NOTICE TO BIDDERS
ADDENDUM #1
Bid 104-22 Athletic Stadiums Re-bid

Palomar Community College District

The following changes, additions, deletions, clarifications or corrections shall become part of the Bid & Contract Documents for the above listed project. This Addendum #1 forms a part of the contract document and modifies the original bidding documents. Acknowledge receipt of Addendum #1 in the space provided on the bid form. Failure to do so may subject bidder to disqualification.

REVISIONS TO BID DOCUMENTS

- Information For Bidders – Specific (pg. 5):
  Bid Opening Date and Time (Bid Submittal Deadline) revise Bid # from 103-22 to 104-22
- Specifications – Special Conditions (page 20)
  1. Time of Performance - revise the following:
     a. Anticipated date of award of Contract from June 7, 2022 to September 6, 2022;
     b. Anticipated start date from June 21, 2022 to September 20, 2022;
     c. Scheduled completion date from August 1, 2023 to October 20, 2023
  2. Liquidated Damages – revise date from August 23, 2022 to October 21, 2023
- Replace Bid Form (page 73) with revised bid form – Attached
- Replace References (page 77) with revised References - Attached

SUBSTITUTION REQUESTS

(A) Aztec Elevator Comparison - Attached
(B) Metal Roof Panels - Attached
(C) Ornamental Fence & Gate- Attached

CLARIFICATIONS DOCUMENTS

- Landscape Plans: Landscape changes made to indicate owner-furnished planting and to clarify of responsibility with regard to procurement of and placement of specific planting material. Electrical drawings were updated to clarify the requirements for the DMX controller and associated scope. Attached

ADDITIONAL INFORMATION DOCUMENTS

- Foundation Plans: Phase 2 drawings provided for reference only to clarify extent of required shoring. Attached

REQUESTS FOR INFORMATION QUESTIONS AND RESPONSES

(1) QUESTION: Current bid requires the General Contractor to have previous experience building competition athletic fields. This requirement will exclude most General Contractors from bidding this project and reduce the competitive bidding for the College. Most General Contractors do not self-perform the grading, drainage, field

prep on a project but use subcontractors that specialize in this work. Please clarify/confirm a subcontractor's experience with athletic fields will be acceptable with the College to meet this project requirement?

*RESPONSE: The special Conditions state that the general contractor/bidder must have the requisite Competitive Athletic Field experience. The General Contractor does not need to have self-performed any of the work on the Competitive Athletic Field projects but must have been the prime or general contractor (signed the contract with the owner) in responsible charge of the project and coordinated, scheduled and ensured all work done on the project met the project plans and specifications. A subcontractor's experience with athletic fields is **NOT** acceptable experience to meet the project requirement. The College has determined that this experience is vital to ensure the Project is completed in accordance with the bid documents and therefore, as determined any contractors without this experience will not be able to meet the needs of the College.*

(2) QUESTION: Section 01 26 10 1.03 G.2 indicates that Request for Substitutions should not done through RFI. However, in discussions with Architect at Job walk, architect requested substitution be submitted by RFI. Is this acceptable?

RESPONSE: All substitution requests should follow the requirements as stipulated in Section 01 26 10 1.03 G.2 of the project specifications and be submitted as Substitution requests and not RFI's.

(3) QUESTION: The Basis of design for the elevator is Mitsubishi. Mitsubishi utilizes proprietary equipment and can not be obtained by independent elevator companies. AZTech elevator proposes to utilize an elevator system provided by Elevator Equipment Corporation (EECO). This equipment is equal to the Mitsubishi product and EECO has been a supplier to Mitsubishi. A substitution comparison is attached for your information and review. EECO also has the advantage that it is manufactured in the United States as is required by Specification section 14 24 00 1.03 A.1.a. The Mitsubishi product is manufactured in Mexico & Japan. Can the Elevator Equipment Corporation (EECO) product be accepted as an approved equal?

RESPONSE: The Substitution request has been reviewed and is included in this Addendum.

(4) QUESTION: Specification section 14 24 00 1.03 B calls for installer with "…not less than fifteen years of satisfactory experience…". This prevents many qualified elevator installation companies from providing competitive bids. Other specification sections have limits as low as 3 years. Can this requirement be eliminated or reduced to 5 years?

RESPONSE: The qualification requirement for elevators shall stand at 15 years as specified. Elevators are a building component that require advanced knowledge and expertise beyond that required for some other trades or building components.

(5) QUESTION: Specification section 14 24 00 2.03 C specifies steel, omega shaped guide rails. These are old style rails. The standard T-shaped elevator guide rail would be a better alternative. It is also less costly and easier to obtain that the Omega rail. Can industry standard T-shaped elevator guide rails be used?

RESPONSE: T-shaped guide rails are acceptable.

(6) QUESTION: Specification section 14 24 00 2.03 F specifies the elevator jack unit. Can you please clarify which type of jack unit you would like? Specification calls for Twin Post Holeless and also specifies a "sealed steel casing." Specification also allows for a recess in the elevator pit floor. The following are options that we believe you should consider. Each of these options will be subject to final engineering:

RESPONSE: See below for individual responses.

a. Based upon the size of the jacks required for this elevator, in a holeless Twin-postcondition, the elevator hoistway width would need to be widened to 8'-10" minimum. 9'-0" would be preferred. Is a modification of the hoistway width possible? If this is not possible, you may be limited to only option "e" below.

RESPONSE: Provide in-ground jack as descried in option e

b. Are you expecting the jack unit to be single stage holeless jack units? If this is the case, two wellholes nearly 40'-0" deep will be required to meet the overhead clearance requirements. This may be impractical based on soil condition around the college. We understand that conditions are Granite, and this will result in costly wellholes. We do not recommend this option.

RESPONSE: Provide in-ground jack as descried in option e

c. Would 2-stage telescopic jack units be acceptable? If so. The roof would need to be raised approximately 12'-0" and the hoist beam must be removed prior to inspection **OR,** two wellholes approximately 14'-0" deep would be required. This still runs the risk of hitting granite during the wellhole drilling. This is a viable option, but additional costs may be incurred with the drilling.

RESPONSE: Provide in-ground jack as descried in option e

d. Would 3-stage telescopic jack units be acceptable? This option requires the widening of the hoistway, removal of the hoist beam and jack pockets of about 12" deep. This option eliminates any need for wellhole drilling.

RESPONSE: Provide in-ground jack as descried in option e

e. Would in-ground jack unit be acceptable? This would require drilling one wellhole directly under the elevator. This will not require any modifications to the Hoistway. However, additional cost mat be required for the wellhole drilling. This option can be used for single stage or 2-stage or 3-stage jack units.

RESPONSE: Provide in-ground jack as descried in option e

f. Would Roped Hydraulic elevator be acceptable? Since the Hostway width requires modification with any of the holeless jack options, the roped hydraulic may be a reasonable alternative. These utilize holeless jacks but incorporate elevator ropes and safety. The roping allows the jack unit to be significantly smaller and allows for speeds up to 175 fpm. This option requires a wider Hoistway and a deeper pit (4'-6"). It does not require a wellhole or any modification to the overhead.

RESPONSE: Provide in-ground jack as descried in option e

(7) QUESTION: Specification section 14 24 00 2.08 A specifies polycarbonate pushbuttons manufactured with Microban antimicrobial protection. Elevator Schedule calls out Signa4 Signal Fixtures. Both the Microban and Signa4 are exclusive to Thyssen Elevator Company and are not available to other elevator companies. Can this requirement be removed from all applicable sections?

RESPONSE: Polycarbonate pushbuttons with antimicrobial protection are the basis of design. The specific Microban branding is not required. If a similar and equal options are not available a Substitution Request would be considered based on the proprietary nature of that requirement.

(8) QUESTION: Specification section 14 24 00 2.09 C specifies Special Operation feature of the elevator. Access is obtained via a card reader system. In the Regulatory Requirements of the specification, Section 1.04, there are references to keypads. Will keypads be required?

RESPONSE: Keypads are required for operation.

(9) QUESTION: Please provide the tentative construction schedule, start date and completion date, for bleacher installation, including but not limited to, excavation, footing and erection of bleacher system.

RESPONSE: It is the General Contractors responsibility to coordinate with Southern Bleacher on the construction schedule including start and completion dates. Information related to the bleacher construction including anticipated duration of construction and lay down area needed is provided in the Special Conditions, Scope Clarifications, Owner Furnished Owner Installed Items, #33.

(10) QUESTION: Please provide the tentative construction schedule, start date and completion date, for artificial turf installation on both football field and softball field.

RESPONSE: It is the General Contractors responsibility to coordinate with FieldTurf on the construction schedule including start and completion dates. Information related to the turf construction including anticipated duration of construction and lay down area needed is provided in the Special Conditions, Scope Clarifications, Owner furnished Owner Installed Items, #33.

(11) QUESTION: Would school district accept different POC for temporary power in lieu of (ex) SDG&E primary manhole per keynote 24 as shown on E1.1?

RESPONSE: The District is open to considering another Point of Connection (POC) for temporary power. However, the District will only approve an alternate location after reviewing the proposed new POC and determining that it does not have any adverse effects on campus operations.

(12) QUESTION: Please confirm CIP Wall and Footing details shown on drawing C2.15 are not part of temporary shoring per keynote 28 on C1.21; Where does these details apply on this project?

RESPONSE: Keynote 21 on sheet C1.21 refers to the details located on sheet C2.15 which is permanent construction. The details on sheet C2.15 are NOT part of the temporary shoring.

(13) QUESTION: Do we need to haul off all of these excess spoils from trenching and foundation to offsite? Or is there a location within campus that we can stockpiled and/or spreading the excess spoils?

RESPONSE: The General Contractor is to haul off and legally dispose of offsite all excess spoil from trenching, foundation, etc. activities that are not needed to balance the site.

(14) QUESTION: In conflict with the Notice to Contractors Calling for Bids, which states the project will start construction on September 20th, 2022 and completed by October 20th, 2023; the Special Conditions paragraph #1 states that anticipated start is June 7th, 2022 and is to be completed by August 1st, 2023.

RESPONSE: The completion date for the entire Stadiums project (both the football stadium and the softball stadiums) is October 20, 2023. The start date for the assessing of Liquidated Damages is October 21, 2023.

(15) QUESTION: As mentioned at the Job Walk, it is our understanding that the entire project does not have to be completed until October 20th, 2023, and that the softball stadium was not required to have an earlier completion date. However, in the Special Conditions, paragraph #2 it states that the Softball Stadium is to be completed by August 1st, 2023, and Liquidated damages are $2,000 per calendar day.

RESPONSE: The completion date for the entire Stadiums project (both the football stadium and the softball stadiums) is October 20, 2023. The start date for the assessing of Liquidated Damages is October 21, 2023.

(16) QUESTION: In paragraph #33, the time durations for both the bleacher foundations and steel installation and erection are noted separately for the Home Bleacher and for the Visitor Bleacher. Do these installation/erection time lines need to go independently of each other or can they be done simultaneously, double crews?

RESPONSE: The plan is to install the foundations and bleachers sequentially using one crew for foundations and one crew for bleacher erection. It is the General Contract's responsibility to coordinate the work and project schedule. The schedule can be re-visited with Southern Bleacher as the installation date gets closer to see if they have additional crews available but there is no guarantee that doubling crews will be possible.

(17) QUESTION: Would school district accept different POC for temporary power in lieu of (ex) SDG&E primary manhole per keynote 24 as shown on E1.1?

RESPONSE: The District is open to considering another Point of Connection (POC) for temporary power. However, the District will only approve an alternate location after reviewing the proposed new POC and determining that it does not have any adverse effects on campus operations.

(18) QUESTION: Would Palomar College District award this project when the final responsive low bidder is approximately 15% higher than current budget ($21,000,000)?

RESPONSE: The District has funds available to award the project to the lowest responsive and responsible bidder.

(19) QUESTION: Bid Documents, page 23, Contractor Pre-Qualification, paragraph 3, part a., states "Minimum of 5 projects completed within the last 10 years". Page 77, References, states "Minimum of 5 projects completed within the last 7 years". Please confirm that the District will accept projects completed in within the last 10 years.

RESPONSE: Please see revised References (page 77) attached. The District will accept projects completed within the last Ten (10) years.

