-free: **1-866-667-NLRB (6572)** or (TTY) **1-866-315-NLRB (6572)** for hearing impaired.

<sup>1</sup>**The National Labor Relations Act covers most private-sector employers.** Excluded from coverage under the NLRA are public-sector employees, agricultural and domestic workers, independent contractors, workers employed by a parent or spouse, employees of air and rail carriers covered by the Railway Labor Act, and supervisors (although supervisors that have been discriminated against for refusing to violate the NLRA may be covered).

This is an official Government Notice and must not be defaced by anyone.



U.S. Department of Labor



## 01 7700 REQUIRED SUBMITTALS LIST

**GENERAL CONTRACTOR:** IF YOUR PROPOSAL WAS SELECTED AS THE LOW RESPONSIBLE CONTRACTOR, YOU WILL BE REQUIRED TO PROVIDE THE FOLLOWING INFORMATION.

**THE ITEMS BELOW MUST BE SUBMITTED BEFORE YOU CAN START ON THE WORK.**

- \_\_\_\_\_ **Verification of Compliance (submit with bid form)**
- \_\_\_\_\_ **Signed contract**
- \_\_\_\_\_ **Non-collusion Affidavit** (required for projects over \$50,000.00).
- \_\_\_\_\_ **Certificates of Insurance** from:
  - \_\_\_\_\_ General Contractor (with Dakota Cty. CDA as an additional named insured).
  - \_\_\_\_\_ All subcontractors, including independent contractors
- \_\_\_\_\_ **HUD-5369 A** Representations, Certifications, and Other Statements of Bidders.
- \_\_\_\_\_ **Performance and Payment Bond** (not required for projects under \$100,000.00)
- \_\_\_\_\_ **DCCDA-01** Employee & Subcontractor / Independent Contractor List
- \_\_\_\_\_ **Schedule of work**
- \_\_\_\_\_ **Section 3 plan and policy discussion**

**THE ITEMS BELOW MUST BE SUBMITTED BEFORE A CHECK FOR PAYMENT WILL BE ISSUED.**

- \_\_\_\_\_ **Start of Construction** (to be issued by the Dakota County CDA)
- \_\_\_\_\_ **Payroll reports** (General Contractor and Subcontractors)  
All workers listed on payroll report forms as independent contractors must submit insurance certificates.
- \_\_\_\_\_ **DCCDA-02** Material and Supplier List
- \_\_\_\_\_ **DCCDA-03** Low Income Housing Refund (sales tax rebate)
- \_\_\_\_\_ **Utility rebates** (LED lighting; water heater and furnace replacement)
- \_\_\_\_\_ **Proof of Permit** (if applicable)
- \_\_\_\_\_ **IC-134 MN** Dept. of Revenue Withholding Affidavit (can be done on-line [www.taxes.state.mn.us](http://www.taxes.state.mn.us))
- \_\_\_\_\_ **Labor questionnaire HUD 4730**
- \_\_\_\_\_ **Lien Waivers** from General Contractor, Subcontractors, and all suppliers
- \_\_\_\_\_ **Section 3 Summary Report** (must be filled out by General Contractor even if there were no additional new hires)
- \_\_\_\_\_ **Certificate of Completion** (to be issued by the Dakota County CDA)

The HUD forms noted above in **bold** above are available at **HUDclips** at <http://www.hud.gov/offices/adm/hudclips/> or upon request.

## **01 7800 ADDITIONAL FORMS AVAILABLE UPON REQUEST**

The following items are **not** included in this project manual, but are available upon request.

**Non-collusion Affidavit**

**Sample contract**

**HUD 5370 Contract for Construction**

**HUD 1421**

**HUD 1422**

**DCCDA-01 Employee & Subcontractor List**

**Sample Schedule of Work**

**DCCDA-02 Material Supplier List**

**DCCDA-03 Low-Income Housing Refund Contractor's Statement**

**Payroll Report**

**HUD 4730 (or HUD-11) Federal Labor Standards Questionnaire**

**IC-134 MN Department of Revenue Withholding Affidavit for Contractors**

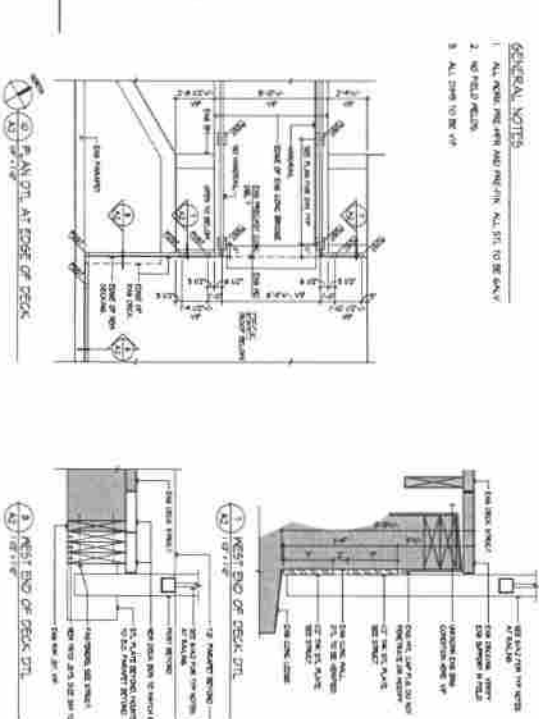
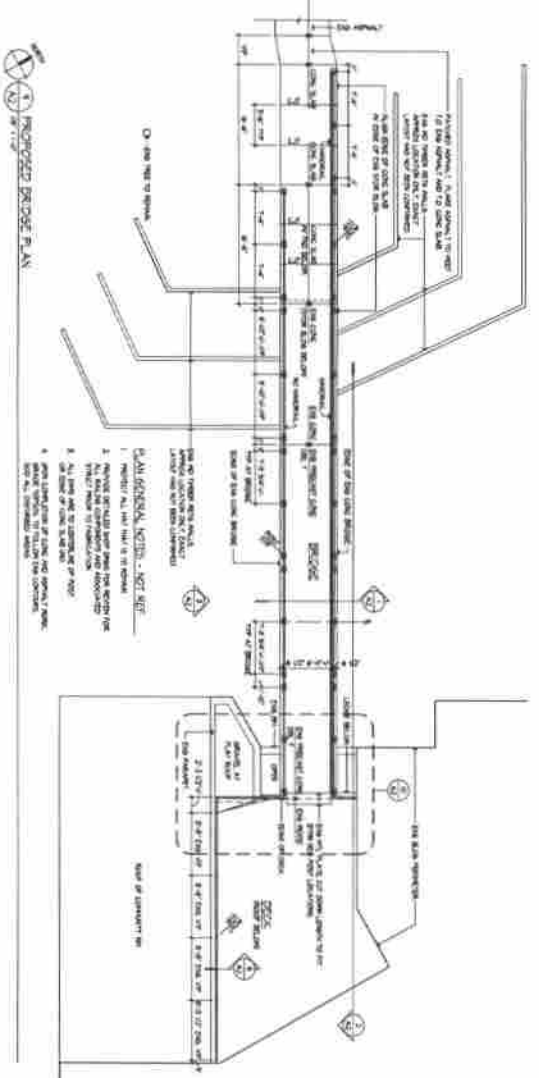
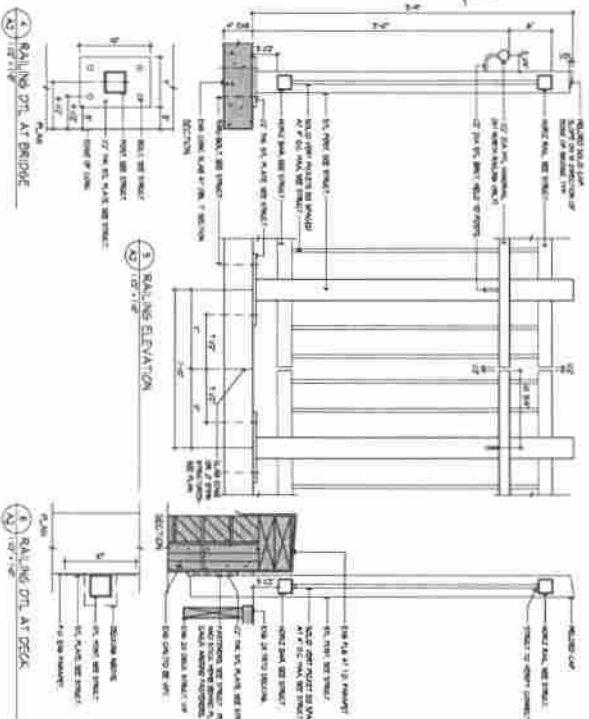
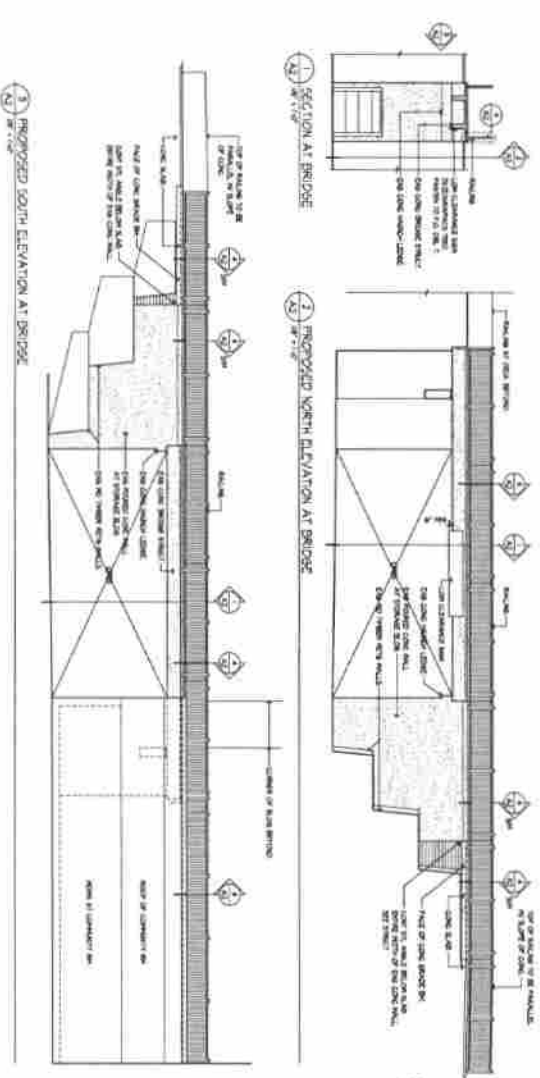
**Section 3- Resident Employment Opportunity Data**

**Section 3- Certification for Business**

**Section 3- Summary Report**

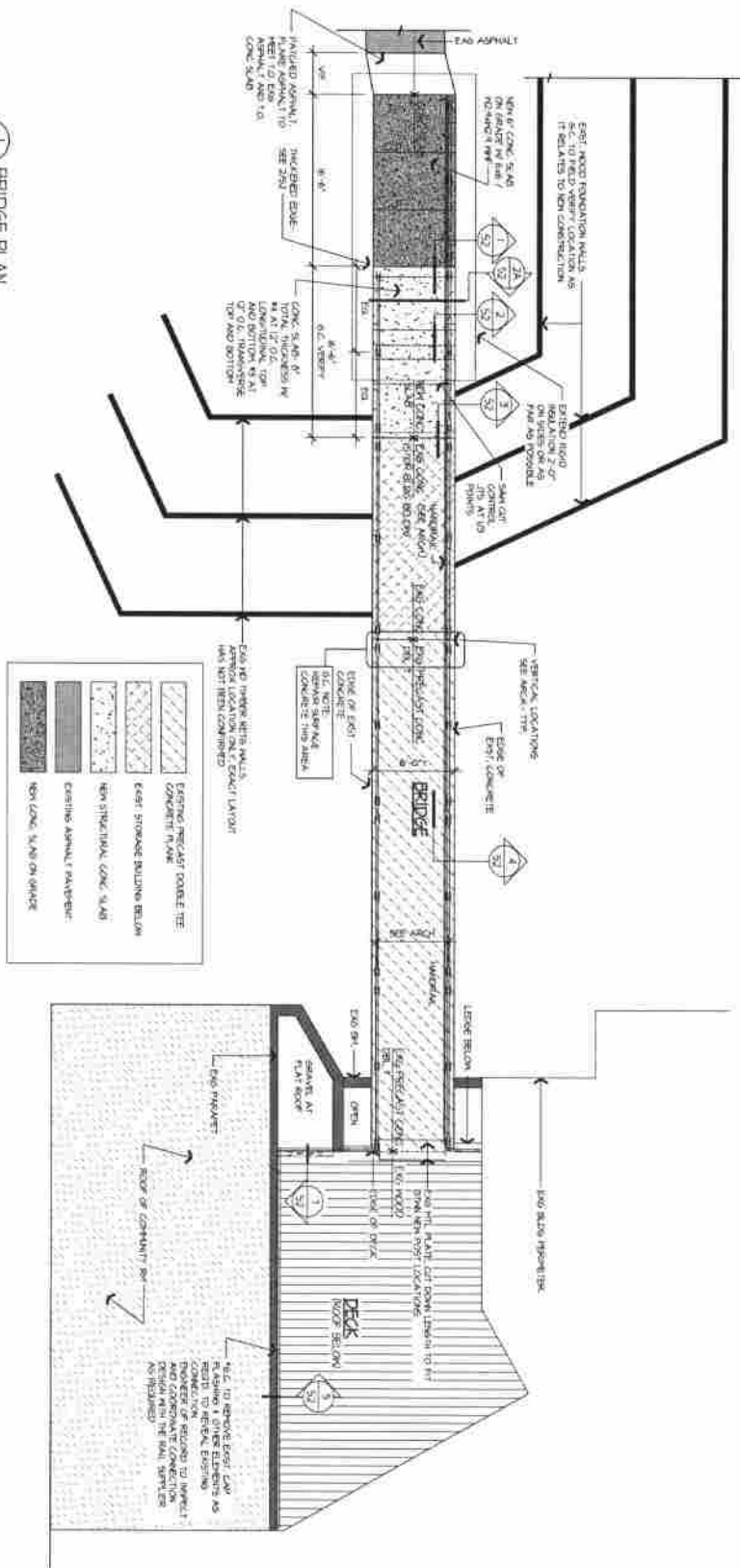
If you are the low responsible contractor, you will be responsible for submitting the above items as well as other information that is requested.





**GENERAL NOTES**  
 1. ALL NOTES ARE APPLICABLE UNLESS NOTED OTHERWISE.  
 2. NO FIELD NOTES.  
 3. ALL DIMS TO BE SHOWN.

1 BRIDGE PLAN  
S1 3/8" = 1'-0"



EXISTING PRECAST CONCRETE TIE  
CONCRETE IN CASE

EXIST. STORAGE BUILDING BELOW

NEW STRUCTURAL CONC. SLAB

EXISTING ASPHALT PAVEMENT

NEW CONC. SLAB ON GRADE

S1	DATE	3-14-18
	PROJECT	COLLEEN LONEY MANOR BRIDGE
DESIGNED BY	PAUL W. VOIGT	
CHECKED BY	PAUL W. VOIGT	
APP. NO.	18-001	
DATE	3-14-18	

**COLLEEN LONEY MANOR BRIDGE**

1675 LIVINGSTON AVE  
WEST ST. PAUL, MN 55118

**FOUNDATION PLAN**

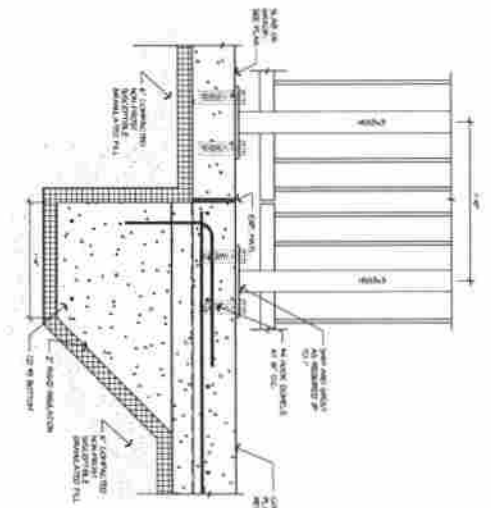
I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.

*Paul W. Voigt*  
Signature  
PAUL W. VOIGT  
30798  
8-14-18  
Date Registration Number

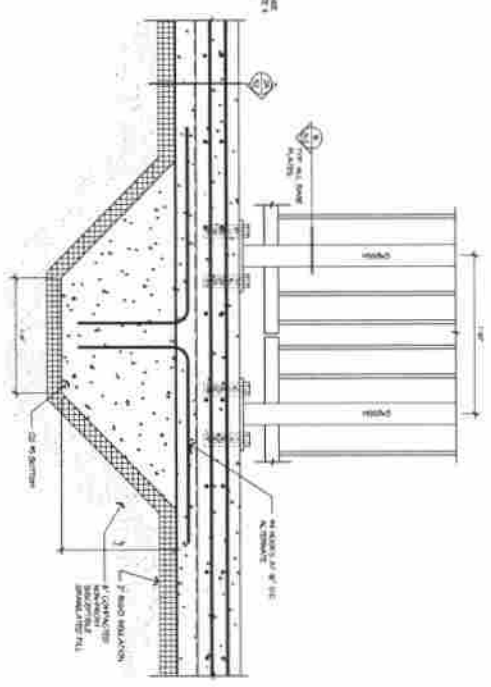
**VOIGT & ASSOCIATES, INC.**  
STRUCTURAL ENGINEERING SERVICES

4655 NICOLS RD.  
SUITE 104  
EAGAN, MINNESOTA, 55122

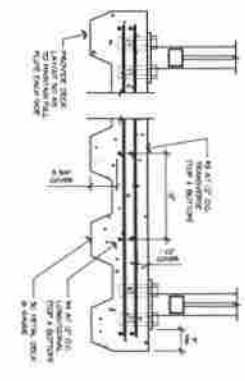
PHONE (651) 686-7727  
FAX (651) 685-6444



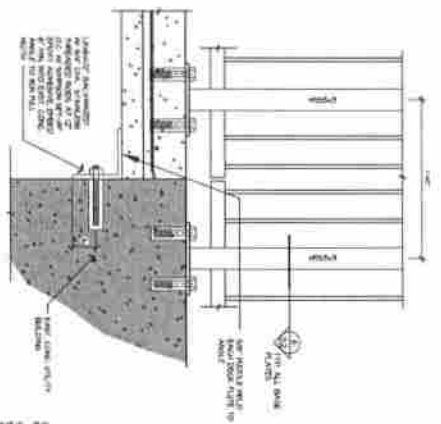
1. NEW CONCRETE PIER ON NEW CONCRETE SLAB



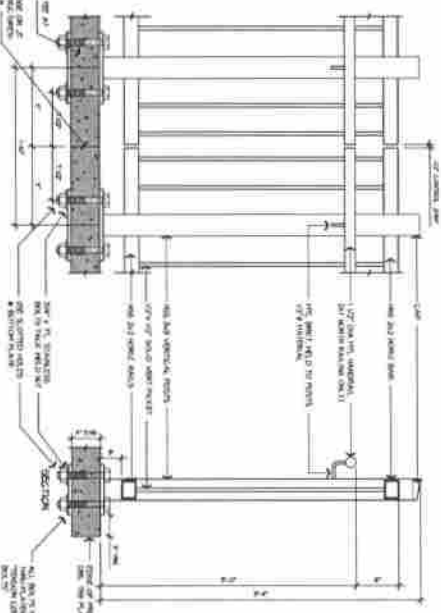
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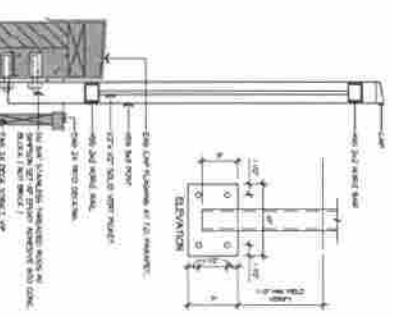
3. SLAB SECTION - STRUCTURAL SLAB



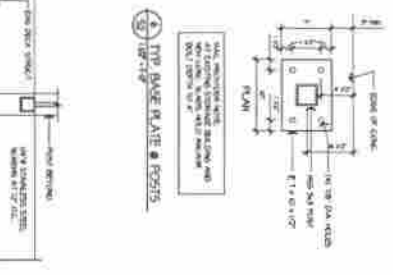
4. NEW CONCRETE SLAB TO EXISTING STRUCTURE



5. RAILINGS ELEVATION & PRECAST



6. TOP RAILING DETAIL AT DECK



7. TOP SLAB PLATE & POSTS

S2	DATE	08-18-18
	DESIGNER	PAUL W. VOIGT
	CHECKED BY	PAUL W. VOIGT
	APP. NO.	08-18-18

**COLLEEN LONEY MANOR BRIDGE**

1675 LIVINGSTON AVE.  
WEST ST. PAUL, MN 55118

**FOUNDATION PLAN**

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

*Paul W. Voigt*  
PAUL W. VOIGT  
00000  
8-18-18  
Registration Number

**VOIGT & ASSOCIATES, INC.**  
STRUCTURAL ENGINEERING SERVICES

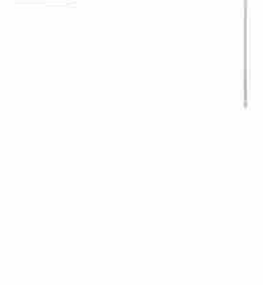
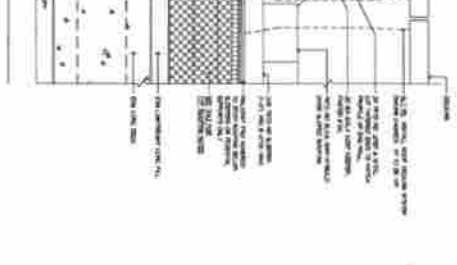
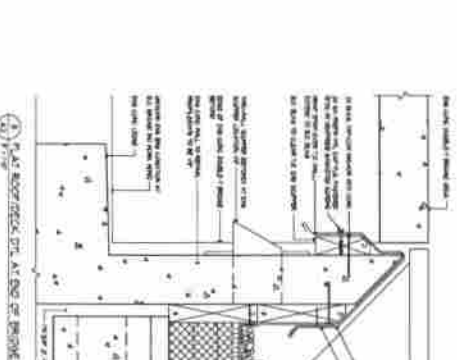
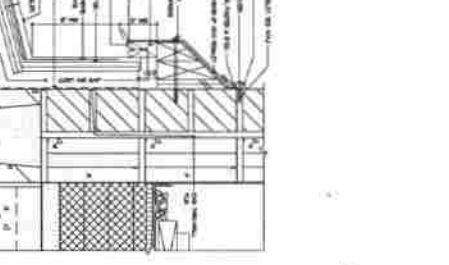
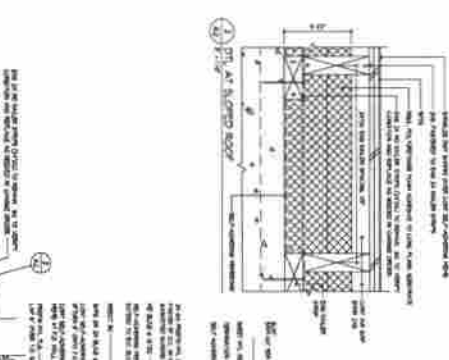
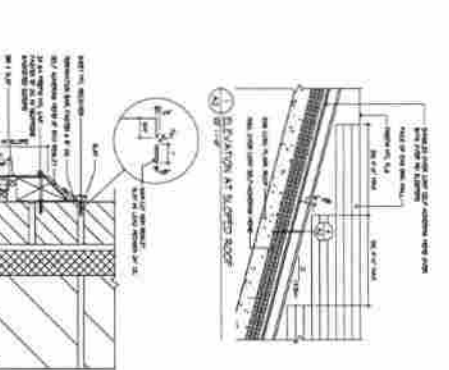
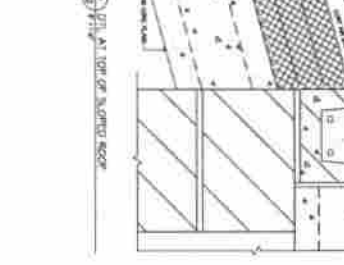
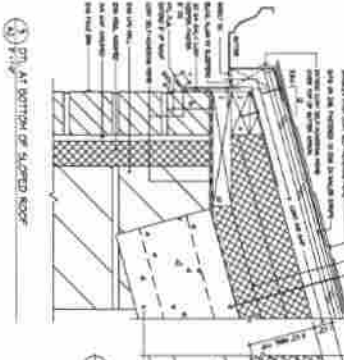
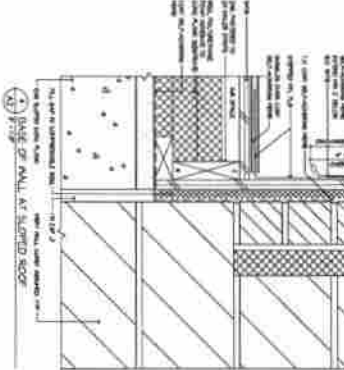
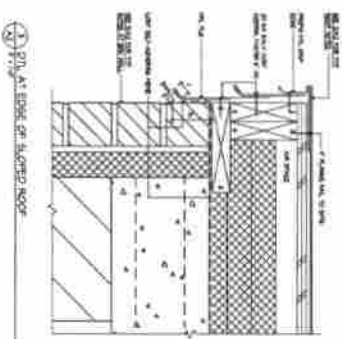
8657 NICOLS RD.  
SUITE 206  
FARGO, MINNESOTA 58122

PHONE (701) 684-7127  
FAX (701) 684-8444









ALL FINISHED PORTIONS OF THE DETAILS REPRESENT EXISTING CONDITIONS UNLESS ALL DIMENSIONS ARE TO BE PROVIDED AND NOTED IN NOTES.

Approved by: *[Signature]*  
 Date: 08/11/11

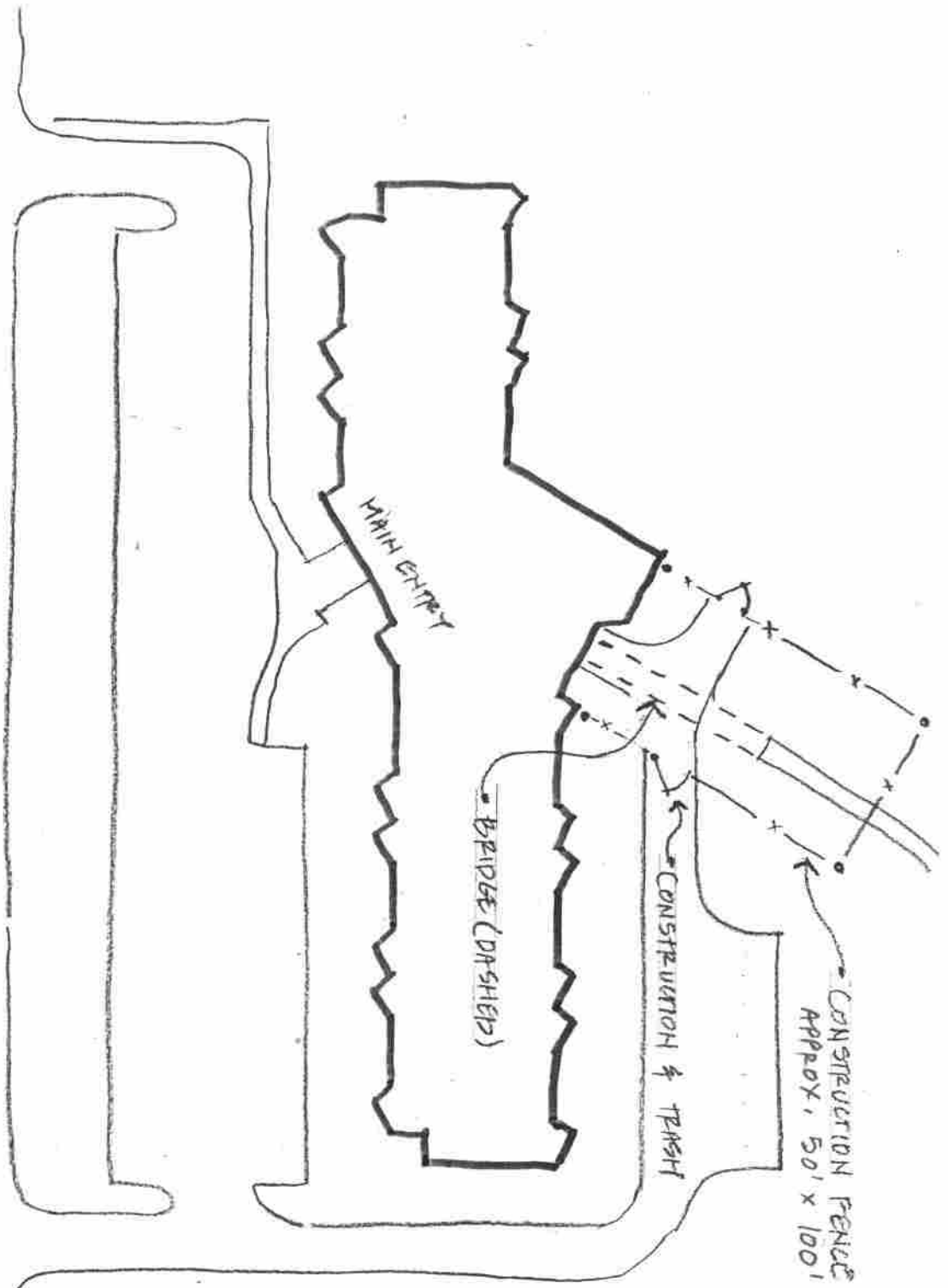
Checked by: *[Signature]*  
 Date: 08/11/11

Drawn by: *[Signature]*  
 Date: 08/11/11

Scale: AS SHOWN

Notes:  
 1. All dimensions are in feet and inches unless otherwise noted.  
 2. All materials shall be as specified in the contract documents.  
 3. All work shall be in accordance with the applicable building codes and standards.  
 4. All work shall be completed within the specified time frame.

CLM  
1675 LIVINGSTON AVE.  
W. ST. PAUL, MN



LIVINGSTON AVE.

NORTH



SITE PLAN

SCALE: 1" = 50'-0"

# CLM

## Exterior Improvements 2021

12/21/2020

### Divisions 02-35, Additional Project Requirements

All the labor, material, equipment, permit, taxes, and incidental services to completely remove and replace the following per the attached project manual. Contractors are responsible for closing out permits.

All the "X" items to be replaced or to be provided; all the quantities of products shall be replaced or provided for, unless limited by description below, or limited by the room finish schedule.

**Key:** "X" notes that work is the the base; blank means no work in base  
 "A" see alternates  
 "A1" see numbered alternates (if marked as such)

**Notes:**

1. Verify quantities and and dimensions on site.
2. Products specified below or "approved equals" to be used on this project. Materials cannot be substituted without previous **written** CDA approval. The process for product approval—the contractor shall provide product information at least (4) days prior to pricing/bid deadline. The CDA staff will decide if the request is an "approved equal" to the product specified.
3. The use of unapproved products shall be subject to removal and replacement by the contractor at their expense.
4. ~~Sizes of windows, doors, and to be the same size as the existing products, unless otherwise directed by the CDA.~~
5. Install products per code, and per manufacturer's recommendations. The notes in the project manual may exceed code, and manufacturer's requirements. All requirements must be met: project manual, code, and manufacturer's.
6. ~~Sawing/cutting may be done before finished floors are in place, but cannot be done after finished floors are in place (in unoccupied residences).~~
7. Power tools used on public housing sites to be used per manufacturer's recommendations. Guards and safety protections shall not be removed or modified.
8. Parking, driving, and moving equipment across the site may damage the grass and other site improvements. Contractor to restore damages at their expense.
9. See architectural, structural, and Project Manual for further information (see below). This document supercedes the architectural drawings for the design of the deck. The deck will not be constructed of wood decking, wood joists and wood supports.

2 Existing Conditions & General Requirements	
X	Section 3 Plan This site is a public housing site is funded in part by HUD. Thus, a Section 3 plan must be in-place by the contractor. Section 3 businesses and Section 3 residents should be considered for business oportunities in this contract.
X	Davis-Bacon Site Notifications Please post (Davis-Bacon) Prevailing Wage Notice and Employee Rights Poster in a conspicuous place on-site.
X	Paperwork submittals See the Project Manual for other paperwork submittal requirements.
X	Portable Toilet A portable toilet must be provided on-site for the work force.
X	Residential trash Republic Services provides building trash & recycling services on <b>Tuesdays &amp; Fridays</b> paid by the CDA. The contractor shall accommodate regular services for the building and the residents.
X	Construction debris The contractor shall provide separate construction debris disposal. Construction debris can't go into the building's trash and recycling containers.
X	Work force separation The contractor shall maintain separation from the on-site residents. Separate circulation and facilities to be maintained.
X	Construction clean The site is to be picked up daily.
X	Nail pick-up Nails to be picked up daily (using a magnet).
X	Site access The contractor shall provide ladders, forklifts, boom trucks, and cranes for providing work force access across the site.
X	Building Access The contractor and sub-contractors to have minimal access into the building. Access will be from the outside. The third floor door to the rear deck to be locked and barricade.
X	Site parking There is limited site parking and is designated for the residents. The contractor to park on the street and in the Sports Dome Overflow parking (with the City's permission).
X	Construction fencing See the Project Manual and Bid Form. 6' high chain link fence with at least (2) vehicle gates.
X	Shop drawings Steel railing shop drawings prior to manufacturing for approval by architect & engineering.
X	Shop drawings light guage steel joist framing & adjustable pedestal post locations for approval by architect & engineering.
X	Special testing inspector for steel railing connections to the bridge. Submit reports.
X	building permit provide permit and inspections

# CLM

## Exterior Improvements 2021

<b>3</b>	<b>Concrete</b>	
X	paving	See structural. Paving at the west end of the bridge.
X	Structural slab	See structural. Structural slab at the west end of the bridge.
<b>5</b>	<b>Metals</b>	
X	Deck joist	Trex Elevations Steel deck joist framing system (not treated lumber). Provide manufacturer's shop drawings of steel joist framing for approval. Trex elevations is a triple coated steel joist system. Use other Trex components such as beams, beam blocking, mid-span blocking, track etc. to complete the structure.
<b>6</b>	<b>Wood &amp; Plastics</b>	
X	Trex decking	Trex 2"x6" (2" square edge board). Transcend Tropicals series. Color to be selected by owner. (from this group). Standard deck board pattern (90 degrees to joist lay-out).
X	Deck fastening	Trex hidden fastening system. Stainless steel screws and fasteners. No fasteners thru the top of the deck.
X	Deck joist	See Metals (no wood joists). This information supercedes the architectural
X	Deck supports	Tile Tech Paver System which includes all components needed for a working deck system. The system includes adustable pedestals, PVC pipe, couplers, joist caps, spaces, shims, bracing flanges, bracing arms etc. No wood components.
X	Deck supports (equal)	Archtrak, Eterno adjustable pedestal system with joist clips is also an approved system. See architectural.
X	Buildex Tek Select	Use grade 5 bolts with Climaseal ACR corrosion resistant self drilling bolts
X	Decking testing, adjust & shim	30 days after the project completion, inspect, test, and shim the decking system. Review this procedure with CDA maintenance staff.
<b>7</b>	<b>Thermal &amp; Moisture</b>	
X	ridge vent	continuous vent. See architectural.
X	roof shingle	GAF Timberline Prestique high definition 40 year asphalt shingle; weathered wood color. Certainteed products not allowed (warranty issues, hail claim response issues in 2013 & 2014).
X	roof shingle	Owens Corning Tru Definition Duration shingle. Color: Driftwood
X	ice and water shield	3' up from wall/ roof down to roof edge; 3' wide at each side of valley; roof/wall connection; at garage
X	gutter guard	Leaf Solution brand; white unless otherwise noted; bend over the end. LeaFree brand gutter covers (.024 thick alum.) are also approved equal. No other substitutions accepted. Color to match gutters.
X	as equal	Rhino Gutter guard. Fastens to fascia. Stainless steel finish.
X	as equal	Hallett Gutter cover .019 aluminum with baked on finish. Fastens to top of gutter. Color to match gutter.
X	as equal	FoxGuard Gutter Cover. Bronze pre-finished .027 alum. cover (w/ holes). <a href="http://www.fox-guard.com">www.fox-guard.com</a> , 651-480-3154
X	gutter	Seamless 5" K style .032 guage. Brown.
X	downspout & elbow	3" x 4" seamless 5" K style .032 guage. Brown. 2"x3" will not be used. DS at both ends.
X	4' extension	East end--seamless 5" K style .032 guage-white; match size; cut ext. so that ext. rotates up. Pop rivet. West end-just an elbow.
X	conc. splash block	pre-cast concrete 30" long, natural finish
X	flat roof	See architectural.

**200 01 BID FORM**

Date: \_\_\_\_\_

Dakota County CDA  
Attn: Vince Markell (651-675-4507)  
e-mail: [vmarkell@dakotacda.org](mailto:vmarkell@dakotacda.org)

The undersigned, having carefully examined the Project Manual prepared by The Dakota County CDA for the following work:

**CLM Exterior Improvements 2021 (which include bridge rails, community room asphalt shingle roof, third floor flat roof, decking & associated work) West St. Paul, Dakota County, Minnesota,**

and having examined the site and being familiar with the local conditions affecting the cost of the Work, hereby proposes to furnish all labor, material, equipment, tools, transportation, taxes, landscape restoration and services necessary to complete the Work in accordance with the proposed Contract Documents for the following sums:

**A. BASE BID PRICES:**

- 1. Base price for galvanized metal rails at the bridge & deck includes associated work with path & bridge paving.**

Drawings A1, A2, S1, S2, & Project Specification (dated 8/14/2018), and Project Manual (dated 12/21/2020).

\_\_\_\_\_ **Dollars** (\$ \_\_\_\_\_).  
(state using words) (state using numbers)

- 2. Base price for community room asphalt shingle roof includes associated work such as insulation.**

Drawings A1, A2 & Project Specification (dated 9/30/2019), and Project Manual (dated 12/21/2020).

\_\_\_\_\_ **Dollars** (\$ \_\_\_\_\_).  
(state using words) (state using numbers)

- 3. Base price for third floor flat roof replacement, adjustable deck supports, slight gauge steel (deck) framing, and composite decking & associated work.**

Drawings A1, A2 & Project Specification (dated 9/30/2019), and Project Manual (dated 12/21/2020).

\_\_\_\_\_ **Dollars** (\$ \_\_\_\_\_).  
(state using words) (state using numbers)

- 4. TOTAL PRICES (ALL OF THE ABOVE LINES 1-3)**

\_\_\_\_\_ **Dollars** (\$ \_\_\_\_\_).  
(state using words) (state using numbers)

Associated work in this proposal to include: the proper disposal of the existing products that are being replaced. A summary of the work is included in the project manual.

(BID FORM continued)

**Alternates (must be filled out to be a completed/valid form):**

**Do not include the following in the base bid price-**

1. Provide a price to add temporary construction fencing, gates, and barricades and to maintain them during the work.

Add \$ \_\_\_\_\_

2. Provide a price to add more 5" concrete paving (and proper sub-grade) to transition from the new work at the west end of the bridge to the existing asphalt path.

Add \$ \_\_\_\_\_ / SF of concrete paving.

3. Provide a price to install a new interior roof drain in the open roof area (not covered by the deck). Pipe to the exterior (to drain). Remove existing roof drain and piping.

Add \$ \_\_\_\_\_

4. Add a powder coated finish to the hot-dip galvanized railing. Color to be selected by owner.

Add \$ \_\_\_\_\_

5. Add a 2 coat paint system to the hot-dip galvanized railing. The 2 coat system is a Sherwin Williams (MnDot bridge paint) system. Primer: Zinc Clad IHS OAP, Finish coat: Envirolastic 980 PA. Color to be selected by owner.

Add \$ \_\_\_\_\_

6. Provide a price for a Tile Tech Porcelain-Rustica 24"x24" paver mounted in the Paver-Tray-Wind uplift system with the adjustable pedestals and all the associated components for a porcelain paver deck in lieu of the Trex decking. The change is with the decking material only (the support structure remains the same).

Add / deduct \$ \_\_\_\_\_  
(circle one)

7. Add for the Special Inspector fees, reports, and coordinated by the contractor (not by the owner).

Add \$ \_\_\_\_\_

**If the base price proposal plus the total of all alternates exceed \$100,000.00 a Bid Guarantee is required for the total amount of base bid plus all alternates. The cost of the Bid Guarantee is the sole responsibility of the Contractor, no matter which combination of alternates the CDA accepts or not accepts.**

(BID FORM continued)

**B. GENERAL**

1. With this bid is bid security in the form of a \_\_\_\_\_ in the amount of \$ \_\_\_\_\_  
(cashier's check or bid bond, if >\$100,000) (5% of bid)

The bid security noted above includes the combination total of the base bid plus the total of all alternates.

The undersigned agrees that if this proposal is accepted and the undersigned refuses to enter into a Contract with the CDA on the terms stated in this Bid or fails to furnish satisfactory Performance and Payment Bonds in accordance with the Bidding Documents, this bid security shall be forfeited to the CDA, not as a penalty, but as liquidated damages.

2. The undersigned agrees, if awarded the Contract, will agree to Contract terms with the CDA and will execute the Agreement and furnish satisfactory Performance and Payments Bonds in accordance with the Bidding Documents.
3. The undersigned agrees that this proposal may not be withdrawn for a period of (60) calendar days immediately following the date of receipt of bids. It is understood that the CDA reserves the right to reject any or all bids, to waive any informality or irregularity in any bid received and to accept any alternate in any order or combination.
4. Addenda Nos. \_\_\_\_\_ have been received and incorporated in this Bid.
5. The Estimated cost of all materials related to this project including sales tax is \$ \_\_\_\_\_
6. The Estimated cost of labor related to this project is \$ \_\_\_\_\_
7. The Estimated cost of Permits, Overhead, Profit, Etc... is \$ \_\_\_\_\_
8. **I have reviewed the site conditions, the project manual, drawings, required submittals, and have a Section 3 plan.**

Business Name \_\_\_\_\_

Printed Name \_\_\_\_\_

Signature \_\_\_\_\_

Title \_\_\_\_\_ (Officer or Owner)

9. Minnesota Building License # \_\_\_\_\_

End of Bid Form

**VERIFICATION OF COMPLIANCE**

Project Name: \_\_\_\_\_

I, \_\_\_\_\_, solemnly affirm under oath that I am an owner or officer of  
\_\_\_\_\_ ("Contractor") and state under oath that:

1. Contractor meets all of the minimum criteria established in subdivision 3 of the Minnesota Responsible Contractor Law, Minnesota Statute section 16C.285; and any additional criteria that the contracting authority has included in the definition of responsible contractor in the bidding documents.