(20) QUESTION: On the previous bids, there were several addendum issued; Did the Arch incorporate these addendum in drawings & specifications? Or they will be re-issued separately?

RESPONSE: Information provided in previous bid addenda are included in the drawing set, where applicable per DSA standards, as well as the project special conditions so all information is included in the current bid documents.

(21) QUESTION: Time of Performance – Special Conditions, Paragraph #1: In conflict with the Notice to Contractors Calling for Bids, which states the project will start construction on September 20th, 2022 and completed by October 20th, 2023; the Special Conditions paragraph #1 states that anticipated start is June 7th, 2022 and is to be completed by August 1st, 2023.

RESPONSE: The completion date for the entire Stadiums project (both the football stadium and the softball stadiums) is October 20, 2023. The start date for the assessing of Liquidated Damages is October 21, 2023.

(22) QUESTION: Liquidated Damages and Softball Stadium completion date – Special Conditions, paragraph #2: As mentioned at the Job Walk, it is our understanding that the entire project does not have to be completed until October 20th, 2023, and that the softball stadium was not required to have an earlier completion date. However in Special Conditions, paragraph #2 it states that the Softball Stadium is to be completed by August 1st, 2023, and Liquidated damages are $2,000 per calendar day?

RESPONSE: The completion date for the entire Stadiums project (both the football stadium and the softball stadiums) is October 20, 2023. The start date for the assessing of Liquidated Damages is October 21, 2023.

(23) QUESTION: OFOI Bleachers – Special Conditions, Paragraph #33, page 31: In paragraph #33, the time durations for both the bleacher foundations and steel installation and erection are noted separately for the Home Bleacher and for the Visitor Bleacher. Do these installation/erection time lines need to go independently of each other or can they be done simultaneously, double crews?

RESPONSE: The plan is to install the foundations and bleachers sequentially using one crew for foundations and one crew for bleacher erection. Once the foundations are finished for one side, the foundation crew will move to the other side while erection of the bleachers starts on the completed side. It is the General Contractor's responsibility to coordinate the work and project schedule. The schedule can be re-visited with Southern Bleacher as the installation date gets closer to see if they have additional crews available but there is no guarantee that doubling crews will be possible.

(20) QUESTION: On the previous bids, there were several addendum issued; Did the Arch incorporate these addendum in drawings & specifications? Or they will be re-issued separately?

RESPONSE: Information provided in previous bid addenda are included in the drawing set, where applicable per DSA standards, as well as the project special conditions so all information is included in the current bid documents.

END OF ADDENDUM #1

Date Issued: Aug 15, 2022

Richard J Taylor
Richard J Taylor (Aug 15, 2022 10:58 PDT)

Richard Taylor, Interim Director Business Services
Palomar Community College District

Revised BID FORM

TO: Palomar Community College District, acting by and through its Governing Board, herein called the "District":

1. Pursuant to and in compliance with your Notice to Contractors Calling for Bids and the other documents relating thereto, the undersigned bidder, having thoroughly examined and familiarized himself/herself with the terms of the Contract, the local conditions affecting the performance of the Contract and the cost of the work at the place where the work is to be done, and with the drawings and specifications and other Contract Documents, hereby proposes and agrees to perform, within the time stipulated, the Contract, including all of its component parts, and everything required to be performed, and to provide and furnish any and all of the labor, materials, tools, expendable equipment, and all utility and transportation services necessary to perform the Contract and complete in a workmanlike manner all of the work required in connection with

Bid #104-22
Athletics Stadiums Re-bid

all in strict conformity with the drawings and specifications and other contract documents, including addenda nos.: ___, ___, ___, ___, ___, ___,on file at the office of the said District for the sum of _____ _____ Dollars ($_____). Said sum includes all applicable taxes and costs and owner's unspecified allowance*.

1) Base Bid: **$_____**

2) ADA Pathway: shown on sheets C1.25, C1.26, C1.27, per Special Conditions – item #14. $_____

3) Temporary ADA Ramp: shown on sheets C1.21, Note 24's26 as described in Special Conditions Item #15
$_____

4) Owner's Allowances

a) Allowance for Unforeseen Conditions	$ 300,000.00*
b) Allowance for Interface with Phase 2 Fieldhouse Construction	$ 150,000.00*
c) Allowance for the Boxing/Transplanting of Trees/ Plants not shown on Plans	$ 50,000.00*

Total Base Bid $_____**

***Owner's Unspecified Allowance:** Bidder shall include in Bid Proposal the stipulated sum of Five Hundred Thousand Dollars ($500,000.00) to be allocated as follows: $300,000 for Unforeseen Conditions, $150,000 for Interface with Phase 2 Fieldhouse Construction, and $50,000 for the Boxing/Transplanting of Trees/Plants not shown on Plans. Any Allowance work is to be performed ONLY at the determination and direction of the District. Work performed at the determination and direction of the District under this Allowance shall be documented by Contractor and submitted to District's Representative. Contractor shall include separate line items in Contractor's Schedule of Values for the listed "Allowances" totaling of Five Hundred Thousand Dollars ($500,000.00). At closeout of contract, any funds remaining in the Allowance shall be credited to District through a Change Order.

****Said BID PRICES include all applicable taxes and costs and Owner's Unspecified Allowance.**

1. It is understood that the District reserves the right to reject this bid and that this bid shall remain open and not be withdrawn for the period specified in the Notice to Contractors Calling for Bids.

2. The required bid security is attached hereto.

3. Non-collusion affidavit is attached hereto.

4. The required list of proposed subcontractors is attached hereto.

5. It is understood and agreed that bidder shall provide the name, addresses, portion of work and license numbers of all listed subcontractors as part of their bid submittal.

6. It is understood and agreed that if written notice of the acceptance of this bid is mailed, telegraphed, or delivered to the undersigned after the opening of the bid, and within the time this bid is required to remain open, or at any time thereafter before this bid is withdrawn, the undersigned will execute and deliver to the District a contract in the form attached hereto in accordance with the bid as accepted. The undersigned will also furnish and deliver to the District the Performance Bond and Payment Bond for Public Works as specified, all within five (5) days after receipt of notification of award. The work under the Contract shall be commenced by the undersigned bidder, if awarded the Contract, on the date to be stated in the District's Notice to the Contractor to Proceed, and shall be completed by the Contractor in the time specified in the Contract Documents.

7. Notice of acceptance or requests for additional information should be addressed to the undersigned at the address stated below:

8. The names of all persons interested in foregoing proposal as principals are as follows:

(IMPORTANT NOTICE: If bidder or other interested person is a corporation, state legal name of corporation, also names of the president, secretary, treasurer, and manager thereof; if a co-partnership, state true name of firm, also names of all individual copartners comprising the firm; if bidder or other interested person is an individual, state first and last names in full.)

10. **Bidder certifies that he is licensed in accordance with the law providing for the registration of Contractors, License No. _____, Expiration Date _____ , class of license _____.**

I, _____, the _____ of the bidder, hereby certify under penalty of perjury under the laws of the State of California, that all of the information submitted by the bidder in connection with this bid and all of the representations made herein are true and correct.

Executed on this_____ day of _____ at _____ County, California.

_____
Proper Name of Bidder

By:_____
Signature of Authorized Agent/Officer

_____
Print Name

_____
Address

_____
City, State, Zip Code

_____
Telephone

_____
Fax

_____
Email address

Revised REFERENCES

Bidder must be able to present evidence of satisfactory experience in providing competition level athletics field and to meet the requirements for this Request for Bid.

The General contractor/bidder must submit with the bid additional information showing their minimum required experience in the construction of athletic fields/venues by submitting a list of recently completed projects with references and contact information per the following:

- Minimum of 5 projects completed within the last ten (10) years consisting of competition athletic fields/venues construction for any of the following entities: Public or Private 4-year Universities, Community Colleges, and/or High Schools.

Note: Athletics fields constructed for the public or private elementary or middle schools, community parks, public athletic parks and civic centers are not qualifying fields in this instance.

Name of Entity/Owner:			
Address :			
City / State / Zip Code:			
Contact Person :		Title :	
Phone Number / Ext. :			
Project Completed Date:			
Comments :			

Name of Entity/Owner:			
Address :			
City / State / Zip Code:			
Contact Person :		Title :	
Phone Number / Ext. :			
Project Completed Date:			
Comments :			

Name of Entity/Owner:			
Address :			
City / State / Zip Code:			
Contact Person :		Title :	
Phone Number / Ext. :			
Project Completed Date:			
Comments :			

Name of Entity/Owner:			
Address :			
City / State / Zip Code:			
Contact Person :		Title :	
Phone Number / Ext. :			
Project Completed Date:			
Comments :			

Name of Entity/Owner:			
Address :			
City / State / Zip Code:			
Contact Person :		Title :	
Phone Number / Ext. :			
Project Completed Date:			
Comments :			

Name of Entity/Owner:			
Address :			
City / State / Zip Code:			
Contact Person :		Title :	
Phone Number / Ext. :			
Project Completed Date:			
Comments :			

Revised REFERENCES

SUBSTITUTION REQUEST FORM

Project: Palomar College Stadium
Substitution Request Number: 001
To: HMC Architects, Inc.
From: AZTech Elevator Company
Re: Elevator
Date: August 10, 2022
Architect's Project Number: 5015039
Contract For:
Specification Title: Palomar College - Athletics PH1
Description:
Section: 14 24 00.30
Page: 10 Article/Paragraph: 2.01 B
Proposed Substitution: Elevator Installer & Manufacturer
Manufacturer: AZTech / Elevator Equipment Corporation
Address: 4031 - 4035 Goodwin Avenue, Los Angeles, CA
Trade Name: AZTech & EECO

Attached data shall include: product description, specifications, drawings, photographs, and performance and test data adequate for evaluation of the request; applicable portions of the date are clearly identified.
Attached data also includes a description of changes to the Contract Documents that the proposed substitutions will require for its proper installation, at no cost to the Owner.
The Undersigned Certifies:

- Proposed substitution has been fully investigated and determined shall be equal or superior in respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing and construction costs caused by the substitutions.
- Reason(s) why substitution is being submitted.
  - ☐ Specified product or material is not available. Explain in detail as attachment.
  - ☐ Cost savings to Owner. Indicate comparative cost analysis as attachment.
  - ☒ Other. Explain: Specified manufacturer is proprietary and equipment cannot be obtained from them.

Submitted by: John Hoevers
Signed by:
Firm: AZTech Elevator Company
Address: 4031 Goodwin Avenue
Los Angeles, CA 90039
Telephone: (323) 791-6440

A/E's REVIEW AND ACTION

☒ Substitution Approved
☐ Substitution Rejected as marked below:
  - ☐ Insufficient information submitted
  - ☐ Submitted late.
  - ☐ Information not clearly marked.
  - ☐ Full line product information (Binder not provided).
  - ☐ Does not meet performance / design requirements of Paragraph
  - ☐ Comparisons not properly identified on product data sheets.

Proposed substitution is acceptable. Contractor will be responsible for any costs associated with any redesign of the elevator shaft or supporting steel as required by the use of this alternate product.

Signed by: Matt Mori
Date: 8/12/2022

Substantiating Data Required:

☐ Drawings
☒ Product Data
☒ Samples
☐ Tests if required in individual sections
☐ Reports if required in individual sections
☐ Other:

ELEVATOR PRODUCT COMPARISON
Palomar College

Product Information

Elevator Equipment Corporation (Proposed) vs. Mitsubishi (Basis of Design)

Comparison of the elevator specified with an equal product manufactured by Elevator Equipment Corporation (EECO).

Substitution Statement

Reason for this substitution is the specified Basis of Design manufacturer is non-compliant with the elevator specifications in that their equipment is not produced in the United States and their product is unavailable to other elevator contractors.