2. All subcontractors that Contractor intends to retain have verified to Contractor through a signed statement under oath by an owner or officer that they also meet the same minimum criteria, and that they have listed the subcontractors they intend to retain. Subject to Contractor's right to add subcontractors, those subcontractors are:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(Attach sheet with additional names if necessary.)

3. I declare under penalty of perjury that, to the best of my knowledge and belief, everything I have stated in this document is true.

\_\_\_\_\_  
Contractor's Signature

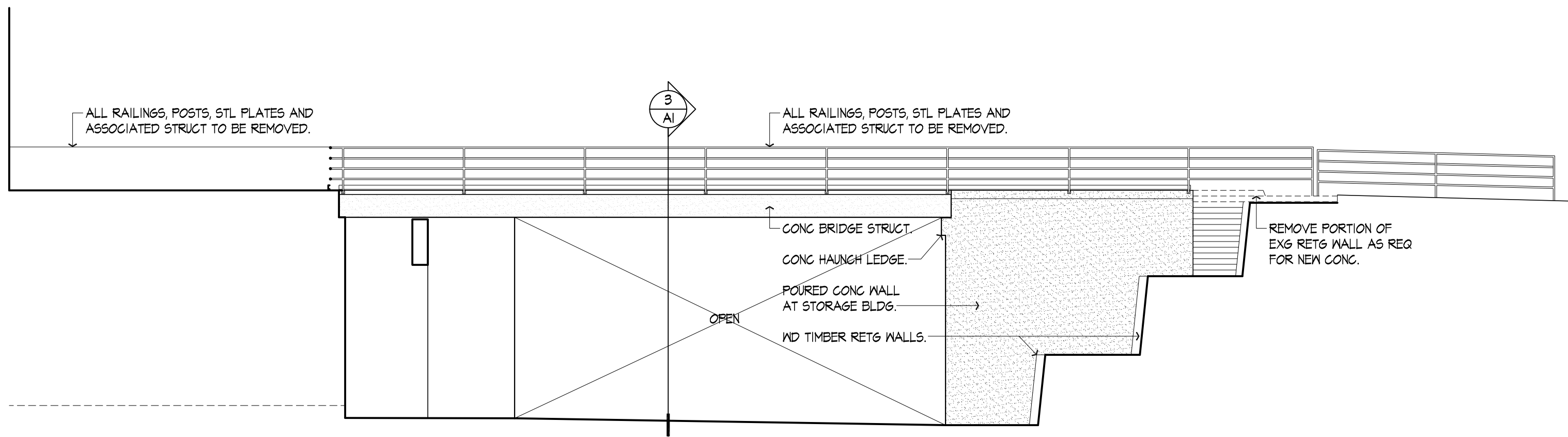
**This document is not required for projects < \$50,000.00**

The document does not need to be notarized.

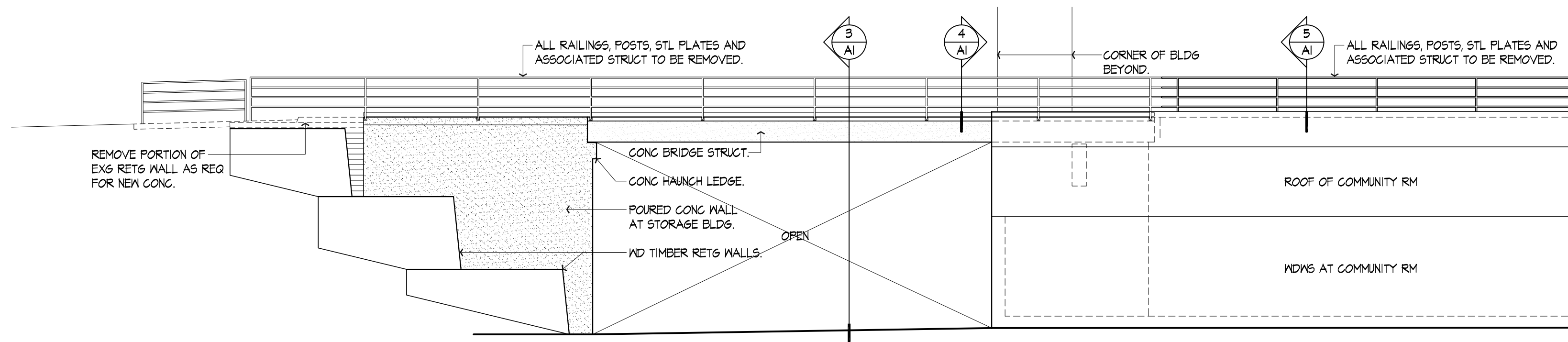


Revisions		
Number	Description	Date

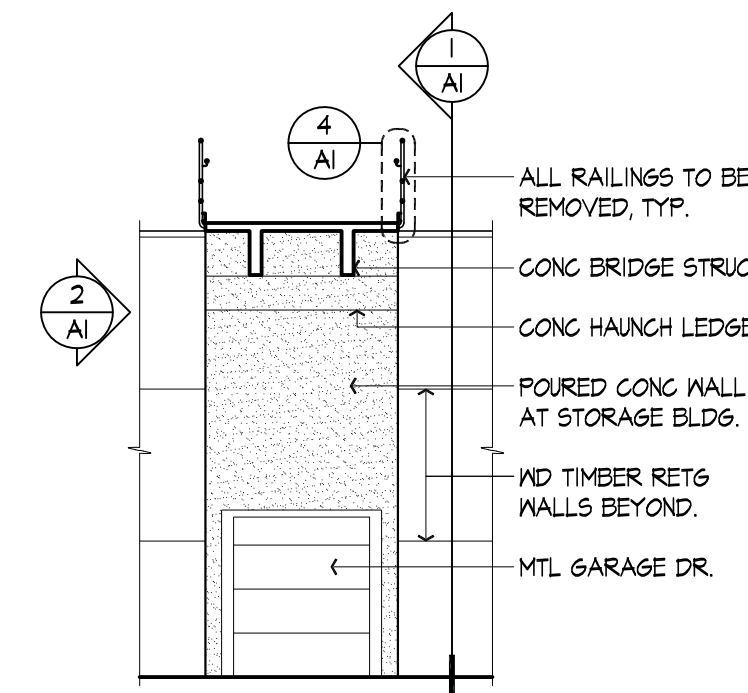
EXISTING BRIDGE ELEVATIONS  
EXISTING BRIDGE PLAN  
EXISTING RAILING DETAILS  
ABBREVIATIONS



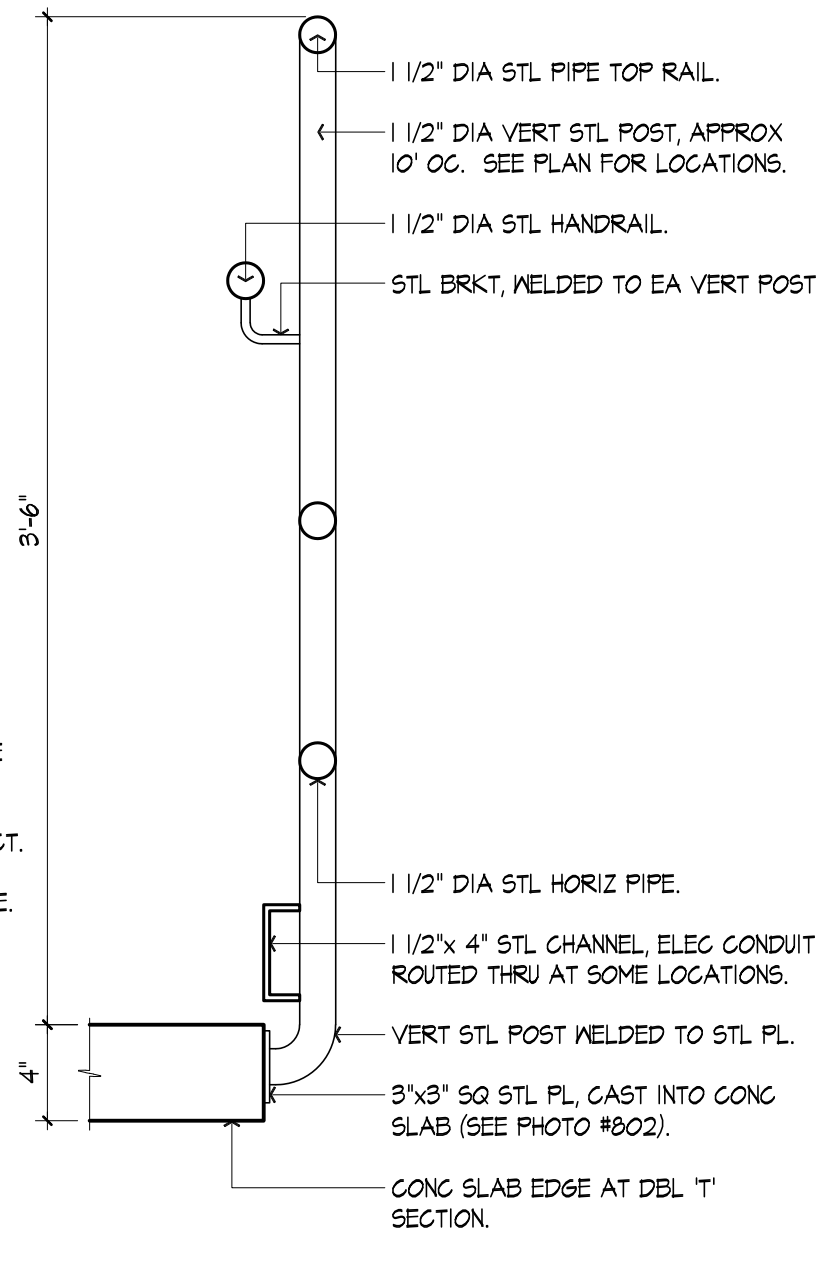
1 EXISTING NORTH ELEVATION AT BRIDGE  
1/8" = 1'-0"



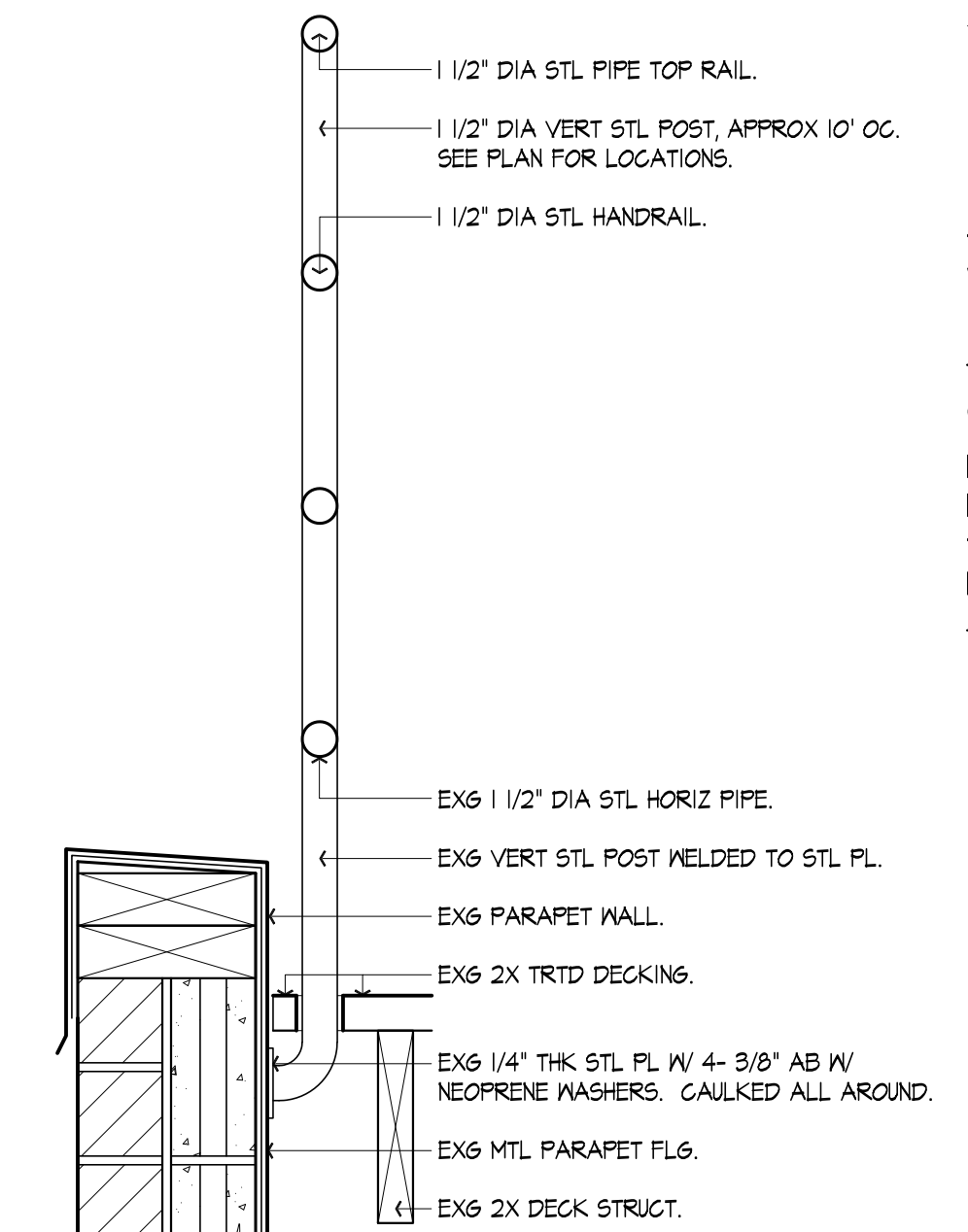
2 EXISTING SOUTH ELEVATION AT BRIDGE  
1/8" = 1'-0"



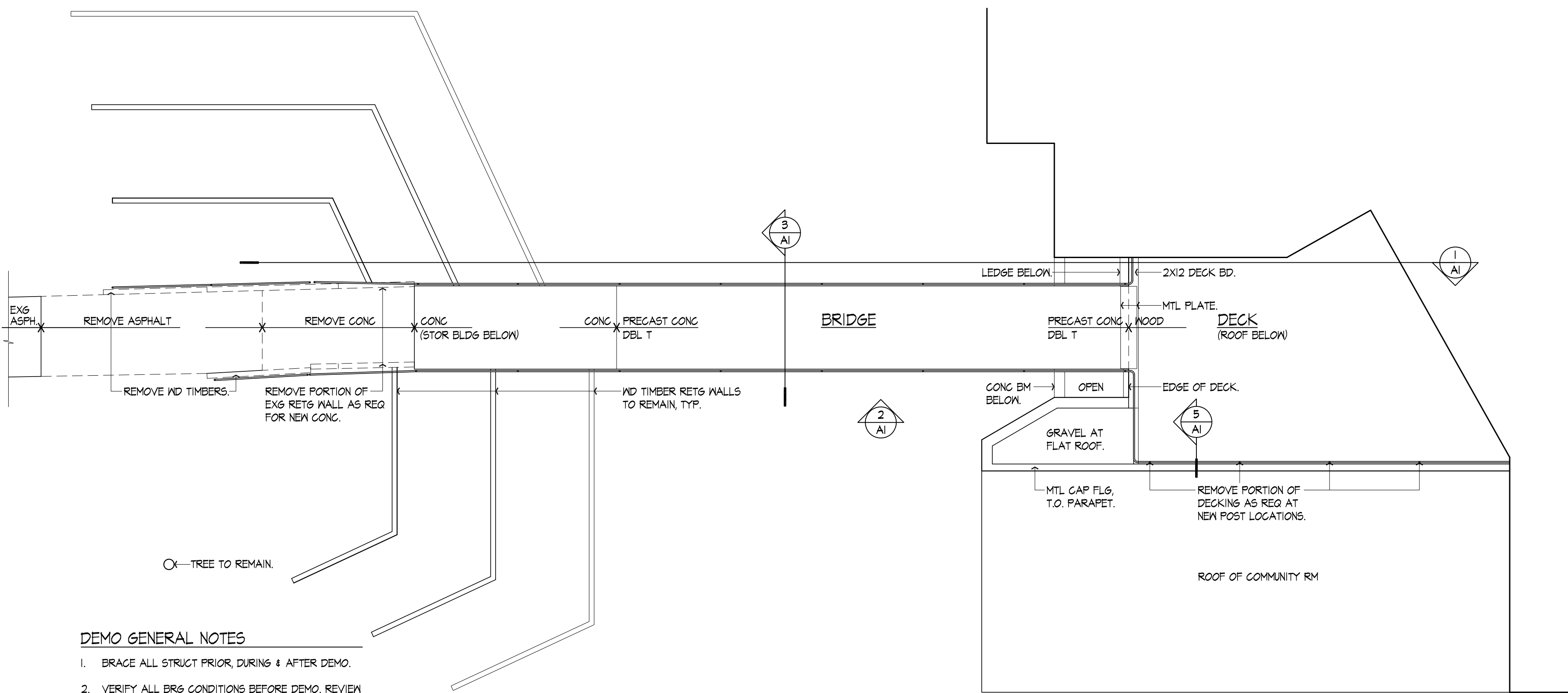
3 SECTION AT BRIDGE  
1/8" = 1'-0"



4 EXISTING RAILING DTL AT BRIDGE  
1/2" = 1'-0"



5 EXISTING RAILING DTL AT DECK  
1/2" = 1'-0"



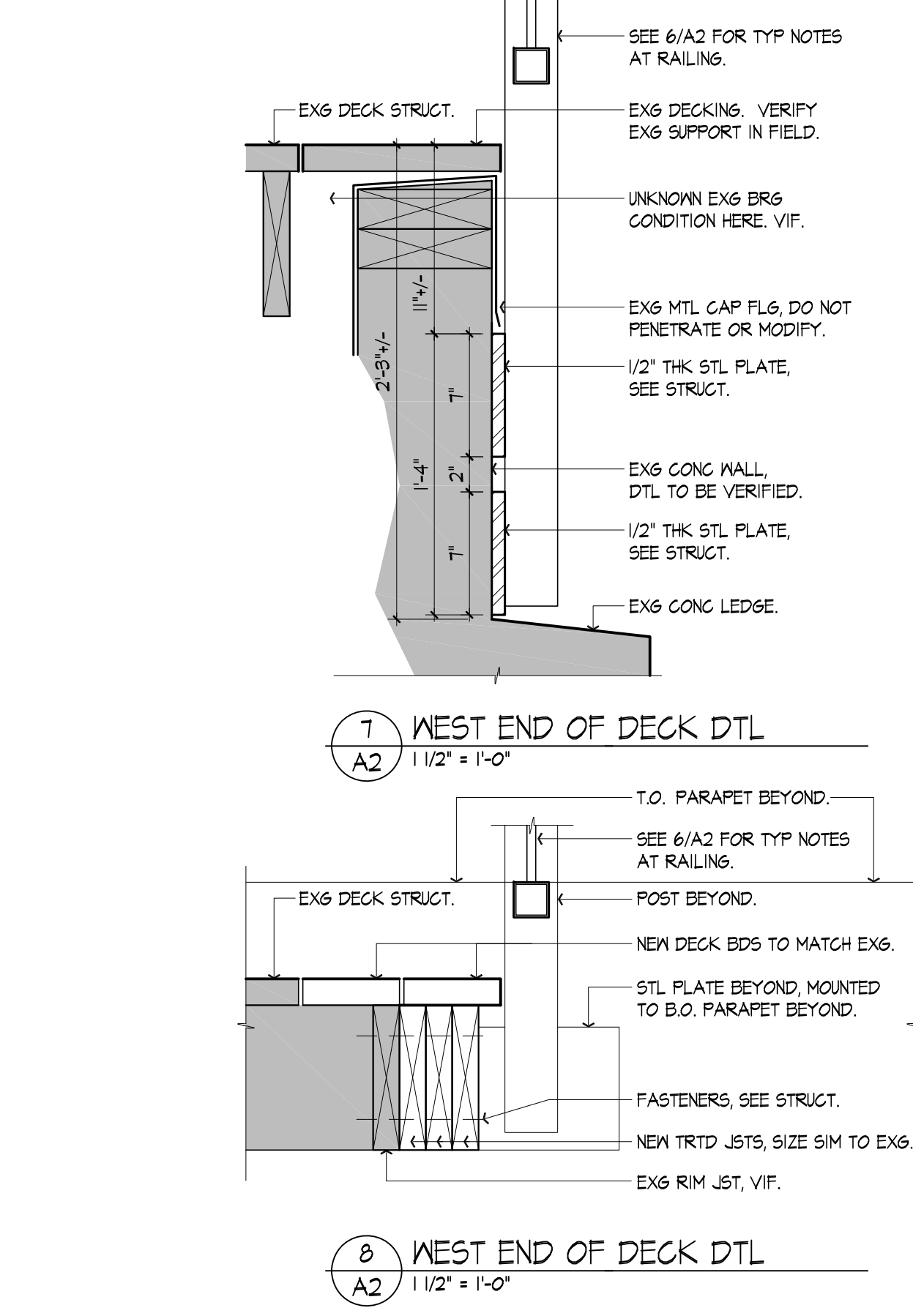
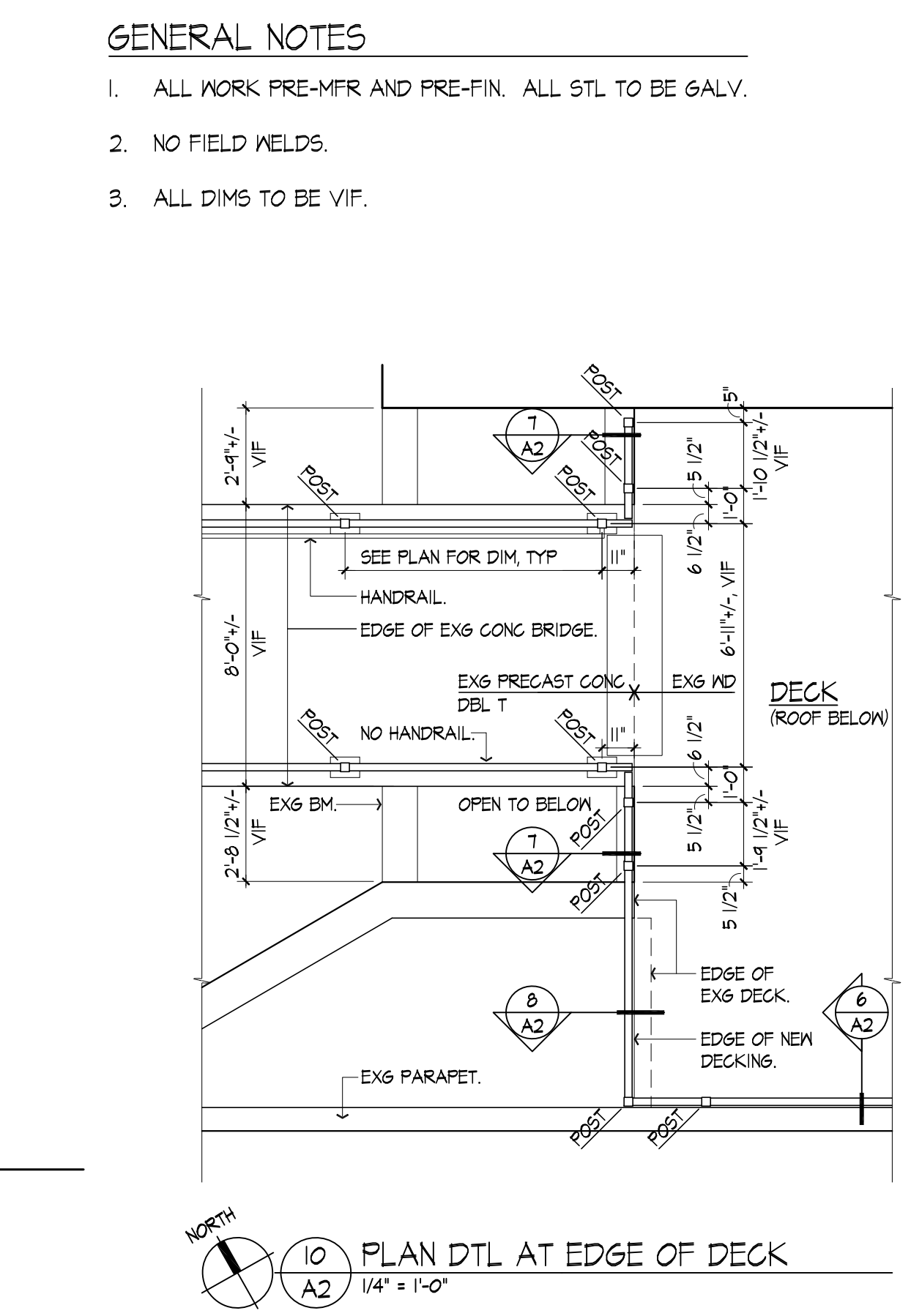
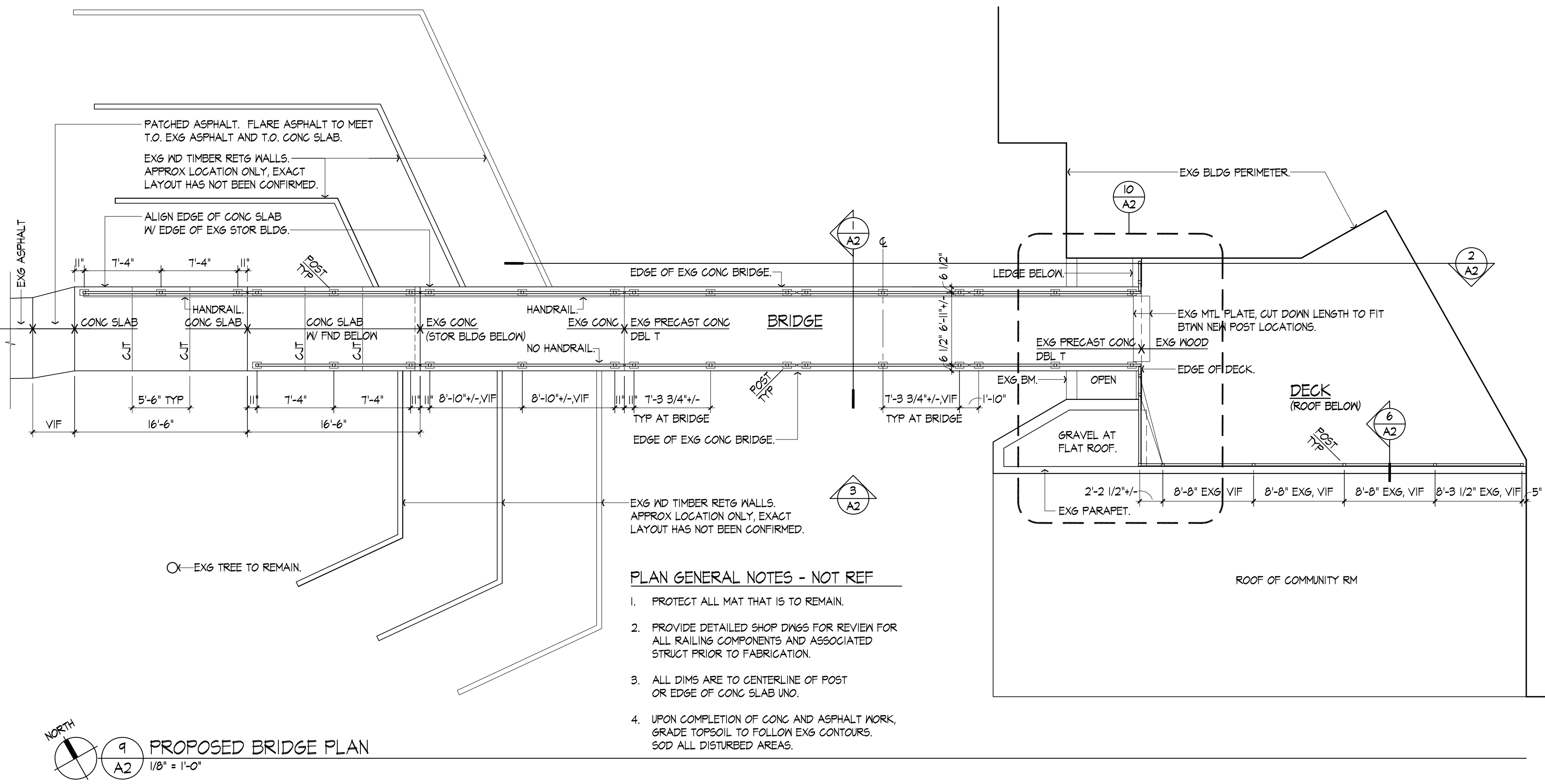
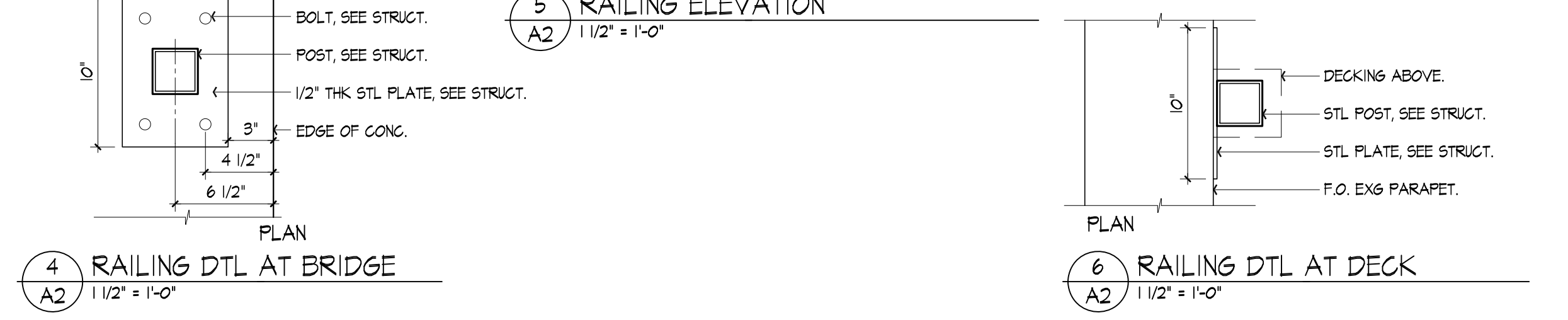
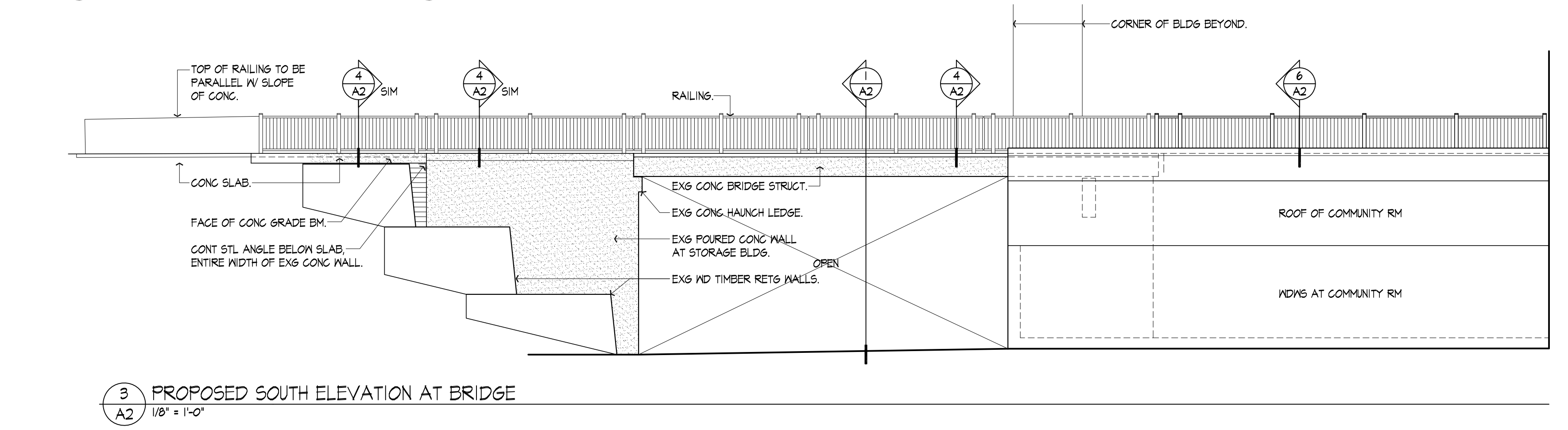
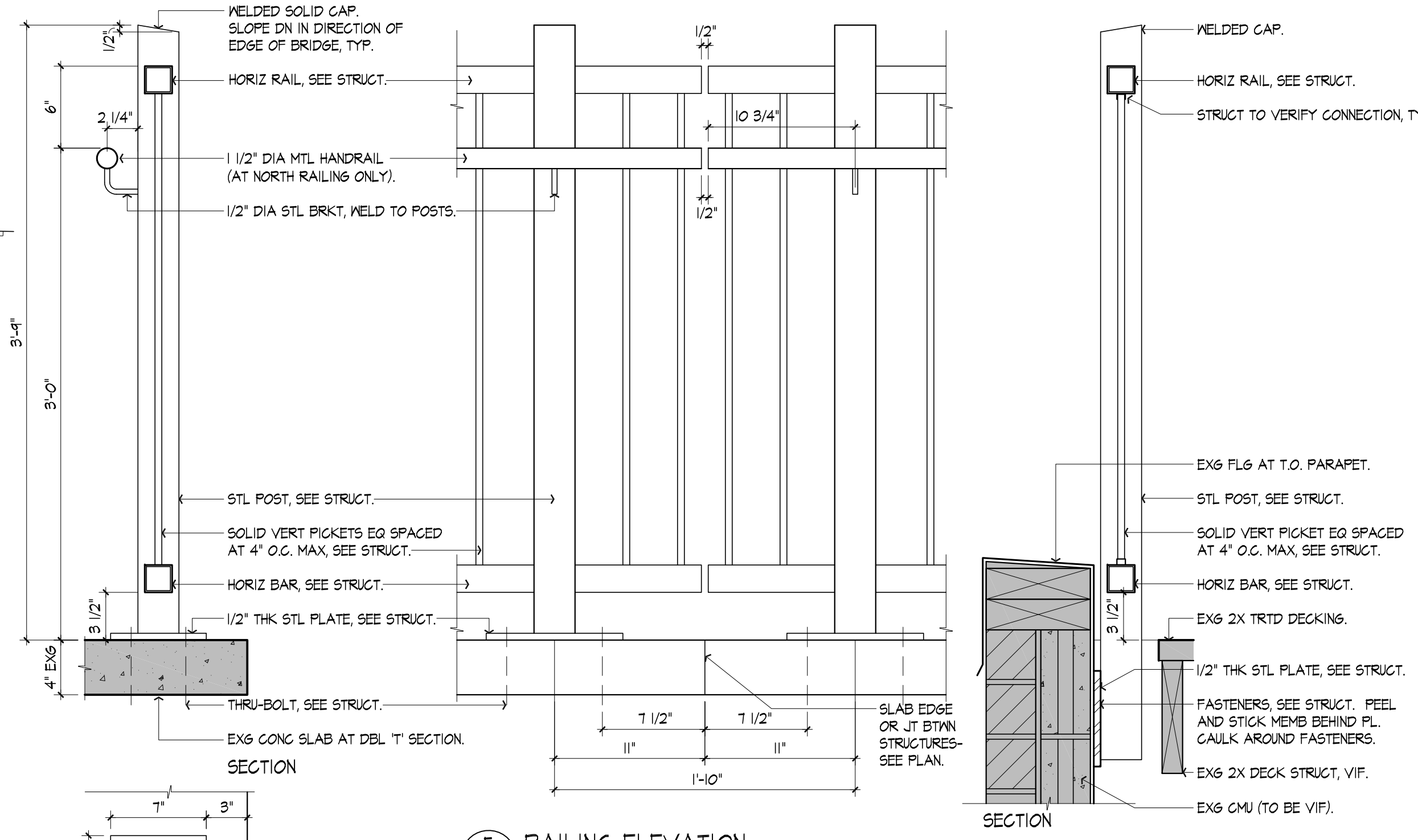
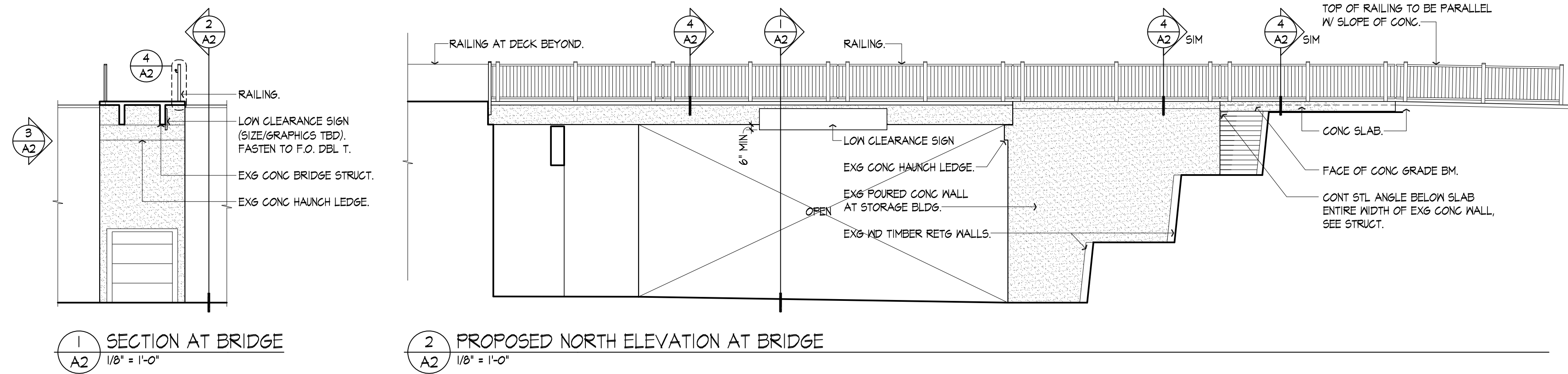
**DEMO GENERAL NOTES**

- BRACE ALL STRUCT PRIOR, DURING & AFTER DEMO.
- VERIFY ALL BRG CONDITIONS BEFORE DEMO. REVIEW W/ ARCH/STRUCT ENGR.
- NOTIFY OWNER AND STRUCT ENGR OF ANY STRUCT INCONSISTENCIES, OR ISSUES SUCH AS ROTTING WOOD.
- PROTECT ALL MATL THAT IS TO REMAIN.
- ALL RAILINGS, POSTS, AND ASSOCIATED STL PLATES AND STRUCT TO BE REMOVED.

6 EXISTING BRIDGE PLAN  
1/8" = 1'-0"

**Architectural Drawing Abbreviations**

AB	anchor bolt	ELEV	elevation, elevator	MTL	metal	SHWR	shower
AC	air conditioner, above counter	ELEC	electric(al)	MFR	manufacture(r)	SIM	similar
ACT	acoustical ceiling tile	ENGR	engineer(ed)	MIC	microwave	SKYLT	skylight
ADJ	adjacent or adjustable	EQ	equal	MIN	minimum	SKYLG	sliding
ADDL	additional	EQMT	equipment	MIR	mirror	SLNT	sealant
AFF	above finish floor	EST	estimate	MISC	miscellaneous	SLR	sealer
ALT	alternate	EW	each way	MO	masonry opening	SPEC	specification(s)
AL	aluminum	EXC	excavate	MT	mount(ed), (ing)	SP	space
AP	access panel	EXG	existing	MULL	mullion	SPK	speaker
APPROX	approximately	EXH	exhaust	N	north	SR	sanitary receptacle
ARCH	architect(ural)	EXP	expansion	NA	not applicable	SS	sanitary sewer
AV	audio visual	EJT	expansion joint	NIC	not in contract	SS	stainless steel
B	base	EXT	exterior	NTS	not to scale	STD	standard
BC	base cabinet	FB	face brick	OC	on center	STL	steel
BD	board	FD	floor drain	OD	outside diameter	STRUCT	structural
BLDG	building	FE	fire extinguisher	OFRD	overflow roof drain	SURF	surface
BLK(S)	block(ng)	FF	finish floor	OH	overhead, overhang	SUS	suspended
BM	beam	FFE	finish floor elevation	OPNG	opening	SV	stain/varnish
BMU	burnished masonry unit	FIN	finish(ed)	OTS	open to structure	SWR	sewer
B.O.	bottom of, back of	FIXT	fixture	OV	oven	SV	square yard
BOU	bottom	FLG	flashing	P	pantry	T	tread
BR	bracket	FLR	flooring	PART	partition, partial	T&G	tongue and groove
BRK	bracket rod	FLUOR	fluorescent	PERF	perforated	TB	towel bar
BRKT	bracket	FND	foundation	PERIM	perimeter	TBD	to be determined
BRG	bearing	F.O.	face of	PERP	perpendicular	TD	towel dispenser
BS	backsplash	FR	floor plan, fireplace	PL	plate	TR	trench drain
BSMT	basement	FR(G)	frame(ng)	PLAM	plastic laminate	TRD	trash, trim
BTVN	between	FRP	fiberglass reinforced	PLMG	plumbing	TRM	temporal
BW	both ways	FRZ	freeze	PNL	panel(ing)	THERM	thermostat
BN	bulb/nose	FT	foot, feet	P.O.	pull-out	THK	thickness
CAB	cabinet	FTD	footing	POLY	polyethylene	THRD	threshold
CANT	cantilever	FTG	furring	PORC	porcelain	TEMP	tempered
CB	ceramic base	FUR	furred(ing)	PREFAB	prefabricated	T.O.	top of
CEM	cement	FURN	furnace	PREFIN	prefinished	T-O	tip-out
CER	ceramic	GALV	galvanize(d)	PSF	pounds per square foot	TR	trash, trim
CJT	control joint	GB	grab bar	PSI	pounds per square inch	TR	trash, trim
CL	center line	GC	general contract(or)	PST	parallel strand lumber	TRTD	treated
CLO	closet	GL	glass, glazing	PT	paint(ed)	TV	television
CLG	ceiling	GLU LAM	glue laminated	PTAC	packaged terminal air conditioner	TXT	texture(d)
CLR	clear(ance)	GMU	glazed masonry unit	PTH	paper towel holder	TYP	typical
CMU	concrete masonry unit	GYP BD	gypsum board	PWD	plywood	UC	upper cabinet
CO	cased opening	H	high, height	UNEXC	unexcavated	UNEXC	unexcavated
COL	column	HB	hose bibb	UNFIN	unfinished	UNO	unless noted otherwise
COMP	composite	HC	hollow core	QTY	quantity	UNO	unless noted otherwise
CONC	concrete	HDR	header	R	riser	UTIL	utility
CONST	construction	HDR	hardware	R, RAD	radius, radiator	VAC	vacuum
CONT	continuous, continue	HDRW	hardware	VB	vinyl base	VT	vinyl tile
CPT	carpet	HGR	hanger	RCP	reflected ceiling plan	VT	vinyl tile
CS	course	HK	hook	RD	roof drain	VD	vertical divider
CSG	casing	HM	hollow metal	REC	recessed	VENT	ventilator, ventilation
CSK	countersunk	HORIZ	horizontal	RECZ	recessed	VERT	vertical
CT	ceramic tile, countertop	HVAC	heating/ventilation/air conditioning	RECPT	receptacle	VEST	vestibule
CTR	counter(top), contractor	ID	inside diameter	REF	refrigerator	VIF	verify in field
D	depth	INCAND	incandescent	REG	register	VIN	vinyl
D, DWR	draw-drawer	INSUL	insulate(d), (for)	REINF	reinforce(d), (ing)	VJT	v-joint
D-C	draw-cutter tray	INT	interior	REQ	require(d), (ment)	VNR	vener
D-F	draw-hanging files	INT	interior	RES	resilient	VNR	vapor retarder
D-K	draw-knife	JST	joist	RET	return	W	west, width
D-2	draw-pencil	JT	joint	RETG	retaining	W	with
D-S	draw-spices	KPL	kick plate	REV	revision(s), revised	WC	water closet
D-U	draw-utility tray	KO	knock out	RH	right hand	WD	wood
DEL	double	LAM	laminat(e)d	RM	room	WDW	window
DEMO	demolish, demolition	LAV	lavatory	RO	rough opening	WH	water heater
DF	drinking fountain	LD	laundry chute	RS	rough sawn	W/O	without
DH	double hung	LF	lineal foot	RW	retaining wall	WP	waterproofing
DIA	diameter	LH	left hand	S	south	WRB	water resistant barrier
DIM	dimension	LIN	linen, linoleum	SA	supply air	WS	weatherstrip(ping)
DIV	division	LSCP	landscape	SC	screen	WT	weight
DSL	downspout leader	LSL	laminated strand lumber	SCH	schedule	#	number, pound
DT	drain tile	LT	light	SD	soap dispenser, smoke detector	!library!abbrev!abbrev0316.docx	
DTL	detail	LVL	laminated veneer lumber	SD/CO	smoke & carbon monoxide detector		
DWG	dishwasher	LVR	louver	SECT	section		
DWG	drawing	MAS	masonry	SF	square foot		
E	each	MATL	material(s)	SH	single		
EA	each	MAX	maximum	SH + R	shelf, shelving		
		MD	metal deck	SHTG	sheath with rod		
		MECH	mechanic(al)				
		MEMB	membrane				



**GENERAL NOTES**

1. ALL WORK PRE-MFR AND PRE-FIN. ALL STL TO BE GALV.
2. NO FIELD WELDS.
3. ALL DIMS TO BE VIF.

**PLAN GENERAL NOTES - NOT REF**

1. PROTECT ALL MAT THAT IS TO REMAIN.
2. PROVIDE DETAILED SHOP DINGS FOR REVIEW FOR ALL RAILING COMPONENTS AND ASSOCIATED STRUCT PRIOR TO FABRICATION.
3. ALL DIMS ARE TO CENTERLINE OF POST OR EDGE OF CONC SLAB UNO.
4. UPON COMPLETION OF CONC AND ASPHALT WORK, GRADE TOPSOIL TO FOLLOW EXG CONTOURS, SOD ALL DISTURBED AREAS.