Reference Specification section 14 24 00: Hydraulic Elevators

	EECO	**Mitsubishi**
Manufacturer:	Elevator Equipment Corporation 4035 Goodwin Ave. Los Angeles, CA 90039	Mitsubishi Electric Corporation PO Box 6400 Cypress, CA 90630
Product:	Hydraulic Elevator	Hydraulic Elevator
Built:	California	**Mexico**
Model:	Commercial Series 3500	IDH-H 3500

Major Component Suppliers:

a.	Power Unit:	EECO	IDESA
b.	Valve:	EECO	EECO or Maxton
c.	Pump:	IMO or SEIM	IMO or SEIM
d.	Motor:	US Electric Motor	Varies
e.	Controller:	MCE or Elevator Controls	Elevator Controls, MCE or Smartrise
f.	Jack:	EECO	EECO or IDESA
g.	Fixtures:	ERM	ERM, Innovation or EPCO
h.	Door Equipment:	GAL	GAL
i.	Cab Manufacturer:	EECO	IDESA

Notes:

1. IDESA is Mitsubishi's manufacturing facility in Mexico that manufactures and assembles their hydraulic elevators.
2. The cutsheets provided indicate the equipment that was used in determining the bid for the elevator. All those components meet or exceed the specifications. The specified manufacturer may utilize other components. If necessary, EECO can match those components.
3. Also note that EECO is a supplier to the specified manufacturer for a variety of components.

ELEVATOR PRODUCT COMPARISON
Palomar College

Itemized Product Comparison
Elevator Equipment Corporation (Proposed) vs. Mitsubishi (Approved Equal)

Below is a grid showing an itemized product comparison by a typical specification section of proposed substitution versus the specified product.

	Work Specified	A-Z Tech Proposed Substitution	Specified Manufacturer	Disposition
	Basis-of-Design Product: Subject to compliance with requirements, provide the following: 1. Mitsubishi Electric USA	Elevator Equipment Corporation (EECO) is the proposed manufacturer.	Mitsubishi is the specified manufacturer	EQUAL
	Controllers: Controllers shall be programmable microprocessor technology with solid state pump motor control and shall be ASME A17.1-2004 compliant. The installation of a proprietary elevator controller or a controller that utilizes a programming tool and its associated components will not be acceptable.	MCE HMC-2000 EC PIXEL ALPHA All units are non-proprietary	Mitsubishi Hydro Proprietary	EQUAL
	Valves: 1. Maxton UC-4, 2. EECO UV5A-T 3. or equal.	EECO UV5A-T	Uses Maxton or EECO	EQUAL
	Door Safety Controls: 1. Adams Gatekeeper. 2. Janus PANA 40 Plus. 3. Equal.	EECO utilizes the GAL Formula FCU or Scan Guard which works directly with the GAL operators.	Mitsubishi Proprietary	EQUAL
	Elevator System, General: Manufacturer's standard elevator systems. Unless otherwise indicated, manufacturer's standard components shall be used, as included in standard elevator systems and as required for complete system.	EECO Pre-engineered Elevator **Made in USA**	IDESA Pre-engineered Elevator Made In Mexico	EQUAL
	Elevator Description: 1) Type: Holeless 2) Rated Load: 3500 lb (1814 kg). 3) Loading: Class A 4) Rated Speed: 110 fpm 5) Operation System: Selective Collective Automatic. 6) Auxiliary Operations: a) Battery-powered lowering.	Scope overview. All components match specification.	Scope overview. All components match specification.	IDENTICAL AND EQUAL

	7) Security Features: Card Reader Operation Provisions 8) Car Enclosures: a) Inside Width: 92 inches (2032 mm) from side wall to side wall. b) Inside Depth: 64 inches (1651 mm) from back wall to front wall (return panels). c) Inside Height: 84 inches (2235 mm) to underside of ceiling. d) Front Walls (Return Panels): Satin stainless steel, No. 4 finish with integral car door frames. e) Side Wall Panels: Vertical panels. Satin stainless steel, No. 4 finish. f) Reveals: Enameled steel. Provide black unless otherwise indicated. g) Door Faces (Interior): Satin stainless steel, No. 4 finish. Swirl Finish h) Door Sills: Aluminum. i) Ceiling: Luminous ceiling. j) Ceiling Frame Finish: Satin stainless steel, No. 4 finish. k) Handrails: 1-1/2 inches (38 mm) round satin stainless steel, No. 4 finish, at rear of car. l) Floor prepared to receive resilient flooring 9) Hoistway Entrances: a) Width: 42 inches (1067 mm). b) Height: 84 inches (2134 mm). c) Type: Single-speed side sliding. Right or left hand as indicated on Drawings d) Frames: Satin stainless steel, No. 4 finish. e) Doors: Satin stainless steel, No. 4 finish. f) Sills: Aluminum. 10) Hall Fixtures: Satin stainless steel, No. 4 finish. 11) Additional Requirements: a) Provide inspection certificate in each car, mounted under acrylic cover with frame made from satin stainless steel, No. 4 finish.			

ELEVATOR PRODUCT COMPARISON
Palomar College

	Pump Units: Positive-displacement type with a maximum of 10 percent variation between no load and full load and with minimum pulsations. 1. Pump shall be submersible type with submersible squirrel-cage induction motor, and shall be suspended inside oil tank from vibration isolation mounts or shall be mounted-under-tank type with fan-cooled, squirrel-cage induction motor, and shall be mounted under oil tank with vibration isolation mounts and enclosed in prime-painted steel enclosure lined with 1 inch (25 mm) thick, glass-fiber insulation board]. 2. Motor shall have wye delta or solid-state starting. 3. Motor shall have variable-voltage, variable-frequency control.	Power Unit manufactured By EECO EECO Tank Unit SEIM Pump US Motor Motor EECO Valve **Made in USA**	Power Unit manufactured by IDESA or EECO IDESA Tank Unit Varies - Pump Varies - Motor EECO or Maxton Valve Made In Mexico	EQUAL
	Hydraulic Silencers: System shall have hydraulic silencer containing pulsation-absorbing material in blowout-proof housing at pump unit.	EECO Muffler	EECO Muffler	IDENTICAL AND EQUAL
	Piping: Size, type, and weight of piping as recommended by elevator manufacturer, with flexible connectors to minimize sound and vibration transmissions from power unit. 1) Cylinder units shall be connected with dielectric couplings. 2) Casing for Underground Piping: Schedule 40 PVC pipe complying with ASTM D 1785, joined with PVC fittings complying with ASTM D 2466 and solvent cement complying with ASTM D 2564.	Industry standard	Industry standard	IDENTICAL AND EQUAL
	Hydraulic Fluid: Elevator manufacturer's standard fire-resistant fluid with additives as needed to prevent oxidation of fluid, corrosion of cylinder and other components, and other adverse effects.	Industry standard	Industry standard	IDENTICAL AND EQUAL
	Inserts: Furnish required concrete and masonry inserts and similar anchorage devices for installing guide rails, machinery, and other components of elevator work. Device installation is specified in another Section.	Industry standard	Industry standard	IDENTICAL AND EQUAL

ELEVATOR PRODUCT COMPARISON
Palomar College

	Car Frame and Platform: Welded or bolted steel units. C-3 Freight Construction	EECO **Made in USA**	IDESA Made In Mexico	EQUAL
	Guides: Roller guides; polymer-coated, non-lubricated sliding guides; or sliding guides with guide-rail lubricators. Provide guides at top and bottom of car and counterweight frames.	Elsco Roller Guide	Elsco Roller Guides	IDENTICAL AND EQUAL
	General: Provide manufacturer's standard microprocessor operation system as required to provide type of operation indicated.	Elevator Controls Microprocessor Controller. Optional Controllers include controllers manufactured by: 1) Motion Control Engineering 2) Smartrise	Mitsubishi Microprocessor Controller. Made In Japan Optional Controllers include controllers manufactured by: 1) Elevator Controls 2) MCE	EQUAL
	Auxiliary Operations: In addition to primary operation system features, provide the following operational features for elevators where indicated: 1) Single Car Standby Powered Operation: On activation of standby power, car is returned to designated floor and parked with doors open. Car can be manually put into service on standby power, either for return operation or for regular operation, by switches in control panel located at the main lobby. Manual operation causes automatic operation to cease. 2) Single-Car Standby-Powered Lowering: On activation of standby power, car is lowered to the lowest floor, opens its doors, and shuts down. 3) Single-Car Battery-Powered Lowering: When power fails, car is lowered to the lowest floor, opens its doors, and shuts down. System includes rechargeable battery and automatic recharging system.	Controller features to be provided.	Controller features to be provided.	IDENTICAL AND EQUAL
	Infrared Array: Provide door reopening device with uniform array of 36 or more microprocessor- controlled, infrared light beams projecting across car entrance.	Device manufacturer varies. All devices perform identically.	Device manufacturer varies. All devices perform identically.	EQUAL

	Interruption of one or more light beams shall cause doors to stop and reopen.			
	Nudging Feature: After car doors are prevented from closing for predetermined adjustable time, through activating door reopening device, a loud buzzer shall sound, and doors shall begin to close at reduced kinetic energy.	Door Control Feature	Door Control Feature	IDENTICAL AND EQUAL
	General: Provide enameled-steel car enclosures to receive removable wall panels, with car roof, access doors, power door operators, and ventilation. 1) Provide standard railings complying with ASME A17.1 on: car tops where required by ASME A17.1.	Design Feature. Elevator to be built based upon this specification. **Made in USA**	Design Feature. Elevator to be built based upon this specification. Made In Mexico	IDENTICAL AND EQUAL
	Materials and Finishes: Manufacturer's standards, but not less than the following: 1) Subfloor: Exterior, C-C Plugged grade plywood, not less than 7/8 inch (15.9 mm) nominal thickness. 2) Floor Finish: By others 3) Wall Panels: Stainless steel adhesively applied to ½" fire-retardant-treated particleboard with plastic-laminate panel backing and manufacturer's standard edge trim. 4) Fabricate car with recesses and cutouts for signal equipment. 5) Fabricate car door frame integrally with front wall of car. 6) Primed Steel Doors: Flush, hollow-metal construction; fabricated from cold-rolled steel sheet. Provide with factory applied, rust-resistant primer for field painting. 7) Stainless Steel Doors: Flush, hollow-metal construction; fabricated from stainless steel sheet or by laminating stainless steel sheet to exposed faces and edges of	Design Feature. Elevator to be built based upon this specification.	Design Feature. Elevator to be built based upon this specification.	IDENTICAL AND EQUAL

	enameled cold-rolled steel doors using adhesive that fully bonds metal to metal without telegraphing or oil-canning. 8) Sight Guards: Provide sight guards on car doors. 9) Sills: Extruded metal, with grooved surface, 1/4 inch (6.4 mm) thick. 10) Metal Ceiling: Flush panels with six low voltage downlights in each panel. Align ceiling panel joints with joints between wall panels. 11) Handrails: Manufacturer's standard handrails, of shape, metal, and finish indicated.			
	Hoistway Entrance Assemblies: Manufacturer's standard horizontal-sliding, door-and-frame hoistway entrances complete with track systems, hardware, sills, and accessories. Frame size and profile shall accommodate hoistway wall construction. 1) Where gypsum board wall construction is indicated, frames shall be self-supporting with reinforced head sections.	Design Feature. Elevator to be built based upon this specification. **Made in USA**	Design Feature. Elevator to be built based upon this specification. Made In Mexico	IDENTICAL AND EQUAL
	Fire-Rated Hoistway Entrance Assemblies: Door and frame assemblies shall comply with NFPA 80 and be listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction based on testing at as close-to-neutral pressure as possible according to NFPA 252 or UL 10B. 1) Fire-Protection Rating: 1 hour.	Standard Code **Made in USA**	Standard Code Made In Mexico	IDENTICAL AND EQUAL
	Materials and Fabrication: Manufacturer's standards, but not less than the following: 1) Steel Subframes: Formed from cold- or hot-rolled steel sheet, with factory applied enamel finish or rust resistant primer. 2) Stainless-Steel Frames: Formed from stainless-steel sheet. 3) Star of Life Symbol: Identify emergency elevators with star of life symbol, not less	Design Feature. Elevator to be built based upon this specification.	Design Feature. Elevator to be built based upon this specification.	IDENTICAL AND EQUAL

	than 3 inches (76 mm) high, on both inside surfaces of hoistway door frames. 4) Stainless-Steel Doors: Flush, hollow-metal construction; fabricated from stainless-steel sheet or by laminating stainless steel sheet to exposed faces and edges of enameled cold-rolled steel doors using adhesive that fully bonds metal to metal without telegraphing or oil-canning. 5) Sight Guards: Extruded metal, with grooved surface, ¼ inch thick. 6) Sills: Extruded metal, with grooved surface, 1/4 inch (6.4 mm) thick 7) Non-shrink, Nonmetallic Grout: Factory-packaged, non-staining, noncorrosive, nongaseous grout complying with ASTM C 1107/C 1107M.			
	General: Provide hall-call and car-call buttons that light when activated and remain lit until call has been fulfilled. Fabricate lighted elements with LEDs.	Design Feature. Elevator to be built based upon this specification. **Made in USA**	Design Feature. Elevator to be built based upon this specification. Made In Japan	IDENTICAL AND EQUAL
	Car-Control Stations: Provide manufacturer's standard recessed car-control stations mount in return panel adjacent to car door unless otherwise indicated. 1) Mark buttons and switches with required use or function. Use both tactile symbols and Braille. 2) Provide "No Smoking" sign matching car-control station, either integral with car-control station or mounted adjacent to it, with text and graphics as required by authorities having jurisdiction.	Fixtures provided by ERM, Innovation, GAL or EPCO Design Feature. Elevator to be built based upon this specification. **Made in USA**	Fixtures provided Mitsubishi Design Feature. Elevator to be built based upon this specification. Made In Japan	IDENTICAL AND EQUAL
	Emergency Communication System: Two-way voice communication system, with visible signal, which dials preprogrammed number of monitoring station and does not require handset use. System is contained in flush-mounted cabinet, with identification, instructions for use, and battery backup power supply.	Standard Code	Standard Code	IDENTICAL AND EQUAL

ELEVATOR PRODUCT COMPARISON
Palomar College

	Car Position Indicator: Provide illuminated, digital-type car position indicator, located above car door or above car-control station. Also, provide audible signal to indicate to passengers that car is either stopping at or passing each of the floors served. Include travel direction arrows if not provided in car-control station.	Design Feature. Elevator to be built based upon this specification. **Made in USA**	Design Feature. Elevator to be built based upon this specification. Made In Japan	IDENTICAL AND EQUAL
	Hall Push-Button Stations: Provide one hall push-button station at each landing. 1) Provide manufacturer's standard wall-mounted units. 2) Equip units with buttons for calling elevator and for indicating applicable direction of travel. 3) Card Reader Provisions	Design Feature. Elevator to be built based upon this specification. **Made in USA**	Design Feature. Elevator to be built based upon this specification. Made In Japan	IDENTICAL AND EQUAL
	Hall Lanterns: Units with illuminated arrows; but provide single arrow at terminal landings. Provide one of the following: 1) Manufacturer's standard wall-mounted units, for mounting above entrance frames.	Design Feature. Elevator to be built based upon this specification. **Made in USA**	Design Feature. Elevator to be built based upon this specification. Made In Japan	IDENTICAL AND EQUAL
	Hall Annunciator: With each hall lantern, provide audible signals indicating car arrival and direction of travel. Signals sound once for up and twice for down. 1) At manufacturer's option, audible signals may be placed on cars.	Design Feature. Elevator to be built based upon this specification. **Made in USA**	Design Feature. Elevator to be built based upon this specification. Made In Japan	IDENTICAL AND EQUAL
	Hall Position Indicators: Provide illuminated, digital-display-type position indicators, located above each hoistway entrance at ground floor. Provide units with flat faceplate for mounting and with body of unit recessed in wall.	Design Feature. Elevator to be built based upon this specification.	Design Feature. Elevator to be built based upon this specification.	IDENTICAL AND EQUAL
	Emergency Pictorial Signs: Fabricate from materials matching hall push-button stations, with text and graphics as required by authorities having jurisdiction, indicating that in case of fire elevators are out of service and exits should be used instead. Provide one sign	Design Feature. Elevator to be built based upon this specification.	Design Feature. Elevator to be built based upon this specification.	IDENTICAL AND EQUAL

	at each hall push-button station unless otherwise indicated.			

Quality and Performance Comparison
Elevator Equipment Corporation (Proposed) vs. Mitsubishi (Approved Equal)

The two products are nearly identical in quality and performance. Both products utilize components in which the performance would be identical. The specification comparison in the previous section identifies the similarity between the two products.

JACKS

Jack units manufactured by Elevator Equipment Company. EECO is the industry leader in jack manufacturing and supplies jacks to thousands of elevator companies. EECO Supplies the specified manufacturer with multi-stage jack units.
Substitution Effect: **EQUAL**

DOOR EQUIPMENT

Door equipment supplied by GAL Manufacturing. Like EECO, GAL is the industry leader and supplies door operators to nearly every elevator company in the country. The specified manufacturer will utilize their standard door operator equipment which is Made In Japan.
Substitution Effect: **EQUAL**

POWER UNITS

Power units for both products are comparable. Power units from EECO. The components on both units are industry standard. Both units operate and perform identically. EECO Supplies the specified manufacturer with Power Units.
Substitution Effect: **EQUAL**

CONTROLLER

Controllers are obtained from three suppliers: Elevator Controls, Motion Control Engineering and Smartrise. EECO will utilize a controller from one of these manufacturers. Specified manufacturer will utilize their standard proprietary controller that is Made in Japan.
Substitution Effect: **EQUAL**

FIXTURES

Fixtures for both products are essentially identical but manufactured by various companies. AZTech will utilize US Suppliers where Mitsubishi utilizes their proprietary standard fixtures which are manufactured in Japan.
Substitution Effect: **EQUAL**

CABS

Cabs are manufactured by each company. **EECO manufactures in USA, Mitsubishi manufactures in Mexico.**
Substitution Effect: **EQUAL**

Cost Comparison

Elevator Equipment Corporation (Proposed) vs. Mitsubishi (Basis of Design)

Cost difference between the two products is unknown until bids are received. It is expected with the alternate choice of the EECO elevator that it will allow more competitive bidding and competitive pricing.

Special Fees

Elevator Equipment Corporation (Proposed) vs. Mitsubishi (Basis of Design)

There are no special fees for licensing or royalties with the EECO product. Special service tools at additional cost may be required for the specified suppliers.

Maintenance & Parts

Elevator Equipment Corporation (Proposed) vs. Mitsubishi (Basis of Design)

Since the EECO product is manufactured utilizing industry standard, non-proprietary components, replacement parts availability is very good. Because these components are common to many manufacturers any Certified Competent Conveyance Company in the state can repair or maintain these elevators. Trained technicians can easily work on this equipment. The Mitsubishi equipment is highly proprietary and there are a limited number of elevator companies that can maintain or obtain parts for the equipment.

Effect of Substitution

Elevator Equipment Corporation (Proposed) vs. Mitsubishi (Basis of Design)

There should be no effect on the schedule, nor any effect on other trades or portions of the building work. ***The elevator specified and the elevator proposed by A-Z Tech are essentially identical. The major difference is the proposed EECO elevator utilizes non-proprietary components. This will ultimately provide a cost savings for the project.***

Project Information

6th Avenue Elementary School.

3109 6th Avenue, Los Angeles, CA 90018

Owner: LAUSD

333 S. Beaudry Ave., Los Angeles, CA 90017

Architect: Owen Group

600 Wilshire Blvd Ste 890, Los Angeles, CA 90017

SUBSTITUTION REQUEST FORM

Project: Palomar College Athletics Stadium Construction REBID

Substitution Request Number:

To: HMC Architects, Inc.

From:

Re:

Date: 8/3/22

Architect's Project Number:

Contract For:

Specification Title: Metal Roof Panels

Description:

Section: 07 41 13

Page: 4 Article/Paragraph: 2.01

Proposed Substitution: MS 200 18 GAUGE

Manufacturer: TAYLOR METAL PRODUCTS

Address: 4880 FELSPAR ST. RIVERSIDE, CA

Trade Name: MECHANICAL SEAMED METAL ROOF PANELS

Attached data shall include: product description, specifications, drawings, photographs, and performance and test data adequate for evaluation of the request; applicable portions of the date are clearly identified.
Attached data also includes a description of changes to the Contract Documents that the proposed substitutions will require for its proper installation, at no cost to the Owner.
The Undersigned Certifies:

- Proposed substitution has been fully investigated and determined shall be equal or superior in respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing and construction costs caused by the substitutions.
- Reason(s) why substitution is being submitted.
  - ☐ Specified product or material is not available. Explain in detail as attachment.
  - ☐ Cost savings to Owner. Indicate comparative cost analysis as attachment.
  - ☐ Other. Explain:

Submitted by TAYLOR METAL PRODUCTS STEVE Tetreault

Signed by:

Firm:

Address: 4880 FELSPAR ST. RIVERSIDE, CA

Telephone: 602-206-2796

A/E's REVIEW AND ACTION

☒ Substitution Approved

☐ Substitution Rejected as marked below:

- ☐ Insufficient information submitted
- ☐ Submitted late.
- ☐ Information not clearly marked.
- ☐ Full line product information (Binder not provided).
- ☐ Does not meet performance / design requirements of Paragraph
- ☐ Comparisons not properly identified on product data sheets.

Signed by: Matt Mori Date: 08/08/2022

Substantiating Data Required:

☐ Drawings	☐ Tests if required in individual sections
☒ Product Data	☒ Reports if required in individual sections
☒ Samples	☒ Other: Comparison Sheet, Project References, and Samples to be sent

9-10-2019

To: Whom it May Concern

From: Steven Tetreault
Sales Manager

Subject: Reference Projects for MS200 panel

1) Bachelor Enlisted Quarters 8 and 9
   Location – Camp Pendleton
   Size 130,000 sf
   Product – MS-200 22 ga 16” Kynar 500 color Colonial Red
   Date of Installation – January 2016

2) Stauffer Elementary School
   Location – Downey CA
   Size – 15,000 sf
   Product – MS-200 22 ga 16” Kynar 500 Special Color – Lions Mane
   Date if Installation – April 2019

3) Bartow Fine Arts Academy
   Location – Barstow CA
   Size – 140,000 sf
   Product – Versa Span 22 ga 16” Kynar 500 color Silver Metallic
   Date of Installation – July 2019

4) Fort Huachuca Unmanned Aerial Drone Hangar
   Location – Ft Huachuca AZ
   Size 50,000 sf
   Product – MS200 18” 24 ga Kynar color Glacier White
   Date of installation – January 2017

COMPARISON CHART
Morin Snap Seam/Taylor MS-200

	Morin	Taylor
	SLR	**MS-200**
Plant Location	Fontana	**Riverside CA**
Standard Coverage	18”/16”	18”/ 16”
Seam Height	2”	2”
Single and Double Seam	Yes	Yes
Stiffening Ribs/Striations	Yes	Yes
Clip Gauge	18 ga	18 ga
Standard Color Choices	22 ea	22 ea
Custom Colors	Yes	Yes
30-Year Paint Warranty	No	**Yes**
Code Compliance Report	**NONE**	**UL ESR 25913 w ICC Acceptance Criteria**
Project Slope 1 3/8:12	**YES**	**Meets Slope Requirement**
DSA apprpved	**Yes**	**YES**
ASTM 1592 Test	Yes	Yes
Air Infiltration Test ASTM E283-84/1680 14 CFM/LFT at 20 PSI	Yes	Yes
Water Infiltration Test ASTM E330/1646	Yes	Yes
UL Constructions	90 **176** **180** 238 **238B** **435** 435A	**90** **176** **180** **238** **238A** **238B** 238C **435** **435A** 437 449 451 452 487 **506** **506A** **506B** **576** **577** **583** 312 335 403 608 610
Fire	Class A	Class A
Impact Resistance	Class 4	Class 4
Steel Strength	50 KSI	50 KSI

4880 Felspar St. Riverside, California • office: 877-504-1594 • www.taylormetal.com

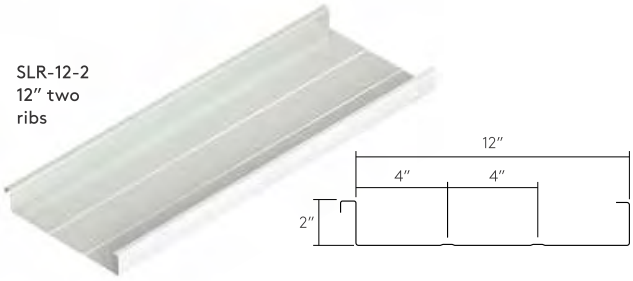
BASIS OF DESIGN

SLR Roof Series

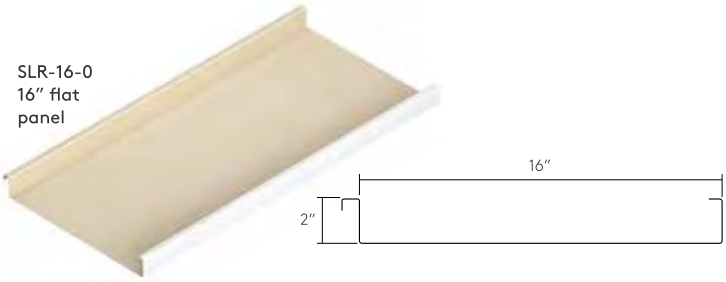
This profile is one of our oldest and most used structural roofing panels, designed for use with a variety of slopes and can wrap from roof to wall for dynamic impact.