Architect's Project #1659  
Date: August 14, 2018

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am duly Licensed Architect under the Laws of the State of Minnesota.

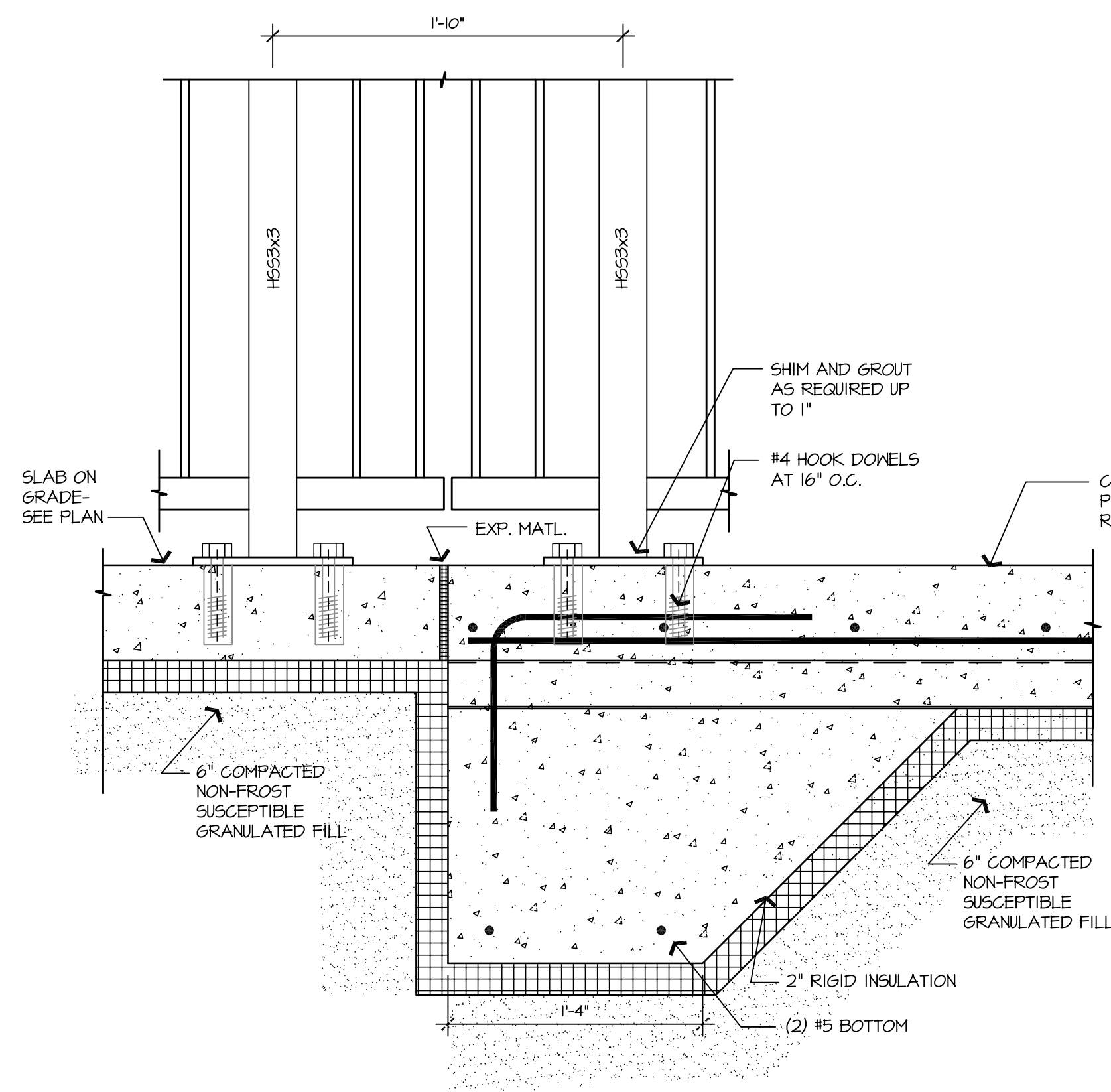
*Rosemary McMonigal*  
Rosemary McMonigal, FAIA  
Registration Number: 16852  
Date: 8/14/18

Revisions

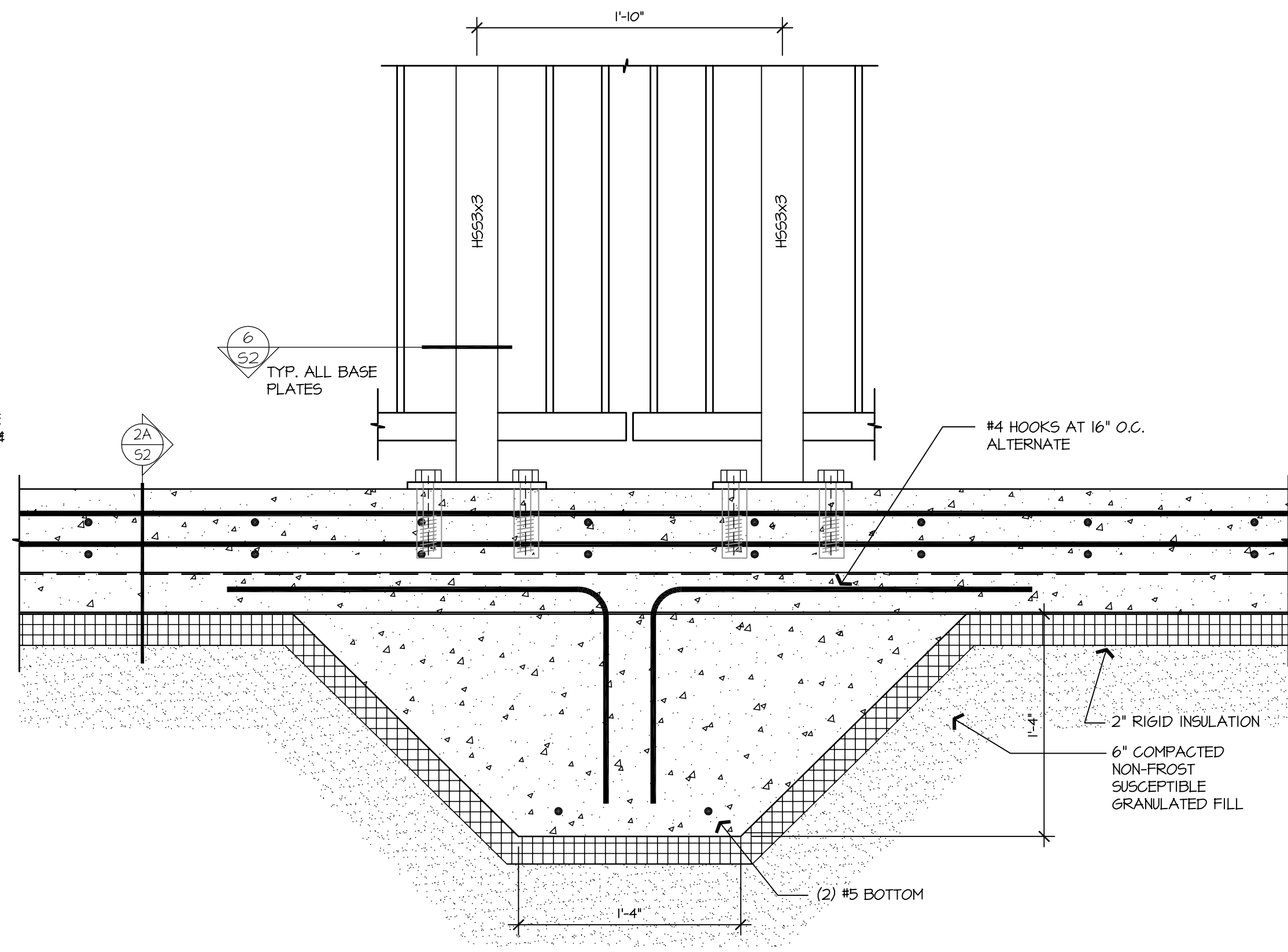
Number	Description	Date

BRIDGE ELEVATION  
BRIDGE PLAN  
RAILING DETAILS

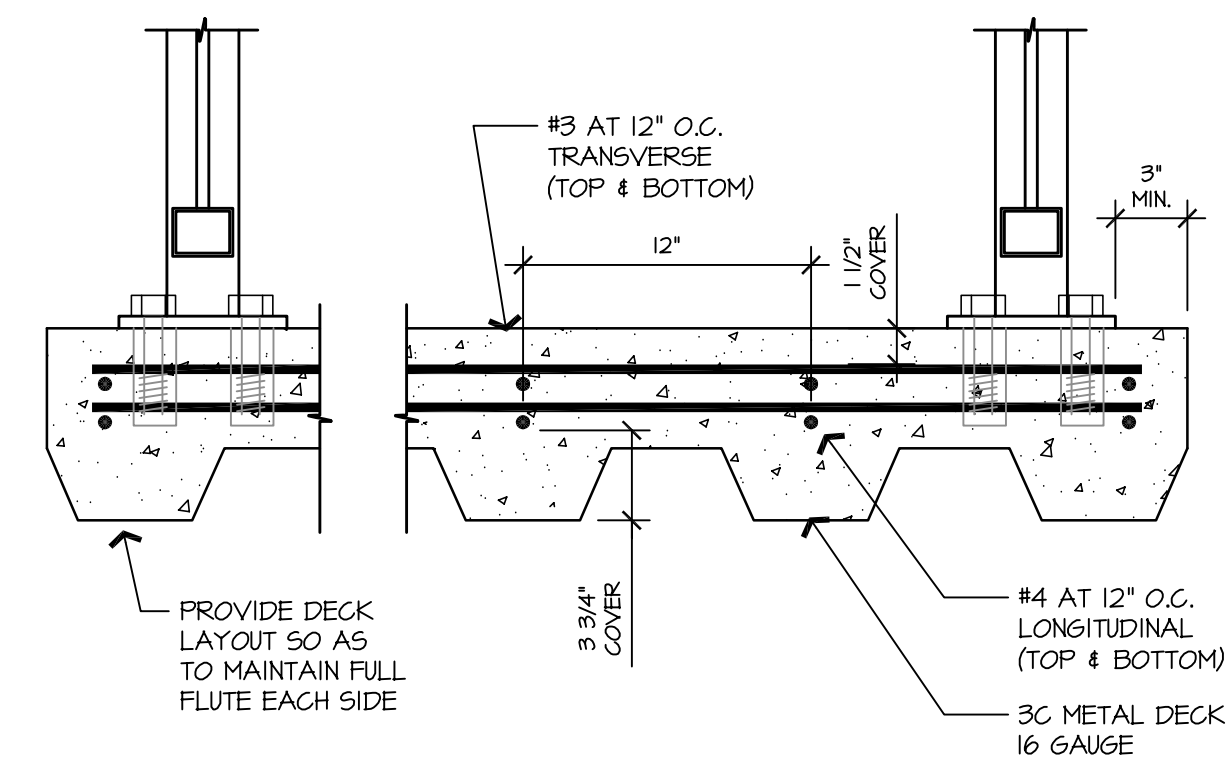




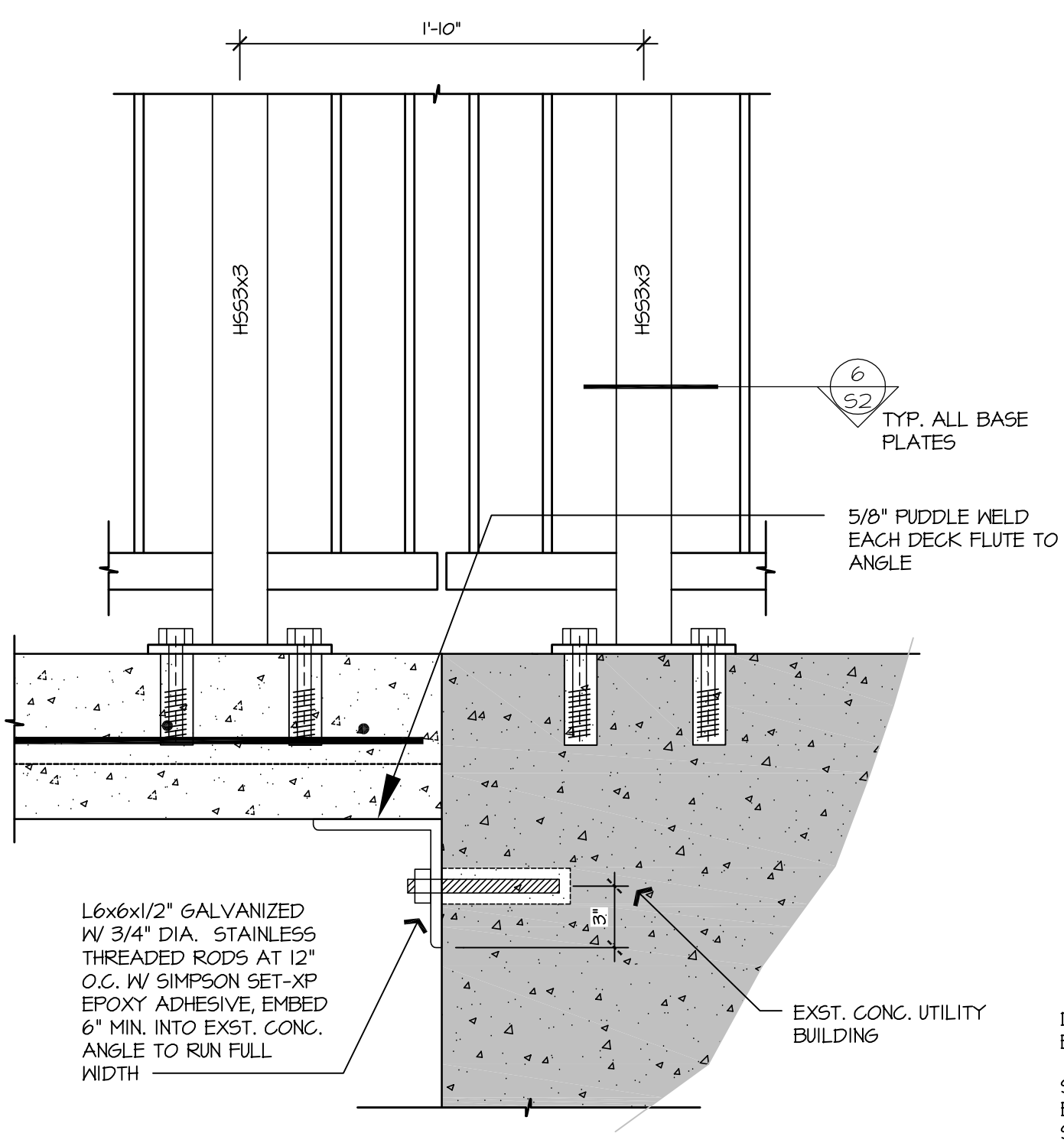
1 NEW CONC. PIERS/ NEW CONC. SLAB  
1 1/2" = 1'-0"



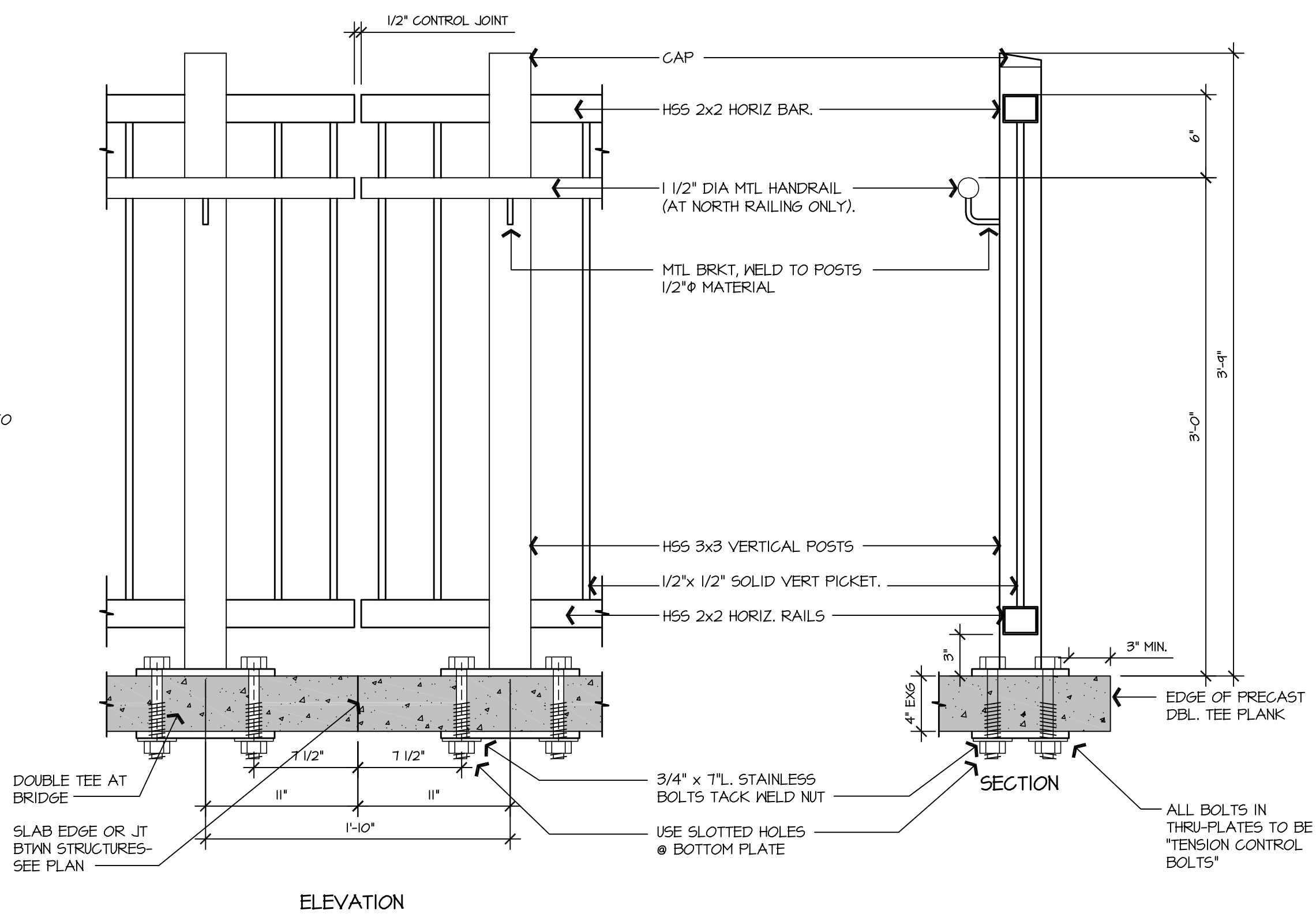
2 STRUCTURAL SLAB AT GRADE BEAM  
1 1/2" = 1'-0"



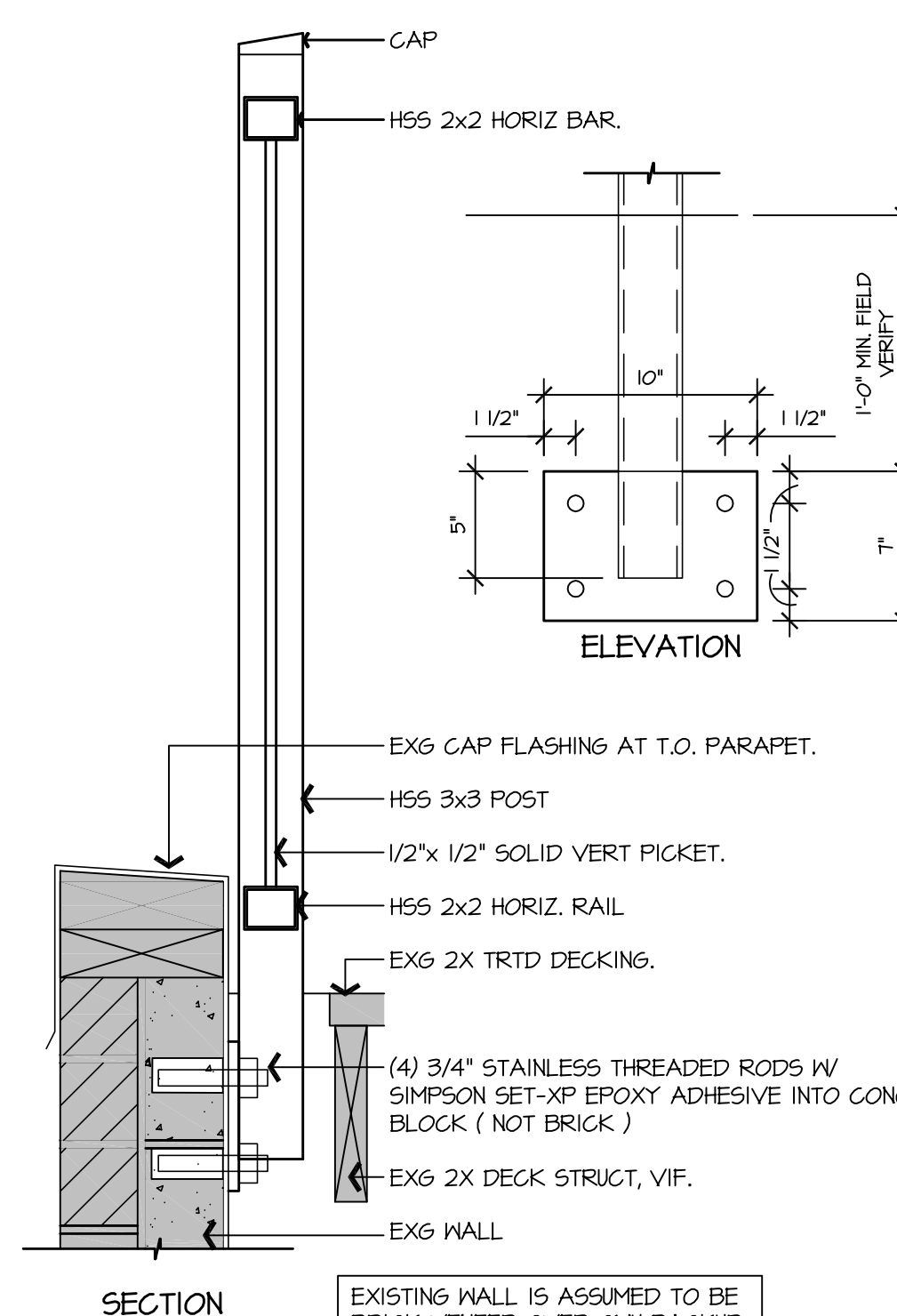
2A SLAB SECTION- STRUCTURAL SLAB  
1 1/2" = 1'-0"



3 NEW CONC. SLAB TO EXISTING STRUCTURE  
1 1/2" = 1'-0"

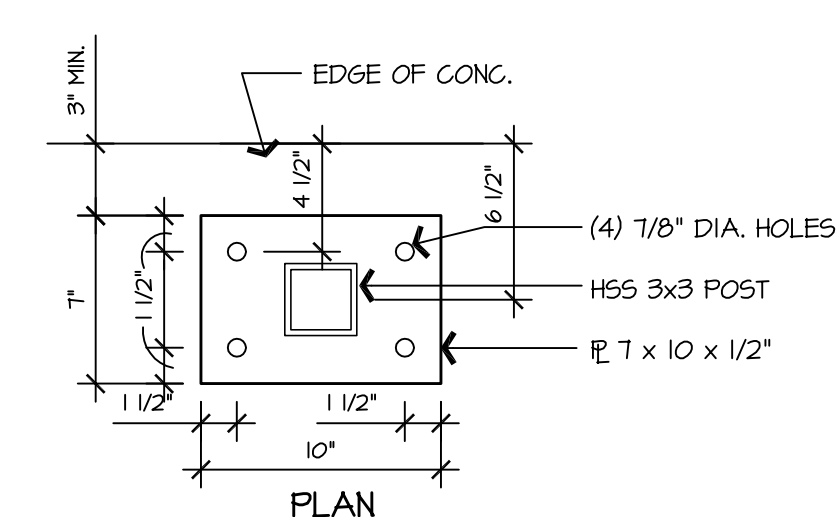


4 RAILING ELEVATION @ PRECAST  
1 1/2" = 1'-0"

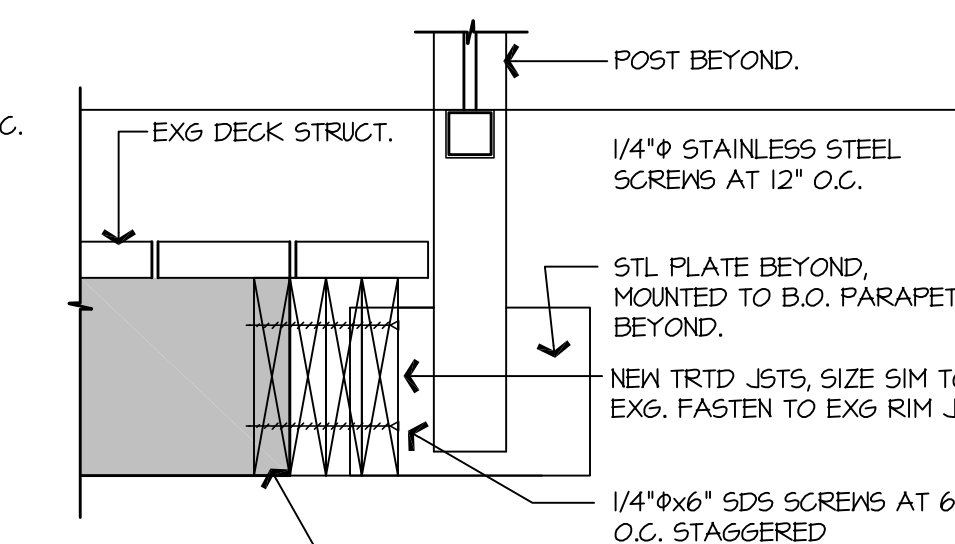


4A RAILING ELEVATION @ PRECAST  
1 1/2" = 1'-0"

5 TYP. RAILING DTL AT DECK  
1 1/2" = 1'-0"



6 TYP. BASE PLATE @ POSTS  
1 1/2" = 1'-0"



7 WEST END OF DECK DTL  
1 1/2" = 1'-0"

**VOIGT & ASSOCIATES, INC.**  
STRUCTURAL ENGINEERING SERVICES  
4635 NICOLS RD.  
SUITE 204  
EAGAN, MINNESOTA 55122  
PHONE (651) 686-7727  
FAX (651) 686-8444

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.  
**Paul W. Voigt**  
Signature  
PAUL W. VOIGT  
8-14-18  
Date  
20705  
Registration Number

**COLLEEN LONEY MANOR BRIDGE**  
1675 LIVINGSTON AVE  
WEST ST. PAUL, MN 55118  
FOUNDATION PLAN

ISSUED	DATE
PERMIT	8-14-18
DRAWN BY	MLH
CHECKED BY	AHM, PWV
JOB NO.	18-158

**GENERAL STRUCTURAL NOTES**

**BUILDING CODES USED FOR DESIGN**

- IBC 2012 (WITH MINNESOTA AMENDMENTS)

**DESIGN LOADS**

- DESIGN LIVE LOADS:
PUBLIC AREAS, CORRIDORS AND STAIRS 100 PSF
ROOF 50 PSF GROUND SNOW
WIND 40 MPH
PLUS DRIFTING AND/OR SLIDING SNOW
EXPOSURE B

**FOUNDATIONS**

- IN LIEU OF SOIL BORINGS, FOOTINGS HAVE BEEN DESIGNED FOR A MAXIMUM SOIL BEARING PRESSURE OF 2000 PSF, AND A LATERAL PRESSURE OF 50 PCF. IT WILL BE THE RESPONSIBILITY OF OTHERS TO VERIFY THESE ASSUMPTIONS TO INSURE THAT DAMAGING DIFFERENTIAL SETTLEMENT WILL NOT OCCUR.
GRANULAR FILL SHALL BE COMPACTED TO 98% STANDARD DENSITY (ASTM D698-74).
IF SOIL AT BOTTOM OF FOOTINGS AS DETAILED IS OF QUESTIONABLE BEARING VALUE, THE ENGINEER'S OFFICE SHALL BE NOTIFIED AT ONCE. WALL FOOTING ELEVATION CHANGES SHALL BE STEPPED AT A RATIO OF (1) VERTICAL TO (2) HORIZONTAL. MAXIMUM VERTICAL STEP SHALL BE 1'-4" UNLESS NOTED OTHERWISE.

**BACKFILLING**

- NO BACKFILLING AND COMPACTING OF EARTH SHALL BE PERMITTED AGAINST FOUNDATION WALLS UNTIL SUPPORTING SLABS HAVE BEEN POURED AND HAVE REACHED 75% OF THEIR DESIGN STRENGTH OR UNLESS ADEQUATE BRACING SUBMITTED FOR REVIEW IS PROVIDED.
BOTH SIDES OF FOUNDATION WALLS SHALL BE BACKFILLED SIMULTANEOUSLY SO AS TO PREVENT OVERTURNING OR LATERAL MOVEMENT OF WALLS.
ALL GRADE BEAMS SHALL BE ADEQUATELY BRACED TO PREVENT LATERAL MOVEMENT DURING BACKFILLING AND COMPACTION.

**COLD WEATHER EXCAVATION**

- FROST SHOULD NOT BE ALLOWED TO PENETRATE INTO THE SOILS BELOW ANY PROPOSED STRUCTURE.
WINTER EXCAVATION SHOULD BE LIMITED TO AREAS SMALL ENOUGH TO BE REFILLED TO A GRADE HIGHER THAN FOOTING GRADE ON THE SAME DAY.
TRENCHING BACK DOWN TO UNFROZEN SOILS FOR FOUNDATION CONSTRUCTION CAN THEN BE PERFORMED JUST PRIOR TO FOOTING PLACEMENT.
THE EXCAVATED TRENCHES SHOULD BE PROTECTED FROM FREEZING BY MEANS OF INSULATING OR HEATING DURING THE FOUNDATION CONSTRUCTION.
BACKFILLING OF THE TRENCHES SHOULD BE PERFORMED IMMEDIATELY AFTER THE BELOW-GRADE FOUNDATION CONSTRUCTION IS FINISHED.
ANY INTERIOR FOOTINGS OR FOOTINGS DESIGNED WITHOUT FROST PROTECTION SHOULD BE EXTENDED BELOW FROST DEPTH, UNLESS ADEQUATE PRECAUTIONS ARE TAKEN TO PREVENT FROST INTRUSION UNTIL THE BUILDING CAN BE ENCLOSED AND HEATED.
ANY FROST WHICH FORMS IN LOOSE LAYER, OR SNOW WHICH ACCUMULATES, SHOULD BE COMPLETELY REMOVED FROM THE FILL AREA PRIOR TO COMPLETION AND ADDITIONAL SOIL PLACEMENT.
FROZEN SOILS, OR SOILS CONTAINING FROZEN MATERIAL OR SNOW SHOULD NEVER BE USED AS FILL MATERIAL.
AFTER THE STRUCTURE HAS BEEN ENCLOSED, ALL FLOOR SLAB AREAS SHOULD BE SUBJECTED TO ANGLE PERIODS OF HEATING TO ALLOW THAWING OF THE SOIL SYSTEM.
THE FLOOR SLAB AREAS SHOULD BE CHECKED AT RANDOM AND REPRESENTATIVE LOCATIONS FOR REMNANT AREAS OF FROST, AND DENSITY TESTS SHOULD BE PERFORMED TO DOCUMENT FILL COMPACTION PRIOR TO SLAB PLACEMENT.

**DESIGN STRESSES - NOTE ALL MATERIALS MAY NOT BE USED ON THIS JOB.**

CONCRETE STRENGTH AT 28 DAYS (PSI) TYPE MIX LOCATION
3000 STD. INT. INTERIOR SLABS AND WALLS
4000 STD. INT. EXTERIOR SLABS AND WALLS
AIR-ENTRAINED
3000 STD. INT. FOOTINGS

- MASONRY Fm = 1500 PSI (AT 28 Days)
REINFORCEMENT Fy = 60,000 PSI ASTM A615
WIDE FLANGE SHAPES Fy = 50,000 PSI ASTM A572
STRUCTURAL TUBING Fy = 46,000 PSI ASTM A500 GRADE B
STANDARD STEEL PIPE Fy = 36,000 PSI ASTM A53 GRADE B
PLATES Fy = 36,000 PSI ASTM A36
MISC. STRUCTURAL SHAPES Fy = 36,000 PSI ASTM A36
BOLTS Fv = 120,000 PSI ASTM A325
ANCHOR BOLTS Fv = 60,000 PSI ASTM A307\*\*
WELD ELECTRODE Fx = 70,000 PSI
WELDED WIRE FABRIC ASTM A185

\*\* ALL ANCHOR BOLTS / FASTENERS SHALL BE STAINLESS STEEL.

**CONCRETE**

- CONCRETE WORK SHALL CONFORM TO ALL REQUIREMENTS OF ACI 301.
TOLERANCES SHALL CONFORM TO ACI 111.
UNLESS SPECIFIED BELOW CONCRETE MUST REACH THE FOLLOWING PERCENTAGES OF ITS 28 DAY COMPRESSIVE STRENGTH (F'c) BEFORE FORMS MAY BE REMOVED.
SLAB GRADE BEAM 10%

**CONCRETE COVERAGE FOR REINFORCEMENT**

- FOOTINGS 3"
EXPOSED EXTERIOR CONCRETE 2"

**REINFORCING STEEL**

- THE REINFORCING STEEL CONTRACTOR SHALL FABRICATE ALL REINFORCEMENT AND FURNISH ALL ACCESSORIES, CHAIRS, SPACER BARS AND SUPPORTS NECESSARY TO SECURE THE REINFORCEMENT UNLESS SHOWN OTHERWISE ON THE PLANS AND/OR DETAILS.
CONCRETE REINFORCEMENT SHALL BE PLACED ACCORDING TO THE CRSI "RECOMMENDED PRACTICE FOR PLACING REINFORCING BARS".
COMPRESSION AND TENSION LAP SPLICES FOR CAST-IN-PLACE CONCRETE SHALL BE 36 BAR DIAMETERS MINIMUM UNLESS OTHERWISE NOTED.
TENSION LAP SPLICES FOR REINFORCED MASONRY SHALL BE 48 BAR DIAMETERS MINIMUM, UNLESS OTHERWISE NOTED.
HORIZONTAL REINFORCING STEEL IN FOOTINGS AND CONCRETE WALLS SHALL BE CONTINUOUS AROUND CORNERS.
ALL LAPS IN W/F SHOULD BE ONE MESH PLUS TWO INCHES AT SPLICES.
PROVIDE (2) #5 REINFORCING BARS EACH SIDE AROUND OPENINGS IN CONCRETE WALLS AND SLABS. BARS SHALL EXTEND 24" BEYOND THE CORNERS OF THE OPENINGS. ALSO PROVIDE (2) #5 DIAGONAL BARS AT EACH CORNER OF OPENING.
ALL REBAR TO BE EPOXY COATED.

**CONSTRUCTION AND CONTROL JOINTS IN CONCRETE**

- SEE PLAN FOR LOCATIONS OF CONTROL JOINTS.

**STRUCTURAL STEEL**

- FABRICATIONS AND ERECTION OF STRUCTURAL STEEL MEMBERS IS TO BE IN ACCORDANCE WITH A.I.S.C. CODE OF STANDARD PRACTICE.
ALL STEEL CONNECTIONS ARE WELDED.
ALL WELDING SHALL BE BY QUALIFIED WELDERS AND SHALL CONFORM TO THE STANDARDS OF THE AMERICAN WELDING SOCIETY, D11-48 STRUCTURAL WELDING CODE - STEEL WELDING OF GALVANIZED PARTS IS NOT PERMITTED.
ELECTRODES FOR ALL FIELD AND SHOP WELDING SHALL CONFORM TO MATCHING FILLER METAL REQUIREMENTS OF AWS D11-48.
FIELD CONNECTIONS ARE TO BE BOLTED, USE 3/4" DIA. HIGH STRENGTH BOLTS AND NUTS (A325X) UNLESS SHOWN OTHERWISE ON PLANS.
STEEL COLUMN BASE PLATES SHALL BE SIZE SHOWN ON PLAN WITH 3/4" DIAMETER ANCHOR BOLTS (A307) AND 1" NON-SHRINK GROUT FOR UNIFORM BEARING.
UNLESS NOTED OTHERWISE, STRUCTURAL STEEL SUPPLIER IS TO FURNISH (3) ALL STRUCTURAL STEEL AND MISCELLANEOUS METALS SHALL BE PRIME PAINTED WITH ONE COAT OF "PRIMER" #114 PRIMER OR EQUAL, TOUCH UP ALL DISTURBED AREAS AFTER ERECTION.
CUTS, HOLES (OPENINGS), ETC. REQUIRED IN STRUCTURAL STEEL MEMBERS FOR THE WORK OF OTHER TRADES SHALL NOT BE ALLOWED, EXCEPT BY WRITTEN PERMISSION FROM THE ARCHITECT.
GROUT UNDER BEAM BEARING PLATES AND COLUMN BASE PLATES SHALL BE "NON-SHRINK" AND SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 10,000 PSI.

**STEEL FORM DECK**

- GALVANIZED STEEL - ASTM A446-76 GRADE E.
INSTALLATION: 2" MINIMUM END LAP, STAGGER SPLICES AND USE TRIPLE SPANS WHERE POSSIBLE. MAKE JOINTS OVER SUPPORTING MEMBERS ONLY.
ATTACHMENT: USE WELDERS EXPERIENCED IN THIN METAL WELDING. TEST PRACTICE WELDS USING PRY-OFF TEST.
WELDS: WELD DECK SHEETS TO SUPPORTING MEMBERS IMMEDIATELY AFTER ALIGNMENT. WELD PATTERN TO BE AS FOLLOWS: (B) AT END AND END LAP JOINTS AND (2) AT EACH INTERMEDIATE SUPPORT. USE WELDING WASHERS AS REQUIRED.
USE 5/8" DIAMETER RIBBLE WELDS MINIMUM WELDING REQUIREMENTS.
INTERMEDIATE SUPPORTS - WELD SHEET AT SIDE LAPS AT EACH INTERMEDIATE SUPPORT.
SELF-TAPPING SCREWS MAY BE USED WITH THE APPROVAL OF THE ENGINEER.
WELDING WASHERS: WASHERS SHALL BE A MINIMUM THICKNESS OF 0.0560" (6 GAGE) WITH A 3/8" DIAMETER HOLE. USE FOR 24 GAGE OR LIGHTER MATERIAL.
PROVIDE CLOSURE ANGLE FOR CONCRETE AT ALL DECK EDGES UNLESS DETAILED OTHERWISE.
CONTRACTOR TO PROVIDE ADDITIONAL ANGLES TO SUPPORT DECKING AT AREAS WHERE DECK IS CUT FOR COLUMNS OR OTHER PENETRATIONS TO ENSURE NO WEAKENED AREAS IN DECKING.

**CONSTRUCTION PROCEDURE**

- THE STRUCTURE SHALL BE ADEQUATELY BRACED AND SHORED DURING ERECTION AGAINST WIND AND ERECTION LOADS. STRUCTURAL MEMBERS ARE DESIGNED FOR "PLACE" LOADS.
COMPLY WITH ALL APPLICABLE CITY, COUNTY, STATE AND FEDERAL LAWS, INCLUDING THE OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA) AND REGULATIONS ADOPTED PURSUANT THERETO.
THE CONTRACT STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE, UNLESS OTHERWISE NOTED. THEY DO NOT INDICATE THE MEANS OR METHOD OF CONSTRUCTION. PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE, WORKMEN OR OTHER PERSONS DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT ARE NOT LIMITED TO BRACING, SHORING FOR CONSTRUCTION EQUIPMENT, SHORING FOR THE BUILDING, SHORING FOR EACH BANKS, FORMS, SCAFFOLDING, PLANKING, SAFETY NETS, SUPPORT AND BRACING FOR CRANES AND GIN POLES, ETC.
ENGAGE PROPERTY QUALIFIED PERSONS TO DETERMINE WHERE AND HOW TEMPORARY PRECAUTIONARY MEASURES SHALL BE USED AND INSPECT SAME IN THE FIELD. OBSERVATION VISITS TO THE SITE BY ENGINEER'S FIELD REPRESENTATIVE SHALL NOT INCLUDE INSPECTION OF THE ABOVE ITEMS.
SUPERVISE AND DIRECT THE WORK SO AS TO MAINTAIN SOLE RESPONSIBILITY FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AS A PART OF THIS RESPONSIBILITY. RETAIN THE SERVICES OF A LICENSED STRUCTURAL ENGINEER TO DESIGN AND SUPERVISE ANY SCAFFOLDING FOR WORKMEN, AND ALL SHORING OF FORMS AND ELEMENTS OF THE CONSTRUCTION.

**MISCELLANEOUS**

- PLACEMENT OF ANCHOR BOLT, PIPE SLEEVES, PADS AND OPENINGS FOR EQUIPMENT SHALL BE COORDINATED BETWEEN THE GENERAL CONTRACTOR AND THE OTHER SUBCONTRACTORS.
ALL CORE DRILLING SHALL BE DONE UNDER THE SUPERVISION OF THE GENERAL CONTRACTOR. NO REINFORCING SHALL BE CUT. VERIFY LOCATION OF REINFORCING BEFORE CORE DRILLING. THERE SHALL NOT BE ANY CORE DRILLING THROUGH BEAMS OR COLUMNS. MAXIMUM CORE HOLD THROUGH SLABS SHALL BE PIPE DIAMETER PLUS 1".

**COORDINATION WITH ARCHITECTURAL DRAWINGS**

- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND ELEVATIONS WITH THE ARCHITECTURAL DRAWINGS. WHERE DISCREPANCIES OCCUR IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE ARCHITECT PRIOR TO CONSTRUCTION.

**SHOP DRAWINGS**

- SHOP DRAWINGS, UNLESS NOTED OTHERWISE, SHALL BE SUBMITTED FOR REVIEW PRIOR TO FABRICATION.
SHOP DRAWINGS TO BE PREPARED UNDER SUPERVISION OF A REGISTERED PROFESSIONAL ENGINEER, INCLUDING COMPLETE DETAILS AND SCHEDULES FOR FABRICATION AND ASSEMBLY OF STRUCTURAL STEEL MEMBERS.
PROCEDURES AND DIAGRAMS.
FABRICATORS SHALL DRAW THEIR OWN ERECTION PLANS, COPYING THE STRUCTURAL PLANS AND USING THEM AS ERECTION DRAWINGS IS NOT ACCEPTABLE.
PRIOR TO SUBMITTAL, THE CONTRACTOR SHALL REVIEW THE SHOP DRAWINGS AND MAKE ANY CORRECTIONS REQUIRED. THE CONTRACTOR SHALL STAMP AND SIGN THE DRAWINGS AS EVIDENCE THAT HE HAS REVIEWED THEM.
SHOP DRAWINGS SHALL BE FURNISHED FOR ALL STRUCTURAL COMPONENTS.
TURN AROUND TIME FOR SHOP DRAWINGS SHALL BE ONE WEEK FROM DATE RECEIVED IN THE ENGINEER'S OFFICE.
SHOP DRAWINGS FOR ALL STRUCTURAL COMPONENTS AND SYSTEMS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO FABRICATION AND CONSTRUCTION.
SHOP DRAWINGS TO BE CERTIFIED BY AN ENGINEER LICENSED IN THE STATE OF MINNESOTA.

**STRUCTURAL DRAWINGS**

- THESE DRAWINGS SHOW INTENT OF DESIGN, AND ARE NOT INTENDED TO CONFLICT WITH THE CONVENTION OF PROFESSIONAL CONSTRUCTION PRACTICES, BE EXCLUSIVE IN USE, NOR PURPORT TO INDICATE EVERY ITEM OF WORK OR MATERIAL NECESSARY FOR A COMPLETE AND SATISFACTORY PROJECT. ALL QUESTIONS REGARDING DESIGN INTENT OR MATERIALS SHOULD BE BROUGHT TO THE ARCHITECTS AND ENGINEERS ATTENTION IMMEDIATELY. DO NOT PROCEED WITH ANY DEGREE OF UNCERTAINTY WITH ANY ITEM OR PHASE OF THE WORK.

**SPECIAL INSPECTIONS**

- SPECIAL INSPECTIONS SHALL BE PROVIDED IN ACCORDANCE WITH THE IBC. THE SPECIAL INSPECTOR SHALL BE EMPLOYED BY THE OWNER AND SHALL MEET THE QUALIFICATIONS OF THE CODE.
THE SPECIAL INSPECTOR SHALL SUBMIT WRITTEN INSPECTION REPORTS TO THE ENGINEER OF RECORD'S OFFICE, WITHIN (3) WORKING DAYS OF THE INSPECTION. THE FOLLOWING ITEMS WILL REQUIRE SPECIAL INSPECTION:

- EXCEPTION: THE BUILDING OFFICIAL MAY WAIVE THE REQUIREMENT FOR THE EMPLOYMENT OF A SPECIAL INSPECTOR IF THE CONSTRUCTION IS OF A MINOR NATURE.

- CONCRETE AND REINFORCEMENT STEEL
BOLTS INSTALLED IN CONCRETE.
WELDING:
-- ALL FIELD WELDINGS OF STRUCTURAL MEMBERS.

**NEW WORK IN CONJUNCTION WITH EXISTING CONSTRUCTION**

- THE CONTRACTOR SHALL VERIFY, BY FIELD CHECK, ALL SIZES, DIMENSIONS, ELEVATIONS, LOCATIONS, ETC. OF ELEMENTS OF THE EXISTING CONSTRUCTION WHICH ARE RELATIVE TO THE NEW CONSTRUCTION. ALL DIMENSIONS INVOLVING NEW WORK ITING INTO OR GOVERNED BY EXISTING CONSTRUCTION SHALL BE FIELD CHECKED BY THE CONTRACTOR AND FURNISHED TO THE SUBCONTRACTOR PRIOR TO FABRICATION OF ANY WORK. THE VERIFIED DIMENSIONS SHALL APPEAR AND BE NOTED AS SUCH ON THE FIRST SHOP DRAWING SUBMITTED.
THE ENGINEER HAS MADE ASSUMPTIONS CONCERNING THE SOUNDNESS OF THE EXISTING BUILDINGS AND THESE ASSUMPTIONS ARE THAT THIS BUILDING HAS BEEN DESIGNED AND CONSTRUCTED IN CONFORMITY WITH GOOD DESIGN AND CONSTRUCTION PRACTICES. THE CONTRACTOR SHALL TAKE EXTRAORDINARY PRECAUTIONS CONCERNING PRESERVATION OF THE BUILDING DURING DEMOLITION AND NEW CONSTRUCTION WORK. FURTHER, HE SHALL AGREE TO ASSUME ALL RESPONSIBILITY FOR THE PRESERVATION OF THIS PROPERTY.
THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER IMMEDIATELY OF ANY DISCREPANCIES BETWEEN CONSTRUCTION DOCUMENTS AND ACTUAL FIELD CONDITIONS.
ALL HOLES THROUGH EXISTING CONCRETE OR MASONRY CONSTRUCTION SHALL BE CORE DRILLED OR SAW CUT. NEW OPENINGS MUST BE MADE WITH ENGINEER'S APPROVAL.
CUTTING OF EXISTING STRUCTURAL STEEL IS PROHIBITED WITHOUT APPROVAL FROM THE ENGINEER.

**RAILINGS:**

- ALL ELEMENTS OF THE RAILING SYSTEM AND THEIR CONNECTIONS TO SUPPORTING ELEMENTS (WALLS, SLABS, ETC.) SHALL BE THE RESPONSIBILITY OF THE RAILING FABRICATOR / INSTALLER.
PROVIDE CERTIFIED SHOP DRAWINGS. SEE SHOP DRAWING PARAGRAPH FOR ADDITIONAL REQUIREMENTS.
NO FIELD WELDING.

VOIGT & ASSOCIATES, INC. STRUCTURAL ENGINEERING SERVICES
4635 NICOLS RD. SUITE 204 EAGAN, MINNESOTA 55122
PHONE (651) 686-7727 FAX (651) 686-8444

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.
Paul W. Voigt Signature PAUL W. VOIGT
8-14-18 Date 20705 Registration Number

COLLEEN LONEY MANOR BRIDGE
1675 LIVINGSTON AVE WEST ST. PAUL, MN 55118
GENERAL STRUCTURAL NOTES

Table with 2 columns: ISSUED, DATE. PERMIT 8-14-18. DRAWN BY MLH. CHECKED BY AMM, PMV. JOB NO. 18-150.

**PROJECT SPECIFICATION FOR  
COLLEEN LONEY MANOR BRIDGE**

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1675 Livingston Avenue  
West St. Paul, MN 55118

Arch's Project No. 1659

August 14, 2018

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**SECTION 011000 – DEMOLITION AND  
REMODELING**

**PART 1 – GENERAL**

1.01 SCOPE

This Section includes all labor, materials, equipment and related services necessary to do the demolition and remodeling indicated on the Drawings or specified herein.

Building will be occupied throughout the entire construction period. Coordinate with the Owner for hours and access.

Comply with all government, ANSI, and OSHA regulations pertaining to environment protection, and demolition work and disposal.

1.02 SUBMITTALS

Submit 2 copies of the proposed demolition work providing a detailed sequence of demolition and removal of materials, prior to beginning work.

**PART 3 – EXECUTION**

3.01 TEMPORARY PROTECTION

Provide temporary barricades, fencing, railings, bracing, shoring, underpinning and support during demolition, cutting, remodeling and related new construction as necessary for the execution of the Work and the protection of persons and property.

Provide protective coverings and enclosures necessary to prevent damage to existing work to remain. Remove temporary work when the need no longer exists.

3.02 DEMOLITION AND CUTTING

Demolish and remove existing construction to be removed. Where new work is to be constructed in or adjacent to existing construction or existing construction is to be replaced, remove or cut the existing construction to the extent necessary to construct or join the new construction to the existing construction, or replace the existing construction.

Execute work with care. Existing construction that is to remain which is loosened, cracked or otherwise damaged or defaced as a result of the Work and is unsuitable for the use intended shall be removed and replaced at no additional cost to the Owner.

Clean demolition areas and remove debris, waste and rubbish from the building at the conclusion of each

day's work. Transport debris and rubbish in such a manner as to prevent the spread of dust. Remove debris, waste and rubbish promptly from the site. Burn no debris, waste and rubbish on the site.

3.03 PATCHING AND REMODELING

Patch and remodel undisturbed existing construction as indicated on the Drawings. Where existing construction is removed, cut, exposed or otherwise disturbed by Work of the Project, patch defective and incomplete surfaces. Repair damage to existing construction to remain.

Patching and remodeling work shall be done by skilled workers experienced in the particular type of work involved. Patching and remodeling work shall conform to the requirements of the Specifications. Where there are no specifications covering the patching work, the Work shall conform to the highest standard of the trade.

Patch existing construction to match. Examine existing surfaces to be patched before proceeding with the Work. Report conditions where existing materials, colors and finishes cannot be matched to the Architect, and do not proceed until the Architect has issued instruction. Existing construction that has been damaged as a result of the construction work shall be repaired and finished to an extent and as required to match adjacent existing undamaged construction.

End of Section

## **SECTION 01300 – SUBMITTALS**

### **PART 1 – GENERAL**

#### **1.01 SHOP DRAWINGS AND PRODUCT DATA**

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

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

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

Shop drawings, product data, samples and similar submittals are not Contract Documents. The purpose of their submittal is to demonstrate for those portions of the Work for which submittals are required the way the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents. Shop drawings must be certified by a licensed engineer.

The Contractor shall review, approve and submit to the Architect shop drawings, product data, samples and similar submittals required by the Contract Documents with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors. Submittals made by the Contractor which are not required by the Contract Documents may be returned without action.

The Contractor shall perform no portion of the Work requiring submittal and review of shop drawings, product data, samples and similar submittals until the respective submittal has been approved by the Architect. Such Work shall be in accordance with approved submittals.

By approving and submitting shop drawings, product data, samples and similar submittals, the Contractor represents that the Contractor has determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and has checked and coordinated the information contained within such submittals with the requirements of the Work and the Contract Documents.

The Contractor shall not be relieved of responsibility for deviation from the requirements of the Contract Documents by the Architect's approval of shop

drawings, product data, samples or similar submittals unless the Contractor has specifically informed the Architect in writing of such deviation at the time of submittal and the Architect has given written approval to the specific deviation. The Contractor shall not be relieved from responsibility for errors or omissions in the shop drawings, product data, samples or similar submittals by the Architect's approval thereof.

The Contractor shall direct specific attention, in writing or on resubmitted shop drawings, product data, samples or similar submittals to revisions other than those requested by the Architect or previous submittals.

Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents.

Shop drawings and product data shall be submitted to the Architect by the Contractor and shall bear the Contractor's stamp of approval. Shop drawings and product data submitted without this stamp will not be reviewed and will be returned to the Contractor for their approval and resubmission.

Clearly identify shop drawings and product data as to project, contract, contractor, manufacturer, specification section and item submitted. Note deviations from the requirements of the Contract Documents in writing.

Submit shop drawings in electronic form for each submittal, unless otherwise specified. Provide a clear space of not less than 20 square inches on the right hand side of each drawing.

Upon review, the Architect will retain three copies and will return two copies to the Contractor. Correct returned "Rejected" or "Revise and Resubmit", and submit five copies to the Architect.

Submit product data in five copies, unless otherwise specified. The Architect will retain three copies, and two copies will be returned to the Contractor. Submit one additional copy for work designed by a consultant to the Architect.

Clearly mark each copy of product data to identify information being submitted, and delete information which does not apply to the Project. Supplement standard information as necessary. Show dimensions and other selected characteristics.

The Contractor shall furnish approved shop drawings and product data to other separate contractors as may be necessary to coordinate their work or otherwise upon their request.

Maintain one copy of approved shop drawings and product data at the site with the record drawings.



The Architect may return submittals which are not required by the Contract Documents without action.

#### 1.02 SAMPLES

Supplement Paragraph 3.12 of General Conditions:

The Contractor shall submit samples to the Architect for the Architect's review and approval, unless otherwise specified.

Clearly identify samples as to project, contract, contractor, manufacturer, specification section, product type, color range, texture, finish and other identifying data. Samples shall be accompanied by a letter of transmittal indicating the Contractor's approval and by other supporting information as may be necessary.

Submit samples of each item required, unless otherwise specified. Unless otherwise specified, samples shall not be used in the completed construction. The Architect will retain the approved sample in his possession. Where the Contractor requires approved samples to be returned, submit additional samples as required. The Contractor shall remove samples upon request.

#### 1.03 TEST REPORTS

Submit four copies of reports of inspections, tests and approvals required by the Contract Documents to the Architect. Submit one additional copy for work designed by a consultant to the Architect to the consultant.

End of Section

**SECTION 022000 - EARTHWORK**

Extruded polystyrene insulation: CertiFoam 40 by DiversiFoam or equal, R-5.0/inch.

**PART 1 – GENERAL**

**PART 3 – EXCAVATION**

1.01 DESCRIPTION OF WORK

Rough grading, finish grading and fills.

3.01 EXCAVATION

Extra or unsuitable excavated material shall be removed from the site and disposed. Excavate for all work.

1.02 REFERENCES

The Contractor shall determine substrate conditions and shall remove all materials to the design sub-grades indicated or specified by structural on Sheet S3.

Slab subgrades shall be approved by the Structural Engineer before proceeding with their construction.

Comply with all codes, laws, ordinances and regulations of governmental authorities having jurisdiction over this part of the work, OSHA and ANSI.

In the event latent soil conditions are encountered at the subgrade elevations, the Structural Engineer may direct the removal of the unsuitable soil and installation of suitable compacted granular earth fill.

1.03 PROTECTION OF UTILITIES

Protect all existing service lines and related structures encountered in the excavation work. Where such lines and structures have been undermined due to the excavation work, provide suitable supports. If damaged, repair such lines and structures or arrange for their repair with the proper authorities or companies.

3.02 FILL AND COMPACTION

Materials for fills shall consist of material approved by the Structural Engineer.

Report uncharted and incorrectly charted lines to Architect for further direction.

Place fill materials in horizontal loose layers and spread, mix and place in such a manner as to produce a uniform thickness of material. Placement shall start in the deepest area and progress approximately parallel to the finished grade. The thickness of each layer shall not exceed 8-inch loose measurement.

1.04 DUST CONTROL

Use all means necessary to control dust.

Compact each layer of fill with approved equipment to the maximum standard Proctor densities at optimum moisture unless otherwise noted, as follows.

1. 98 percent under ground-bearing building slabs, walks or platforms.
2. 90 percent in landscaped areas and general grading.
3. All densities shall be determined in accordance with ASTM D698-91 (standard Proctor).

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.

3.03 INSULATION

Install extruded polystyrene per manufacturer's instructions. Butt panels tightly together. Protect from damage until backfilling is completed.

**PART 2 – PRODUCTS**

2.01 MATERIALS

In general, fills shall be clean friable earth, sand, or clays of low plasticity, free of organic material, ice, cinders, trash, rubble, and stones greater than 6" in diameter, unless otherwise specified.

End of Section

Granular fills shall consist of well graded granular material meeting approval of Structural Engineer to be capable of supporting new concrete slabs on grade.

S:spec\commercial\07200insulation.doc

Below-slab insulation shall be as follows:

**SECTION 033000 – CAST-IN-PLACE CONCRETE**

**PART 1 – GENERAL**

Work includes: formwork, shoring, bracing, and anchorage; concrete reinforcement and accessories; and cast-in-place concrete.

Perform Work in accordance with ACI 301 (current version). Obtain materials from same source throughout the Work. No additives are to be added to the concrete mix by the concrete mix truck driver at the job site.

Work shall conform to current versions of:

ACI 318 - Building Code Requirements for Reinforced Concrete.

ASTM A185 - Welded Steel Wire Fabric for Concrete Reinforcement.

ASTM A615 - Deformed and Plain Billet-Steel for Concrete Reinforcement.

ASTM C33 - Concrete Aggregates.

ASTM C94 - Ready-Mixed Concrete.

ASTM C150 - Portland Cement.

**PART 2 – PRODUCTS**

Materials shall be as follows:

Form Materials: At the discretion of the contractor to produce smooth finish. Form Ties: Removable metal of adjustable length, free of defects.

Reinforcing Steel: ASTM A615, 60 ksi yield grade billet steel deformed bars; uncoated finish. Welded Steel Wire Fabric: Plain type, ASTM A185; uncoated finish.

Anchor bolts to be hot dipped galvanized. Diameter and length per Structural Engineer.

Cement: ASTM C150, normal - Type 1 Portland, grey color. Fine and Coarse Aggregates: ASTM C33. Water: Clean and not detrimental to concrete.

Air Entraining Admixture: ASTM C260.

Form Release Agent: Colorless material which will not stain concrete, or absorb moisture.

Non-Shrink Grout: Premixed compound consisting of nonmetallic aggregate, cement, water reducing and plasticizing agents; capable of developing minimum compressive strength of 5000 psi in 28 days.

Expansion Joint Material: Polyethylene closed cell expansion joint material.

High solids curing and sealing compound: A chlorinated rubber or styrene-butadiene compound conforming to Fed. Spec. TT-C-800A; Euclid SUPER FLOOR COAT or SUPER PLIOCURE, Master Builders MASTERSEAL or Sonneborn KURN-N-SEAL 0800.

Expansion joint filler: ASTM D1751-04 or Homasote Company HOMEX 300.

Joint sealer: Mameco VULKEM 45.

Non-shrink grout: Euclid EUCO N-S GROUT, Master Builders MASTERFLOW 713 GROUT, Sonneborn SONOGROUT or U.S. Grout FIVE STAR GROUT.

**2.01 STRENGTH AND PROPORTIONS**

Concrete Mix: Mix concrete in accordance with ASTM C94. Select proportions for normal weight concrete in accordance with ACI 301, Method 2.

Provide concrete to the following criteria:

Exterior Slabs On Grade Concrete:

- a) Compressive Strength 28 days: 4000 psi.
- b) Slump: Four inch.
- c) Air entraining 6 %.

**PART 3 – EXECUTION**

Formwork:

Verify lines, levels, and measurement before proceeding with formwork. Maintain ACI 301 tolerances. Hand trim sides and bottom of earth forms, remove loose dirt. Align form joints.

Apply form release agent in accordance with manufacturer's instructions. Apply prior to placing reinforcing steel, anchoring devices and embedded items.

Do not apply form release agent where concrete surfaces receive special finishes or applied coatings which may be affected by agent.

Coordinate Work of other Sections in forming and setting openings, slots, recesses, chases, sleeves, bolts, anchors, and other inserts.

Do not damage concrete surfaces during form removal.

Reinforcement: Place, support, and secure reinforcement against displacement.

Place anchor bolts per Structural Engineer's Drawings and notes.

Placing Concrete:

Place concrete continuously between predetermined construction joints. Do not break or interrupt successive pours such that cold joints occur.

Prepare previously placed concrete by cleaning with steel brush and applying bonding agent. Apply bonding agent in accordance with manufacturer's instructions. Do not apply bonding agent to top of footing; see Footings for coating to apply.

Ensure reinforcement, inserts, embedded parts are not disturbed during concrete placement.

Maintain three inch cover around reinforcing in contact with earth.

Install joint fillers in accordance with manufacturer's instructions.

Uniformly spread, screed and float concrete.

Excessively honeycomb or embedded debris in concrete is not acceptable. Notify Structural Engineer upon discovery.

Saw cut control joint within 24 hours after placing. Cut slabs with 3/16 inch thick blade, cutting 1/4 of depth of slab thickness. Zip strips are acceptable control joints. See Drawings for spacing.

Protection: Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures and mechanical injury. Concrete shall be maintained above 50 degrees Fahrenheit and in a moist condition for at least seven days for normal concrete.

Finishing:

Repair surface defects, including tie holes, immediately upon removing formwork.

Finish concrete floor surfaces in accordance with ACI 301.

Provide 1/4 inch in 10 feet maximum tolerance to floor slabs.

Exterior slabs to have light broom finish.

Cure finish floor surfaces in accordance with ACI 308.

3.01 FIELD QUALITY CONTROL

Make standard 6" diameter concrete compression test cylinders and laboratory test in accordance with ASTM C31-03a and ASTM C39-05.

Make one set, consisting of three cylinders per day, per 150 cubic yards or 1,000 square feet of wall or floor (whichever governs), for each day's pour of structural concrete. Test cylinders at 7 and 28 days respectively.

End of Section

## **SECTION 055200 – METAL RAILINGS**

### **PART 1 – GENERAL**

#### **1.01 SUMMARY**

This Section includes all labor, material, equipment and related services necessary to furnish and install decorative metal railings indicated on the drawings or specified herein.

All railings shall be furnished with all necessary hardware, anchors and miscellaneous equipment.

#### **1.02 STRUCTURAL REQUIREMENTS**

Railing assembly shall withstand a minimum concentrated load of 200 pounds applied vertically downward or horizontally in any direction, but not simultaneously, at any point on the top rail.

Railing assembly shall withstand a minimum uniform load of 50 pounds per foot applied horizontally or vertically downward, but not simultaneously, on the top rail.

Guard intermediate rails, balusters, or posts shall be designed for a uniform load of not less than 50 pounds per square foot applied horizontally over the gross area of the guard of which they are part. Reactions due to this loading need not be added to the loading specified for the main supporting members of the guard.

#### **1.03 QUALITY ASSURANCE**

Regulatory Requirements: Components and installation are to be in accordance with state and local code authorities

Components and installation are to follow current ADA and ICC/ANSI A117.1 guidelines.

Determine code regulations that govern this work. Specify requirements and drawings that are necessary to meet governing codes.

Certifications: Furnish certification that all components and fittings are furnished by the same manufacturer or approved by the primary component manufacturer.

Furnish certification that components were installed in accordance to the manufacturer's engineering data to meet the specified design loads.

#### **1.04 REFERENCES**

American Concrete Institute (ACI)

1. ACI 347 Recommended Practice for Concrete Formwork

American National Standards Institute (ANSI)

1. ANSI A21.1 Safety Requirements for Floor and Wall Openings, Railings and Toe Boards.
2. ANSI A58.1 Minimum Design Loads in Buildings and Other Structures.
3. ICC/ANSI A117.1 Accessible and Usable Buildings and Facilities.
4. ANSI A97.1 Safety Performance Specifications and Methods of Test for Safety Glazing Material used in Buildings.
5. ANSI/NAAMM MBG 531 Metal Bar Grating Manual.

American Society for Testing and Materials (ASTM)

1. A 500 Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.

American Welding Society (AWS)

1. Specifications for Welding Rods and Bare Electrodes.

American Galvanizers Association (AGA)

#### **1.05 SUBMITTALS**

Submit shop drawings and product data under provisions of Section 013000.

1. Show dimensioned sections, elevations, and plans, and assembly of components.
  - a. Railings
  - b. Handrail
  - c. Brackets
  - d. Reinforcements
  - e. Anchors
  - f. Shop welded, no field welds.
2. Show all field connections
3. Provide setting diagrams for installation of anchors, location of pockets, plates for attachment of rails to structure.
4. Specify adequate support for anchoring handrail bracket to posts.
5. Indicate all required field measurements.

Indicate component details, materials, finishes, connection and joining methods, and the relationship to adjoining work.

Submit manufacturer's installation instructions under provisions of Section 013000.

Samples:

1. Submit sample of railing showing style and finish. One approved sample will be returned to contractor.

#### **1.06 DELIVERY, STORAGE, AND HANDLING**

Deliver materials to the job site in good condition and properly protected against damage to finished surfaces.

Storage on site:

1. Store material in a location and in a manner to avoid damage. Stacking shall be done in a way which will prevent bending.

2. Store material in a clean, dry location away from uncured concrete and masonry. Cover with waterproof paper, tarpaulin, or polyethylene sheeting in a manner that will permit circulation of air inside the covering.
3. Keep handling on site to a minimum. Exercise particular care to avoid damage to finishes of material.

## PART 2 – MATERIALS

### 2.01 MATERIALS AND FINISHES

Galvanized Steel:

1. Square Tubing: meeting ASTM A 500
2. Bars and Shapes: meeting ASTM A 36.
3. Finish (refer to NAAMM/NOMMA Metal Finishes Manual):
  - a. Surface Preparation: Remove loose scale, rust, grease, oil, moisture or other foreign materials to properly prepare the surface for subsequent coating application.
    1. Remove mill scale, rust and dirt following SSPC SP2 for hand cleaning and SSPC SP3 for power tool cleaning.
  - b. Galvanizing:
    1. Products fabricated from shapes, plates, bars and strips shall be galvanized in accordance with ASTM A 123.
  - c. Touch up for Galvanized Surfaces: Use paint primer meeting FS-TT-P-645.

### 2.02 RAILING SYSTEM

Guard and Handrails

1. Fabricate all parts from galvanized steel, see Drawings.

### 2.03 FASTENERS

Fasteners only from railing to support surface, see Structural.

### 2.04 FABRICATION

Form all changes in rail direction by radius elbows.

Cut material square and remove burrs from all exposed edges, with no chamfer.

Make exposed joints butt tight and flush.

Close exposed ends of handrail, guardrail, posts, and all members by use of appropriate end cap.

Verify dimensions on site prior to shop fabrication.

### 2.05 WEEP SLOTS

See AGA guidelines for weep size and spacing.

## PART 3 – EXECUTION

### 3.01 INSTALLATION

All units shall be installed in accordance with project specifications. All units shall be installed square and level using stainless steel fasteners.

Install in accordance with shop drawings at locations indicated on the drawings.

Erect work square and level, rigid, and free from distortion or defects detrimental to appearance or performance.

### 3.02 CLEANING

As installation is completed, wash thoroughly using clean water and soap; rinse with clean water.

Do not use acid solution, steel wool or other harsh abrasives.

If stain remains after washing, remove finish and restore in accordance with NAAMM/NOMMA Metal Finishes Manual.

### 3.03 REPAIR OF DEFECTIVE WORK

Remove stained or otherwise defective work and replace with material that meets specification requirements.

Replace defective or damaged components.

End of Section

## **SECTION 079200 – SEALANTS & CAULKING**

### **PART 1 – GENERAL**

#### 1.01 GENERAL

Includes but is not limited to quality of sealants to be used on project including submittal, material, and installation requirements.

#### 1.02 SUBMITTALS

Submit manufacturer's literature and installation recommendations for each product. Submit schedule showing where each product is to be used, and samples for color selection.

Furnish certificate from manufacturer indicating date of manufacture.

#### 1.03 DELIVERY, STORAGE & HANDLING

Handle to prevent inclusion of foreign matter, damage by water, or breakage. Deliver and keep in original containers until ready for use. Do not use damaged or deteriorated materials. Store in a cool place, but never under 40° F.

### **PART 2 – PRODUCTS**

#### 2.01 MATERIALS

Sealants provided shall meet manufacturer's shelf-life requirements.

Sealant S1: Multiple component, epoxidized polyurethane polymer, ASTM C920-87, Type M, Grade NS, Class 25 (24 percent movement):

1. Dynatrol II, Pecora Corp.
2. Sikaflex – 2c NS, Sika Corp.
3. Sonolastic NP 2, Sonneborn Building Products Division, ChemRex, Inc.
4. Dymeric, Tremco, Inc.

Sealant S2: One part, silicone, non-sag, ASTM C920-87, Type S, Grade NS, Class 25 (25 percent movement).

1. 999-A Silicone Building & Glazing Sealant, Dow Corning Corp.
2. Construction 1200, General Electric
3. 863, Pecora Corp.

Color to be selected by the owner from manufacturer's standard colors.

Flexible polyurethane or polyolefin rod or bond breaker tape as recommended by the manufacturer for joints being sealed.

### **PART 3 – EXECUTION**

#### 3.01 PREPARATION

Remove existing sealants where replacing. Surfaces shall be clean, dry, and free of dust, oil, grease, dew, or frost. Sealants shall not be applied to joint surfaces previously treated with paint, lacquer, sealer, curing compound, water repellent and other coatings unless such coatings have been entirely removed. Apply specified primer.

Provide joint backing with polyurethane rod for open joints shall be at least 1-1/2 times width of open joint, and of thickness to give solid backing. Backing shall fill joint so depth of sealant is no more than 3/8 inch. Apply bond-breaker tape in shallow joints as recommended by the manufacturer.

#### 3.02 APPLICATION

Compounds shall not be installed below a temperature of 40 degrees F. unless the manufacturer specifically permits installation at a lower temperature. If job conditions require the installation of compounds below 40 degrees F. (or below the minimum installation temperature recommended by the manufacturer), consult the manufacturer's representative and establish minimum provisions required to ensure the satisfactory work.

Confine compounds to joint areas shown. Use masking tape to prevent staining of adjoining surfaces, and spillage and migration of compound out of the joints. Tool surface to shape shown or, if none is shown, to flush or slightly concave surface. Remove excess compound and clean adjoining surfaces as may be required to eliminate indication of soiling and migration.

Use power driven equipment wherever possible to install compounds to ensure uniformity of application and the highest quality of workmanship.

Use polyurethane sealant (Sealant S1) for holes at removed railing connections to existing concrete and brick.

Use silicone sealant (Sealant S2) for new penetrations.

Apply sealant with hand-caulking gun with a nozzle of the proper size to fit joints. Use sufficient pressure to ensure full contact to both sides of joint to full depth of

joint. Tool joints immediately after application of sealant if required to achieve full bedding to substrate or to achieve smooth sealant surface. Depth of sealant shall be 1/4 inch minimum and 3/8 inch maximum, but never more than 1/2 or less than 1/4 of the joint's width. Do not apply caulking at temperatures below 40° F. Caulk open perimeters unless indicated otherwise. Use specified material available from system installer.

### 3.03 CLEAN-UP

Immediately clean adjacent materials that have been soiled, before caulk sets. Use materials and methods recommended by the manufacturer.

End of Section



**SECTION 321000 – ASPHALTIC PAVING**

**PART 1 – GENERAL**

Asphaltic concrete paving shall consist of a 2" thick, MnDOT Spec 2350, Type LV3 bituminous base course and a 2" thick, MnDOT Spec 2350, Type LV4 bituminous surface course.

**PART 2 – PRODUCTS**

**2.01 CATIONIC EMULSIFIED ASPHALT FOR SEAL COAT**

MnDOT Spec 3151, CRS-2.

**2.02 AGGREGATE FOR SEAL COAT**

MnDOT Spec 3127, Type FA-2.

**PART 3 - EXECUTION**

Cut out and patch base and bituminous as needed to meet flush with newly poured concrete walk.

Compact the new aggregate base course to not less than 98% of the maximum density given by ASTM D1557-02 (Modified Proctor Density).

**3.01 BITUMINOUS PAVING**

Where patch of new bituminous paving joins existing bituminous paving, cut the existing paving neatly to form a straight, vertical joint parallel or perpendicular to the traffic flow, and apply a light uniform coat of bitumen.

Compact the bituminous base course and surface course by "Ordinary Compaction Method" until there is no further evidence of consolidation and all roller marks are eliminated.

**3.02 SEAL COAT**

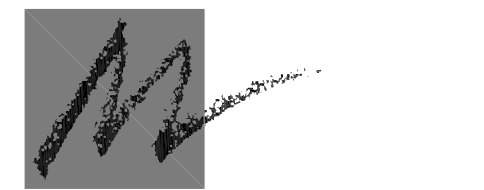
At patch, apply a seal coat in accordance with MnDOT Spec 2356.

Apply the asphalt at the rate of 0.25 gallons per square yard, and apply the aggregate at the rate of 25 pounds per square yard.

Roll the aggregate initially immediately after application of the aggregate. Continue rolling until 5 passes have been made. All rolling shall be done within 30 minutes of the application of the aggregate.

On the following morning, sweep the surface to remove surplus aggregate.

End of Section



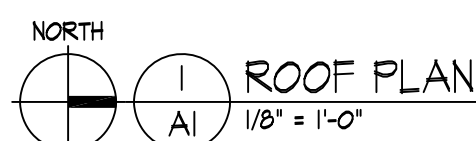
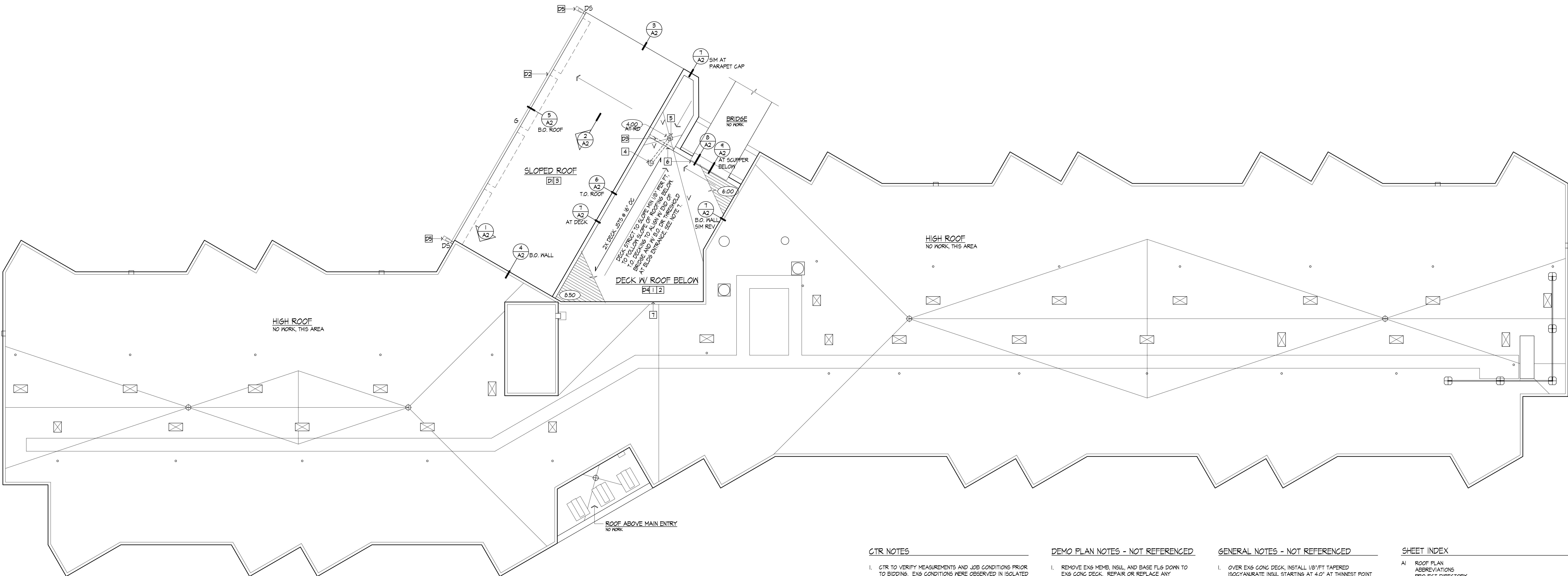
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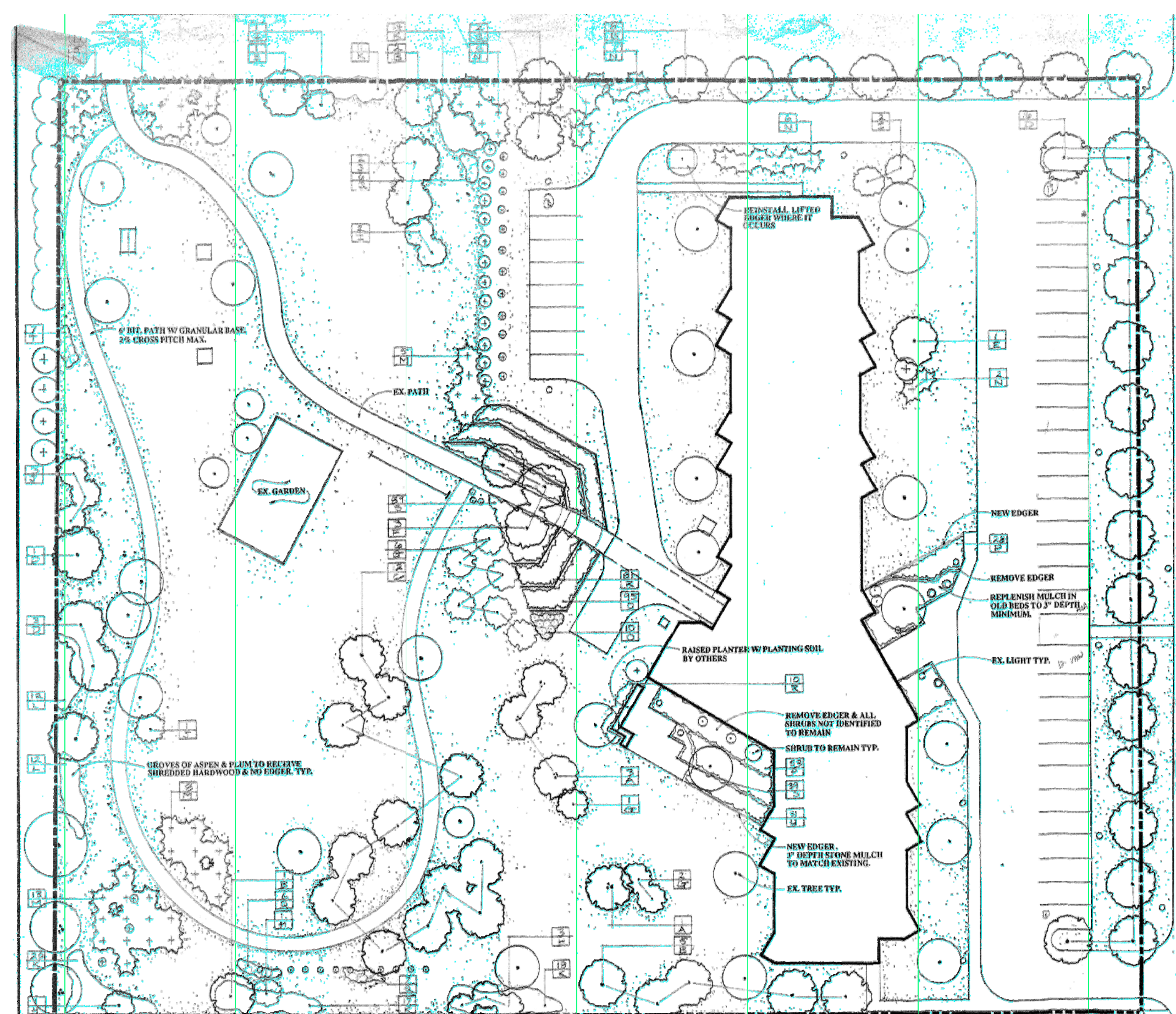
Project  
**COLLEEN LONEY  
MANOR**  
ROOF REPLACEMENT:  
ROOF DECK AND  
SLOPED ROOF  
1675 LIVINGSTON AVE  
WEST ST. PAUL, MN 55118

Owner  
Dakota County Community  
Development Agency  
1228 Town Centre Drive  
Eagan, MN 55123