Morin®
A Kingspan Group Company

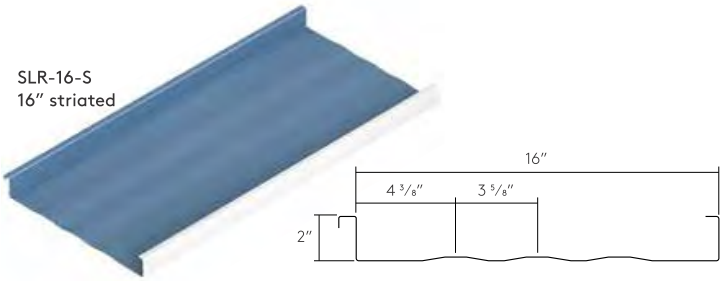
SLR-12-2
12″ two
ribs



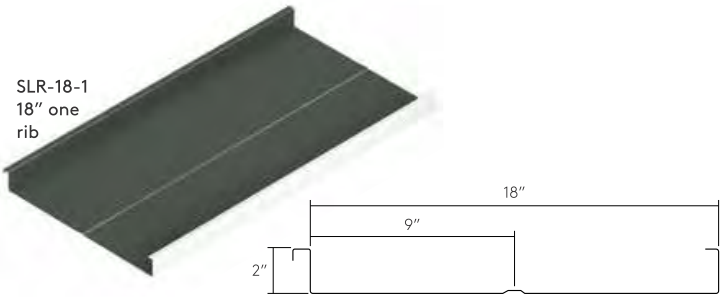
SLR-16-0
16″ flat
panel



SLR-16-S
16″ striated



SLR-18-1
18″ one
rib



The SLR Profile is a seamed standing seam panel that can be applied to roof or wall and are available in a variety of profiles, gauges and widths.

It is available in a variety of widths, rib, striations, and embossing options with a tight seam joinery makeing it strong and durable and ideal for environmentally challenging areas.

The SLR panel also works well in curved applications, metal walls or a low slope roof. This flexible panel can offer solutions to many project needs.

- All PVDF finishes available
- Factory caulking is standard

Panel Depth:
2″ (51mm)

Cover Width:
12″ (305mm) – 18″ (457mm)

Lengths:
5′ (1.52m) to 30′ (9.14m) standard.
Shorter and longer lengths available

Galvalume / Zincalume Painted Steel Options:
22 GA (.76mm) / 24 GA (.60mm)

Aluminum Options:
.040 GA (1mm) / .032 GA (0.813mm)

Special Notes:
Copper and Zinc options available dependent on the profile / gauge.

Jobsite roll forming is available.

Images are representative and are just a sample of a large variety of options.

HQ / East 685 Middle Street, Bristol, CT 06010 T: 1-800-640-9501
West 10707 Commerce Way, Fontana, CA 92337 T: 1-800-700-6140
South 1975 Eidson Drive, DeLand, FL 32724 T: 1-800-640-9501

www.morincorp.com

Morin®
A Kingspan Group Company

TAYLOR METAL PRODUCTS

MS-200™
MECHANICALLY SEAMED

KEY FEATURES

-- Will provide 16" as specified

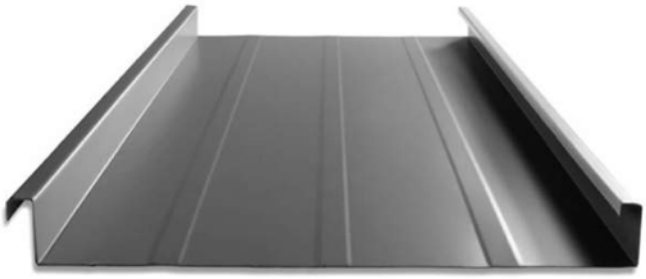
- 12" to 18" options available
- 24 & 22 gauge Tru-Gauge™,.032" , .040 Aluminum
- Floating clip system: allows for expansion/contraction of panels in longer lengths
- 2" Mechanical seam rib, 90° or 180°: Factory notching available
- Factory injected Butyl sealant
- Structural panel that will span up to 5'
- Concealed fasteners: fasteners cannot leak
- Manufactured in Sacramento, CA & Salem, OR
- FM Global Class #4471 Approved
- compliance UL Evaluation Report 25913-01
- UL Construction No. 90, 176, 180, 238, 238 A-C, 435, 435 A, 437, 449, 451, 452, 487, 506, & 506 A-C
- UL 580 Class 90 Wind Uplift, UL 790 Class A Fire rated and UL 2218 Class 4 Impact (hail) rated
- Dade PA 201-94 Class 90 Impact,140 MPH Wind Uplift
- FM I-75 (60" o.c.) FM I-120 (24" o.c.)
- ASTM E1592 - Structural uniform static air pressure ASTM E1646 - Water in iltration ASTM E2140 - Water in iltration ASTM E1680 - Air in iltration
- Weather tightness warranty available *(Contact TMP representative for details)*
- 1/2:12 minimum pitch recommended *(For lower pitches, please inquire)*
- Standard panel lengths 5' to 60' - not notched Standard panel lengths 1' to 60' - notched *(For longer panel lengths, please inquire)*
- Onsite roll forming available for long lengths
- Panel options: Striations, Accent Ribs, and Flat Pan
- Retro- it systems available

PANEL PROFILES

SUBSTITUTION REQUEST

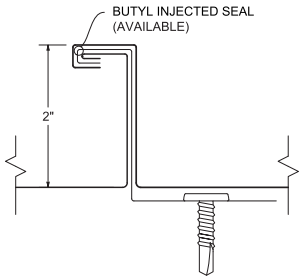
12" to 18" coverage options

STRIATIONS

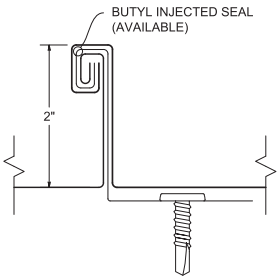


ACCENT RIBS 2 Accent ribs for 12" to 14-5/8" panel
3 Accent ribs for 16" & 18" panel

90° SEAM DETAIL



180° SEAM DETAIL



180 degree seams are not considered an architectural detail. The detail improves the weather tightness and wind uplift capabilities of the panel system, but will show stress and waviness in the seam. The detail is recommended for slopes less than 3/12, roof areas not easily viewed from the ground, and for high wind areas. For additional information, contact a TMP representative and DI Seamers for support and information about the proper use of seaming tools.

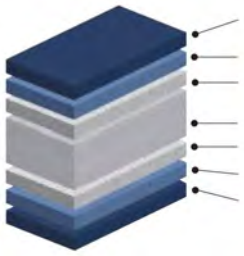
TAYLOR METAL PRODUCTS

MATERIAL SPECIFICATIONS

- 24 gauge Kynar 500® Painted Steel
  .0236" (Thickness prior to painting)
  G-90 Galvanized or AZ-50
- 24 gauge bare Zincalume® Plus AZ-55
  (No finish warranty – 25 yr. perforation warranty)
- ▲ 22 gauge Kynar 500® Painted Steel
  .029" (Thickness prior to painting)
- ✦ .032" and .040 Kynar 500® Painted Aluminum
- 22 gauge Rusteel Plus™ (A606)
- 16 and 20 ounce Copper
  (Please inquire)
- Kynar 500® and substrate testing data available
  (See website)
- "Oil canning" is an inherent characteristic of roof and wall products, and not a defect, which is not a cause for panel rejection

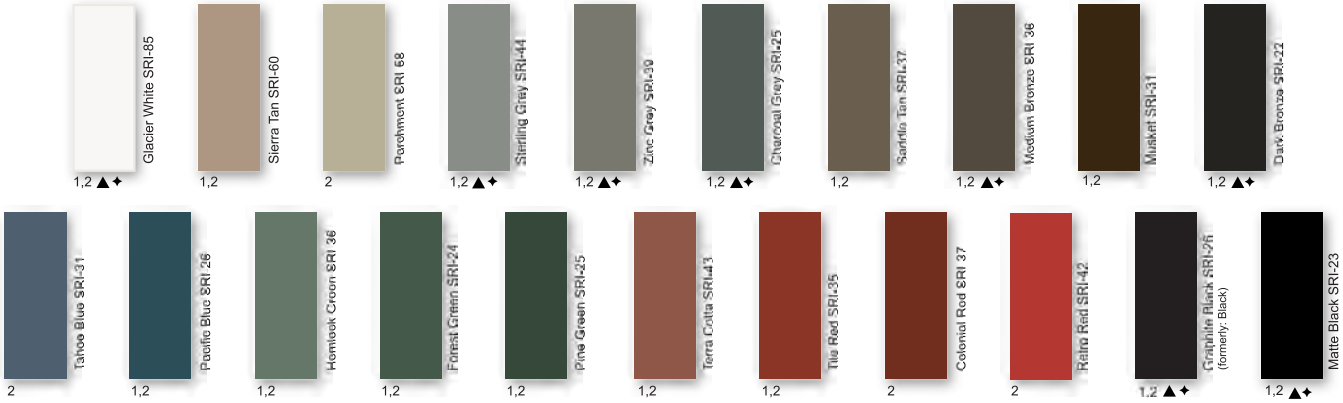
KEY FEATURES

- 21 Standard Colors, 5 Metallic Colors and 4 Specialized Materials
- Kynar 500® Paint System - the ultimate in exterior durability and color retention
- "Cool" color pigments are specially designed to reflect infrared light, reducing heat gain to dwelling, and conform with ENERGY STAR® criteria
- Superior Quality, two coat, 70% resin finish, applied at a 1 mil. thickness
- 40 year residential paint warranty
- 20 and 30 year commercial paint warranty: Contact TMP for warranty specifications

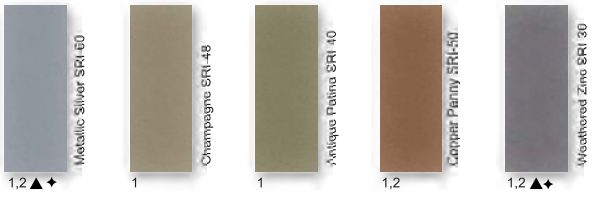


40-Year Residential / 20 and 30 Year Commercial Manufacturer's Limited Warranty

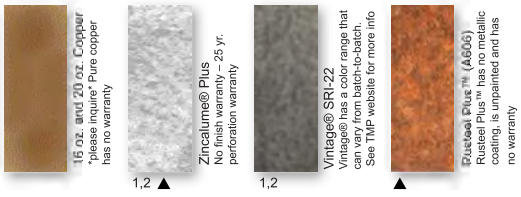
STANDARD COOL KYNAR 500® COLORS



PREMIUM METALLIC COOL KYNAR® COLORS



SPECIALIZED MATERIAL



These printed chips provide a close representation of the colors.

Metal samples are available upon request. Coatings are low gloss 10-15% sheen.

*SRI = Solar Reflective Index. SRI values listed above are in accordance with ASTM E 1980 and are based on actual testing.***Oil canning is not a cause for material rejection****

Standard Panels				
Width	**Gauge**	**Color**	**LBS SQFT**	**LBS LF**
14-5/8"	24	1	1.36	1.65
18"	24	2	1.28	1.93
18"	22	▲	1.61	2.42
15-3/8"	.032 Alum	✦	0.6	0.9

steelscape

11-21

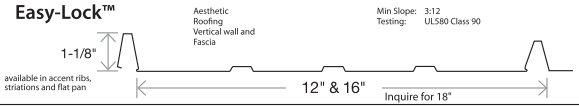
Taylor Metal Products Cool Kynar 500®

All Taylor Metal Products Kynar 500® coatings utilize pigments that are specifically designed to reflect infrared light, help reduce the heat gain of a dwelling, and conform with ENERGY STAR® criteria for steep slope cool roofing products.