### Architectural Drawing Abbreviations

AB anchor bolt	E east	MECH mechanical	SH + R shelf with rod
AC air conditioner	EA elevation, elevator	MEMB membrane	SHWR shower
ACT architectural ceiling tile	ELEC electrical	MFR membrane	SHWR shower
ADJ adjacent or adjustable	ENGR engineer(ed)	MIC microwave	SIP structural insulated panel
ADDL additional	EQ equal	MIR mirror	SKYLT skylight
AFF above finish floor	EGMT equipment	MISC miscellaneous	SLDG sliding
ALT alternate	EST estimate	MISC miscellaneous	SLNT sealant
AL aluminum	EW way	MT mount(ed), (ing)	SPEC specification(s)
APPL appliance	EXC excavate	MT mount(ed), (ing)	SP space
APPROX approximately	EXP expansion	NA not applicable	SPK speaker
ARCH architect(ural)	EJH exhaust	NC not in contract	SR sanitary receptacle
AV audio visual	EXP expansion joint	NTS not to scale	SS sanitary sewer
B base	EXT exterior	OD outside diameter	SS stainless steel
BC base cabinet	FS face brick	OD outside diameter	STD standard
BD board	FD floor drain	OD outside diameter	STR structural
BLDG building	FF fire retardant	OH overhead, overhang	SUR surface
BLK(G) block(ing)	FF finish floor	OH overhead, overhang	SUS suspended
BMU beam	FF finish floor elevation	OPNG opening	SV stall/ventilator
BMU burnished masonry unit	FF finish(ed)	OTS open to structure	SVR sewer
BOT bottom	FRK flange	OV oven	SY square yard
BRK backer rod	FLR floor(ing)	PART partition, partial	T & G tongue and groove
BRK brick	FLUR fluorocarbon	PERF perforated	TB tread
BRKT bracket	FND foundation	PERM perimeter	T&G tongue and groove
BRG bearing	F.O. face of	PERF perforated	TD towel dispenser
BS back splash	FRP floor plan, fireplace	PL plate	TD to be determined
BSMT basement	FRG framing	PLAM plastic laminate	TEL telephone
BTWN between	FRP fiberglass reinforced panel	PLMG plumbing	TEMP temporary
BW both ways	FRZ freezer	PAN panelling	THRM thermostat
CAB cabinet	FT foot, feet	POLY polyethylene	THK thickness
CAN canister	FTG footing	PORC porcelain	THRD threads
CB ceramic base	FUR furnace	PREFAB prefabricated	TEMP temporary
CEM cement	FURN furnace	PREFAB prefabricated	TEMP temporary
CER ceramic	GA gauge	PSF pounds per square foot	T.O. top of
CL ceramic tile	GA general contractor	PSL pounds per square inch	T.O. top of
CL center line	GB grab bar	PSL parallel strand lumber	T.O. top of
CLG ceiling	GL glazing	PTAC packaged terminal air conditioner	T.P.D. treated
CLR clear(ance)	GLU LAM glue laminated	PTH perimeter	TRTD treated
CMU concrete masonry unit	GLU LAM glue laminated	PTH perimeter	TRTD treated
CO casement	GLU LAM glue laminated	PTH perimeter	TRTD treated
COL column	GLU LAM glue laminated	PTH perimeter	TRTD treated
COMP composite	H hose bibb	PVD plywood	TV television
CONC concrete	H high height	QTY quantity	TYP typical
CONST construction	H header	R RAD radius, radiator	UNC uncracked
CONT continuous, continue	HDR header	RAD radius, radiator	UNO unless noted otherwise
CPT carpet	HGR hanger	RCP reflector ceiling plan	VAC vacuum
CS course	HK hook, metal	RD roof drain	VB vinyl base
CSK counter/sink	HORIZ horizontal	REC recessed	VD vertical divider
CTR center	HORIZ horizontal	REC recessed	VD vertical divider
D, DWR drawer	HORIZ horizontal	REC recessed	VD vertical divider
D-C drawer-caddy tray	INSUL insulation, (ion)	RES resilient	VENT ventilator, ventilation
D-F drawer-hanging files	INT interior	RET return	VERT vertical
DK drawer-knife	JT joint	RET return	VERT vertical
D-P drawer-pencil	KPL kick plate	REV revision(s), revised	VF verify in field
D-S drawer-signals	KO knock-out	RET return	VIN vinyl
DLJ drawer-utility tray	LAM laminate	RET return	VNT vinyl
DBL double	LAV lavatory	RET return	VNR veneer
DEMO demolition	LCH laundry chute	RET return	VNT vinyl
DF drinking fountain	LH left hand	RET return	VNT vinyl
DIA diameter	LC linen, linenum	RET return	VNT vinyl
DM dimension	LSC landscape	RET return	VNT vinyl
DSF disposal	LSS laminated strand lumber	RET return	VNT vinyl
DN down	LVL laminated veneer lumber	RET return	VNT vinyl
DR door	LVR lower	RET return	VNT vinyl
DSL downspout leader	MATL material	RET return	VNT vinyl
DT drain tile	MAX maximum	RET return	VNT vinyl
DTL detail	MC mult cover, medicine cab	RET return	VNT vinyl
DW dishwasher	MD metal deck	RET return	VNT vinyl
DWG drawing		RET return	VNT vinyl



2 SITE PLAN  
NTS

### CTR NOTES

- CTR TO VERIFY MEASUREMENTS AND JOB CONDITIONS PRIOR TO BIDDING. EXG CONDITIONS WERE OBSERVED IN ISOLATED LOCATIONS AND MAY NOT BE REPRESENTATIVE OF THE ENTIRE PROJECT.
- REVIEW PROJECT FOR ANY ITEMS NOT SHOWN ON THE PLANS. REVIEW PROJECT SPECIFICATIONS FOR ADDITIONAL DETAILS NOT IDENTIFIED BY THE PROJECT DRAWINGS.
- COORDINATE WORK OF ALL TRADES TO ENSURE THE BLDG IS WATER-TIGHT AT END OF EACH DAY'S WORK. SEQUENCE WORK IN SUCH A MANNER THAT DAMAGE AND/OR WEAR OF NEW OR EXG BUILDING COMPONENTS WILL NOT OCCUR.
- PROTECT NEW AND EXG CONSTRUCTION. RESTORE EXTERIOR AND INTERIOR FINISHES (INCL LANDSCAPING) DAMAGED DURING THE WORK.
- BLDG WILL BE OCCUPIED DURING CONSTRUCTION. COORDINATE CLOSELY WITH OWNER TO MINIMIZE DISRUPTIONS TO RESIDENT ACTIVITIES.
- SAFETY IS THE RESPONSIBILITY OF THE CTR.
- SUBMIT A SITE SAFETY PLAN FOR THE OWNER'S REVIEW. THE PLANS TO BE COMPLETE, REFLECTING THE ENTIRE SITE AND SHOWING ANY PHASED PROTECTION. THE SITE SAFETY PLANS TO INCLUDE BUT NOT BE LIMITED TO NOTES, SIDEWALK BRIDGE, FENCES, EGRESS, SCAFFOLDING, ETC.
- CTR IS RESPONSIBLE FOR ALL MECH AND ELEC DISCONNECTS, MODIFICATIONS AND RECONNECTS. APPROXIMATE LOCATIONS OF ROOFTOP MECH EQMT ARE INDICATED ON THE PLAN. FIELD VERIFY THE ACTUAL QUANTITY AND TYPE OF ALL MECH AND ELEC LINES THAT REQUIRE DISCONNECTION, MODIFICATION AND RECONNECTS PRIOR TO BIDDING.
- PROVIDE SOIL PIPE EXTENSION TO ACHIEVE 12" VERTICAL HEIGHT ABOVE ROOF MEMBRANE.

### DEMO PLAN NOTES - NOT REFERENCED

- REMOVE EXG MEMB, INSUL, AND BASE FLS DOWN TO EXG CONG DECK. REPAIR OR REPLACE ANY CRACKED OR LOOSE CONG TOPPING.
- REMOVE AND DISPOSE OF ALL MTL CAP FLS, MEMB.
- VERIFY CONDITION OF EXG RD BKGS AND NAILER STRIPS. WHERE EXG BKGS SIZE AND PROFILE SIM TO PROPOSED, KEEP EXG BKGS. REPLACE ROTTING OR DETERIORATED BKGS AND NAILER STRIPS AS NEEDED THRU CHANGE ORDER.
- REMOVE EXG DECK RAILING, DECKING, AND DECK STRUCT BELOW. COORDINATE W/ OWNER FOR SEPARATE RAILING AND BRIDGE PROJECTS, WHICH ARE NOT PART OF THIS PROJECT.
- PROTECT ALL MATL THAT IS TO REMAIN. PROTECT SURROUNDING AREAS AROUND THE BLDG FROM CONG ACTIVITIES.

### DEMO PLAN NOTES - REFERENCED

- AT SLOPED ROOF, REMOVE EXG SHINGLES, UNDERLAYMENTS, FLS, AND INSUL.
- REMOVE EXG GUTTER AND DS, SAVE FOR REINSTALLATION.
- REMOVE EXG CURB.
- REMOVE EXG BALLAST AND DEBRIS, DISPOSE OF OFF-SITE. REMOVE INSUL SYSTEM DOWN TO T.O. CONG DECK. REPAIR OR REPLACE ANY CRACKED OR LOOSE CONG TOPPING.
- EXG SPLASHBLOCK TO REMAIN.

### GENERAL NOTES - NOT REFERENCED

- OVER EXG CONG DECK, INSTALL 1/8" TAPERED ISOCYANURATE INSUL STARTING AT 4" AT THINNEST POINT AND TAPERING UP. EA LAYER OF INSUL TO BE INSTALLED IN STAGGERED JT FASHION AND OFFSET JTS 50% FROM PREVIOUS LAYER.
- OVER INSUL, INSTALL 1/2" GLASS-FACED GYP SHTG.
- OVER GLASS-FACED GYP SHTG, INSTALL BALLASTED 60 MIL EPDM.  
ALT #1: 60 MIL FULLY ADHERED EPDM ROOF SYSTEM.  
ALT #2: 90 MIL BALLASTED ROOF.
- INSTALL 24 GA PRESH FIN MTL AND FASCIA AS INDICATED ON THE DETAIL DWGS AND/OR SPEC'S. ALL SHEET MTL SHALL BE SECURED W/ NEOPRENE GASKETED SCREWS 15" O.C., UNO.
- REPLACE OR REPAIR ANY MATERIALS DAMAGED DURING CONSTRUCTION.
- ALL SHADED PORTIONS OF THE DETAILS REPRESENT EXG CONDITIONS.

### ROOF PLAN NOTES - REFERENCED

- DECK STRUCT.  
REMOVE EXG DECKING AND DECK STRUCT. SEE D4.  
INSTALL DECKING OVER TRTD 2X FRG 4 MD SLEEPERS.
- AT FLAT ROOF BELOW DECK:  
OVER EXG CONG DECK, INSTALL 1/8" TAPERED ISOCYANURATE INSUL STARTING AT 4" AT THINNEST POINT AND TAPERING UP. EA LAYER OF INSUL TO BE INSTALLED IN STAGGERED JT FASHION AND OFFSET JTS 50% FROM PREVIOUS LAYER.  
OVER INSUL, INSTALL 1/2" GLASS-FACED GYP SHTG.  
OVER GLASS-FACED GYP SHTG, INSTALL BALLASTED 60 MIL EPDM.  
ALT #1: 60 MIL FULLY ADHERED EPDM ROOF SYSTEM.  
ALT #2: 90 MIL BALLASTED ROOF.
- SLOPED ROOF.  
INSTALL ROOFING. SEE SHEET A2 FOR DTL'S.
- REMOVE EXG RD (ASSUMED LOCATION, COULD NOT BE VIF).
- NEW INTERNAL RD LOCATION.  
INVESTIGATE PIPING BELOW NEARBY EXG RD LOCATION. THE NEW RD PIPING INTO EXG INSIDE BLDG, BELOW ROOF STRUCT.
- EDGE OF DECK.
- APPROX LOCATION OF EXG BLDG ENTRANCE.  
ONCE EXG DECK STRUCT HAS BEEN REMOVED, VERIFY HT OF EXG DR THRESHOLD AND DETERMINE IF DESIGN OF SLOPED ROOFING AND DECK WILL FALL BELOW BOT OF EXG THRESHOLD. NOTIFY ARCH AND OWNER OF ANY DISCREPANCIES PRIOR TO START OF NEW CONGT.

### SHEET INDEX

- A1 ROOF PLAN ABBREVIATIONS PROJECT DIRECTORY LIST OF ALTERNATES VICINITY MAP
- A2 ROOF DETAILS

### PROJECT DIRECTORY

OWNER	DAKOTA COUNTY COMMUNITY DEVELOPMENT AGENCY 1228 TOWN CENTRE DRIVE EAGAN, MN 55123 VINCE MARKELL 651.675.4501 vmarkell@dakotacounty.gov
ARCHITECT	McMONIGAL ARCHITECTS 1227 TYLER STREET NE SUITE 100 MINNEAPOLIS, MN 55413
ROOF ENGINEER	ROOF SPEC, INC. 2400 PRIOR AVE NORTH ST. PAUL, MN 55113 WILLIAM F. WAUGH, PE 651.211.5411 wvaugh@roofspe.com

### LIST OF ALTERNATES

- ALT #1 SUBSTITUTE 60 MIL FULLY ADHERED EPDM- ADHERE INSUL AND GYP SHTG W/ POLYURETHANE FOAM ADHESIVE
- ALT #2 SUBSTITUTE 90 MIL BALLASTED EPDM ROOF
- ALT #3 SUBSTITUTE ROOF DECKING SYSTEM IN LIEU OF MD FRG, STS, BKGS, AND DECKING

Architect's Project #1927  
September 30, 2019

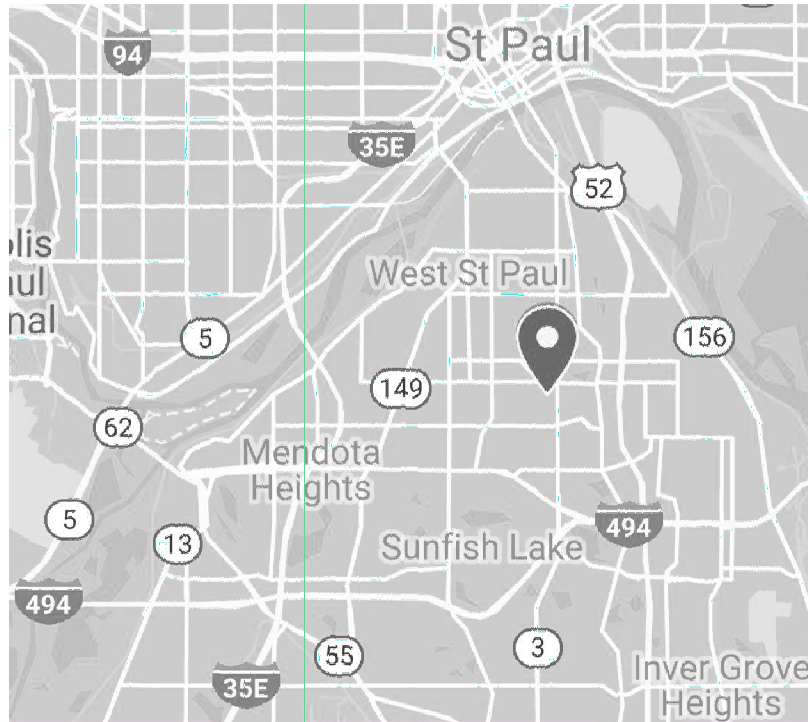
I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am duly Licensed Architect under the Laws of the State of Minnesota.

Rosemary McMonigal  
Registration Number: 16852  
Date: 9/30/19

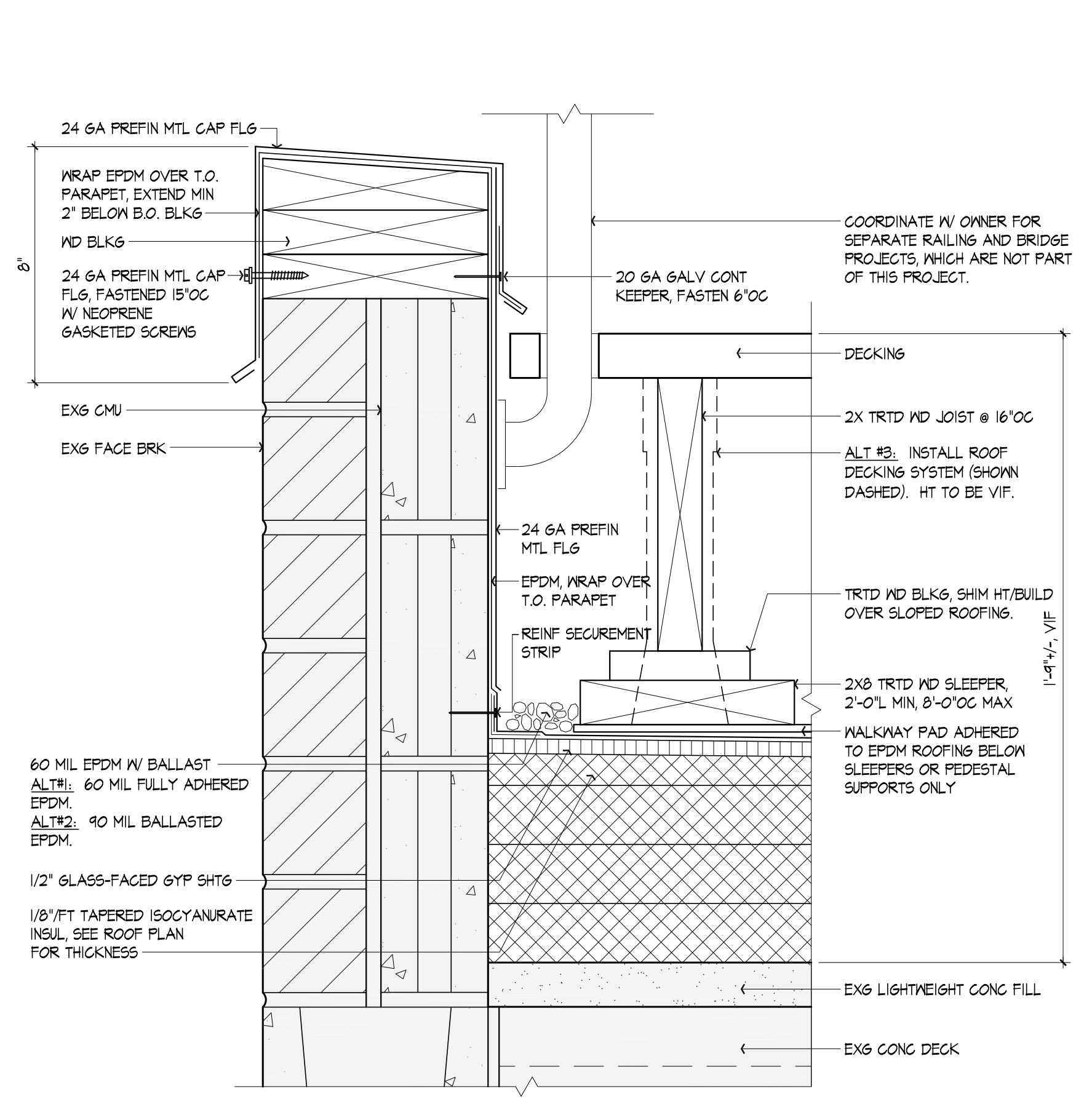
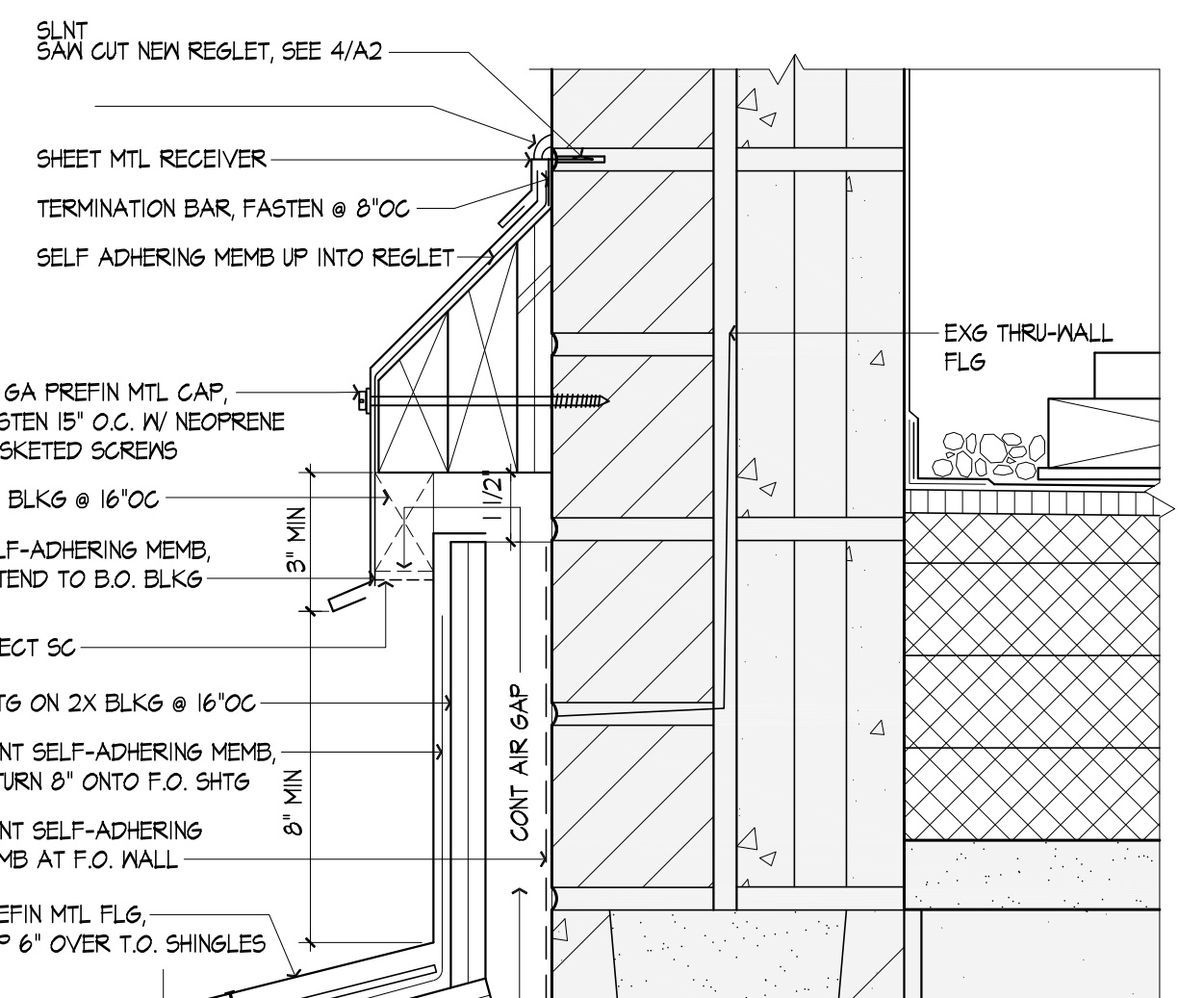
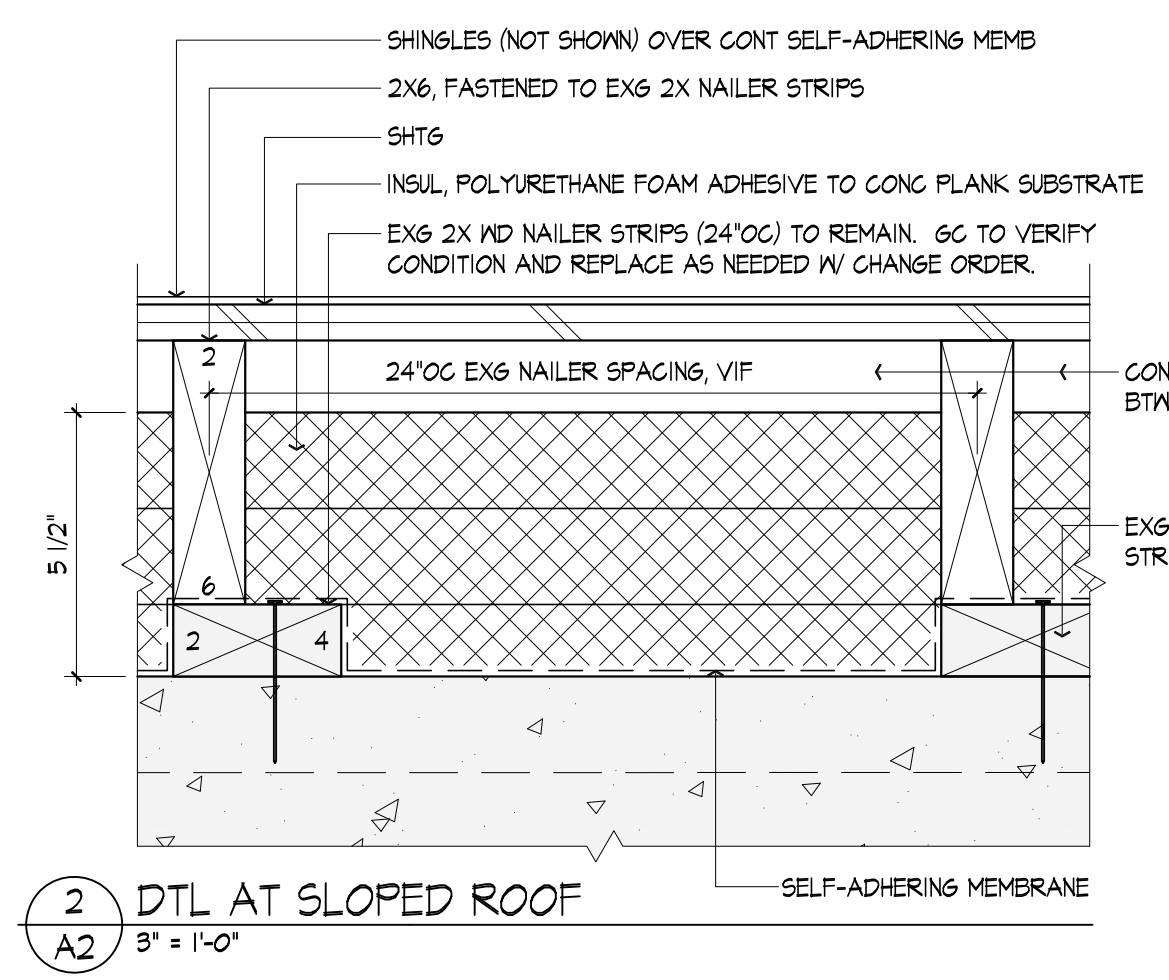
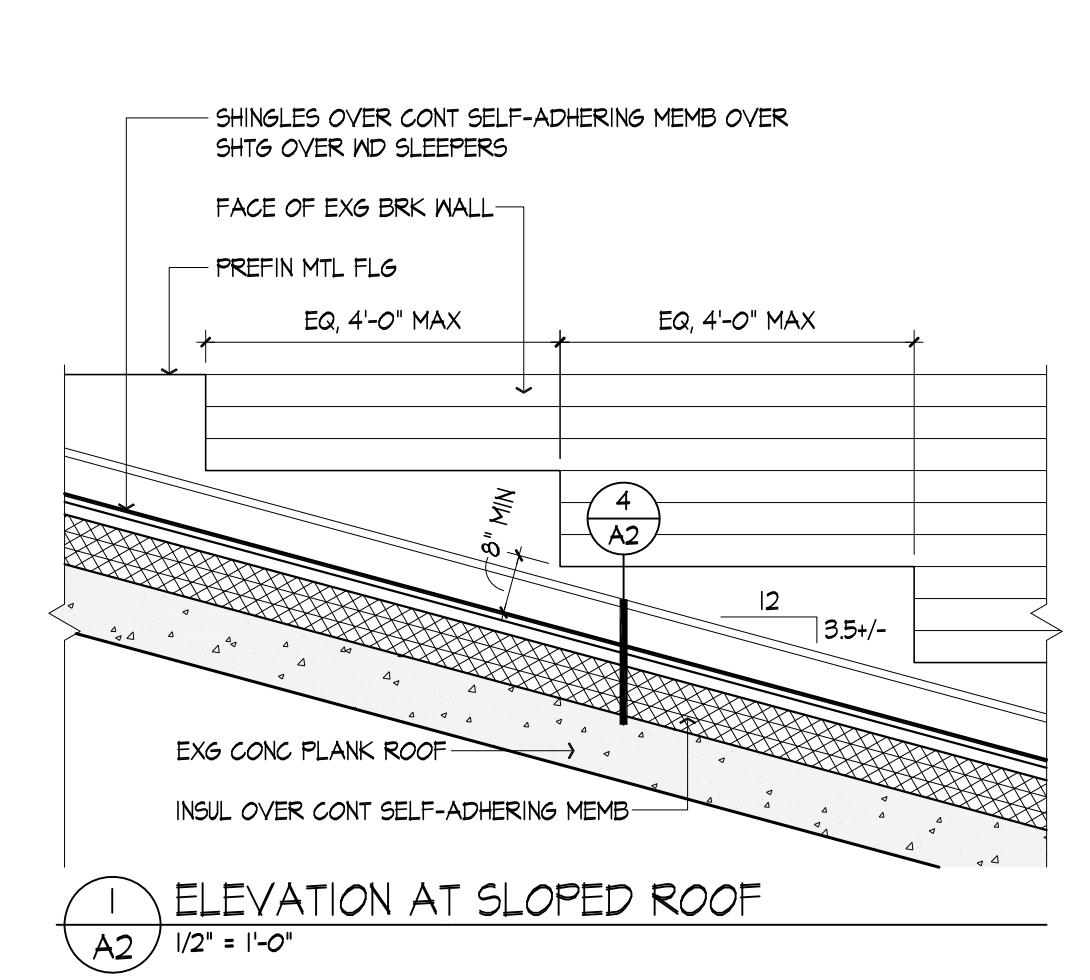
### Revisions

Number	Description	Date

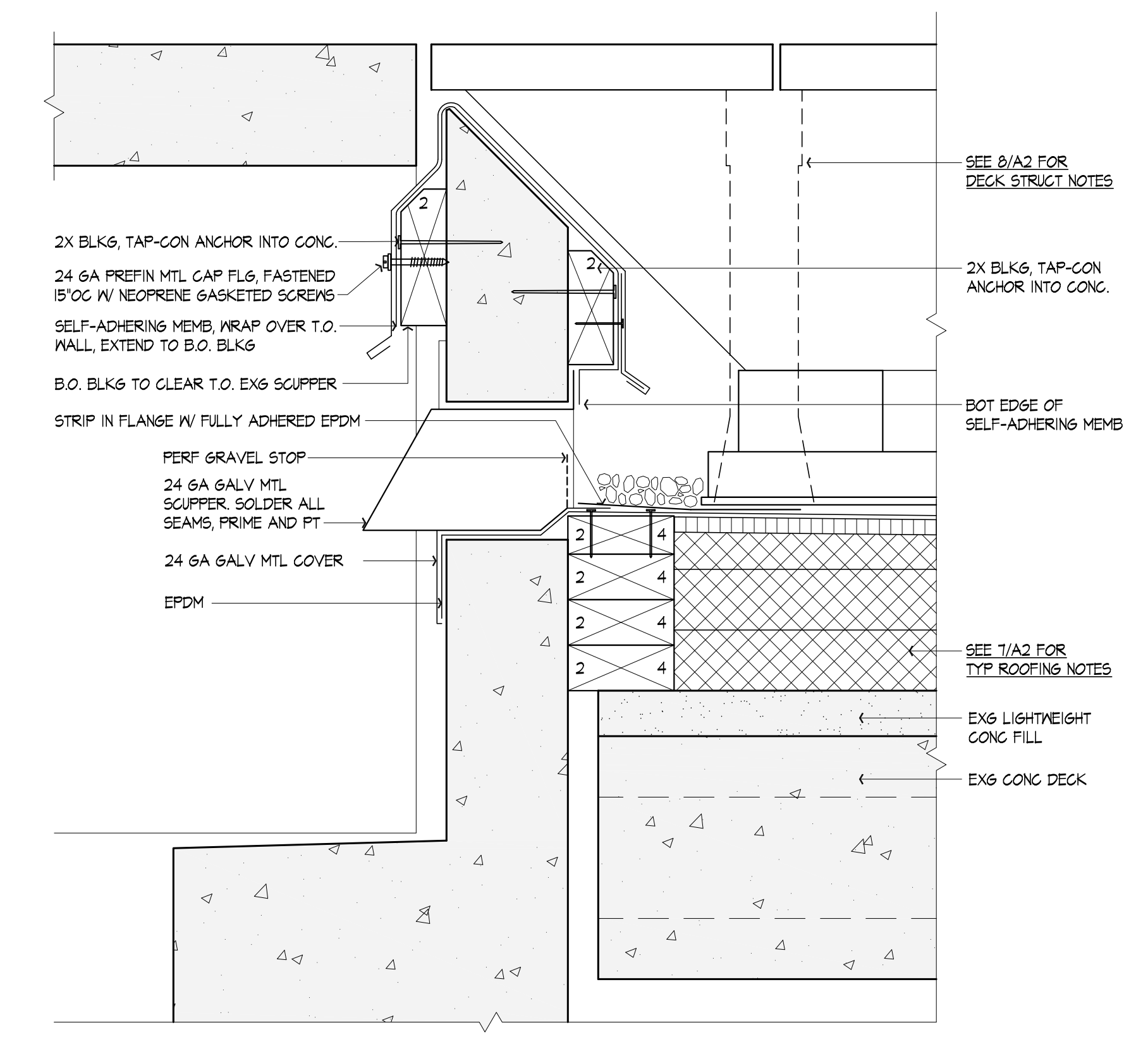
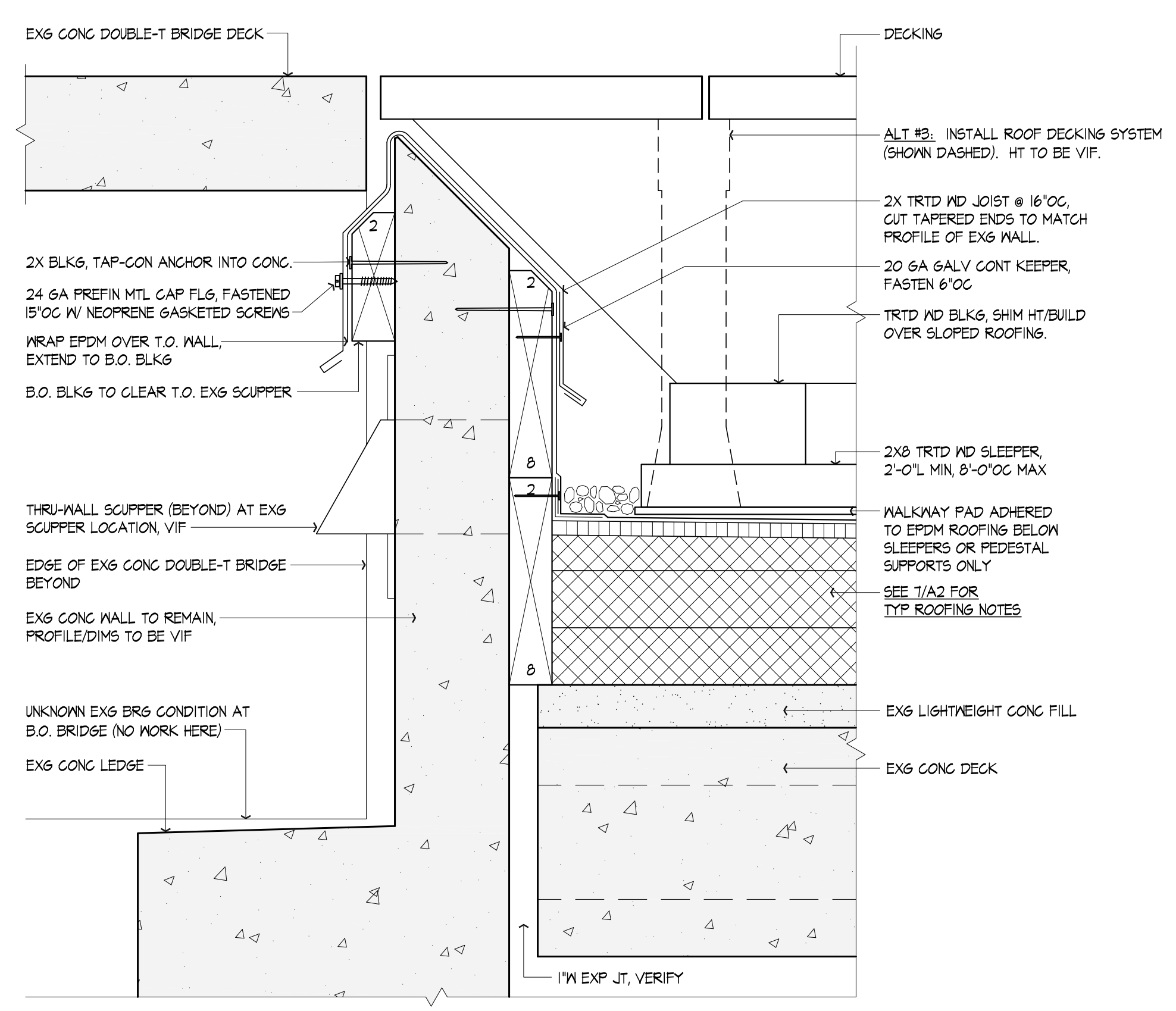
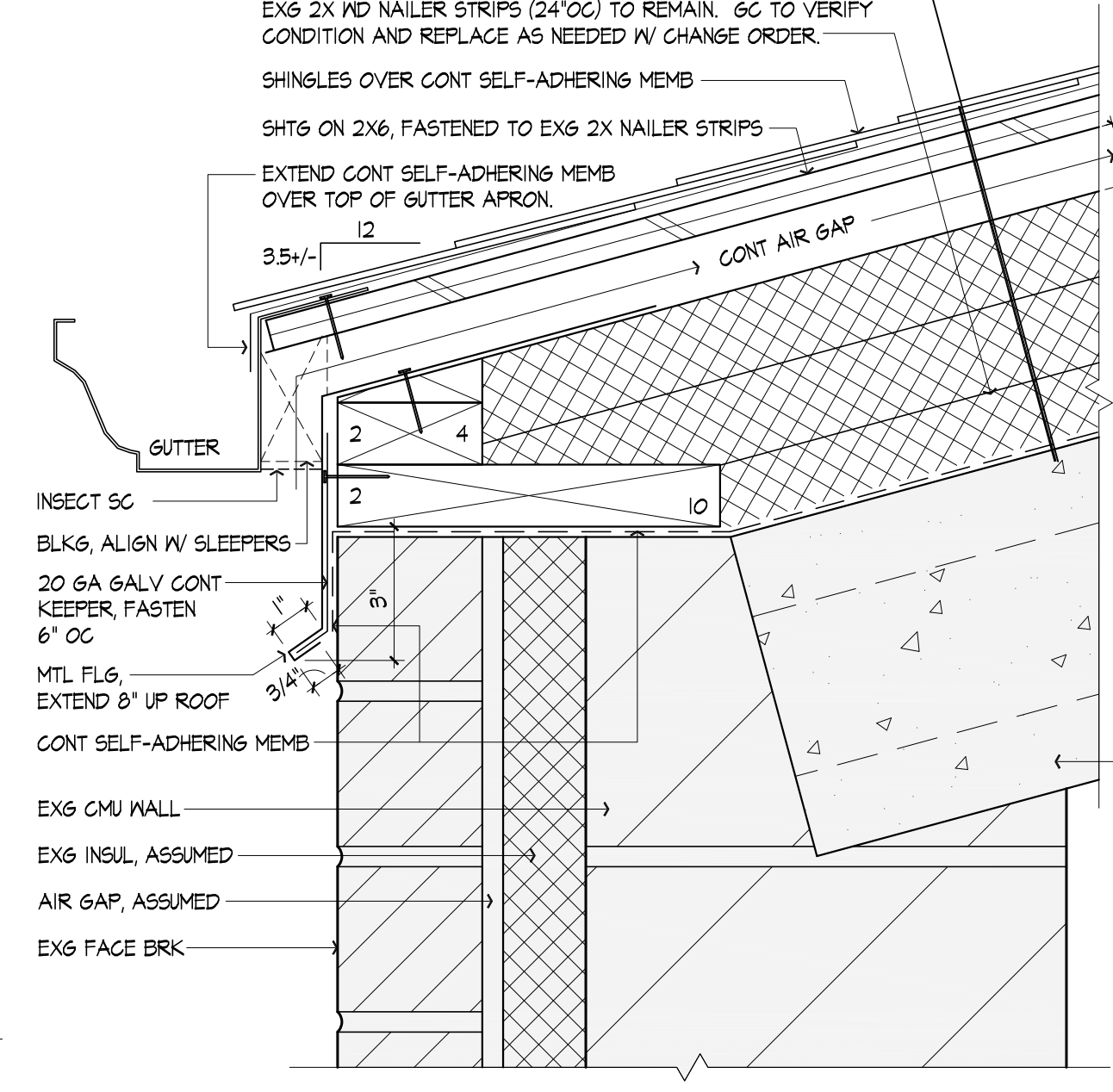
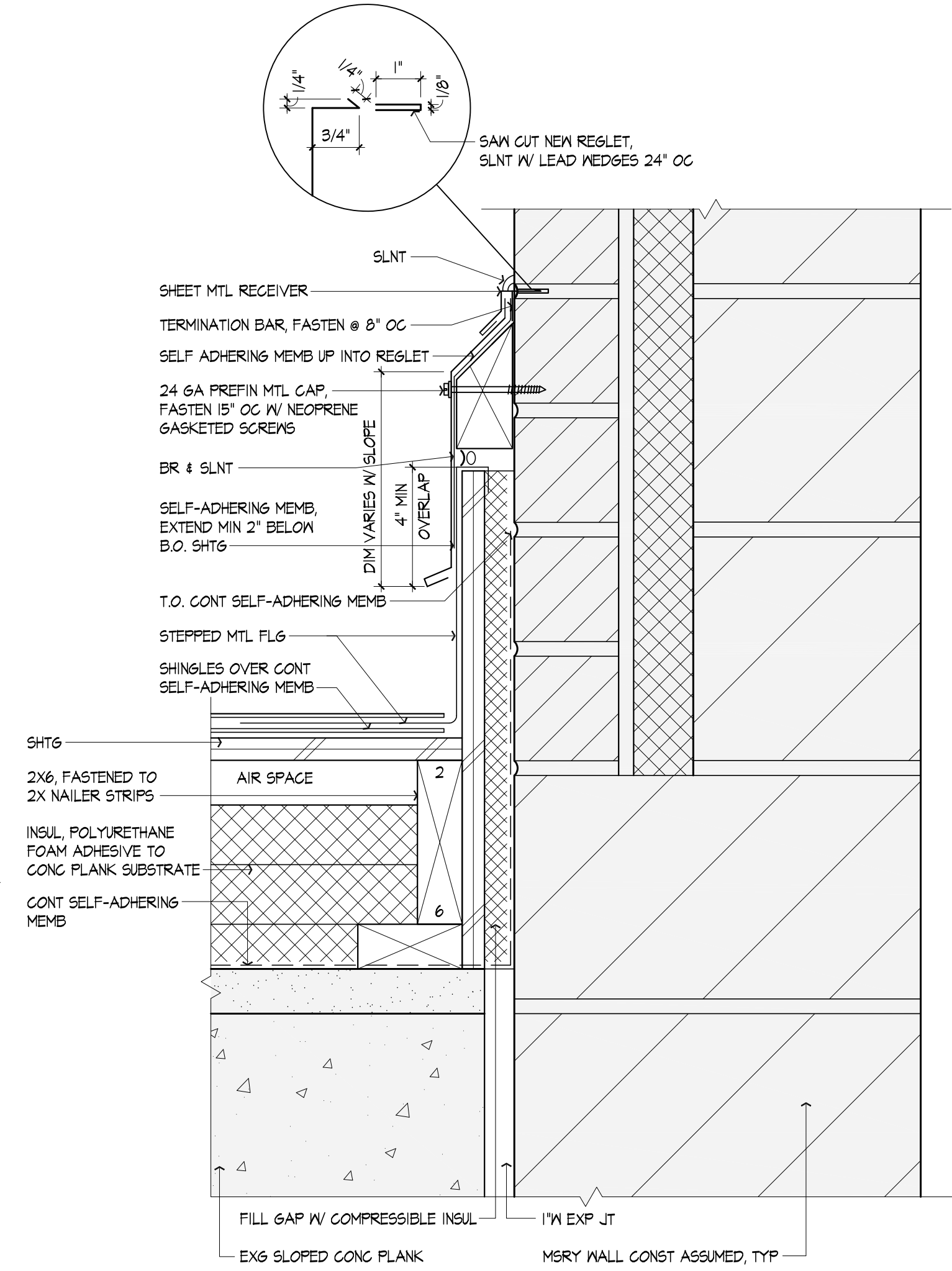
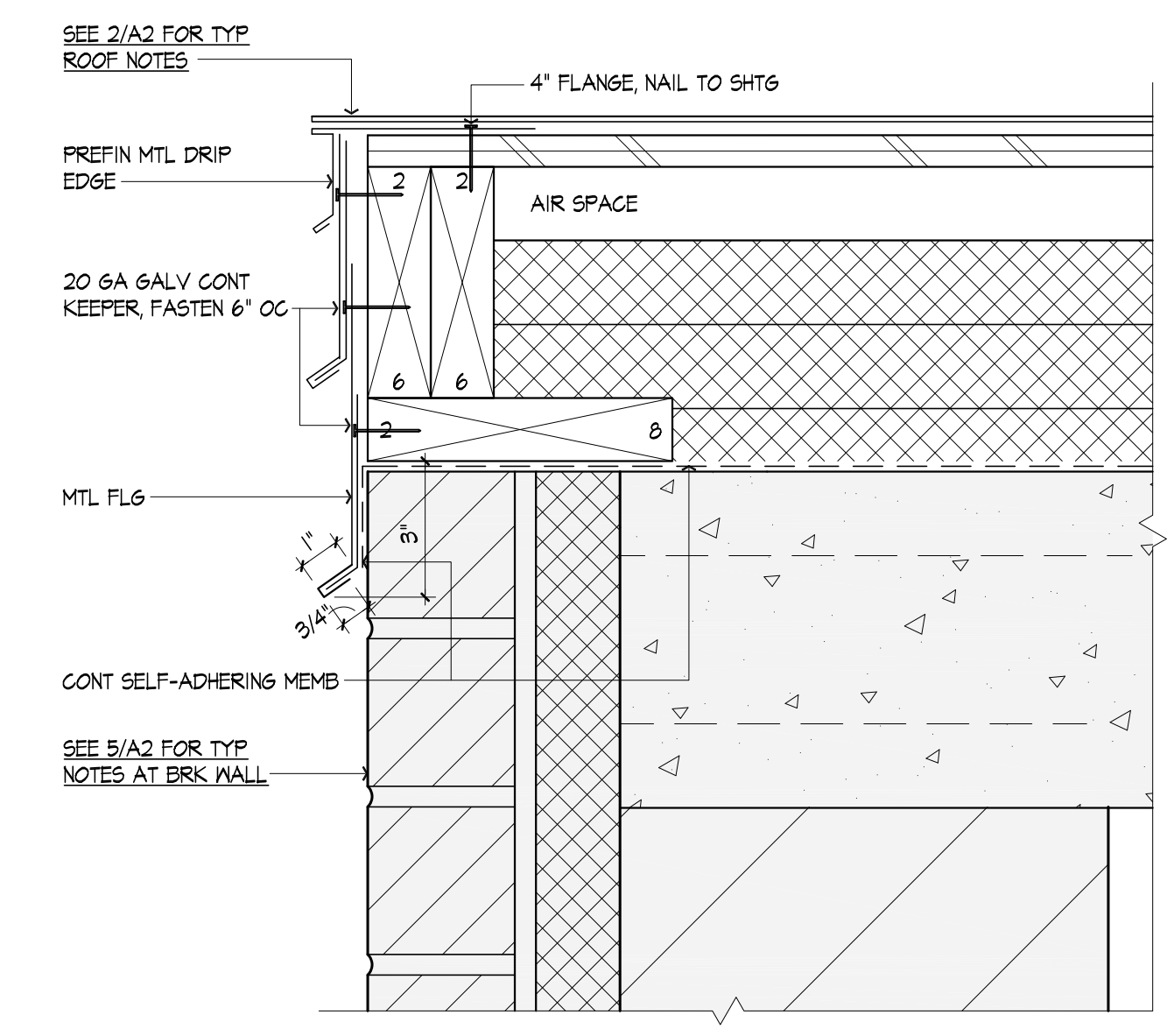
ROOF PLAN  
SHEET INDEX  
PROJECT DIRECTORY  
LIST OF ALTERNATES  
ABBREVIATIONS LIST  
VICINITY MAP



3 VICINITY MAP  
NTS



ALL SHADED PORTIONS OF THE DETAILS REPRESENT  
EXISTING CONDITIONS TO REMAIN. ALL  
NON-SHADED/WHITE PORTIONS OF THE DTLs REPRESENT  
EXG TO BE REMOVED AND REPLACED W/ NEW.



Architect's Project #1927  
September 30, 2019

I hereby certify that this plan, specification  
or report was prepared by me or under my  
direct supervision and that I am duly  
Licensed Architect under the Laws of the  
State of Minnesota.

*Rosemary McMonigal*  
Rosemary McMonigal, FAIA  
Registration Number: 16852  
Date: 9/30/19

Revisions

Number	Description	Date

ROOF DETAILS

Project Manual For

**Colleen Loney Manor  
Roof Replacement: Roof Deck & Sloped Roof  
Dakota County Community Development Agency (CDA)**

**Colleen Loney Manor**  
1675 Livingston Ave  
West St. Paul, Minnesota 55118

Dakota County Community Development Agency  
1228 Town Centre Drive  
Eagan, MN 55123

Dakota County CDA Contract Number CF06-1234

**McMonigal Architects, LLC**  
1227 Tyler Street NE, Suite 100  
Minneapolis, Minnesota 55413  
Phone 612.331.1244

Architect's Project Number #1927

September 30, 2019

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



Rosemary McMonigal, FAIA      Reg. No. 16852

**PROJECT SPECIFICATION  
 FOR  
 DAKOTA CO COMMUNITY DEVELOPMENT AGENCY**

---

for the  
**COLLEEN LONEY MANOR  
 ROOF REPLACEMENT: ROOF DECKS & SLOPED  
 ROOF**

Dakota County Contract No. CF06-1234  
 Architect's Project No. 1927

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<b>SPECIFICATIONS</b>					
SECTION 000100	Invitation to Bid <u>By Owner</u>	x	SECTION 017700	Contract Closeout	1
SECTION 001000	Instructions to Bidders <u>By Owner</u>	x	SECTION 022200	Roof Demolition	1
SECTION 002213	Substitution Request	1	SECTION 024100	Selective Demolition	1
SECTION 002213	Substitution Request Form	1	SECTION 061000	Rough Carpentry	1
SECTION 003000	Bid Form <u>By Owner</u>	x	SECTION 061516	<u>Alternate #3:</u> Roof Decking System	4
SECTION 008000	Supplemental Conditions <u>By Owner</u>	x	SECTION 066000	Cellular PVC Decking	2
SECTION 010100	Summary of the Work <u>By Owner</u>	x	SECTION 072216	Roof Board Insulation	4
SECTION 010250	Measurement and Payment <u>By Owner</u>	x	SECTION 073113	Fiberglass-Reinforced Asphalt Shingle Roofing	6
SECTION 010300	Alternates	1	SECTION 075323	<u>Alternate #1:</u> Fully Adhered EPDM Roofing	5
SECTION 013200	Coordination & Scheduling of Work <u>By Owner</u>	x	SECTION 075324	Ballasted EPDM Roofing	6
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SECTION 017300	Execution	1	SECTION 079200	Sealants and Caulking	2
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**SECTION 002213 – SUBSTITUTION REQUEST**

**PART 1 – GENERAL**

1.01 GENERAL

Submit each request for substitution, one material or product per request, on the Substitution Request Form, completely filled in. Any submittals not accompanied by this completed form will be discarded without review, no exceptions. If a written reply is requested, include a self-addressed, stamped envelope. Requests for substitution will be returned in this envelope if provided. Any approvals will be listed in an Addendum.

Where materials or products are specified with a color, pattern or finish selection, include an actual sample of the proposed color, pattern or finish for review, with the Substitution Request Form.

After receiving request for substitution, Architect may request additional information, documentation or samples for evaluation.

End of Section

**SECTION 002213 – SUBSTITUTION REQUEST  
FORM**

To: McMonigal Architects, LLC  
1227 Tyler Street NE, Suite 100  
Minneapolis, MN 55413

Section Number \_\_\_\_\_

Section Title \_\_\_\_\_

Proposed Substitution \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Answer all of the following questions. Incomplete forms will not be reviewed.

1. Circle which of the following supporting data is attached:
  - a. Drawings
  - b. Product data
  - c. Samples
  - d. Tests
  - e. Reports
2. Circle whether the proposed substitution affects dimensions shown on the Drawings:
  - a. Yes
  - b. No
3. Circle whether the proposed substitution affects details shown on the Drawings:
  - a. Yes
  - b. No
4. Circle whether the proposed substitution affects other trades:
  - a. Yes
  - b. No
5. Circle whether the proposed substitution affects maintenance service, or source of replacement parts:
  - a. Yes
  - b. No
6. If you circled "Yes" to items 2, 3, 4, or 5 above, attach a thorough explanation on your company letterhead.
7. Prepare a written explanation on your company letterhead for any differences between the proposed substitution and specified product. List drawing number, dimensions affected and proposed dimensions. List detail number and

provide revised detail for review by Owner, Architect and Construction Manager.

8. Circle whether the proposed substitution meets all of the criteria, standards, qualifications, testing, etc. listed in the specification for this section:
  - a. Yes
  - b. No
9. If you circled "No" to item 8 above, attach a thorough explanation on your company letterhead.
10. The proposed substitution was used within the last 24 months on the following project:

Project Name \_\_\_\_\_

\_\_\_\_\_

Project Location \_\_\_\_\_

\_\_\_\_\_

Project Architect \_\_\_\_\_

\_\_\_\_\_

Architect's Phone # \_\_\_\_\_

Architect's Email \_\_\_\_\_
11. The undersigned states that any cost to change drawings or specifications in order to use this product will be paid directly to the Architect within 30 days of invoice.
12. The undersigned states that the quality, function, appearance and warranty of the substitution item are equal or superior to the specified item.

Submitted by Name \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

Phone \_\_\_\_\_

Email \_\_\_\_\_

Signature \_\_\_\_\_

Date signed \_\_\_\_\_

End of Section

## **SECTION 010300 – ALTERNATES**

### **PART 1 – GENERAL**

#### 1.01 GENERAL

Bidders shall submit bids for each item listed below for their respective classifications of Work. The amount of each alternate shall be stipulated in the space provided in the Bid Form.

The following descriptions of the alternates describe the extent of the Work in general and are not intended to be a complete tabulation of the Work which may be affected by the alternates. Bidders shall carefully examine the Contract Documents and satisfy themselves as to the exact extent of the Work affected by the alternates. Detailed requirements may be specified in the various Sections of the Specifications.

#### 1.02 ALTERNATES

Alternate No. 1: Substitute 60 mil Fully Adhered EPDM in lieu of Ballasted EPDM.

Alternate No. 2: Substitute 90 mil Ballasted EPDM in lieu of 60 mil Ballasted EPDM.

Alternate No. 3: Substitute roof decking system in lieu of wood framing, joists, blocking, and decking.

End of Section



**SECTION 013300 – SUBMITTALS**

**PART 1 – GENERAL**

**1.01 SHOP DRAWINGS AND PRODUCT DATA**

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

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

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

Shop drawings, product data, samples and similar submittals are not Contract Documents. The purpose of their submittal is to demonstrate for those portions of the Work for which submittals are required the way the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents.

The Contractor shall review, approve and submit to the Architect shop drawings, product data, samples and similar submittals required by the Contract Documents with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors. Submittals made by the Contractor which are not required by the Contract Documents may be returned without action.

The Contractor shall perform no portion of the Work requiring submittal and review of shop drawings, product data, samples and similar submittals until the respective submittal has been approved by the Architect. Such Work shall be in accordance with approved submittals.

By approving and submitting shop drawings, product data, samples and similar submittals, the Contractor represents that the Contractor has determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and has checked and coordinated the information contained within such submittals with the requirements of the Work and the Contract Documents.

The Contractor shall not be relieved of responsibility for deviation from the requirements of the Contract Documents by the Architect's approval of shop drawings, product data, samples or similar submittals

unless the Contractor has specifically informed the Architect in writing of such deviation at the time of submittal and the Architect has given written approval to the specific deviation. The Contractor shall not be relieved from responsibility for errors or omissions in the shop drawings, product data, samples or similar submittals by the Architect's approval thereof.

The Contractor shall direct specific attention, in writing or on resubmitted shop drawings, product data, samples or similar submittals to revisions other than those requested by the Architect or previous submittals.

Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents.

Shop drawings and product data shall be submitted to the Architect by the Contractor and shall bear the Contractor's stamp of approval. Shop drawings and product data submitted without this stamp will not be reviewed and will be returned to the Contractor for their approval and resubmission.

Clearly identify shop drawings and product data as to project, contract, contractor, manufacturer, specification section and item submitted. Note deviations from the requirements of the Contract Documents in writing.

Submit shop drawings and product data sheets electronically, unless otherwise specified.

Correct returned "Rejected" or "Revise and Resubmit", and submit electronically.

Clearly mark each copy of product data to identify information being submitted, and delete information which does not apply to the Project. Supplement standard information as necessary. Show dimensions and other selected characteristics.

The Contractor shall furnish approved shop drawings and product data to other separate contractors as may be necessary to coordinate their work or otherwise upon their request.

The Architect may return submittals which are not required by the Contract Documents without action.

## 1.02 SAMPLES

Supplement Paragraph 3.12 of General Conditions:

The Contractor shall submit samples to the Architect for the Architect's review and approval, unless otherwise specified.

Clearly identify samples as to project, contract, contractor, manufacturer, specification section, product type, color range, texture, finish and other identifying data. Samples shall be accompanied by a letter of transmittal indicating the Contractor's approval and by other supporting information as may be necessary.

Submit samples of each item required, unless otherwise specified. Unless otherwise specified, samples shall not be used in the completed construction. The Architect will retain the approved sample. Where the Contractor requires approved samples to be returned, submit additional samples as required. The Contractor shall remove samples upon request.

## 1.03 TEST REPORTS

Submit electronic copies of reports of inspections, tests and approvals required by the Contract Documents to the Architect.

End of Section

## **SECTION 017300 – EXECUTION**

### **PART 1 – GENERAL**

#### 1.01 SCOPE

This Section includes all labor, materials, equipment and related services necessary to perform patching and remodeling indicated on the Drawings or specified herein.

### **PART 3 – EXECUTION**

#### 3.01 PATCHING AND REMODELING

Patch and remodel undisturbed existing construction as indicated on the Drawings. Where existing construction is removed, cut, exposed or otherwise disturbed by Work of the Project, patch defective and incomplete surfaces. Repair damage to existing construction to remain.

Patching and remodeling work shall be done by skilled mechanics experienced in the particular type of work involved. Patching and remodeling work shall conform to the requirements of the Specifications. Where there are no specifications covering the patching work, the Work shall conform to the highest standard of the trade.

Patch existing construction to match. Examine existing surfaces to be patched before proceeding with the Work. Report conditions where existing materials, colors and finishes cannot be matched to the Architect, and do not proceed until the Architect has issued instruction. Existing construction that has been damaged as a result of the construction work shall be repaired and finished to the extent and as required to match adjacent existing undamaged construction.

#### 3.02 DELIVERY, STORAGE AND HANDLING

Deliver, store and handle materials and equipment in a manner that will prevent damage. Store materials and equipment clear of the ground and protect from water and the elements. Protect finished surfaces from scratching and damage. Replace damaged materials.

Deliver no materials subject to damage unduly long before they are required in the Work and suitable storage facilities are available at the site.

Deliver packed materials in their original, unopened containers or wrapping with labels intact.

#### 3.03 INSPECTION OF WORK OF OTHERS

Each contractor shall inspect work of others which will receive or is adjacent to his Work before commencing his work. Do not proceed until conditions which would result in a less than first class installation are satisfactorily corrected. Commencing work shall be construed as acceptance of the work of others, by the contractor, as satisfactory to receive work.

End of Section

**SECTION 017400 – WARRANTIES**

**PART 1 – GENERAL**

1.01 RELATED SECTIONS

013300 – Submittals  
017700 – Contract Closeout

**PART 3 – EXECUTION**

3.01 CONTRACTOR RESPONSIBILITIES

Warranties: Minimum warranty of 2 years covering all parts and labor.

1. Provide Contractor's standard letter of Warranty. Include Contractor contact information and Owner's responsibilities for identifying deficiencies to responsible parties.
2. Provide copies of Manufacturer or other warranties exceeding the minimum requirement of 2 years.

End of Section

**SECTION 017419 – CONSTRUCTION WASTE  
MANAGEMENT AND DISPOSAL**

**PART 1 – GENERAL**

1.01 SUMMARY

This Section includes administrative and procedural requirements for the following.

1. Recycling nonhazardous demolition and construction waste.
2. Disposing of nonhazardous demolition and construction waste.

1.02 DEFINITIONS

**Construction Waste:** Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.

**Demolition Waste:** Building and site improvement materials resulting from demolition or selective demolition operations.

**Disposal:** Removal off-site of demolition and construction waste or deposit in landfill or incinerator acceptable to authorities having jurisdiction.

**Recycle:** Recovery of demolition or construction waste for subsequent sale for reuse.

1.03 REQUIREMENTS

**Recycle Requirements:** Contractor shall salvage and recycle the existing metal, glass and other materials as much as possible. Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to Contractor.

**Disposal Requirements:** Construction Manager shall manage, dispose of, and pay for construction and demolition waste. Contractor shall follow requirement of Construction Manager's Disposal Plan.

1.04 SUBMITTALS

**Waste Management Plan:** Submit three copies of plan within 7 days of date established for the Notice of Award.

**Recycling and Processing Facility Records:** Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept

them. Include manifests, weight tickets, receipts, and invoices.

**Landfill and Incinerator Disposal Records:** Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

1.05 QUALITY ASSURANCE

**Regulatory Requirements:** comply with hauling and disposal regulations of authorities having jurisdiction.

**PART 2 – EXECUTION**

2.01 PLAN IMPLEMENTATION

**General:** Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.

**Site Access and Temporary Controls:** Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

Provide means and methods for controlling dust and dirt, environmental protection, and noise control.

2.02 RECYCLING DEMOLITION AND  
CONSTRUCTION WASTE, GENERAL

**Procedures:** Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical.

Provide appropriately marked containers or bins for controlling recyclable waste until they are removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.

Stockpile processed materials on-site without intermixing with other materials. Stockpile away from construction area. Do not store within drip line of remaining trees. Place, grade, and shape stockpiles to drain surface water. Store components off the ground and protect from the weather. Cover to prevent windblown dust.

Remove recyclable waste off Owner's property and transport to recycling receiver or processor.

### 2.03 DISPOSAL OF WASTE

General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.

Except as otherwise specified, do not allow waste materials that are to be disposed of to accumulate on-site. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

Disposal: Transport waste materials off Owner's property and legally dispose of them.

End of Section

## **SECTION 017423 – FINAL CLEANING**

### **PART 1 – GENERAL**

Conduct cleaning and disposal operations to comply with codes, ordinances, regulations, and anti-pollution laws.

### **PART 2 - PRODUCTS**

Use only those cleaning materials which will not create hazards to health or property and which will not damage surface.

Use only those cleaning materials and methods recommended by manufacturer of the surface materials to be cleaned.

### **PART 3 - EXECUTION**

Immediately prior to the inspection for the Substantial Completion of Work, Contractor shall do the following:

1. Remove all waste materials and rubbish from the building and site.
2. Remove all protective coating, barriers, and other protective devices.
3. Construction dirt and debris shall be removed from interior of any affected duct work and air handling equipment.
4. Use cleaning materials that are non-hazardous.
5. Remove labels and all label adhesives that are not permanent or instructions for operating equipment.

The Work shall be maintained in a clean condition until the Architect determines that the Work is substantially complete. After Substantial Completion of their Work, the Contractor shall be responsible for removing all waste materials and rubbish and cleaning up all dirt caused by their operations.

Upon completion of the Work, the Contractor shall remove their tools, construction equipment, machinery and surplus materials from and about the Project.

End of Section

**SECTION 017700 – CONTRACT CLOSEOUT**

**PART 1 – GENERAL**

1.01 RELATED SECTIONS

013300 – Submittals

**PART 3 – EXECUTION**

3.01 CONTRACTOR RESPONSIBILITIES

The following documentation is to be provided to the Architect and Owner.

1. Inspection records and certificates.
2. Completed punch-list. Return with signatures and dates indicating completion.
3. Test records.
4. Operation and Maintenance Manuals (2 copies).
5. Record Drawings. Submit electronic color scan of "Red-Line Drawings" representing final construction.
6. Provide completed Minnesota Revenue Form IC-134, Withholding Affidavit for Contractors.
7. Warranties – minimum 2 year warranty on all materials and workmanship (independent of and in addition to manufacturer's warranties).

End of Section



## **SECTION 022200 – ROOF DEMOLITION**

### **PART 1 – GENERAL**

#### 1.01 DESCRIPTION

Provide all labor, material, equipment, and tools to prepare the existing roofing system for re-roofing as specified in this section. Provide for the proper disposal of all materials identified in the specifications or on the drawings which are to be removed.

#### 1.02 SCHEDULING

Coordinate the roof preparation work with the new roofing work in such a manner as to keep the new insulation and roofing materials, building, and building interior absolutely dry and watertight. Coordinate all work with the Owner and Architect/Engineer to minimize any disruptions of the Owner's operations.

#### 1.03 DISPOSAL

All debris shall be stored in containers approved by the Owner. Keep Owner's property clean of any construction debris.

#### 3.04 CLEAN-UP

Prior to the completion of the work, remove from the job site all tools, equipment, debris and waste.

End of Section

### **PART 3 – EXECUTION**

#### 3.01 PROTECTION OF SURFACES

Contractor shall take all precautions during roof preparation to protect the building and adjacent surfaces from being soiled or damaged. Contractor shall restore to original condition any damage caused during work performed in this section. Keep roof surface clean of any debris or materials that might prevent proper drainage. Keep roof drains in operating condition at the end of each working day.

#### 3.02 DISPOSAL

Properly dispose of all debris on a daily basis. Do not store debris on roof. Contractor shall take care not to overload roof deck.

#### 3.03 PREPARATION OF SURFACES

Prior to demolition, inform Owner and Owner's facility personnel of area and location of work. Suitably tarp and protect all interior equipment and products from dust and debris which may filter into interior, if necessary. Remove and dispose of gravel. Tear off the existing roofing down to the existing roof deck as noted on drawings. Tear off all existing base flashings. Tear off all existing projection flashings. Vacuum surface of existing deck to remove as thoroughly as possible, all dust and debris.

## **SECTION 024100 – SELECTIVE DEMOLITION**

### **PART 1 – GENERAL**

#### **1.01 SCOPE**

This Section includes all labor, materials, equipment and related services necessary to perform the demolition for all works of General Construction as indicated on the drawings and specifications. Coordinate Demolition work with the Owner utilizing qualified skilled workers.

#### **1.02 HAZARDOUS MATERIALS**

Refer to the General Conditions.

If material believed to be hazardous materials, such as asbestos or polychlorinated biphenyl (PCB) which has not been rendered harmless, is encountered at the site, the Contractor shall immediately stop work in the area affected and report the conditions to the Owner in writing. Resume work in the affected area if suspected material is determined not to be asbestos or PCB or when the asbestos or PCB has been rendered harmless.

If the Contractor encounters hazardous materials such as paint containing lead, follow all laws, Minnesota Pollution Control Agency, United States Environmental Protection Agency, Occupational Safety and Health Administration, and any regulations to safely work, remove and dispose of materials.

Owner is responsible for the cost of identification, testing, certified professionals, removal and disposal of hazardous materials.

### **PART 3 – EXECUTION**

#### **3.01 TEMPORARY PROTECTION**

Provide temporary bracing, shoring, underpinning and support during demolition, cutting, remodeling and related new construction as necessary for the execution of the Work and the protection of persons and property.

Provide protective coverings and enclosures necessary to prevent damage to existing work to remain. Protect temporary openings in exterior walls and roofs so as to prevent damage from water and the elements and prevent excessive heat gain or loss from the existing building.

Remove temporary work when the need no longer exists.

#### **3.02 DEMOLITION AND CUTTING**

Demolish and remove existing construction to be removed. Where new work is to be constructed in or adjacent to existing construction or existing construction is to be replaced, remove or cut the existing construction to the extent necessary to construct or join the new construction to the existing construction, or replace the existing construction. All sawcutting, drilling and chipping shall be done in a dustless manner.

Execute work with care. Existing construction that is to remain which is loosened, cracked or otherwise damaged or defaced as a result of the Work and is unsuitable for the use intended shall be removed and replaced at no additional cost to the Owner.

Clean demolition areas and remove debris, waste and rubbish from the building at the conclusion of each day's work. Transport debris and rubbish in such a manner as to prevent the spread of dust. Remove debris, waste and rubbish promptly to waste/recycle containers provided by the Construction Manager.

#### **3.03 SALVAGE**

Store existing materials and equipment indicated on the Drawings or specified in the various Sections of the Specifications to be reused on the site and protect until reuse.

Promptly remove all other salvage and existing materials and equipment not designated to be reused or to remain the property of the Owner from the site.

End of Section

## **SECTION 061000 – ROUGH CARPENTRY**

### **PART 1 – PRODUCTS**

Lumber shall conform to DOC PS20 (current version) and shall be grade stamped by an agency certified by the Board of Review of the American Lumber Standards Committee. Moisture content of dimension lumber 2 inch or less in thickness shall be 19% or less at time of installation. Lumber shall be dressed S4S, unless otherwise specified. Grades and species shall be as follows:

Blocking and miscellaneous framing lumber:  
Standard Douglas Fir-Larch, Hem-Rif or Spruce-Pine-Fir.

Boards: No. 2 & Btr. Common or Standard,  
Western Woods or Spruce-Pine-Fir.

#### **1.01 PLYWOOD**

DOC PS1-95.

Panels shall bear the appropriate APA trademark. Grade and type shall be as follows.

Exterior wall sheathing: 24/16 APA Rated Sheathing, Exposure 1, all-veneer plywood.

Roof sheathing: 40/20 APA Rated Sheathing, Exposure 1, all-veneer plywood.

Rough hardware for carpentry work exposed to the weather, in contact with the ground and in wet areas shall be hot-dipped galvanized.

Miscellaneous materials shall be as follows:

Building paper: UBC Standard 14-1, Grade D.

Asphalt saturated felt: ASTM D266-05, Type 1.

Bituminous plastic cement: ASTM D4586-00, Type 1.

#### **1.02 PRESERVATIVE TREATMENT**

All lumber used for deck structure above roof shall be pressure impregnated with a waterborne preservative in accordance with the American Wood Preservers Association (AWPA) Standard C2-02 and Standard C9-03. Minimum retention shall be 0.25 pounds per cubic foot. Fabricate lumber insofar as possible before treatment.

All preservative treated lumber shall utilize stainless steel or hot-dipped galvanized fasteners, connectors, anchor bolts and accessories or an approved equal. Verify applicable fasteners corrosion resistance with pressure treated wood manufacturer.

### **PART 2 – EXECUTION**

Install plywood in accordance with APA recommendations.

#### **2.01 SHEATHING**

All sheathing to be spliced on a common member to properly transfer shear forces. All sheathing nailing to be common wire or galvanized box nails. Block and nail all edges of sheathing. Leave an 1/8 inch space between panel edges and a 1/4 inch space between panel ends, or as recommended by panel manufacturer. Locate nails 3/8 inch from end of panel at end joints.

At wall sheathing, install plywood sheathing either vertically or horizontally. Locate end or edge joints over studs. Nail to studs with 8d nails spaced not over 6 inch on center at edge, and 12 inch on center in field. Provide 4 inch on center edge nailing at all studs attached to hold-downs.

At roof sheathing, install plywood sheathing with end or edge joints over trusses or blocking. Nail with 8d nails spaced not over 6 inch on center at edge, and 12 inch on center in field. Provide 6 inch on center edge nailing to all members in line with shear walls.

#### **2.02 ROOF BLOCKING**

Cover wood roof cants, curbs and blocking with a temporary waterproof covering securely fixed in place. Maintain covering until permanent flashing is installed.

End of Section

**Section 06 15 16**

**ALTERNATE #3: ROOF DECKING SYSTEM**

**PART 1 – GENERAL**

Alternate #3: Substitute roof decking system in lieu of wood framing, joists, blocking, and decking.

1.01 SECTION INCLUDES:

- A. Wood roof deck tiles.
- B. Pedestal supports and pads for roof deck tiles.

1.02 RELATED REQUIREMENTS:

- A. Section 075323 Fully Adhered EPDM Roofing
- B. Section 075324 Ballasted EPDM Roofing
- C. Section 076200 Flashing and Sheet Metal

1.03 REFERENCE STANDARDS:

- A. American Society of Civil Engineers (ASCE) Structural Engineering Institute (SEI):
  - 1. ASCE/SEI 7 - Minimum Design Loads for Buildings and Other Structures
- B. ASTM International (ASTM):
  - 1. ASTM E 108 - Standard Test Methods for Fire Tests of Roof Coverings
  - 2. ASTM E 1980 - Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces

1.04 PREINSTALLATION MEETINGS:

- A. Preinstallation Conference: Conduct conference at Project site as part of roofing conference in coordination with installers of related work.
  - 1. Coordinate roof substrate protection installation, roof drain locations, and other elements affecting installation of roof deck tiles.
  - 2. Verify compatibility of roofing system installation with load-bearing requirements of deck tile supports.

1.05 QUALITY ASSURANCE

- A. Installer Qualifications: Experienced Installer with record of successful in-service performance of similar installations, and approved in writing by deck tile manufacturer.

1.05 ACTION SUBMITTALS

- A. Product Data: Manufacturer's product data for specified products indicating compliance with requirements.
- B. Shop Drawings: Provide shop drawings. Include full plans showing deck tiles and deck tile supports layout, adjacent construction and penetrations, and details of each condition of installation and attachment.
  - 1. Include data indicating compliance with performance requirements.
  - 2. Indicate points of supporting structure and other construction elements that must coordinate with deck tile installation.

1.07 INFORMATIONAL SUBMITTALS

- A. Installer qualifications.
- B. Product Test Reports: Indicating compliance of products with performance requirements, from a qualified independent testing agency.
- C. Manufacturer's Warranty: Submit sample warranty.

1.08 CLOSEOUT SUBMITTALS

- A. Maintenance data.
- B. Executed warranty.

1.09 MATERIAL SUBMITTALS

- A. Furnish extra materials matching installed products, packaged with protective covering, with labels indicating contents.
  - 1. Wood Deck Tiles: Furnish full size units in quantity equal to 3 percent of number of units installed for each size.
  - 2. Deck Tile Supports: Furnish units in quantity equal to 3 percent of number of units installed, for each type and size. Include manufacturer-furnished adjustment tool.

1.10 DELIVERY, STORAGE, AND HANDLING

- A. Protect products during shipping, handling, and storage to prevent staining, deterioration of components or other damage.

1.11 WARRANTY

- A. Manufacturer's Warranty: On Manufacturer's standard form, in which Manufacturer and Installer jointly agree to replace wood roof decking and roof deck supports that fail in materials or workmanship within three years of substantial completion.

1.12 EXTRA MATERIALS

- A. Provide 2 additional complete roof deck sections, verify with Owner.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Basis of Design: Provide listed Ipe wood roof decking tiles meeting requirements of this Section from Archatrak Inc., 2 Wisconsin Circle, Suite 700, Chevy Chase MD 20815; (866) 206-8316; [archinfo@archatrak.com](mailto:archinfo@archatrak.com); [www.archatrak.com](http://www.archatrak.com)
- B. Substitutions: approved equal.
- C. Source Limitations: Obtain Ipe wood deck tiles and deck tile support products from a single source with resources to provide materials and products of consistent quality in appearance and physical properties.

## 2.02 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer to design roof deck installation.
- B. Structural Performance: Wood roof deck system shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:
  - 1. Floors: Uniform load of 125 lb/sq. ft. or concentrated load of 2000 lbf, whichever produces the greater stress.
- C. Combustion Characteristics: Wood roof deck installation shall meet Class A flame spread requirements of ASTM E 108 when tested by a qualified independent testing laboratory acceptable to authorities having jurisdiction.

## 2.03 WOOD ROOF DECKING

- A. Ipe Wood Deck Tiles intended for exterior use laid on specified deck tile supports.
  - 1. Basis of Design: [Archatrak Inc.](#)
  - 2. Wood species: Ipe (Tabebuia sp.)
  - 3. Tile size: 24 by 48 inches, nominal.
  - 4. Tile thickness: 1.65 inch, nominal.
  - 5. Tile weight: 6 lb/sq. ft.
  - 6. Surface finish: smooth

## 2.04 PAVER SUPPORTS

- A. Adjustable Height Pedestal Supports: Continuously variable adjustable height high-density copolymer polypropylene screw-jack-type supports accommodating height adjustments from 1-1/8 inch to 21-3/4 inches and slope substrate compensation up to five percent, with cushioned SBR rubber top fitting providing support for specified pavers, and adjustable fittings as required to provide level tile installation as indicated.
  - 1. Basis of Design Product: [Archatrak, Eterno Adjustable Pedestal System.](#)
  - 2. Load Capacity: Not less than 2,000 lb.
  - 3. Tile Spacer Tabs: 5/32 inch (4 mm).
  - 4. Shims: Support manufacturer's standard.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with manufacturer's requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.02 PREPARATION

- A. Coordinate placement of protection sheet at roof deck supports with work of roofing section.
- B. Lay out roof deck tiles and roof deck support locations and mark for application of protection sheet.

### 3.03 INSTALLATION, ROOF DECK SUPPORTS

- A. General: Set roof deck tile supports in locations coordinated with approved roof deck layout. Install in accordance with support manufacturer's written instructions and approved submittals. Adjust roof deck tile support heights prior to, and following, installation of roof deck tiles. Shim where fine adjustment is necessary using manufacturer-provided shims.

B. Tolerances for Roof Deck Tile Supports:

1. Maximum of 1/16 inch height variation between adjacent roof deck tiles.
2. Maximum 3/16 inch spacing between each tile and at perimeter walls
3. Individual roof deck tiles shall not vary more than 1/16 inch from level across width of the tiles.
4. Tiled areas shall not vary more than 1/4 inch from level in a distance of 10 feet measured at any location and in any direction.

3.04 INSTALLATION, WOOD TILES

- A. Install wood deck tiles according to manufacturer's written instructions and approved shop drawings. Set in place using placement methods that result in stable installation free from rocking using sound wood deck tiles with no surface damage. Make final in-place height adjustments using manufacturer's furnished tool.

3.05 CLEANING AND PROTECTION

- A. Remove and replace loose or otherwise damaged wood deck tiles, or if tiles do not match adjoining units or pattern indicated on Drawings.
- B. Cleaning: Wash tiles with water or use a pressure washer (max 1200 PSI) to remove dust or dirt.
- C. If left to weather naturally, wood deck tiles will fade to a silver-grey color. A penetrating oil finish with UV blocker may be applied to provide some degree of UV protection as well as mold and mildew protection.

**- END OF SECTION -**

## **SECTION 066000 – CELLULAR PVC DECKING**

### **PART 1 - GENERAL**

#### 1.1 SECTION INCLUDES

Cellular PVC fabrications including the following:  
Decking.

#### 1.2 RELATED SECTIONS.

Section 06 10 00 - Rough Carpentry.

#### 1.3 REFERENCES

ASTM International (ASTM): ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

#### 1.4 SUBMITTALS

See Section 01 30 00.

Product Data: Manufacturer's data sheets on each product to be used, including:

1. Preparation instructions and recommendations.
2. Storage and handling requirements and recommendations.
3. Installation methods.

Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square representing actual product, color, and patterns.

#### 1.5 QUALITY ASSURANCE

Regulatory Requirements: Comply with requirements of authorities having jurisdiction and applicable codes at the location of the project.

Manufacturer Qualifications: Minimum 5 years experience manufacturing similar products.

Installer Qualifications: Minimum 2 years experience installing similar products.

Mock-Ups: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.

1. Construct area designated by Architect.
2. Do not proceed with remaining work until workmanship is accepted by Architect.
3. Remodel mock-up area as required to produce acceptable work.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

Deliver and store products in manufacturer's unopened packaging bearing the brand name and manufacturer's identification until ready for installation. Comply with manufacturer's recommendations. Handle materials to avoid damage.

#### 1.7 PROJECT CONDITIONS

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

#### 1.8 WARRANTY

Provide manufacturer's standard limited warranty for products, stating that components will be free from defects in material that occur as a direct result of the manufacturing process, occur under normal use and service, occur during the warranty period and result in blistering, peeling, flaking, cracking, splitting, cupping, rotting or structural defects from termites or fungal decay.

1. Azek Timbertech Decking Warranty: 20 year structural for commercial applications, no fade or stain warranty.

#### 1.9 EXTRA MATERIALS

Provide 100 square feet additional stock, verify with Owner.

### **PART 2 - PRODUCTS**

#### 2.1 MANUFACTURERS

Acceptable Manufacturer: Azek Building Products, Inc., which is located at: 894 Prairie Ave.; Wilmington, OH 45177; Toll Free Tel: 877-ASK-AZEK; Email: [request info \(raymond.bielawski@cpqbp.com\)](mailto:request_info_(raymond.bielawski@cpqbp.com)); Web: <http://www.azek.com>|<http://timbertech.com>

Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

#### 2.2 DECKING

Thermal Characteristics: Provide products complying with the following: Flame Spread Index: Less than 200, ASTM E 84.

Arbor Collection: Tropical hardwood look. Material shall have the following characteristics:

1. Material: Solid Cellular PVC.
2. Dimensions: 1 inches x 5-1/2 inches.
3. Color: Island Oak.
4. Profile: Grooved, for hidden fastening.
5. Board Length: 20 feet.
6. Fastening System: FUSIONLoc.

#### 2.3 ACCESSORIES

Fasteners: Stainless steel or hot-dip galvanized, with thin shank, blunt point, full round head as recommended by the manufacturer.



Colleen Loney Manor  
Roof Replacement:  
Roof Deck & Sloped Roof

Adhesives: Azek Adhesive, a non-toxic, odorless, UV stable, water-based PVC cement.

Sealants: Urethane, polyurethane or acrylic based sealants without silicone.

### **PART 3 - EXECUTION**

#### **3.1 EXAMINATION**

Verification of Conditions: Examine areas and conditions under which Work is to be performed and identify conditions that may be detrimental to proper or timely completion.

For decking installations, ensure surfaces are suitable for installation of decking and that adequate structural support has been provided.

1. Standard Installation: Confirm that joists are spaced at 16 inches on center maximum, and are sloped at a minimum of 1/8 inch per foot away from the building. See Drawings for additional notes regarding slope.

Do not proceed until unsatisfactory conditions have been corrected.

#### **3.2 INSTALLATION**

General: Install products in accordance with manufacturer's instructions, approved submittals, and in proper relationship with adjacent construction.

1. Use manufacturer's recommended fasteners, not more than 2 inches from ends.
2. Glue joints to eliminate joint separation.
3. Allow for expansion and contraction at ends of the runs.

Decking Installation:

4. Install with grain side up for the walking surface.
5. Fasten tight to joists. Provide shims if there are variations in framing.
6. Countersink fasteners slightly to provide necessary clearance when installing the next board.
7. Cut final boards as required for proper appearance.

#### **3.3 CLEANING AND PROTECTION**

Protect from damage during construction operations. Promptly repair any damaged surfaces. Remove and replace work which cannot be satisfactorily repaired.

Clean products, prior to Substantial Completion, using materials recommended by the manufacturer to remove stains, dirt and debris prior to final acceptance.

End of Section

## Section 07 22 16

### ROOF BOARD INSULATION

#### PART 1 – GENERAL

##### 1.01 Description:

- A. Work included:
  - 1. Provide and install all roof and deck insulation and insulation fasteners as shown on the roof plan and detail drawings.

##### 1.02 Quality Assurance:

- A. Standards: Comply with standards specified in this section and as listed in the general requirements.
- B. Qualifications of manufacturer: Products used in the work included in this section shall be produced by manufacturers regularly engaged in the manufacture of similar items and with a history of successful production acceptable to the Architect/Engineer.
- C. Qualifications of Contractor: The Contractor and contract personnel shall be currently approved by the manufacturer of the approved products as qualified to install the materials of this section.
- D. Qualifications of Installers: Use an adequate number of skilled installers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work in this section.
- E. Roof decks and roof coverings shall be designed for wind loads in accordance with Chapter 16 and Sections 1504.2, 1504.3 and 1504.4. [IBC 1504.1]
- F. Roof coverings installed on roofs in accordance with Section 1507 that are mechanically attached or adhered to the roof deck shall be designed to resist the design wind load pressures for components and cladding in accordance with Section 1609. [IBC 1504.3]

##### 1.03 Related Work:

- A. Section 07 53 24 Ballasted EPDM Roofing
- B. Section 07 53 23 Fully Adhered EPDM Roofing- Alternate #1

##### 1.04 References:

- A. Materials used in this section shall be listed in the latest editions of the following:
  - 1. Factory Mutual Approval Guide.
  - 2. Underwriters Laboratories, Inc. - building materials directory.
  - 3. The NRCA Roofing and Waterproofing Manual, 5<sup>th</sup> Edition – National Roofing Contractors Association
- B. Roof insulation must meet the requirements of FM 4450 or UL 1256.