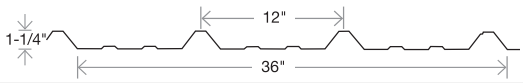
PVDF is a fluoropolymer that is manufactured under the trademarked name Kynar 500®. Paint finishes containing a **minimum** 70% PVDF resin meet the high-performance weathering criteria established by the American Architectural Manufacturing Association and are allowed to carry the Kynar 500® trademarked name.

Profile

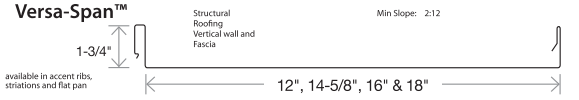
Easy-Lock™



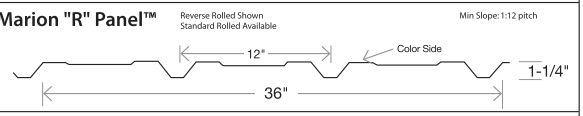
PBR



Versa-Span™

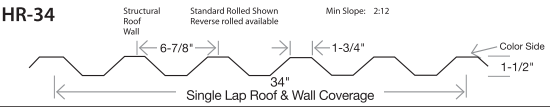


Marion "R" Panel™

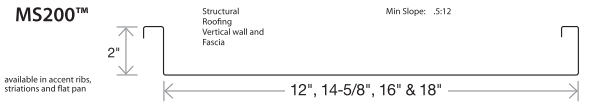


CL-175™

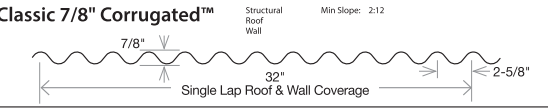
HR-34



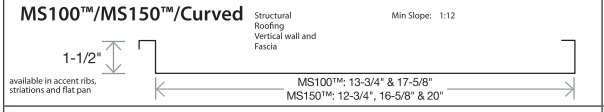
MS200™



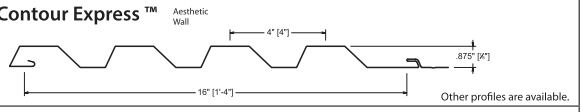
Classic 7/8" Corrugated™



MS100™/MS150™/Curved

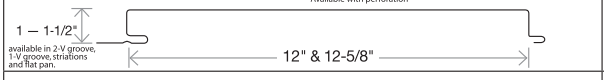


Contour Express ™

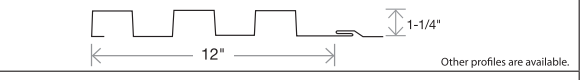


Other profiles are available.

Smoothwall™/Lifetime Soffit™

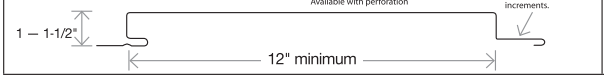


Contour 12" ™

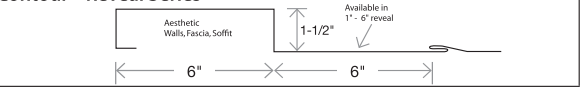


Other profiles are available.

ShadowLine™



Contour™ Reveal Series



Coil Width	OR/WA Panels listed below are standard size, please inquire for other sizes.	Gauge	Glacier White	Sierra Tan	Parchment	Sterling Grey	Zinc Grey	Charcoal Grey	Saddle Tan	Medium Bronze	Tahoe Blue	Pacific Blue	Hemlock Green	Forest Green	Pine Green	Dark Bronze	Black	Burgundy	Musket	Terra Cotta	Tile Red	Vintage®	Zincalume® Plus	16 oz. Copper 20oz. Copper please inquire	Colonial Red	Retro Red	Metallic Silver	Champagne	Antique Patina	Copper Penny	Weathered Zinc
16.75"	12" Easy-Lock 12.75" MS150 13.75" MS100 12" CL-175 1" SmoothWall/Lifetime Soffit/ ShadowLine	24	X		X	X	X	X		X	X	X		X	X	X	X	X					*		*					X	X
		26	X	X		X	X	X	X	X	X		X	X	X	X	X	X				X					X						X
20.625"	16" Easy-Lock 16.625" MS150 17.625" MS100 12" Versa-Span 12" MS200 14.625" Versa-Span 14.625" MS200 12" Reveal 1-1/2" SmoothWall/Lifetime Soffit /ShadowLine:*(Aluminum not available)*	24	X	X		X	X	X	X	X		X	X	X	X	X	X		X	X	X	*	X	*			X	X	X	X	X
		22	*				*	*		*						*	*										*				*
		Aluminum				X	X	X		X						X																X
24"	18" Easy-Lock 18" Versa-Span 18" MS200 16" Versa-Span 16" MS200 20" MS150 16" Contour 12" Contour	24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	*	X	X	X	*	*	*	X
		22	X				X	X		X						X	X						X				X					X
43"	7/8" Corrugated PBR Marion "R" Panel HR-34	24	X	X	*	X	X	X	X	X	*	*	*	X	X	X	X		X	X	X	X	X		*	*	X	X	X	X	X
		22	X				X	X		X						X	X						*				X					X
		.032 Aluminum				X	X	X		X						X																X
48"	Flat Sheet 48"W x 120"L	24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X		X	X	X	*	*	*	X
		22	X				X	X		X						X	X						X				X					X

Testing information is available on panel specification sheets on TMP website

Zincalume & Zincalume® Plus are registered trademarks of Bluescope Ltd. Galvalume® is a registered trademark of BIEC International, Inc. Vintage® is a registered trademark of Steelscape, Inc. Kynar 500® is a registered trademark of Arkema, Inc. Residential: 40 year, Transferable, Non-Prorated, Limited Manufacturer's Warranty. Commercial: 30 year, Non-Transferable, Non-Prorated, Limited Manufacturer's Warranty

22 Gauge material available, please call to inquire

*** Please inquire for availability**

August 2019

TAYLOR METAL PRODUCTS

KYNAR 500®

PRODUCT DATA

KYNAR 500® SPECIFICATIONS - Polyvinylidene Fluoride (PVDF)*		
	Aluminum Substrate	**Coated Steel[1] Substrate**
Dry Film Thickness (nominal) ASTM D1400	0.20 – 0.30 mil primer 0.70 – 0.80 mil topcoat	0.20 mil primer 0.75 mil topcoat
Gloss ASTM D523 Standard @ 60° DURANAR LG @ 85°	 25 - 35 <10	 25 - 35 <10
Pencil Hardness ASTM D3363	F-2H	F-2H
Flexibility[2] T-bend, ASTM D4145	0-2 T-bend; No pick-off	2 T-bend; No pick-off
Adhesion ASTM D3359 Reverse impact 1/16" crosshatch	No adhesion loss	No adhesion loss
Reverse Impact ASTM D2794 1.5 x metal thickness (aluminum) 3.0 x metal thickness (coated steel)	 No cracking or adhesion loss No cracking or adhesion loss	 No cracking or adhesion loss No cracking or adhesion loss
Acid Resistance ASTM D1308 10% muriatic acid — 24 hrs. 20% sulfuric acid — 18 hrs.	 No effect No effect	 No effect No effect
Acid Rain Test Kesternich SO_2, DIN 50018	15 cycles min. No objectionable color change	15 cycles min. No objectionable color change
Alkali Resistance ASTM D1308 10%, 25% NaOH, 1 hr.	No effect	No effect
Salt Spray Resistance ASTM B117 5% salt fog @ 95°F	Passes 4000 hrs. Less than 1/16" avg. creepage from scribe; None or few #8 blisters	Passes 1000 hrs. Less than 1/8" avg. creepage from scribe; None or few #8 blisters
Humidity Resistance ASTM D714, ASTM D2247 100% relative humidity @ 95°F	Passes 4000 hrs. No #8 blisters	Passes 1500 hrs. No #8 blisters
Exterior Exposure 10 yrs. @ 45°, south Florida ASTM D2244 ASTM D4214	 Max. 5 fade Max. 8 chalk	 Max. 5 fade Max. 8 chalk

[1] Coated Steel includes the following types of steel: G90 hot dip galvanized, Galfan, Galvalume, and Zincalume.

[2] Fracturing or rupturing of substrate will rupture coatings. Heavy gauge and clad steel substrates impose limitations on formability. DURANAR coatings are generally flexible beyond the point of substrate rupture.

*PVDF is a fluoropolymer that is manufactured under the trademark names Duranar (PPG) and Kynar 500®. Paint finishes containing a minimum 70% PVDF resin meet the high-performance weathering criteria established by the American Architectural Manufacturing Association.

Taylor Metal Products (OR)
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(503) 581-8338
Fax: (503) 581-6877
www.taylormetal.com

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5711 Perrin Ave.
McClellan, CA 95652
(916) 318-8844
Fax: (916) 993-4123
www.taylormetal.com

Taylor Metal Products (WA)
710 A St. NW Suite 101
Auburn, WA 98002
(206) 900-9923
www.taylormetal.com

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TAYLOR METAL PRODUCTS

Kynar 500® REGISTERED WARRANTY

30 Year, Non-Prorated Limited Warranty

Subject to the conditions and exclusions set forth in this warranty, **TAYLOR METAL , INC.** (hereinafter referred to as TMP) provides the following express limited warranty with regard to Kynar 500®/Hylar 5000® coated galvanized steel products of its manufacture for use as an exterior roofing or sidewall building product (hereinafter referred to as Product).

Registration: Within 45 days after installation of the Product has been completed, the Original Property Owner(s) must complete a Warranty Registration Card in full and mail it to TMP. Upon receipt, TMP will forward, by mail, to the Owner(s) the Registered Warranty complete with registration number. The Owner(s) should keep this Registered Warranty in a safe place for future reference. Failure to notify TMP of the registration shall relieve TMP of all obligations hereunder. In addition, the warranty does not and will not take effect until the project has been paid in full.

Performance: Although it is recognized by all parties to this Warranty that all coatings, including Kynar 500®/Hylar 5000®, will fade and change in appearance to some degree over a period of time in outdoor installations, and that such changes may not be uniform between surfaces not equally exposed, TMP warrants for a period of 30 years from the date of installation that when exposed to normal atmospheric conditions and conditions of ordinary wear the Product will not:

A. Peel, check, flake or crack (except for slight crazing or cracking as may occur with normal roll-forming or brake bending and which is accepted as standard);
B. Chalk in excess of a numerical rating of 6, as measured using the procedures of ASTM D-4214-89 (Method D-659); nor
C. Fade or change color more than 8 E units (Hunter Color Difference), as measured using the procedure of ASTM D-2244-85, comparing an unexposed retain panel to the exposed panel after removal of dirt and chalk.

TMP's liability under this Warranty is limited as follows: If TMP determines the Product to be defective according to the terms of this Warranty, TMP shall, at its sole option, repair or refinish the defective Product, replace the defective Product from current stock or refund the original purchase price of the defective Product. In no event shall TMP's liability exceed the original material costs of the Product.

TMP shall not be liable for any expenses connected with the labor for the replacement of the defective Product or any incidental or consequential damages. The Warranty for any repaired or replaced Product shall be for the remainder of the warranty period applicable to the original Product. Delivery charges, installation costs and taxes are not covered by this Warranty.