##### 1.05 Submittals:

- A. General: Comply with the provisions of Section 01 33 00 Submittal Procedures and 01 32 16 Construction Progress Schedules.
- B. Product Data: Within ten (10) calendar days after award of contract, submit:
  - 1. Complete material list of all items proposed to be furnished and installed under this section.
  - 2. Manufacturer's specifications and other data required to demonstrate compliance with specified requirements.
  - 3. Manufacturers recommended methods of installation.

4. When approved by the Owner, the manufacturer's recommended methods of installation (unless superseded by the specifications) will become the basis for accepting or rejecting the actual installation.

**1.06 Product Handling:**

- A. Delivery and storage: Deliver materials to the job site in original, unopened containers no sooner than five (5) calendar days prior to start of job. Materials to be stored up, off of the roof deck or ground, and covered with a weatherproof covering anchored sufficiently so as to resist wind blow-off. Only those materials necessary to accomplish two days' work are to be stored on the roof.
  1. Contractor is responsible for all materials delivered to job site until completion of project.
  2. When storing materials on the roof, do not over-stress deck.
- B. Protection: Use all means necessary to protect the materials of this section before, during, and after installation and to protect the work and materials of all other trades.
- C. Replacements: In the event of damage, immediately make all repairs and replacements to the approval of the Architect/Engineer and at no additional cost to the Owner.

**1.07 Product Handling:**

- A. Work is to be performed on a daily basis, with each section completed before progressing to the next day's work.
- B. Completion of work shall be defined as the installation of all specified substrate preparation, vapor retarder (if required), insulation, and membrane completely sealed at perimeters, curbs, and penetrations.

**1.08 "R" Values:**

- A. Isocyanurate insulation thermal values shall be determined in accordance with ASTM C1303.
- B. The project shall have a minimum R-value of 30 in climate Zone 6.

**PART 2 - PRODUCTS**

**2.01 General:**

- A. Minimum product requirements have been listed. All of these components must be used and bid.

**2.02 Insulation Materials:**

- A. Insulation to be of the type and minimum thickness as listed here or as shown on the detail drawings.
- B. Rigid Insulation
  1. Insulation is to be isocyanurate with glass membrane facer and conform to ASTM C1289 Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board, Type II, Class I, Grade 2.
  2. Thickness as shown on detail drawings.
  3. Approved Products:
    - a. ENERGY® 3 by Johns Manville
    - b. InsulBase by Carlisle Syntec
    - c. EnergyGuard by GAF
    - d. ISO 95+ GL by Firestone
    - e. Approved Equal
  4. Maximum board size:
    - a. Adhered: 4' x 4'
    - b. Mechanically Fastened: 4' x 8'

- C. Cover Board
  - 1. Glass faced gypsum sheathing manufactured for use in roofing consisting of glass mat facings bonded to a moisture resistant treated gypsum core.
  - 2. The board shall be pre-primed on one side to increase bond to roofing materials.
  - 3. Thickness as shown on drawings.
  - 4. Approved Products:
    - a. DensDeck Prime by Georgia Pacific.
    - b. Approved Equal

**2.03 Related Materials:**

- A. Drillage/Separator Sheet
  - 1. Red rosin sized, unsaturated paper 6 lbs./100 sq. ft. federal specifications UU-B-790, Type I Style 1b.
- B. Primer
  - 1. Asphalt primer meeting the requirements of ASTM D41.
- C. Base Sheet
  - 1. Asphalt coated fiberglass base sheet shall meet or exceed ASTM D4601, Type I.
  - 2. Asphalt coated fiberglass venting base sheet shall meet or exceed ASTM D4897, Type II.
- D. Means of Attachment
  - 1. Polyurethane Foam Adhesive (for Alternate #1 only)
    - a. A two-part polyurethane foam manufactured for attachment of roof insulation boards.
    - b. Approved Products:
      - 1) Millennium by Millennium Adhesive Products
      - 2) Oly Bond by OMG
      - 3) Approved Equal

**PART 3 - EXECUTION**

**3.01 General:**

- A. The latest manufacturer specifications and installation techniques are to be followed.

**3.02 Inspection:**

- A. Examine the areas and conditions under which work in this section will be installed. Correct conditions detrimental to the proper and timely completion of the work. Do not proceed until such conditions have been corrected.

**3.03 Surface Conditions:**

- A. Surfaces scheduled to receive insulation are to be free of any standing water, dew, or loose debris.
- B. Substrate is to be smooth, free of sharp projections, and free of obvious depressions.

**3.04 Job Conditions:**

- A. Protection:
  - 1. Existing work shall be properly protected from damage or soiling during the process of removal of existing roofing and installation of new roofing material. Exercise special care at openings through roof and at roof edges. Spill no roofing materials on building surfaces. Any finished work damaged in the execution of work of this section, including lawns/shrubbery, shall be replaced, or restored to the original condition by this Contractor.
  - 2. Contractor shall protect existing roofing that is not scheduled to be removed with minimum 3/4-inch-thick plywood protection board. Any damage to existing roof shall be repaired by Contractor.

- B. Workmanship:
1. Roofing work shall be accomplished to fulfill the requirements of the drawings and specifications. Any specific directions furnished by the manufacturer regarding the application of their materials shall be strictly followed.
  2. After starting work, Contractor is responsible for complete moisture integrity of the roofing and flashing membrane. Therefore, this Contractor shall:
    - a. Not apply insulation or membrane under any conditions not suitable.
    - b. Exercise care to ensure adequate quantities of materials are used.
    - c. Maintain competent supervisor at the work site, with authority to discard unsuitable materials or remove unsatisfactory workers.
    - d. Observe all precautions involving the storage and handling of roofing materials.

**3.05 Concrete Deck Construction:**

- A. Over clean and dry deck, apply asphalt primer in a uniform manner and allow to dry.
- B. Rigid insulation to be loosely laid with all joints staggered and tightly butted. Insulation board to be cut to fit tightly around projections.

**3.06 Polyurethane Adhesive Attachment:**

- A. Rigid insulation to be laid with all joints tightly butted. Insulation to be cut to fit tightly around projections.
- B. To substrate, apply fluid mixture in minimum 1" wide wet beads spaced maximum of 12" on center. If manufacturer's requirements exceed those of this section, then manufacturer's recommendations are to be followed.
- C. Insulation boards are to be "stepped in" to ensure complete adhesion.
- D. Any gaps larger than ¼" are to be filled with similar materials.

**3.07 Wind Uplift Attachment Requirements:**

- A. For mechanically fastened or polyurethane adhered roof systems, mechanical fastener and/or adhesive size and spacing shall be as recommended by system Manufacturer to meet the following uplift requirements:
  - a. Field-of-Roof Uplift Rating: 60 PSF
  - b. Perimeter Uplift Rating: 75 PSF
  - c. Corner Uplift Rating: 105 PSF

**3.08 Verification:**

- A. Upon completion of the installation in each area, visually inspect and verify that all components are complete and properly installed. Verify that fasteners are properly located and securely anchored.

**3.09 Clean Up:**

- A. The Contractor shall clear the construction areas and shall provide for the removal from the building site of all his construction debris.
- B. All debris shall be removed from the premises promptly and the construction area left clean daily. Keep all drains clear of debris and in proper order at the end of each working day.
- C. At the completion of the contract, the Contractor is to remove all excess materials and equipment related to his contract.

**- END OF SECTION -**

## Section 07 31 13

### FIBERGLASS-REINFORCED ASPHALT SHINGLE ROOFING

#### PART 1 - GENERAL

##### 1.01 Description:

- A. The conditions of the construction contract and general requirements apply to the work specified in this section.
- B. Furnish and install a weather and watertight asphalt shingle roof complete, in place, as shown on the drawings, specified herein, for a complete and proper installation.
- C. Metal cap flashings, counterflashings, and miscellaneous sheet metal work incorporated into the work shall be installed and made watertight as a part of the work in this section.
- D. Installation of wood nailers, wood edge strips and plywood backers are to be completed in accordance with manufacturer's specifications and/or as shown on drawings. Contractor shall coordinate the installation of all carpentry work required for the roof system herein specified.

##### 1.02 Quality Assurance:

- A. Standards: Comply with the standards specified in this section and as listed in the General Requirements.
- B. Qualifications of Manufacturer: Products used in the work included in this section shall be produced by manufacturers regularly engaged in the manufacture of similar items and with a history of successful production acceptable to the Architect/Engineer.
- C. Qualifications of Contractor: The Contractor and contract personnel shall be currently approved by the manufacturer of the approved products as qualified to install the materials of this section.
- D. Qualifications of Installers: Use adequate numbers of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work in this section.
- E. Roofing Inspections: Make all required notifications and secure all required inspections by the manufacturer of the approved materials to facilitate issuance of the specified roof warranty.
- F. This specification sets minimum standards for materials and workmanship. Manufacturer's requirements or governing building codes shall apply where they impose higher standards.

##### 1.03 Related Work:

- A. Drawings and general provisions of the contract apply to section.
- B. Related Sections:
  - 1. Section 07 62 00 Flashing and Sheet Metal.

##### 1.04 References:

- A. Materials and methods used in this section shall be listed in the latest editions of the following:
  - 1. Factory Mutual System Approval Guide - equipment, materials, services for conservation of property.
  - 2. Underwriters Laboratories, Inc. - building materials directory.
  - 3. Roofing and Waterproofing Manual, Fifth Edition - National Roofing Contractors Association.
  - 4. Asphalt Roofing Manufacturers Association.

**1.05 Submittals:**

- A. General: Comply with the provisions of section 01 33 00 Submittal Procedures.
- B. Product Data: Within ten (10) calendar days after award of contract submit:
  - 1. Complete material list of all items proposed to be furnished and installed under this section.
  - 2. Manufacturer's specifications and other data required to demonstrate compliance with specified requirements.
  - 3. Manufacturer's recommended materials and methods of installation.
- C. When approved by the Architect/Engineer, the manufacturer's recommended methods of installation (unless superseded by the specifications) will become the basis for accepting or rejecting the installation.

**1.06 Product Handling:**

- A. Delivery and Storage
  - 1. Deliver all packaged materials to the job site in their original unopened containers with all labels intact and legible.
  - 2. Store all materials in an approved manner, up off of the roof deck or ground on wooden pallets, and protected from exposure to the elements on all sides with tarps extending to the ground.
  - 3. Store all rolls of felts, cartons and drums of cements, primers and coatings on end or as designated on the containers.
- B. Protection
  - 1. Use all necessary means to protect the materials in this section before, during, and after installation, and to protect the work and materials of all other trades.
- C. Replacements
  - 1. In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect/Engineer, and at no additional cost to the Owner.

**1.07 Scheduling:**

- A. Work is to be performed on a daily basis, with each section completed before progressing to the next day's work.
- B. Completion of work shall be defined as the installation of all specified roof preparation, decking, underlayment, asphalt shingles, flashings, counterflashings, sheet metal, fasteners, and caulking.
- C. Contractor shall complete roofing work on a daily basis unless specifically directed otherwise by the Architect/Engineer.

**1.08 Warranty:**

- A. As part of the work of this section, apply all required fees, secure all required inspections, and complete all items necessary to secure and deliver to the Owner a five (5) year Contractor's labor and material warranty and manufacturer's fifty (50) year material warranty.

**1.09 Project/Site Conditions:**

- A. Cold Weather Application
  - 1. When temperature at installation will be 45° F. or less, store shingles at 70° F. minimum for 72 hours minimum prior to installation. Do not take more shingles to site than can be installed during same working day unless provisions to maintain 60° F. minimum storage temperature are provided.
  - 2. In addition to above requirements, do not install shingles at lower temperatures than allowed by manufacturer.

**1.10 Maintenance:**

- A. Extra Materials
  - 1. Provide two bundles of shingles for Owner's future use.

## **PART 2 - PRODUCTS**

### **2.01 General:**

- A. Minimum product requirements have been listed. All of these components must be used and bid.
- B. All underlayment and related materials must be by the same manufacturer as the field shingles.

### **2.02 Manufacturers:**

- A. Manufacturer Contact List:
  - 1. CertainTeed Roofing Products, Valley Forge, PA
  - 2. GAF Materials Corp., Wayne, NJ
  - 3. Malarkey Roofing Products, Portland OR
  - 4. Owens Corning, Toledo, OH

### **2.03 Components:**

- A. Shingles and Underlayment:
  - 1. Fiberglass mat shingles meeting or exceeding requirements of:
    - a. UL Class A Fire Resistance.
    - b. ASTM D3018/D3018M, Type I (self sealing).
    - c. Standard Wind Areas: ASTM D3161/D3161M UL Class D.
    - d. ASTM E108 Class A.
    - e. CSA A123.1/A123.5 (Canada).
    - f. ASTM D3462/D3462M where required by local codes.
    - g. Self Adhering Underlayment: Meet requirements of ASTM D1970/D1970M and UL 790 Class A Fire Resistance.
    - h. Primary (Synthetic) Underlayment: Meet requirements of ASTM D226/D226M and ASTM D4869/D4869M (physical properties only) or ASTM D1970/D1970M and ASTM E108 Class A Fire.
    - i. Integral algae resistance: Use compatible flashing and trim materials to avoid electrolysis problem with material used in algae shingles.
    - j. Color as selected by Architect from Shingle Manufacturer's full color line.
  - 2. Category Three Approved Manufacturers and Products:
    - a. CertainTeed:
      - 1) Shingles:
        - a) Standard Wind: Hatteras / Landmark Premium.
      - 2) Primary Underlayment Under Shingles:
        - a) Synthetic Underlayment: Diamond Deck.
      - 3) Self Adhering Underlayment under shingles and on top of existing concrete deck:
        - a) WinterGuard Granular.
        - or
        - b) WinterGuard Sand.
        - or
        - c) WinterGuard High Tack/High Temperature.
    - b. GAF:
      - 1) Shingles:
        - a) Standard Wind: Timberline Ultra HD.
      - 2) Primary Underlayment Under Shingles:
        - a) Synthetic Underlayment: Tiger Paw.
      - 3) Self Adhering Underlayment under shingles and on top of existing concrete deck:
        - a) Weatherwatch.
        - or
        - b) StormGuard.
    - c. Malarkey:
      - 1) Shingles:
        - (a) Standard Wind: Polymer Modified SBS Legacy.
      - 2) Primary Underlayment Under Shingles:
        - a) Synthetic Underlayment: Secure Start #1030.
        - b) Polymer Modified SBS Underlayment: Right Start UDL.
      - 3) Self Adhering Underlayment under shingles and on top of existing concrete deck:
        - a) Arctic Seal Self-Adhering underlayment #401.



- d. Owens Corning:
  - 1) Shingles:
    - a) Standard Wind: Duration Premium shingles.
  - 2) Primary Underlayment Under Shingles:
    - a) Synthetic Underlayment: Deck Defense High Performance Roof Underlayment.
  - 3) Self Adhering Underlayment under shingles and on top of existing concrete deck:
    - a) Weatherlock G Granulated Self-Sealing Ice & Water Barrier.
    - or
    - b) Weatherlock Specialty Tile & Metal for High Temperature.
    - or
    - c) Weatherlock Cold Climate for cold weather adhesion and flexibility.
  
- B. Asphalt Roofing Cement, Asbestos-Free: Asphalt roofing cement shall be an asbestos-free, trowel grade, asphalt-based and conform to ASTM D4586 Type I Class I.  
Furnished as:
  - 1. Karnak 19AF by Karnak Chemical Corp.
  - 2. As approved by shingle manufacturer.
  
- C. Formed Valley Metal:
  - 1. Steel minimum 24 gauge hot dipped galvanized with face coating polyvinylidene fluoride resin-base finish (Kynar 500 or Hylar 5000).
  - 2. Form accurately to details. Provide formed valley metal in 10 foot lengths with one inch "V" crimp and break in center to match roof slopes.
  - 3. Profiles, bends and intersections shall be even and true to line.
  
- D. Step Flashing:
  - 1. Steel minimum 24 gauge hot dipped galvanized with face coating polyvinylidene fluoride resin-base finish (Kynar 500 or Hylar 5000).
  - 2. Fabricated step flashings 5" x 5" x 9" minimum.
  
- E. Pipe or vent jackets shall be a frost proof type fabricated of galvanized metal, and designed for use on sloped roof construction.
  - 1. Furnished by F. J. Moore
  - 2. Approved Equal
  
- F. Shingle fasteners shall be of adequate design to achieve substantial and positive anchorage and consist of galvanized nails of suitable length to penetrate all layers of roofing and achieve ¾ inch embedment in wood substrate or fully penetrate through laminated wood products ¾ inch.
  - 1. Simplex nails for #30 underlayment roofing felts shall be ring-shanked and have a one-inch head.
  - 2. Shingle nails shall be ten gauge, barbed, minimum 1 ½" long (ridge 2") with a 7/16" diameter head. Note: Staples are not acceptable.
  
- G. Gasketed Fasteners:
  - 1. Provide gasketed screws to secure sheet metal to create a weather-resistant exterior envelope. Gasketed fasteners installed in accordance with manufacturer recommendations/requirements shall comply with IBC1403.
  - 2. Gasket material shall be EPDM, vulcanized to the metal to establish a bond that assures the EPDM will not separate from the metal.
  - 3. Screws shall be corrosion resistant and painted the same color to match the counterflashing.
  - 4. Fasteners shall only be used at vertical surfaces, a minimum of 6-inches above horizontal surfaces.
  - 5. Gaskets shall be considered "non-brittle" at -40° as per ASTM D2137. Gaskets shall have been tested per ASTM D573 and be heat resistant.
  
  - 6. Screws shall be secured with sufficient torque to secure the sheet metal and maintain the seal weather-tight in accordance with the manufacturer's requirements/recommendations.
  - 7. Screws shall be secured utilizing a torque adjustable or depth sensitive tool.
  
- H. Heavy duty aluminum static vent with slanted back providing 50 square inches of net free area per vent.

## **PART 3 - EXECUTION**

### **3.01 General:**

- A. The latest manufacturer specifications and installation techniques are to be followed or the project specification requirement where more stringent.

### **3.02 Inspection:**

- A. Examine the areas and conditions under which work in this section will be installed. Correct conditions detrimental to the proper and timely completion of the work. Do not proceed until such conditions have been corrected.

### **3.03 Surface Conditions:**

- A. Surfaces scheduled to receive roofing are to be free of any moisture, dew, loose debris, dust, or dirt.
- B. Substrate is to be smooth, free of sharp projections, and free of obvious depressions.
- C. All metal fittings specified or shown on drawings are to be in place before shingle roofing unless installation integration is to be at time of shingle application.

### **3.04 Installation:**

- A. To the surface of the wood deck substrate, apply a suitable self-adhering membrane at eaves, valleys and as shown on detail drawings.
- B. Starting at the perimeter edge, install two plies of #30 asphalt-saturated organic felts shingle-fashion over the entire roof.
- C. Set all perimeter edge metal as specified and shown in the detail drawings, mechanically attached to the substrate.
- D. Extending from the perimeter, install a manufacturer approved starter strip.
- E. Install the shingle roof assembly as specified and as per manufacturer's requirements.
- F. Seal the asphalt shingles of the bottom course to the starter strip with quarter size dabs of asphalt roof cement under each tab
- G. Ensure alignment by running vertical line down center of roof and laying shingles from center to rake and snapping chalk line at least each fourth course to control horizontal alignment.
- H. Lay shingles in stair-step fashion so end joints are offset from previous row. Offset shall be consistent over entire roof.
- I. Nail shingles according to the manufacturers recommendations. Should any nail fail to penetrate solid decking, remove, and replace. Note: Seal hole with asphalt roof cement.
- J. Run chalk line so valley will be 3 inches wide on each side of center line at top and diverge 1/8 inch/ft. down to eaves. Neatly trim shingles to this line. Clip off and secure upper inside corner of each shingle and seal to valley with asphalt roof cement.
- K. Run courses true to line with end joints properly placed. Install shingles flat without wave or ridges.
- L. All ridge and gable sections shall be accomplished using pre-manufactured shingles, blind nailed and tabbed with asphalt roof cement.
- M. All penetrations shall be sealed to the surface of the #30 underlayment with the flange section embedded in a solid troweling of asphalt roof cement.  
Note: The flange section of the metal flashing on the down slope area of the roof will be exposed. The up slope flange section shall be installed so that the shingles fit tightly throughout.

**3.05 Clean-Up:**

- A. The Contractor shall clear the construction areas and shall provide for the removal from the building site of all his construction debris.
- B. All debris shall be removed from the premises promptly and the construction area left clean daily.
- C. At the completion of the contract, Contractor is to remove all equipment related to his contract.

**- END OF SECTION -**

Section 07 53 23

**ALTERNATE #1: FULLY ADHERED EPDM ROOFING**

**PART 1 - GENERAL**

**1.01 Description:**

- A. Alternate #1: Substitute 60 mil fully-adhered EPDM roofing in lieu of ballasted EPDM.
- B. Furnish and install a weather and watertight fully adhered EPDM roof complete, in place, as shown on the drawings and specified herein, for a complete and proper installation including, but not necessarily limited to:
  - 1. The complete removal of existing membrane including base flashing, metal flashings, counterflashings and all other items necessary for a complete waterproof installation.
  - 2. Contractor shall take all necessary precautions to protect Owner's property from damage caused by weather conditions, excessive loading of the existing structural system or careless workmanship.
  - 3. Metal cap flashings, counterflashings, and miscellaneous sheet metal work incorporated into the work shall be installed and made watertight as a part of the work of this section.
  - 4. Installation of wood nailers, wood edge strips, and plywood backers in accordance with manufacturer's specifications and/or as shown on drawings. Contractor shall coordinate the installation of all carpentry work required for the membrane system herein specified.

**1.02 Quality Assurance:**

- A. Standards: Comply with standards specified in this section and as listed in the General Requirements.
- B. Qualifications of Manufacturer: Products used in the work included in this section shall be produced by manufacturers regularly engaged in the manufacture of similar items and with a history of successful production acceptable to the Architect/Engineer.
- C. Qualifications of Contractor: The Contractor and contract personnel shall be currently approved by the manufacturer as qualified to install the materials of this section.
- D. Qualifications of Installers: Use an adequate number of skilled installers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the requirements and the methods needed for proper performance of the work in this section.
- E. Roofing Inspections: Make all required notifications and secure all required inspections by the manufacturer of the approved materials to facilitate issuance of the specified roof warranty.
- F. Ballasted low-slope (roof slope < 2:12) single-ply roof system coverings installed in accordance with Sections 1507.12 and 1507.13 shall be designed in accordance with Section 1504.8 and ANSI/SPRI RP-4. [IBC 1504.4]
- G. Roof coverings installed on low-slope roofs (roof slope < 2:12) in accordance with Section 1507 shall demonstrate physical integrity over the working life of the roof based upon 2,000 hours of exposure to accelerated weathering tests conducted in accordance with ASTM G 152, ASTM G 155 or ASTM G 154. Those roof coverings that are subject to cyclical flexural response due to wind loads shall not demonstrate any significant loss of tensile strength for unreinforced membranes or breaking strength for reinforced membranes when tested as herein required. [IBC 1504.6]
- H. Roof coverings installed on low-slope roofs (roof slope < 2:12) in accordance with Section 1507 shall resist impact damage based on the results of tests conducted in accordance with ASTM D 3746, ASTM D 4272, CGSB 37-GP-52M or the "Resistance to Foot Traffic Test" in Section 5.5 of FM 4470. [IBC 1504.7]

**1.03 Related Work:**

- A. Section 07 22 16 Roof Board Insulation

#### **1.04 References:**

- A. Materials used in this section shall be listed in the latest editions of the following:
  - 1. Factory Mutual Approval Guide.
  - 2. Underwriters Laboratories, Inc. - building materials directory.
  - 3. The NRCA Roofing and Waterproofing Manual, 5<sup>th</sup> Edition – National Roofing Contractors Association
  - 4. The Wind Design Guide for Fully Adhered Single Ply Roof Systems by Single Ply Roofing Institute (SPRI).

#### **1.05 Submittals:**

- A. General: Comply with the provisions of Section 01 33 00 Submittal Procedures.
- B. Product Data: Within ten (10) calendar days after award of contract, submit:
  - 1. Complete material list of all items proposed to be furnished and installed under this section.
  - 2. Manufacturer's specifications and other data required to demonstrate compliance with specified requirements.
  - 3. Manufacturers recommended methods of installation.
  - 4. When approved by the Architect/Engineer, the manufacturer's recommended methods of installation (unless superseded by the specifications) will become the basis for accepting or rejecting the actual installation.

#### **1.06 Product Handling:**

- A. Delivery and Storage:
  - 1. Coordinate storage of materials with Owner and Architect/Engineer.
  - 2. Deliver all packaged materials to the job site in their original unopened containers with all labels intact and legible.
  - 3. Store all materials in an approved manner, up off of the roof deck or ground, and protected from exposure to the elements.
  - 4. Store all rolls of felts, cartons, and drums of cements, primers, and coating on end.
- B. Protection:
  - 1. Use all necessary means to protect the materials in this section before, during, and after installation, and to protect the work and materials of all other trades.
- C. Replacements:
  - 1. In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect/Engineer, and at no additional cost to the Owner.

#### **1.07 Scheduling:**

- A. Work is to be performed on a daily basis, with each section completed before progressing to the next day's work.
- B. Completion of work shall be defined as the installation of all specified substrate preparation, insulation, and EPDM membrane completely sealed at perimeters, curbs, and penetrations.

#### **1.08 Guarantee/Warranty:**

- A. The Contractor shall furnish a single-ply membrane manufacturer's warranty to Owner, in duplicate, filled out properly and signed by duly authorized officer, stating that all materials and workmanship for single-ply membrane roofing system will be free from defects of material and workmanship of any kind and shall make repairs and/or replacement at no cost to Owner for a period of not less than ten (10) years from date of final acceptance by Owner and/or final inspection by system manufacturer. Submittals shall be within two (2) weeks after roofing completion.

- B. In addition to the system manufacturer's workmanship, roofing Contractor shall guarantee the new roof system, carpentry work, roof insulation, and all new sheet metal work for a period of not less than five (5) years from date of final acceptance by Owner, against any failures associated with the entire roofing system and shall make repairs and/or replacement at no cost to Owner during this guarantee period. This supplement guarantee shall be submitted in writing to Owner. Refer to form shown in Section 01 78 36 Warranties.
  - 1. Before final payment by Owner, Contractor shall submit system manufacturer's warranties and his guarantee to the Architect/Engineer.
- C. Repairs shall be made within 24 hours of notification.

## **PART 2 - PRODUCTS**

### **2.01 General:**

- A. Minimum product requirements have been listed. All of these components must be used and bid.

### **2.02 Materials:**

- A. EPDM Roofing Membrane:
  - 1. EPDM roofing membrane shall consist of 0.060 inch (60 mil) thick calendared ethylene propylene diene monomer (EPDM).
    - a. EPDM shall be non-reinforced.
    - b. The membrane thickness tolerance shall be between 0.054" and 0.066" for 60 mil (measured in accordance with ASTM D412).
    - c. Membrane shall be factory-fabricated in single sheet material measuring not less than ten (10) feet wide by one hundred (100) feet long or the longest sheet possible as determined by job conditions.
    - d. Rolls of EPDM membrane with factory defects such as creases, stretch marks, out of square, etc., will be rejected.
  - 2. The membrane shall meet or exceed all requirements of ASTM D4637, Standard Specification for EPDM sheet used in single-ply roofing membrane.
  - 3. Approved Manufacturers:
    - a. Firestone Building Product Co., Carmel, IN
    - b. Carlisle SynTec Systems, Carlisle, PA
    - c. Johns Manville, Denver, CO
    - d. Approved Equal
- B. Related Materials:
  - 1. Related materials for the above EPDM membrane roofing system shall consist of the following or as recommended by the membrane manufacturer:
    - a. Membrane flashing shall be 0.060 inch (60 mil) thick uncured EPDM.
    - b. Bonding adhesive, splice cleaner, seam tape, "water cut-off mastic", molded pipe flashing, pourable sealer, reinforced securement system and all other related materials shall be compatible with materials with which it is to be used and shall be furnished by membrane manufacturer.

## **PART 3 - EXECUTION**

### **3.01 General:**

- A. The latest manufacturer specifications and installation techniques are to be followed.

### **3.02 Inspection:**

- A. Examine the areas and conditions under which work in this section will be installed. Correct conditions detrimental to the proper and timely completion of the work. Do not proceed until such conditions have been corrected.

### **3.03 Surface Conditions:**

- A. Surfaces to receive roofing are to be free of any standing water, dew, loose debris, dust, and dirt.

- B. Substrate is to be smooth, free of sharp projections, and free of obvious depressions.
- C. All metal fittings specified or shown on drawings are to be in place before roofing.
- D. All nailers shall be securely installed prior to roofing.

**3.04 Job Conditions:**

- A. Protection:
  - 1. Existing work shall be properly protected from damage or soiling during the process of removal of existing roofing and installation of new roofing material. Exercise special care at openings through roof and at roof edges. Spill no roofing materials on building surfaces. Any finished work damaged in the execution of work of this section, including lawns/shrubbery, shall be replaced, or restored to the original condition by this Contractor.
  - 2. Contractor shall protect existing roofing that is not scheduled to be removed with minimum 3/4 inch thick plywood protection board. Any damage to existing roof shall be repaired by Contractor.
- B. Workmanship:
  - 1. Roofing work shall be accomplished to fulfill the requirements of the drawings and specifications. Any specific directions furnished by the manufacturer regarding the application of his materials shall be strictly followed.
  - 2. After starting work, Contractor is responsible for complete moisture integrity of the roofing and flashing membrane. Therefore, this Contractor shall:
    - a. Not apply insulation or membrane under any conditions not suitable.
    - b. Exercise care to ensure adequate quantities of materials are used.
    - c. Maintain competent supervisor at the work site, with authority to discard unsuitable materials or remove unsatisfactory workers.
    - d. Observe all precautions involving the storage and handling of roofing materials.
  - 3. The following precautions shall be followed when applying the EPDM membrane system:
    - a. Do not use oil base or plastic roof cement.
    - b. Do not allow waste products (petroleum grease, oil, solvents, vegetable, or mineral oil, animal fat) or direct steam venting to come in contact with roofing systems.
    - c. Do not expose membrane or accessories to a constant temperature in excess of 180 degrees F.

**3.05 Installation of EPDM Roofing Membrane:**

- A. General:
  - 1. Contractor shall install EPDM roofing membrane sheets in a straight smooth line without curving. Position adjoining sheets in such manner that direction of water flow is over and not against laps. Field laps shall form a watertight seal.
    - a. At end of each day's work, a temporary water tie-off shall be applied and be removed cleanly when work is resumed.
    - b. If temporary water tie-offs are left for two days time, Contractor shall check them daily for breaks and if any are found, repairs shall be made immediately.
- B. Reinforced Securement Strip:
  - 1. Reinforced securement strip shall be installed at the perimeter of each roof level, roof section, curb flashing, expansion joints, and similar penetrations. Reinforced securement strips shall be mechanically fastened as recommended by membrane manufacturer using approved fasteners.
    - a. Top of mechanical fasteners shall be set flush with the top surface of the plate.
    - b. Space mechanical fasteners a maximum of 12 inches on center.
- C. Roof Drains
  - 1. Remove any existing lead flashing and asphalt materials in preparation for water block sealant and membrane.
  - 2. Seal between membrane and drain base shall be water block sealant as shown on drawings.
  - 3. Roof drains will be sumped. Refer to detail drawings.

- D. Membrane:
1. Over the insulation, install roofing membrane as follows:
    - a. Install EPDM membrane loose-laid over surface of insulation and allow to relax for a minimum of 30 minutes.
    - b. After membrane has been allowed to suitably relax, fold sheet back approximately 50%. Sheet fold shall be smooth and without wrinkles.
    - c. Apply bonding adhesive to surface of insulation and membrane evenly with no puddles or globs.  
Note: If spray applying, all adhesive material must be back-rolled.  
Note: Field adhesive must not be applied to seam area.
    - d. Roll coated sheet into coated insulation surface with no wrinkles.  
Note: Any wrinkles larger than 12" in length will be cut out and repaired, no exceptions.
    - e. Sheet section will be "embedded" to achieve 100% contact.
- E. Membrane Splicing:
1. Fold top sheet back and remove dirt and dust by brooming or wiping with clean rag. Clean both of the dry mating surfaces at the splicing area using clean natural fiber rags or natural sponges with "splice cleaner."
  2. Apply seam tape in accordance with manufactures specifications. Seam tape shall be exposed 1/8" - 1/2" along length of splice. If exposed more than 1/2", apply 6" wide self-adhering splice tape, centered over exposed seam.
  3. Roll top sheet toward splice area along the entire length of splice. Allow sheet to fall freely into place. Avoid stretching and wrinkling, while brushing by hand toward the splice edge.
  4. Roll splice with a two inch wide steel roller, using positive pressure, toward the outer edge of the splice.

### 3.06 Membrane Flashing:

- A. General:
1. Perimeter flashing, including curbs shall consist of 0.060 inch (60 mil.) thick EPDM flashing material using the longest pieces practical. All flashings and terminations shall be completed in accordance with manufacturer's recommendations.
    - a. Complete splicing between flashing and main roof sheet before bonding flashing to vertical surface. Splice shall extend as detailed or at least three inches beyond the fasteners which attaches the membrane at the angle change.
      - 1) Apply seam tape in accordance with manufacturer's specifications. Seam tape shall be exposed 1/8" to 1/2" along the edge of the splice.
      - 2) Nail installed flashing at top of flashing every 12 inches on center (maximum) under metal counterflashing or coping cap.
- B. Penetrations:
1. Flash all penetrations (pipes, conduits, vents, etc.) passing through the membrane.
    - a. Flash pipe with molded pipe flashings where possible.
    - b. Where molded pipe flashings cannot be installed, use field- fabricated pipe seals.
  2. Seal clusters of pipes and unusual shaped penetrations with metal pans and pipe sleeve flashing flanges. All seams shall be field soldered to avoid open joints and to form a watertight seal. Fill pans with rigid insulation cut to fit and top two inches (minimum) with manufacturers sealer and apply umbrella flashing covers as detailed. Apply uncured flashings as detailed and/or per manufacturer's directions.

### 3.07 Clean-Up:

- A. Upon completion of the work, remove all excess material, debris, or trash resulting from this work. Leave completed surfaces clean and free from any defects of material or workmanship.
1. Leave building and work site in a neat, clean, and undamaged condition.
  2. Clean both interior and exterior surfaces which were soiled due to the work of this section.
  3. Repair or replace any damaged lawns or shrubbery to original condition.

- END OF SECTION -



## Section 07 53 24

### BALLASTED EPDM ROOFING

#### PART 1 - GENERAL

##### 1.01 Description:

- A. Furnish and install a weather and watertight ballasted EPDM roof complete, in place, as shown on the drawings and specified herein, for a complete and proper installation including, but not necessarily limited to:
  - 1. The complete removal of existing membrane including base flashing, metal flashings, counterflashings and all other items necessary for a complete waterproof installation.
  - 2. Contractor shall take all necessary precautions to protect Owner's property from damage caused by weather conditions, excessive loading of the existing structural system or careless workmanship.
  - 3. Metal cap flashings, counterflashings, and miscellaneous sheet metal work incorporated into the work shall be installed and made watertight as a part of the work of this section.
  - 4. Installation of wood nailers, wood edge strips, and plywood backers in accordance with manufacturer's specifications and/or as shown on drawings. Contractor shall coordinate the installation of all carpentry work required for the membrane system herein specified.

##### 1.02 Quality Assurance:

- A. Standards: Comply with standards specified in this section and as listed in the general requirements.
- B. Qualifications of manufacturer: Products used in the work included in this section shall be produced by manufacturers regularly engaged in the manufacture of similar items and with a history of successful production acceptable to the Architect/Engineer.
- C. Qualifications of Contractor: The Contractor and his personnel shall be currently approved by the manufacturer of the approved products as qualified to install the materials of this section.
- D. Qualifications of Installers: Use an adequate number of skilled installers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work in this section.
- E. Roofing Inspections: Make all required notifications and secure all required inspections by the manufacturer of the approved materials to facilitate issuance of the specified roof warranty.
- F. Ballasted low-slope (roof slope < 2:12) single-ply roof system coverings installed in accordance with Sections 1507.12 and 1507.13 shall be designed in accordance with Section 1504.8 and ANSI/SPRI RP-4. [IBC 1504.4]
- G. Roof coverings installed on low-slope roofs (roof slope < 2:12) in accordance with Section 1507 shall demonstrate physical integrity over the working life of the roof based upon 2,000 hours of exposure to accelerated weathering tests conducted in accordance with ASTM G 152, ASTM G 155 or ASTM G 154. Those roof coverings that are subject to cyclical flexural response due to wind loads shall not demonstrate any significant loss of tensile strength for unreinforced membranes or breaking strength for reinforced membranes when tested as herein required. [IBC 1504.6]
- H. Roof coverings installed on low-slope roofs (roof slope < 2:12) in accordance with Section 1507 shall resist impact damage based on the results of tests conducted in accordance with ASTM D 3746, ASTM D 4272, CGSB 37-GP-52M or the "Resistance to Foot Traffic Test" in Section 5.5 of FM 4470. [IBC 1504.7]

##### 1.03 Related Work:

- A. Section 07 22 16 Roof Board Insulation

#### **1.04 References:**

- A. Materials used in this section shall be listed in the latest editions of the following:
  - 1. Factory Mutual Approval Guide.
  - 2. Underwriters Laboratories, Inc. - building materials directory.
  - 3. The NRCA Roofing and Waterproofing Manual, 5<sup>th</sup> Edition – National Roofing Contractors Association
  - 4. The Wind Design Guide for Fully Adhered Single Ply Roof Systems by Single Ply Roofing Institute (SPRI).

#### **1.05 Submittals:**

- A. General: Comply with the provisions of Section 01 33 00 Submittal Procedures.
- B. Product Data: Within ten (10) calendar days after award of contract, submit:
  - 1. Complete material list of all items proposed to be furnished and installed under this section.
  - 2. Manufacturer's specifications and other data required to demonstrate compliance with specified requirements.
  - 3. Manufacturers recommended methods of installation.
  - 4. When approved by the Architect/Engineer, the manufacturer's recommended methods of installation (unless superseded by the specifications) will become the basis for accepting or rejecting the actual installation.

#### **1.06 Product Handling:**

- A. Delivery and Storage:
  - 1. Coordinate storage of materials with Owner and Architect/Engineer.
  - 2. Deliver all packaged materials to the job site in their original unopened containers with all labels intact and legible.
  - 3. Store all materials in an approved manner, up off of the roof deck or ground, and protected from exposure to the elements.
  - 4. Store all rolls of felts, cartons, and drums of cements, primers, and coating on end.
- B. Protection:
  - 1. Use all necessary means to protect the materials in this section before, during, and after installation, and to protect the work and materials of all other trades.
- C. Replacements:
  - 1. In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect/Engineer, and at no additional cost to the Owner.

#### **1.07 Scheduling:**

- A. Work is to be performed on a daily basis, with each section completed before progressing to the next day's work.
- B. Completion of work shall be defined as the installation of all specified substrate preparation, insulation, and EPDM membrane completely sealed at perimeters, curbs, and penetrations.

#### **1.08 Guarantee/Warranty:**

- A. The Contractor shall furnish a single-ply membrane manufacturer's warranty to Owner, in duplicate, filled out properly and signed by duly authorized officer, stating that all materials and workmanship for single-ply membrane roofing system will be free from defects of material and workmanship of any kind and shall make repairs and/or replacement at no cost to Owner for a period of not less than ten (10) years from date of final acceptance by Owner and/or final inspection by system manufacturer. Submittals shall be within two (2) weeks after roofing completion.

- B. In addition to the system manufacturer's workmanship, roofing Contractor shall guarantee the new roof system, carpentry work, roof insulation, and all new sheet metal work for a period of not less than five (5) years from date of final acceptance by Owner, against any failures associated with the entire roofing system and shall make repairs and/or replacement at no cost to Owner during this guarantee period. This supplement guarantee shall be submitted in writing to Owner. Refer to form shown in Section 01 78 36 Warranties.
  - 1. Before final payment by Owner, Contractor shall submit system manufacturer's warranties and his guarantee to the Architect/Engineer.
- C. Repairs shall be made within 24 hours of notification.

## **PART 2 - PRODUCTS**

### **2.01 General:**

- A. Minimum product requirements have been listed. All of these components must be used and bid.

### **2.02 Materials:**

#### **A. Single-ply Roofing Membrane:**

- 1. Single-ply roofing membrane shall consist of 0.060 inch (60 mil) thick calendared Reinforced Ethylene Propylene Diene Monomer (EPDM) unlimited slope fire retardant sheet.
  - a. The membrane thickness tolerance shall be between 0.054" and 0.069" for 60 mil measured in accordance with ASTM D412.
  - b. Membrane shall be factory fabricated in single sheet material measuring not less than twenty (20) feet wide by one hundred (100) feet long or the longest sheet possible as determined by job conditions.
  - c. Rolls of single-ply membrane with factory defects such as creases, stretch marks, out of square, etc., will be rejected.

Alternate #2: Substitute 90 mil ballasted EPDM in lieu of 60 mil ballasted EPDM.

- 2. The membrane shall meet or exceed all requirements of ASTM D4637 for EPDM vulcanized sheet used in single-ply roof membrane.

#### **3. Approved Manufacturers:**

- a. Carlisle SynTec Corporation
- b. Firestone Building Products
- c. Johns Manville
- d. Approved Equal

#### **B. Related Materials:**

- 1. Related materials for the above single-ply membrane roofing system shall consist of the following or as recommended by the membrane manufacturer.
  - a. Membrane flashing shall be 0.060 inch (60 mil) thick uncured EPDM.
  - b. Bonding adhesive, splice cleaner, splice tape, "water cut-off mastic", molded pipe flashing, pourable sealer, reinforced perimeter securement system and all other related materials shall be compatible with materials with which it is to be used and shall be furnished by membrane manufacturer.