Conditions and Exclusions: This Warranty is Subject to the Following Exclusions, Limitations and Conditions:

a. The Warranty covers only Product erected in the continental United States, Alaska and Hawaii which are exposed to normal weather and atmospheric conditions.
b. This warranty shall not apply to product located 3,280 feet or fewer from a salt-water, salt spray or marine environment. For installation locations between 3,280 feet to within 1,320 feet the warranty is reduced to 15 years. Site specific warranties are available upon request.
c. This warranty shall not apply to Product that has been painted or whose surface has been altered in any way without written authorization from TMP. Repair attempts or damage caused by such acts prior to TMP's inspection or written authorization shall void any and all protection under this warranty.
d. The Product must be installed to prevent standing water and condensation. When used as roofing panels, the Product must be installed with a minimum pitch of 1/2" per foot for MS200™ Panel roofs, 1" per foot for MS150™ Panel roofs, and 2" per foot minimum pitch for Versa Span™ roofs.
e. The Product must be washed annually with either a fresh water rinse or with a 5% solution of fresh water and mild detergent to prevent the accumulation of concentrated deposits. Fresh water rinses must be documented. Product may be pressure washed, however, settings must not exceed 1,000 PSI and 4 GPM. Any use of abrasive materials or chemical cleaners of any sort will void any and all coverage under this warranty.
f. The warranty shall not cover failures or damage which arise out of any of the following:
   1. The formation of rust on cut panel edges, commonly referred to as cut end or cut edge corrosion/exposure.
   2. Direct or effective exposure to corrosive chemicals, fumes or materials including, but not limited to dissimilar metals, treated lumber, creosote or ash.
   3. Failure to routinely remove any debris accumulations from the Product including, but not limited to, pine needles, leaves or other accumulations of foreign substances.
   4. Use of any patina enhancing/modifying agents, chemical protectors/sealants of any kind, or any other materials placed on the Product other than those stated in "e" above.
   5. Occurrences beyond TMP's control such as acts of God, falling or wind blown objects, explosions, fires, vandalism, civil disturbances, external forces, improper handling, improper installation, modification or misuse of the product.
g. In no event is TMP liable for any incidental or consequential damages, including, but not limited to: personal injury, property damage or lost income.
h. TMP reserves the right to discontinue or change any design or color of the Product. If, for any reason, Product of the type originally installed are no longer available from TMP at the time the defect is discovered, TMP, in fulfillment of its warranty obligation hereunder, shall have the right to substitute another Product determined by TMP, in its sole discretion, to be of comparable quality and price.

Transfer: This warranty is non-transferrable .

Claims Procedure: Any claim must be presented in writing to TMP within the warranty period and within 45 days of time after the defect is discovered. The claim must describe the claimed defect, the date the defect was discovered, and include pictures that clearly show the defect. The claim must reference the Warranty Registration Number and the original date of installation, and shall include the owner(s) name, address and phone number. TMP shall be given a reasonable opportunity to inspect the Product in question. Notice shall be sent by registered mail to: ATTN: Warranty Claims, Taylor Commercial Products, 4566 Ridge Dr. NE, Salem, OR 97301.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, WHICH EXTEND BEYOND THE DESCRIPTION AS STATED HEREIN, INCLUDING ANY WARRANTIES OF MERCHANTABILITY OR FITNESS OF PURPOSE. TMP SHALL NOT BE RESPONSIBLE FOR ANY INDIRECT OR CONSEQUENTIAL DAMAGES OR FOR ANY KIND OF LOSS WHATSOEVER. UNDER NO CIRCUMSTANCE SHALL TMP'S LIABILITY UNDER THIS WARRANTY EXTEND BEYOND THE PRODUCT'S ORIGINAL MATERIAL COSTS.

Original Property Owner(s): _____

Installation Address: _____

Purchaser: _____

Purchase Date: _____ Invoice #: _____

Issued by **TAYLOR METAL, INC.**

Signature: _____

Title: _____ Name: _____

Registration #: _____ Date _____

Revised 4/12

4566 RIDGE DR. NE • SALEM, OR 97301 • PHONE: 503-581-8338 OR 1-800-574-1388 • FAX: 503-581-6877

TAYLOR METAL PRODUCTS

4566 RIDGE DRIVE NE
SALEM, OR 97301
PHONE 503.581.8338
800.574.1388
FAX 503.581.6877

MS200 (Double Lock) ROOF PANEL (Negative Load Chart)

SECTION PROPERTIES										ALLOWABLE UNIFORM LOADS, psf For various clip spacings (i.e. span values)								
				Top in Compression			Bottom in Compression			Outward Load								
Width, in.	Gauge	Yield ksi	Weight psf	I_{xx} $in^4/ft.$	$I_{xx\ (eff)}$ $in^4/ft.$	S_{xx} in^3/ft	I_{xx} $in^4/ft.$	$I_{xx\ (eff)}$ $in^4/ft.$	S_{xx} in^3/ft	1'	1.5'	2'	2.5'	3'	3.5'	4'	4.5'	5'
16	24	50	1.36	0.1549	0.1370	0.0789	0.0925	0.1106	0.0908	161.3	147.6	134.0	120.3	106.7	93.0	79.4	67.7	52.1
16	22	50	1.71	0.2040	0.1800	0.1010	0.1210	0.1451	0.1213	163.9	150.9	137.9	124.9	111.9	98.9	85.9	72.9	59.9
18	24	50	1.28	0.1400	0.1230	0.0708	0.0820	0.0988	0.0809	109.3	101.1	93.0	84.9	76.7	68.6	60.5	52.3	44.2
18	22	50	1.61	0.1850	0.1620	0.0880	0.1070	0.1296	0.1079	156.1	143.4	130.7	118.0	105.4	92.7	80.0	67.3	54.7
18	0.032	19	0.62	0.2070	0.2070	0.1220	0.2070	0.2070	0.5696	83.3	77.4	71.5	65.7	59.8	54.0	48.1	42.3	36.4

1a. Theoretical section properties for steel panels have been calculated per AISI S100 Specification for the Design of Cold-Formed Steel Structural Members.

1b. Theoretical section properties for aluminum panels have been calculated per the latest edition of the Aluminum Association Design Manual.

2. $I_{xx\ (eff)}$ values are "effective" stiffness properties for positive (downward) load induced deflection determination.

3. S_{xx} values are to be used for flexural (bending) stress determination.

4. Charted Load/Span values are based on ASTM E1592-02 / ASTM E1592-05 testing protocol.

5. Charted Load/Span values above are based on Allowable Stress Design (ASD).....Load **R**esistance **F**actor **D**esign (LRFD) technique not recommended for charted values.

6. Charted Allowable Uniform Loads are based on the Ultimate Uniform Load (per ASTM E1592 testing) divided by a 2.00 Factor-of-Safety.

7. Charted Allowable Uniform Loads do not consider panel weight (Dead Load) or clip-to-substrate (structure) fastener connection strength.

8. Clip-to-substrate (structure) fastener evaluation must consider the Pry Effect applied to the fastener by the clip base and the analysis should be performed by a **licensed structural engineer**.

9. Minimum recommended substrate (structure) recommendations:

   a. Open-framing (i.e. purlins) - 16 ga. (design thickness = 0.0566")

   b. Plywood/OSB - 5/8" (nominal).....this recommended thickness assures an effective degree of fastener thread engagement

   c. Metal deck - 22 ga. (design thickness = 0.0283")

10. Deflection limit consideration for **positive** (downward) loading is limited to a deflection ratio of **L/180** of the span....where "L" is the span in inches.

11. Charted Allowable Uniform Loads **cannot** be increased by 1/3.

TAYLOR METAL PRODUCTS

MS-200 (single lock) ROOF PANEL

SECTION PROPERTIES								ALLOWABLE UNIFORM LOADS, psf For various clip spacings (i.e. span values)									
				Top in Compression		Bottom in Compression		Inward Load									
Gauge	Width, in.	Yield ksi	Weight psf	I_{xx} in⁴/ft.	S_{xx} in³/ft	I_{xx} in⁴/ft.	S_{xx} in³/ft	2'	2.5'	3'	3.5	4'	4.5'	5'	5.5'	6'	8'
0.032	12	19	0.700	0.3290	0.2102	0.3290	0.6599	182.9	117.0	81.3	59.7	45.7	36.1	29.3	24.2	20.3	11.4
0.040	12	19	0.855	0.4050	0.2582	0.4050	0.8133	283.0	181.1	125.8	92.4	70.7	55.9	45.3	37.4	31.4	17.7
0.032	16	19	0.640	0.2660	0.1610	0.2660	0.6450	133.0	85.1	59.1	43.4	33.3	26.3	21.3	17.6	14.8	8.3
0.040	16	19	0.790	0.3270	0.1980	0.3270	0.7940	206.8	132.3	91.9	57.5	51.7	40.8	33.1	27.3	23.0	12.9
0.032	18	19	0.620	0.2420	0.1430	0.2420	0.1430	116.8	74.7	51.9	38.1	29.2	23.1	18.7	15.4	13.0	7.3
0.040	18	19	0.760	0.2970	0.1764	0.2970	0.7840	181.3	116.0	80.6	59.2	45.3	35.8	29.0	24.0	20.1	11.3

1. Theoretical section properties have been calculated per the latest edition of the Aluminum Association's Design Manual. I_{xx} and S_{xx} are effective section properties for deflection and bending.
2. Allowable load is calculated in accordance with the latest edition of the Aluminum Association's Design Manual considering bending, shear, combined bending and shear and deflection. Allowable load considers a 3 or more equal span condition.
3. Allowable load does not address panel weight, fasteners, connection strength or support material.
4. Allowable load includes web crippling.
5. Load/Span values are based on theoretical computations and not load testing.
6. Deflection is not considered.
7. Allowable loads do not include a 1/3 stress increase for wind.

SECTION PROPERTIES								ALLOWABLE UNIFORM LOADS, psf For various clip spacings (i.e. span values)									
				Top in Compression		Bottom in Compression		Inward Load									
Gauge	Width, in.	Yield ksi	Weight psf	I_{xx} in⁴/ft.	S_{xx} in³/ft	I_{xx} in⁴/ft.	S_{xx} in³/ft	2'	2.5'	3'	3.5	4'	4.5'	5'	5.5'	6'	8'
0.032	12	19	0.700	0.3290	0.2102	0.3290	0.6599	182.9	117.0	81.3	59.7	45.7	36.1	29.3	24.2	20.3	11.4
0.040	12	19	0.855	0.4050	0.2582	0.4050	0.8133	283.0	181.1	125.8	92.4	70.7	55.9	45.3	37.4	31.4	17.7
0.032	16	19	0.640	0.2660	0.1610	0.2660	0.6450	133.0	85.1	59.1	43.4	33.3	26.3	21.3	17.6	14.8	8.3
0.040	16	19	0.790	0.3270	0.1980	0.3270	0.7940	206.8	132.3	91.9	57.5	51.7	40.8	33.1	27.3	23.0	12.9
0.032	18	19	0.620	0.2420	0.1430	0.2420	0.1430	116.8	74.7	51.9	38.1	29.2	23.1	18.7	15.4	13.0	7.3
0.040	18	19	0.760	0.2970	0.1764	0.2970	0.7840	181.3	116.0	80.6	59.2	45.3	35.8	29.0	24.0	20.1	11.3

1. Theoretical section properties have been calculated per the latest edition of the Aluminum Association's Design Manual. I_{xx} and S_{xx} are effective section properties for deflection and bending.
2. Allowable load is calculated in accordance with the latest edition of the Aluminum Association's Design Manual considering bending, shear, combined bending and shear and deflection. Allowable load considers a 3 or more equal span condition.
3. Allowable load does not address panel weight, fasteners, connection strength or support material.
4. Allowable load includes web crippling.
5. Load/Span values are based on theoretical computations and not load testing.
6. Deflection consideration is limited by a maximum deflection ratio of L/120.
7. Allowable loads do not include a 1/3 stress increase for wind.

SECTION PROPERTIES								ALLOWABLE UNIFORM LOADS, psf For various clip spacings (i.e. span values)									
				Top in Compression		Bottom in Compression		Inward Load									
Width, in.	Gauge	Yield ksi	Weight psf	I_{xx} in⁴/ft.	S_{xx} in³/ft	I_{xx} in⁴/ft.	S_{xx} in³/ft	2'	2.5'	3'	3.5	4'	4.5'	5'	5.5'	6'	8'
0.032	12	19	0.700	0.3290	0.2102	0.3290	0.6599	182.9	117.0	81.3	59.7	45.7	36.1	29.3	24.2	20.3	11.4
0.040	12	19	0.855	0.4050	0.2582	0.4050	0.8133	283.0	181.1	125.8	92.4	70.7	55.9	45.3	37.4	31.4	17.7
0.032	16	19	0.640	0.2660	0.1610	0.2660	0.6450	133.0	85.1	59.1	43.4	33.3	26.3	21.3	17.6	14.8	8.3
0.040	16	19	0.790	0.3270	0.1980	0.3270	0.7940	206.8	132.3	91.9	57.5	51.7	40.8	33.1	27.3	23.0	12.9
0.032	18	19	0.620	0.2420	0.1430	0.2420	0.1430	116.8	74.7	51.9	38.1	29.2	23.1	18.7	15.4	13.0	7.3
0.040	18	19	0.760	0.2970	0.1764	0.2970	0.7840	181.3	116.0	80.6	59.2	45.3	35.8	29.0	24.0	20.1	11.3

1. Theoretical section properties have been calculated per the latest edition of the Aluminum Association's Design Manual. I_{xx} and S_{xx} are effective section properties for deflection and bending.
2. Allowable load is calculated in accordance with the latest edition of the Aluminum Association's Design Manual considering bending, shear, combined bending and shear and deflection. Allowable load considers a 3 or more equal span condition.
3. Allowable load does not address panel weight, fasteners, connection strength or support material.
4. Allowable load includes web crippling.
5. Load/Span values are based on theoretical computations and not load testing.
6. Deflection consideration is limited by a maximum deflection ratio of L/180.
7. Allowable loads do not include a 1/3 stress increase for wind.