#### **C. Ballast:**

- 1. Natural rounded gravel shall be commercial grade, washed, 1.0" to 2.0" and shall comply with ASTM D448. No more than 10% of any lot shall be outside these requirements. Gravel shall be dry and free of dust, soil, and foreign matter.
- 2. Concrete pavers shall be placed as shown on roof plan and be approved by the system manufacturer.

## **PART 3 - EXECUTION**

### **3.01 General:**

- A. The latest manufacturer specifications and installation techniques area to be followed.

### **3.02 Inspection:**

- A. Owner will observe the roof installation. Contractor shall give Architect/Engineer one (1) week written notice in advance of starting roofing installation.

### **3.03 Surface Conditions:**

- A. Surfaces to receive roofing are to be free of any standing water, dew, loose debris, dust, and dirt.
- B. Substrate is to be smooth, free of sharp projections, and free of obvious depressions.
- C. All metal fittings specified or shown on drawings are to be in place before roofing.
- D. All nailers shall be securely installed prior to roofing.

### **3.04 Job Conditions:**

- A. Protection:
  - 1. All existing work shall be properly protected from damage or soiling during the process of removing the existing roofing and installation of new roofing material. Exercise special care at openings through roof and at roof edges. Spill no roofing materials on existing building surfaces. Any finished work damaged in the execution of work under this section, including lawns/shrubbery, shall be replaced, or restored to the original condition by this Contractor at his own expense.
  - 2. Contractor shall protect existing roofing that is not scheduled to be removed with minimum 3/4-inch thick plywood protection board. Any damage to existing roof shall be repaired by Contractor at his expense.
- B. Workmanship:
  - 1. All roofing work shall be accomplished with mechanics thoroughly skilled in the application of specified materials with all workmanship to be of the very best and shall be done in such manner as to fulfill the requirements of the contract. Any specific directions furnished by the manufacturer regarding the application of his materials and approved by the Architect/Engineer shall be faithfully followed.
  - 2. After starting work, Contractor is responsible for complete moisture integrity of the roofing and flashing membrane, checking all work installed on the roof and for providing properly applied roof which will insure or maintain the integrity of the specified roofing guarantee/warranty. Therefore, this Contractor shall:
    - a. Not apply insulation or membrane under any conditions not suitable for the re-roofing work.
    - b. Exercise care to insure adequate quantities of materials are used.
    - c. Maintain competent supervisors continuously supervising the work, with authority to discard unsuitable materials or remove unsatisfactory workers.
    - d. Observe all fire precautions involving the storage and handling of roofing materials. Provide adequate amount of fire extinguishers at work site.
  - 3. The following precautions shall be followed when applying the single-ply membrane system:
    - a. Do not use oil base or plastic roof cement.
    - b. Do not allow waste products (petroleum grease, oil, solvents, vegetable, or mineral oil, animal fat) or direct steam venting to come in contact with roofing systems.
    - c. Do not expose membrane and accessories to a constant temperature in excess of 180 degrees F.

### 3.05 Installation of Single-ply Roofing Membrane:

- A. General:
1. Contractor shall install EPDM roofing membrane sheets in a straight smooth line without curving. Position adjoining sheets in such manner that direction of water flow is over and not against laps. Field laps shall form a watertight seal.
    - a. At end of each day's work, a temporary water tie-off shall be applied and be removed cleanly when work is resumed.
    - b. If temporary water tie-offs are left for two days time, Contractor shall check them daily for breaks and if any are found, repairs shall be made immediately.
- B. Reinforced Securement Strip:
1. Reinforced securement strip shall be installed at the perimeter of each roof level, roof section, curb flashing, expansion joints, and similar penetrations. Reinforced securement strips shall be mechanically fastened as recommended by membrane manufacturer using approved fasteners.
    - a. Top of mechanical fasteners shall be set flush with the top surface of the plate.
    - b. Space mechanical fasteners a maximum of 12 inches on center.
- C. Roof Drains
1. Remove any existing lead flashing and asphalt materials in preparation for water block sealant and membrane.
  2. Seal between membrane and drain base shall be water block sealant as shown on drawings.
  3. Roof drains will be sumped. Refer to detail drawings.
- D. Membrane:
1. Over the insulation, install roofing membrane as follows:
    - a. Install EPDM 60 mil membrane loose-laid over surface of insulation and allow to relax for a minimum of 30 minutes.  
Alternate #2: Use 90 mil membrane in lieu of 60 mil.
    - b. Sheet section will be loose-laid and properly positioned using a wrinkle free technique.
- E. Membrane lap splices:
1. Fold top sheet back about twelve (12) inches. Remove dirt and excess dust by brooming or wiping with clean rag. Clean both of the dry mating surfaces at the splicing area as per the manufacturer's recommendations.
  2. After the membrane has been overlapped and cleaned, it should then be completed to form a watertight seal.
  3. Apply seam tape in accordance with manufacturer's specifications. Seam tape shall be exposed 1/8" to 1/2" along the edge of the splice.
  4. Clean the splice edge, extending at least 4" either side of the seam per the manufacturer's recommended cleaning method and adhere 6" uncured EPDM membrane over the seam.
  5. Once the membrane splice has been completed, the entire lap must be inspected for voids and inadequate bond with repairs being accomplished immediately if necessary.

### 3.06 Installation of Flashing:

- A. General:
1. Perimeter flashing, including curbs, shall be fabricated with 0.060 inch (60 mil) thick reinforced membrane and/or manufacturer's uncured flashing material using the longest pieces practicable. All flashings and terminations shall be done in accordance with manufacturer's recommendations.
    - a. Complete splicing between flashing and main roof sheet before bonding flashing to vertical surface. Splice shall extend as detailed or at least three inches beyond the fasteners which attaches the membrane at the angle change.
      - 1) Apply seam tape in accordance with manufacturer's specifications. Seam tape shall be exposed 1/8" to 1/2" along the edge of the splice.
      - 2) Nail installed flashing at top of flashing every 12 inches on center (maximum) under metal counterflashing or coping cap.

- B. Penetrations:
1. Flash all penetrations (pipes, conduits, vents, etc.) passing through the membrane.
    - a. Flash pipe with manufacturer's pre-molded pipe flashings where installation is possible.
    - b. Where pre-molded pipe flashings cannot be installed, field fabricate pipe seal with 60 mil uncured EPDM membrane.
  2. Seal clusters of pipes and unusual shaped penetrations with metal pans and pipe sleeve flashing flanges. All seams shall be field soldered to avoid open joints and to form a watertight seal. Fill pans with rigid insulation cut to fit and top two inches (minimum) with manufacturer's approved two part pourable sealer and apply umbrella flashing covers as detailed. Apply uncured flashings as detailed and/or per manufacturer's directions.

**3.07 Ballast:**

- A. Install gravel ballast at a rate of ten (10) pounds per square foot or as recommended by the system manufacturer.
- B. Install concrete pavers as shown on the roof plan and detail drawings.

**3.08 Clean-Up:**

- A. Upon completion of the work, remove all excess material, debris, or trash resulting from this work. Leave completed surfaces clean and free from any defects of material or workmanship.
  1. Leave building and work site in a neat, clean, and undamaged condition.
  2. Clean both interior and exterior surfaces which were soiled due to the construction process.
  3. Repair or replace any damaged lawns or shrubbery to original condition.

**- END OF SECTION -**

## Section 07 62 00

### FLASHING AND SHEET METAL

#### PART 1 - GENERAL

##### 1.01 Description:

- A. Furnish and install all coping, flashing, and sheet metal work as shown on drawings and herein specified.
- B. Installation of work shall start not later than 4 working days after a roof section of the re-roofing system, including composition flashings, has been completed. In order to avoid any delays, all work shall be closely coordinated with the roofing work.

##### 1.02 Quality Assurance:

- A. Standards: Comply with standards specified in this section and as listed in the general requirements.
- B. Qualifications of manufacturer: Products used in the work included in this section shall be produced by manufacturers regularly engaged in the manufacture of similar items and with a history of successful production acceptable to the Architect/Engineer.
- C. Qualifications of Contractor: The Contractor and contract personnel shall be currently approved by the manufacturer of the approved products as qualified to install the materials of this section.
- D. Qualifications of Installers: Use an adequate number of skilled installers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work in this section.
- E. Prior to request for final inspection, contractor shall have inspected all gasketed fasteners and supplied certification letter that all gasketed fasteners were installed and inspected by contractor as per the Contract Documents.
- F. Low-slope built-up, modified bitumen and single-ply roof system metal edge securement, except gutters, shall be designed and installed for wind loads in accordance with Chapter 16 and tested for resistance in accordance with Test Methods RE-1, RE-2 and RE-3 of ANSI/SPRI ES-1, except  $V_{ult}$  wind speed shall be determined from Figure 1609A, 1609B, or 1609C as applicable. [IBC 1504.5]

##### 1.03 Related Work:

- A. Drawings and general provisions of the contract apply to this section.
- B. Related sections:
  - 1. Section 07 31 13 Fiberglass Reinforced Asphalt Shingle Roofing
  - 2. Section 07 53 23 Fully Adhered EPDM Roofing- Alternate #1

##### 1.04 References:

- A. Materials used in this section shall be listed in the latest editions of the following:
  - 1. Factory Mutual Approval Guide.
  - 2. The NRCA Roofing and Waterproofing Manual, 5<sup>th</sup> Edition – National Roofing Contractors Association
  - 3. The current edition of the *Architectural Sheet Metal Manual* as published by the Sheet Metal and Air Conditioning Contractors National Association, Inc., (SMACNA) shall govern where applicable, unless otherwise specified.
  - 4. Low slope membrane roof metal edge securement except gutters shall be tested for wind resistance in accordance with ANSI/SPRI ES-1.

### 1.05 Submittals:

- A. General: Comply with the provisions of Section 01 33 00 Submittal Procedures.
- B. Shop Drawings: If requested by the Architect/Engineer, prepare and submit shop drawings of proposed material for architect's/engineer's review, including full-size drawings of all profiles and details of all connections, expansion joints, reinforcement, anchors and other pertinent features.
- C. Product data: If requested by the Architect/Engineer, submit manufacturer's product data on all pre-fabricated metal roof flashing sections, complete with all pertinent information, finishes and installation instructions.
- D. Samples: In lieu of shop drawings above, Contractor may submit full-size samples in duplicate of all required profiles and details.
- E. As part of the contractor's construction submission package, contractor shall submit the following for Architect/Engineer review. The Contractor shall submit the below information to the building department if requested:
  - 1. Product data, including ASTM D2137 & D573 results.
  - 2. Manufacturer recommended installation torque.
  - 3. Contractor's quality control and assurance program.
  - 4. Certification letter from Contractor.

### 1.06 Product Handling:

- A. Delivery and storage: Deliver materials to the job site in original, unopened containers no sooner than five (5) calendar days prior to start of job. Materials to be stored up, off of the roof deck or ground, and covered with a weatherproof covering anchored sufficiently so as to resist wind blow-off. Only those materials necessary to accomplish two days' work are to be stored on the roof.
  - 1. Contractor is responsible for all materials delivered to job site until completion of project.
  - 2. When storing materials on the roof, do not overload deck.
- B. Protection: Use all means necessary to protect the materials of this section before, during, and after installation and to protect the work and materials of all other trades.
- C. Replacements: In the event of damage, immediately make all repairs and replacements to the approval of the Architect/Engineer and at no additional cost to the Owner.

### 1.07 Scheduling:

- A. Work is to be performed on a daily basis, with each section completed before progressing to the next day's work.
- B. Completion of work shall be defined as the installation of all specified roof preparation, insulation, underlayment, flashings, counterflashings, sheet metal, fasteners, and caulking.
- C. Contractor shall complete roofing work on a daily basis unless specifically directed otherwise by the Architect/Engineer.

## PART 2 - PRODUCTS

### 2.01 General:

- A. Minimum product requirements have been listed. All of these components must be used and bid.

### 2.02 Galvanized Sheet:

- A. Sheet metal shall be hot-dipped galvanized steel sheets conforming to ASTM A653. Weight of galvanized coating shall be not less than 1.25 ounces per square foot, "commercial," Unless otherwise indicated, galvanized sheet metal shall not be lighter than 24-gauge (0.0250 inch).
- B. Accessories shall be zinc-coated.

### 2.03 Soldering Materials:

Colleen Loney Manor  
Roof Replacement:  
Roof Deck & Sloped Roof

Flashing and Sheet Metal  
07 62 00-2



- A. Solder: Solder to comply with ASTM B32, composition 50% tin and 50% lead; 60% tin and 40% lead for lead-coated copper.
- B. Flux: As approved by the manufacturer.

**2.04 Pre-Coated Sheet Metal:**

- A. Pre-coated metal shall be minimum 24-gauge commercial quality steel with a hot-dipped, galvanized, primed, and fluoropolymer-type finish.
- B. Exposed surfaces shall have a "smooth"- type finish with dark bronze color.
  - 1. All exposed surfaces shall be protected with a stripable plastic-type film.
  - 2. Exposed fasteners shall have gasketed, pre-coated heads with matching color. Provide touch-up paint for exposed edges and abraded areas.
- C. Approved Products:
  - 1. UNA-CLAD by Firestone Building Products
  - 2. Carlisle Metal Products by Carlisle Syntec.
  - 3. Pac-Clad by Peterson Aluminum Corp.
  - 4. Approved Equal.

**2.05 Counterflashing at Wall Curbs:**

- A. Counterflashing shall be designed and fabricated in minimum 96 inch lengths where job dimensions allow (lesser lengths at curbs). Skirt member shall be of size indicated with bottom edge folded under ½ inch, fabricated in such manner as to hold the bottom firmly against the flashings, and formed to fit field conditions. Skirt members, when installed, shall be securely fastened with gasketed screws and/or fasteners as detailed.
- B. Coping cover plates shall be 6 inches wide, and counterflashing shall have S-slip end joints provided, as detailed, and be fabricated of same gauge and material as flashing. Furnish complete with a continuous ribbon of flashing sealant as shown on details.

**2.06 Formed Drip Edge Metal:**

- A. Steel minimum 24 gauge hot dipped galvanized with face coating polyvinylidene fluoride resin-base finish (Kynar 500 or Hylar 5000).
- B. Form accurately to details.
- C. Profiles, bends, and intersections shall be even and true to line.

**2.07 Pipe or Vent Jackets:**

- A. Pipe or vent jackets shall be a frost-proof type with a lead cap, and fabricated of galvanized metal designed for use on flat roof construction. Verify at work site for quantity and size.
  - 1. 24 gauge galvanized steel base.
  - 2. Flashing base shall be at least 18 x 18 inches.
- B. Approved Products:
  - 1. No. 1-F flat plumbing vent flange by F. J. Moore Manufacturing Company.
  - 2. Approved Equal.

**2.08 Related Materials:**

- A. Fasteners shall be of adequate design to achieve substantial and positive anchorage.
  - 1. Nails and fasteners including rivets, screws, and bolts shall be zinc-coated or stainless steel.
    - a. Nails for wood shall be flathead, barbed, not less than #12 gauge, one-inch long.
  - 2. Nails for felt shall be stainless steel or zinc-coated type with one (1) inch caps.
  - 3. Nails for securing metal pan clips shall be zinc-coated ring-shanked with 3/8 inch diameter heads.
- B. Gasketed Fasteners:

1. Provide gasketed screws to secure sheet metal to create a weather-resistant exterior envelope. Gasketed fasteners installed in accordance with manufacturer recommendations/requirements shall comply with IBC 1403.
  2. Gasket material shall be EPDM, vulcanized to the metal to establish a bond that assures the EPDM will not separate from the metal.
  3. Screws shall be corrosion resistant and painted the same color to match the counterflashing.
  4. Fasteners shall only be used at vertical surfaces, a minimum of 6-inches above horizontal surfaces.
  5. Gaskets shall be considered "non-brittle" at -40° as per ASTM D2137. Gaskets shall have been tested per ASTM D573 and be heat resistant.
  6. Screws shall be secured with sufficient torque to secure the sheet metal and maintain the seal weather-tight in accordance with the manufacturer's requirements/recommendations.
  7. Screws shall be secured utilizing a torque adjustable or depth sensitive tool.
- C. Joint Filler:
1. Joint filler and backup shall be an expanded polyethylene rod and backup. Material shall be at least 25% larger in diameter or thickness than opening.
  2. Approved products:
    - a. Ethafoam SB sealant backer rod by Dow Chemical Company.
    - b. Approved Equal
- D. Caulking sealant for exposed joints shall be a one-component polyurethane sealant conforming to Federal Specification TT-S-00230C(2), Type II, Class A or B.
1. Approved Products:
    - a. Tremco Vulkem 116
    - b. Sika Sikaflex 1a
    - c. Sonneborn Sonalastic Np1
    - d. Approved Equal

## **PART 3 - EXECUTION**

### **3.01 General:**

- A. The latest manufacturer specifications and installation techniques are to be followed.

### **3.02 Inspection:**

- A. Examine the areas and conditions under which work in this section will be installed. Correct conditions detrimental to the proper and timely completion of the work. Do not proceed until such conditions have been corrected.

### **3.03 Job Conditions:**

- A. Protection:
1. Existing work shall be properly protected from damage or soiling during the process of removal of existing roofing and installation of new roofing material. Exercise special care at openings through roof and at roof edges. Spill no roofing materials on building surfaces. Any finished work damaged in the execution of work of this section, including lawns/shrubbery, shall be replaced, or restored to the original condition by this Contractor.
  2. Contractor shall protect existing roofing with minimum 3/4 inch thick plywood protection board. Any damage to existing roof shall be repaired by Contractor.
- B. Workmanship:
1. Flashing and sheet metal work shall be accomplished to fulfill the requirements of the drawings and specifications. Any specific directions furnished by the manufacturer regarding the application of their materials shall be strictly followed.

### **3.04 Installation of Formed Sheet Metal:**

- A. All flashing and sheet metal work shall be installed in accordance with approved shop drawings and details, with all work true and in perfect alignment. Intersections of work which cannot be shop-fabricated shall be coped or mitred to the exact profile of the member to which it intersects and be fully and continuously sealed to a watertight condition. All gasketed screws shall be drawn up tight and in full gasket contact with the flashing member, ensuring a rigid and secure installation. All hold-down clips shall be solidly anchored into backup construction.
- B. Cleats or keepers shall be continuous 20 gauge galvanized steel fastened 6 inch on center with 1 ¼ inch minimum galvanized steel roofing nails.
- C. Ribbons of flashing sealant shall be applied to all non-soldered joints or seams, as required or as indicated on drawings. Keep all exposed surfaces of metal work free from sealant, and remove any excess immediately. All flashing sealant shall be applied in accordance with manufacturer's recommendations.
- D. Inserts for counterflashings shall be saw-cut into concrete, stone, or joints of the masonry wall, as shown on detail drawing. Metal insert piece shall be held in place with gasketed fasteners spaced not over 12 inches on center. In crevice, install rod stock, if required, and then apply sealant material.
- E. Coping and cant edge metal shall be engaged on a continuous cleat or keeper on the outside and fastened on the inside with 1½ inch minimum galvanized steel hex head screws with gasketed washers installed 18 inch on center.
- F. Embedded edge metal shall be engaged on a continuous cleat or keeper on the outside and fastened with 1¼ inch galvanized steel roofing nails in two rows ½ inch apart, 3 inch on center, staggered.

**3.05 Fabrication and Manufacture of Formed Sheet Metal:**

- A. Fabrication Procedures:
  - 1. All sheet metal components shall be fabricated in accordance with the best standards of workmanship of the trade and with the recommendations previously cited in the SMACNA manual, unless otherwise indicated. Form all sections as detailed on the approved shop drawings or in accordance with approved samples. Lines, rises, and angles shall be sharp and true. Plain surfaces shall be true and free from waves or buckles. The various sections shall be uniform and the joints at corners shall be rigidly secured. All exposed edges, unless otherwise indicated, shall be returned. Provide for contraction and expansion.
- B. Soldering:
  - 1. Soldering must be completed the same day seams are locked and folded together. Phased construction is not acceptable.
  - 2. Remove factory-applied coatings in the area to be soldered, from materials such as alloy-coated copper or alloy-coated stainless steel. Use solvent recommended by manufacturer.
  - 3. Mechanically clean, flux, and smoothly pre-tin with solder edges of sheets and other locations to be soldered. Tinning shall be thin, uniform in thickness, and 1 ½ inches wide on both sides of sheet at folded locked seam locations.
  - 4. Immediately prior to joining pieces to be soldered, mechanically clean pre-tinned surfaces, wipe clean, dry, and fully coat with flux. Use least corrosive flux suitable for given application.
  - 5. Slide pieces together and neatly dress down with a block of wood and mallet and/or dead-blow hammer.
  - 6. Perform soldering with heavy soldering coppers of blunt design, properly prepared and tinned before using. They shall weigh not less than 10 lbs. per pair, except when acetylene gas-heated soldering copper torch is used, copper itself shall weigh not less than 1.25 lbs. Soldering with torch alone is not acceptable.
  - 7. Perform soldering slowly with well heated copper. Thoroughly heat surfaces to be soldered. Use heated surfaces rather than the soldering copper, to melt the solder and draw it into the seam.
  - 8. Use ample solder. Seam shall show at least one full inch of evenly flowed solder.
  - 9. Whenever possible, solder in flat position. At sloped seams, start down-slope and work up-slope. Solder seams a second time on slopes equal to or greater than 45 degrees.

10. Neutralize and remove flux residue as recommended by the flux manufacturer and the American Welding Society. This may include items such as mechanical removal, hot acidified water wash, water, and washing soda (sodium carbonate) wash and clean water rinse after soldering.
- C. Counterflashing at Wall and Curbs:
1. Counterflashing shall be designed and fabricated in minimum 96-inch lengths where job dimensions allow (lesser lengths at curbs). Skirt member shall be of size indicated with bottom edge folded under  $\frac{1}{2}$  inch, fabricated in such manner as to hold the bottom firmly against the flashings, and formed to fit field conditions. Skirt members, when installed, shall be securely fastened with gasketed screws and/or fasteners as detailed.
  2. Coping cover plates shall be 6 inches wide, and counterflashing shall have S-slip end joints provided, as detailed, and be fabricated of same gauge and material as flashing. Furnish complete with a continuous ribbon of flashing sealant as shown on details.
- D. Expansion Joint Cover Flashings:
1. Expansion joint cover flashing shall be designed for easy removal, and fabricated in minimum 96-inch lengths. Flashing shall be formed to provide complete watertightness to expansion joint assembly. Covers shall be formed with a sloping top. Skirt flashings shall be of size indicated with bottom edge folded under  $\frac{1}{2}$  inch, fabricated in such manner as to hold bottom firmly against flashing, and formed to fit contour or slope of roof. Both cover and skirt members when installed shall be securely fastened with gasketed screws.
  2. Joint cover plates shall be 6 inches wide and be fabricated of same gauge and materials as flashing. Furnish complete with continuous ribbons of flashing sealant as detailed.
- E. Leader Heads and Overflow Scuppers:
1. Leader heads shall be formed of the same gauge material as the perimeter flashing into which they frame.
  2. Sheets forming the leader head shall be riveted together and soldered to form a watertight pan. Leader head lining shall extend through and project outside the fascias. On the roof side, the leader head lining shall be of sufficient length to be built into the roofing at least 6 inches. Provide a 3-inch long outlet tube in bottom of leader head for attaching downspout.
  3. Scuppers shall be fabricated similar to leader heads, except scupper lining shall extend through and project outside the walls, leaving about  $\frac{1}{2}$ -inch clearance between masonry and lining.
- F. Fascias:
1. Fascia shall be fabricated in minimum 96-inch lengths. The inner flange shall extend onto the roof not less than 4 inches, and be pre-drilled for nails for anchoring through the roofing membrane. Fascia portion of standing ridge shall be formed to accommodate complete concealment of wood blocking with a continuous formed bottom edge drip which is folded back and under a minimum of  $\frac{3}{4}$  inch, and extending from face at least 1 inch.
- G. Sleeved Flashings:
1. Furnish and install sleeved flashings for mechanical pipes and electrical conduits. Sleeves shall have a 6-inch wide flange built into roofing, and all joints and seams shall be soldered thoroughly watertight. Provide umbrella flashings. Verify the quantity required and size in the field.
- H. Pitch Pans:
1. Furnish and install pitch pan flashings for mechanical pipes, electrical conduits and other penetrations. Pitch pans shall have a 4-inch wide continuous flange built into roofing, and all joints and seams shall be soldered thoroughly watertight. Provide umbrella flashings. Verify the quantity required and size in the field.
- I. Splash Blocks:
1. All splash blocks shall be as called for on roof plan or details.

### 3.06 Surface Cleaning:

- A. All sheet metal work upon completion shall be thoroughly clean of all flux, scraps, and dirt. Excess flux shall be neutralized by washing with 5 to 10 percent solution of washing soda. After cleaning, metal shall be washed off with clean water.
- B. Remove protective film, if any, from the exposed surfaces of the sheet metal promptly upon installation. Strip with care to avoid damage to finishes
- C. Clean the exposed metal surfaces of substances that would interfere with uniform oxidation and weathering.

**3.07 Clean-Up:**

- A. The Contractor shall clear the construction areas and shall provide for the removal from the building site of all construction debris.
- B. All debris shall be removed from the premises promptly and the construction area left clean daily.
- C. At the completion of the contract, Contractor is to remove all related equipment.

**- END OF SECTION -**

## Section 07 92 00

### SEALANTS & CAULKING

#### PART 1 - GENERAL

##### 1.01 Summary:

- A. Includes but is not limited to
  - 1. Quality of sealants to be used on project including submittal, material, and installation requirements.
- B. Related sections
  - 1. Removing existing sealants and furnishing and installing of sealants is specified in sections specifying work to be caulked.

##### 1.02 Submittals:

- A. Product Data
  - 1. Manufacturer's literature and installation recommendations for each product.
  - 2. Schedule showing where each product is to be used.
- B. Quality Assurance/Control
  - 1. Furnish certificate from manufacturer indicating date of manufacture.

##### 1.03 Delivery, Storage, & Handling:

- A. Handle to prevent inclusion of foreign matter, damage by water, or breakage.
- B. Deliver and keep in original containers until ready for use.
- C. Do not use damaged or deteriorated materials.
- D. Store in a cool place, but never under 40° F.

#### PART 2 - PRODUCTS

##### 2.01 Materials:

- A. Sealants
  - 1. Sealants provided shall meet manufacturer's shelf-life requirements.
  - 2. Exterior sheet metal & miscellaneous
    - a. Penetrations and joints in soffits and fascia
    - b. Roof vents & flues
    - c. Flashings
    - d. Approved Products:
      - 1) 791 by Dow Corning
      - 2) Narrow Joint Sealer by Schnee-Morehead Inc., Irving, TX
      - 3) Sikaflex-1a, Dymonic FC, Bondaflex PUR 25, Sonneborn NPI
      - 4) Approved equal
  - 3. Color - As selected by the Owner from manufacturer's standard colors.
- B. Backing - Flexible polyurethane or polyolefin rod or bond breaker tape as recommended by the manufacturer for joints being sealed.

## **PART 3 - EXECUTION**

### **3.01 Preparation:**

- A. Remove existing sealants where specified. Surfaces shall be clean, dry, and free of dust, oil, grease, dew, or frost.
- B. Apply specified primer.
- C. Joint Backing
  - 1. Polyurethane rod for open joints shall be at least 1-1/2 times width of open joint, and of thickness to give solid backing. Backing shall fill joint so depth of sealant is no more than 3/8 inch.
  - 2. Apply bond-breaker tape in shallow joints as recommended by the manufacturer.

### **3.02 Application:**

- A. Apply sealant with hand-caulking gun with a nozzle of the proper size to fit joints. Use sufficient pressure to ensure full contact to both sides of joint to full depth of joint.
- B. Tool joints immediately after application of sealant if required to achieve full bedding to substrate or to achieve smooth sealant surface.
- C. Depth of sealant shall be 1/4" minimum and 1/2" maximum, but never more than 1/2 or less than 1/4 of the joint's width.
- D. Do not apply caulking at temperatures below 40° F.
- E. Caulk open perimeters unless indicated otherwise.
- F. For EIFS, carefully check the system manufacturer's details and adhere to caulking details. Use specified material available from system installer.

### **3.03 Clean-Up:**

- A. Immediately clean adjacent materials that have been soiled, before caulk sets. Use materials and methods recommended by the manufacturer.

**- END OF SECTION -**

## Section 22 14 26

### PLUMBING (ROOFING-RELATED)

#### PART 1 - GENERAL

##### 1.01 Summary:

- A. General:
1. The scope of work shall consist of the furnishing of all labor, equipment and material for the complete installation of the overflow roof drain systems as indicated on the drawings and included in this specification. Work shall include but not be limited to new pipe insulation on new piping, hangers, cleanouts, and roof drains; and, repair of insulation on existing piping.
  2. This Contractor is required to provide complete systems. Components listed are not intended to limit the scope of the work and items not specified, but necessary for the system operation, are to be provided at no additional cost. Should there be any discrepancies or a question of intent, the Engineer should be consulted to render a decision before ordering equipment or materials and before starting any related work.
  3. This Contractor shall furnish and install all minor items which are obviously and reasonably necessary to complete the installation and usually included in similar work even though not specifically mentioned in the Contract Documents. Such items are bolts, nuts, anchors, brackets, sleeves, drains, and drips at low points, air vents at high points, minor offsets in piping because of unforeseen obstructions, etc.
- B. Partial Demolition:
1. Provide all cutting, demolition, removal, patching, and restoration work necessary to accomplish and complete all work under the contract, including any relocation or reuse of existing materials, equipment, systems, or other work, as well as the disposition of salvaged materials or debris.
  2. All work necessary to remove the identified equipment items, including cutting, rigging, loading, transport, and disposal of the indicated equipment is part of the work, whether indicated by specific details on the drawings or not. The drawings are not to be construed as indicating all required work nor indicating all conditions or details that might be encountered during the progress of the work. The Contractor and his Subcontractors shall examine the work spaces to determine the actual conditions and requirements.
  3. At new openings in walls and where pipe insulation has been removed and piping penetrates fire rated construction, it will be the responsibility of this Contractor to provide approved fire stopping for each and every opening. Such fire stopping shall be installed, inspected, and approved before the final sections of pipe insulation are placed at such openings.
- C. Section Includes:
1. Roof drains
  2. Pipe insulation
  3. Piping specialties
- D. Related Sections:
1. Section 07 53 24 Ballasted EPDM Roofing
  2. Section 07 53 23 Fully Adhered EPDM Roofing- Alternate #1

##### 1.02 Submittals:

- A. Submit roof drain product data to the consultant.



**1.03 Quality Assurance:**

- A. The installation shall comply with the latest code, ordinance, or regulation applicable to the work involved.

A partial list of governing codes follows:

- State and Local Building Codes
- State Plumbing Codes, Federal Accessibility Regulations
- State and Local Fire Codes and Regulations
- State and Local Mechanical Code, Energy Code
- National Electric Code
- State and Local Electrical Installation Codes
- Municipal Water and Sewer Regulations
- U.S. Department of Labor, Occupational Safety, and Health Administration Regulations
- Minnesota Department of Health Regulations
- Minnesota Department of Labor and Industry Regulations
- Federal Accessibility Regulations (ADA)
- American National Standards Institute (ANSI)

- B. Regular inspections shall be requested by each Contractor as required by any regulating agency. All charges for inspections by regulating agencies of installations, or plans and specifications, shall be paid by the Contractor.
- C. In submitting a bid on the project, the Contractor acknowledges his responsibility to install the work in accordance with governing codes. The Contractor agrees to perform work necessary to attain code authority approval of the installation under the base contract compensation.
- D. If these specifications with accompanying drawings are in any way at variance with these Codes, the above cited Codes shall govern and the Contractor shall make this installation accordingly, except where the drawings or specifications call for higher quality of work than that prescribed in the Codes.
- E. All permits, licenses, fees, and service charges required in connection with the mechanical system installation shall be secured and paid for by this Contractor.
- F. The Contractor shall make all arrangements with each utility company and pay all service charges associated with new or modifications to existing services.
- G. Regular inspections shall be requested by each Contractor as required by any and all regulations. Charges for inspections by regulating agencies shall be paid by this Contractor.

**1.04 Scheduling:**

- A. Coordinate installation of new roof drains and leaders with the Owner.
- B. Coordinate installation with flashing work specified in Section 07 53 24 Ballasted EPDM Roofing.

**PART 2 - PRODUCTS**

**2.01 Roof Drain:**

- A. Coated cast iron roof drain with bottom outlet, deck clamp, cast iron dome, sump receiver where applicable and vandal-proof clips, or approved equal. Provide special threaded rod to extend clamps, if necessary. Furnish and install sump receivers on metal roof decks (as required). Provide cast iron, vandal proof domes on drains installed on structures one story in height, or multi-story high roofs accessible from one-story structures by means of ship ladders or stairs. Approved products:
  - 1. Josam Series 21500
  - 2. MIFAB R1200-JD

## 2.02 Pipe Insulation and Jackets:

- A. All insulation materials shall be as manufactured by Owens-Corning, Certain-Teed, Johns-Manville, Knauf, Accessible Products Company, or Armstrong.
- B. All adhesives shall be as manufactured by Foster Division, Miracle Adhesive Corporation, 3M, Childers, or Chicago Mastic.
- C. All adhesives, sealers, and vapor barrier coatings shall be compatible with the materials to which they are applied, and shall not corrode, soften or attack such materials in either a wet or dry state.
- D. Protective PVC jacketing shall be .020" thick for pipe straight run and fittings. Acceptable manufacturers are Accessible Products Company, Ceel-Co, Knauf, Foster, and Manville.
- E. Glass fiber insulation with average thermal conductivity not exceeding .23 BTU/in. per sq. ft. per degree F per hour at mean temperature of 75 degrees F, and rated at 500 F, "Micro-Loc" (Manville Corp.); or acceptable, listed product. Type "AP" all-purpose jacket.

## 2.03 Pipe and Fittings:

- A. Furnish and install pipe and fittings of type and material scheduled herein of sizes shown on the Contract Documents and as required to connect fixtures and equipment.
- B. Cast Iron Soil Pipe and Fittings (for rainwater leaders and downspouts only)
  - 1. Service weight, hubless, cast iron soil piping conforming to CISPI 301, ASTM A888, or ASTM A74 latest version.
  - 2. No hub cast iron pipe couplings shall have a shield constructed of 304 corrugated stainless steel. Couplings through 4" size shall have 4 stainless steel sleeve bands and couplings 5" through 15" shall have 6 bands. Clamp bolts shall be tightened to the torque specified by the coupling manufacturer. The coupling gasket shall be made of neoprene rubber, meeting the requirements of ASTM C564. Couplings shall meet the performance requirements of FM1680 Class 1 or ASTM C1540 latest version. Provide Husky/Anaco, Ideal/Tridon, or approved equal.
- C. Galvanized Steel Pipe and Fittings
  - 1. Piping to be Schedule 40 hot dip galvanized seamless or butt welded, carbon steel, ASTM A53 (Type F, E, or S) and ANSI B36-20. Each length of pipe to be legibly identified at the mill indicating manufacturer and class of pipe.
  - 2. Low Pressure Fittings
    - a. 4" and smaller: 150 psi galvanized malleable iron threaded fittings.
    - b. Larger than 4": standard class 125 psig, cast iron, faced and drilled galvanized threaded flanges.
    - c. Bolts and nuts to conform to ASTM A307.

## PART 3 - EXECUTION

### 3.01 Examination:

- A. Verification of Conditions:
  - 1. Examine walls, floors, roof, and plumbing chases for suitable conditions where piping and specialties are to be installed.
  - 2. Do not proceed until unsatisfactory conditions have been corrected.
- B. Before submitting his bid, this Contractor shall visit the building site and become familiar with all existing conditions that affect his work. Some material or work may be required to complete the project that can only be determined by visiting the site.
- C. No extras will be allowed because of the Contractor's misunderstanding as to the amount of work involved or his lack of knowledge of any site conditions which may affect his work. Any apparent variance of the plans or specifications from the existing conditions at the site shall be called to the attention of the Engineer prior to submittal of a bid.

### **3.02 Temporary Protection:**

- A. Provide temporary bracing, shoring, and support for the execution of the work and the protection of persons and property during demolition. Perform all work with appropriate supports, protection, and methods to prevent collapse, settling, or damage to property or persons. Provide adequate supports for the loads to be carried, properly distributed, to lower levels, or to sound bearing, if necessary.
- B. Provide all protective coverings and enclosures necessary to prevent damage to existing spaces and materials which are to remain. Protect openings in exterior walls and roofs to prevent damage from water and weather and to prevent excessive heat loss from the existing buildings. Maintain a watertight installation by scheduling the work and removals at the exterior according to weather conditions.

### **3.03 Demolition and Cutting:**

- A. Demolish and remove existing construction as shown or required to accomplish the work.
- B. Execute the work with care. Existing construction that is to remain which is loosened, cracked, or otherwise damaged or defaced, or is rendered unsuitable for its intended use, as a result of the work shall be removed and replaced at no additional cost to the Owner.
- C. Clean demolition areas and remove debris, waste, and rubbish from the building at the conclusion of each day's work. Transport debris and rubbish in a manner that prevents the spread of dust. Do not store or permit debris storage at the site. Do not burn or permit the burning of debris, rubbish, or waste at the site. Keep adjacent areas unencumbered and clean. Keep all construction areas essentially broom clean on a daily basis.

### **3.04 Patching, Remodeling, Replacements, and Restoration:**

- A. Patch or otherwise restore disturbed existing construction and surfaces as required. Patching or restoration shall be carried to natural breaks (such as corners) wherever possible. Where existing construction is removed, cut, or otherwise disturbed by the work under this contract, patch all such disturbed and damaged surfaces. Repair all damage to existing construction which is to remain.
- B. Patching work shall be done by skilled mechanics experienced in the particular type of work involved. Patching work shall conform to the standards of the Specifications where applicable, and where not specified, work shall conform to the highest standards of the trade.
- C. Patch existing construction to match existing work (unless otherwise called for), but always provide new materials and accomplish the work according to modern standards. Examine existing surfaces before proceeding with the work. Report all conditions to the Engineer or Owner, where existing materials, colors, and finishes cannot be matched, but do not proceed until receiving instructions.
- D. Existing construction that has been damaged as a result of the work shall be repaired to the extent required to match existing, undamaged construction.

### **3.05 General:**

- A. In general, all piping and similar items to be installed concealed from view above the ceiling, in partitions, shafts, chases, unless otherwise indicated.
- B. The Contract Documents are diagrammatic and are a graphic representation of requirements intended to convey the scope of work and to indicate the fixtures and other included work. Pipe rerouting and size changes are to be added at no additional cost to the Owner.
- C. Locations of items not definitely fixed by dimensions are approximate only and exact locations necessary to secure the best conditions and results shall be determined at the site and be subject to review.

- D. Follow Contract Documents in laying out work, check work or other trades to verify spaces in which work will be installed and maintain maximum headroom and space conditions at all points.
- E. Where there is evidence that parts of the work will interfere with other work and/or the structure, assist in working out space conditions, and make necessary adjustments to accommodate the work.
- F. Work installed before coordinating with other trades which causes interference with other work shall be changed to correct such condition without additional cost to Owner. This shall apply to shop fabricated work as well as work fabricated in place.
- G. Products and equipment are to be installed and connected using standard industry practices and in accordance with the manufacturer's instructions.

**3.06 Installation of Pipe Insulation:**

- A. Insulation materials shall not be installed until all surfaces to be covered are clean and dry, and all foreign material, such as rust, scale, dirt, etc., has been removed. Insulation shall be clean and dry when installed and during the application of any finish.
- B. All pipe insulation shall be continuous through walls, floors, and ceiling openings.
- C. Where piping and ducts pass through walls, floors, or partitions, the openings in the construction around the piping and ducts shall be packed with fire-stop material to provide an effective barrier against the spread of fire, smoke, and gasses.
- D. For cold piping and piping with roller hangers, hangers and supports shall be installed outside the insulation. Wherever hangers and supports are installed outside the insulation, pipe insulation protecting shields or pipe saddles shall be provided. Where insulation is not of sufficient strength to support the weight of the piping, a half section of rigid cellular foam or high density fiberglass insulation shall be provided under each shield.
- E. Where insulation saddles are used, void between piping saddles shall be stuffed with plastic insulation.
- F. Insulation materials shall be installed in a first-class manner with smooth and even surfaces, with jackets drawn tight and smoothly cemented down at all longitudinal and end laps. Scrap pieces of insulation shall not be used where a full length section will fit.
- G. All surface finishes to be extended to protect all surfaces, ends, and raw edges of insulation. Omit insulation from vibration isolating connections, but adjacent insulation shall be neatly terminated and beveled.
- H. Insulation at equipment shall be so installed that the insulation may be removed and replaced without the need of special skills or tools. Insulation on strainers shall be installed with removable covers to facilitate cleaning of strainer.
- I. Terminate insulation around these neatly with 45 degree bevel using a plastic insulation. Pipe insulation shall be installed continuously with all joints tightly butted. All lap and butt joint strips shall be securely sealed.
- J. Insulation on all cold surfaces where vapor barrier jackets are used shall be applied with a continuous, unbroken vapor seal. Lap and butt joints and fittings seam edges shall be sealed with vapor barrier mastic and/or seam tape as recommended by the manufacturer.
- K. Hangers, supports, anchors, etc., that are secured directly to cold surfaces must be adequately insulated and vapor sealed to prevent condensation.
- L. Fittings shall be protected with a PVC jacket, which is to be installed with welding adhesive, in accordance with the jacket manufacturer's recommendations.

**3.07 Pipe Insulation Thickness:**

- A. Insulate all straight run piping according to current Model Energy Code or Table 1, which follows this Section. Where new insulation adjoins existing, taper to match different thicknesses and seal tapers with mastic and jacket with PVC or glass cloth.
- B. Provide a minimum of 1" thick insulation on all rainwater leader piping and roof drain bowls.

**3.08 Field Quality Control:**

- A. Finished roof drainage system shall not be put into use until inspected and approved by authority having jurisdiction.
- B. Notify plumbing official at least 24 hours prior to the time such inspection must be made. Perform required testing in the presence of the plumbing official.
- C. Repair leaks and defects using new materials and retest system or portion thereof until satisfactory results are obtained.
- D. Contractors shall perform all tests required by referenced standards, code authorities, or otherwise specified and shall assume responsibility for all charges and expenses. Certification of test results shall be submitted to the Engineer and Owner.

**3.09 Protection and Cleaning:**

- A. Clean dirt and debris from inside of pipes and drains as work progresses.
- B. Place plugs in ends of uncompleted piping at the end of each day's work.
- C. Temporarily protect drains. Sections of insulation board may be cut to fit into drain base to keep debris from falling into drain leaders. Remove temporary protection prior to precipitation.

**- END OF SECTION -**