STRUCTURAL ONLY

REGISTERED PROFESSIONAL ENGINEER
CHANDER P. VARSHA
C26786
Exp. 03/31/2019
7/25/2018
CIVIL
STATE OF CALIFORNIA

TAYLOR METAL PRODUCTS

MS-200 (double lock) ROOF PANEL

SECTION PROPERTIES								ALLOWABLE UNIFORM LOADS, psf For various clip spacings (i.e. span values)									
				Top in Compression		Bottom in Compression		Inward Load									
Gauge	Width, in.	Yield ksi	Weight psf	I_{xx} $in^4/ft.$	S_{xx} in^3/ft	I_{xx} $in^4/ft.$	S_{xx} in^3/ft	2'	2.5'	3'	3.5	4'	4.5'	5'	5.5'	6'	8'
0.032	12	19	0.700	0.2810	0.1767	0.2810	0.5885	163.1	104.4	72.5	53.3	40.8	32.2	26.1	21.6	18.1	10.2
0.040	12	19	0.855	0.3460	0.2178	0.3460	0.7260	252.6	161.7	112.3	82.5	63.2	49.9	40.4	33.4	28.1	15.8
0.032	16	19	0.640	0.2280	0.1360	0.2280	0.5760	118.8	76.0	52.8	38.8	29.7	23.5	19.0	15.7	13.2	7.4
0.040	16	19	0.790	0.2810	0.1680	0.2810	0.7100	184.9	118.3	82.2	60.4	46.2	36.5	29.6	24.5	20.5	11.6
0.032	18	19	0.620	0.2070	0.1220	0.2070	0.5696	104.4	66.8	46.4	34.1	26.1	20.6	16.7	13.8	11.6	6.5
0.040	18	19	0.760	0.2560	0.1510	0.2560	0.7010	162.1	103.8	72.1	52.9	40.5	32.0	25.9	21.4	18.0	10.1

1. Theoretical section properties have been calculated per the latest edition of the Aluminum Association's Design Manual. I_{xx} and S_{xx} are effective section properties for deflection and bending.
2. Allowable load is calculated in accordance with the latest edition of the Aluminum Association's Design Manual considering bending, shear, combined bending and shear and deflection. Allowable load considers a 3 or more equal span condition.
3. Allowable load does not address panel weight, fasteners, connection strength or support material.
4. Allowable load includes web crippling.
5. Load/Span values are based on theoretical computations and not load testing.
6. Deflection is not considered.
7. Allowable loads do not include a 1/3 stress increase for wind.

SECTION PROPERTIES								ALLOWABLE UNIFORM LOADS, psf For various clip spacings (i.e. span values)									
				Top in Compression		Bottom in Compression		Inward Load									
Width, in.	Gauge	Yield ksi	Weight psf	I_{xx} $in^4/ft.$	S_{xx} in^3/ft	I_{xx} $in^4/ft.$	S_{xx} in^3/ft	2'	2.5'	3'	3.5	4'	4.5'	5'	5.5'	6'	8'
0.032	12	19	0.700	0.2810	0.1767	0.2810	0.5885	163.1	104.4	72.5	53.3	40.8	32.2	26.1	21.6	18.1	10.2
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0.032	16	19	0.640	0.2280	0.1360	0.2280	0.5760	118.8	76.0	52.8	38.8	29.7	23.5	19.0	15.7	13.2	7.4
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4. Allowable load includes web crippling.
5. Load/Span values are based on theoretical computations and not load testing.
6. Deflection consideration is limited by a maximum deflection ratio of L/120.
7. Allowable loads do not include a 1/3 stress increase for wind.

SECTION PROPERTIES								ALLOWABLE UNIFORM LOADS, psf For various clip spacings (i.e. span values)									
				Top in Compression		Bottom in Compression		Inward Load									
Width, in.	Gauge	Yield ksi	Weight psf	I_{xx} $in^4/ft.$	S_{xx} in^3/ft	I_{xx} $in^4/ft.$	S_{xx} in^3/ft	2'	2.5'	3'	3.5	4'	4.5'	5'	5.5'	6'	8'
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0.040	12	19	0.855	0.3460	0.2178	0.3460	0.7260	252.6	161.7	112.3	82.5	63.2	49.9	40.4	33.4	28.1	15.8
0.032	16	19	0.640	0.2280	0.1360	0.2280	0.5760	118.8	76.0	52.8	38.8	29.7	23.5	19.0	15.7	13.2	7.4
0.040	16	19	0.790	0.2810	0.1680	0.2810	0.7100	184.9	118.3	82.2	60.4	46.2	36.5	29.6	24.5	20.5	11.6
0.032	18	19	0.620	0.2070	0.1220	0.2070	0.5696	104.4	66.8	46.4	34.1	26.1	20.6	16.7	13.8	11.6	6.5
0.040	18	19	0.760	0.2560	0.1510	0.2560	0.7010	162.1	103.8	72.1	52.9	40.5	32.0	25.9	21.4	18.0	10.1

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4. Allowable load includes web crippling.
5. Load/Span values are based on theoretical computations and not load testing.
6. Deflection consideration is limited by a maximum deflection ratio of L/180.
7. Allowable loads do not include a 1/3 stress increase for wind.

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5711 PERRIN AVE.
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PHONE 916.318.8844
TOLLFREE 1 800.574.1388
FAX 916.993.4123

UL Online Certifications Directory

TJPV.R25913
Metal Roof Deck Panels

See General Information for Metal Roof Deck Panels

TAYLOR METAL INC, DBA TAYLOR METAL PRODUCTS
4566 RIDGE DR NE
SALEM, OR 97301-6992 USA

R25913

Coated steel panels identified as "EASY LOCK" for use in Construction No. 529.

Coated steel or aluminum panels identified as "MS200" for use in Construction Nos. 90, 176, 180, 238, 238A, 238B, 238C, 435, 435A, 437, 449, 451, 452, 487, 506, 506A, 506B.

Coated steel or aluminum panels identified as "Versa Span" for use in Construction Nos. 254, 255, 261, 303, 342, 343, 414, 436, 445, 447, 448, 486, 508, 508A, 543, 544.

Coated steel panels identified as "MS150" for use in Construction No. 554.

Copper panels identified as "MS100" for use in Construction No. 575.

Coated steel panels identified as "MS100" for use in Construction No. 602.

Coated steel panels identified as "Premier-Lock 100" for use in Construction No. 600.

Coated steel panels identified as "Premier-Lock 150" for use in Construction Nos. 587 and 601.

Coated steel panels identified as "Clip-Lock 150" for use in Construction No. 589.

TAYLOR METAL PRODUCTS

5711 PERRIN AVE.
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Coated steel panels identified as "MS200-90C" for use in Construction Nos. 576, 577, 583.

Coated steel or aluminum panels identified as "MS200-S" for use in Construction No. 312, 335, 403, 608, 610.

Copper panels identified as "MS150-S" for use in Construction No. 605.

Coated steel panels identified as "MS150-S" for use in Construction No. 588.

Aluminum panels identified as "MS150-S" for use in Construction No. 603.

Zinc panels identified as "MS150-S" for use in Construction no. 604.

Coated steel panels identified as "T-Panel Narrow Panel" for use in Construction Nos. 344, 397, 397A.

UL Evaluation Report

UL ER25913-01

Issued: March 31, 2016
Revised: March 29, 2022

Visit UL,LLC's Product iQ™ database **for status of Report.**

UL Category Code: ULEZ

CSI MasterFormat®

DIVISION: 07 00 00 - THERMAL AND MOISTURE PROTECTION
Sub-level 2: 07 40 00 - Roofing and Siding Panels
Sub-level 3: 07 41 00 - Roof Panels
Sub-level 4: 07 41 13 – Metal Roof Panels

COMPANY:

TAYLOR METAL INC, DBA TAYLOR METAL PRODUCTS
4566 RIDGE DRIVE NE
SALEM, OR 97301-6992
(503) 581-8338
www.taylormetal.com

1. SUBJECT:

EASY-LOCK, VERSA-SPAN, MS-100, MS-150, MS-200, PREMIER-LOCK-100, PREMIER-LOCK-150, CLIP-LOCK-150, T-PANEL NARROW BATTEN, PBR/MARION R, CLASSIC ⅞" CORRUGATED, HR-34, AND BR-36 METAL ROOFING PANELS

2. SCOPE OF EVALUATION:

- 2021, 2018, 2015, and 2012 *International Building Code*® (IBC)
- 2021, 2018, 2015, and 2012 *International Residential Code*® (IRC)
- 2019, 2016, and 2013 California Building Code
- 2019, 2016, and 2013 California Residential Code
- ICC-ES Acceptance Criteria for Quality Documentation (AC10)
- ICC-ES Acceptance Criteria for Metal Roof Coverings (AC166)

Underwriters Laboratories Inc.
333 Pfingsten Road, Northbrook, IL 60062-2096 USA
T: 847.272.8800 / F: 847.272.8129 / W: UL.com

The products were evaluated for the following properties:

- Roofing Systems for Exterior Fire Exposure (UL790, ASTM E108)
- Wind Uplift Resistance for Roof Assemblies (UL 580, ASTM E1592, FM 4471)
- Impact Resistance of Roofing Systems (UL 2218A)
- Corrosion Resistance (ASTM A653, ASTM A792)
- Corrosion Resistance (ASTM B370)

3. REFERENCED DOCUMENTS

- ICC-ES:
  - ICC-ES Acceptance Criteria for Metal Roof Coverings (AC166)
  - ICC-ES Acceptance Criteria for Quality Documentation (AC10)
- UL:
  - UL 580 Standard for Tests for Uplift Resistance of Roof Assemblies
  - UL 790 (ASTM E108) Standard Test Methods for Fire Tests of Roof Coverings
  - UL 2218A Impact Resistance of Roofing Systems
- AISI:
  - AISI S100, North American Specification for the Design of Cold-Formed Steel Structural Members
- ASTM:
  - ASTM A653/A653M, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
  - ASTM A792/A792M, Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process
  - ASTM B370, Standard Specification for Copper Sheet and Strip for Building Construction
  - ASTM E1592, Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference
  - ASTM G154, Practice for Operating Xenon Arc Light Apparatus for Exposure of Nonmetallic Materials
- Factory Mutual Approvals:
  - FM 4471, Approval Standard for Class 1 Panel Roofs

4. USES

Easy-Lock, MS-200, Versa-Span, MS-100, MS-150, Premier-Lock 100, Premier-Lock-150, Clip-Lock-150, T-Panel Narrow Batten, PBR/Marion R, Classic ⅞" Corrugated, HR-34, and BR-36 metal roofing panels are used as roof covering materials in Class A roofing systems installed on roof decks and spaced supports having slopes ½:12 or greater, in accordance with this report, and the manufacturer's published installation instructions.

5. PRODUCT DESCRIPTION

Taylor Metal Products' metal roofing panels described in this report are either coated or painted metal formed from ASTM A653 G90, ASTM A792 AZ50 hot-dip coated sheet steel, or from ASTM B370 cold-rolled copper sheet.

Steel Easy-Lock panels are manufactured to have a base metal thickness not less than 26 gauge [0.0179 in. (0.455 mm)]. Steel MS-100, MS-150, MS-200, Versa-Span, Premier-Lock 100, Premier-Lock-150, Clip-Lock-150, T-Panel Narrow Batten, PBR/Marion R, Classic ⅞" Corrugated, HR-34, and BR-36 panels are manufactured to have a base metal thickness not less than 25 gauge [0.0209 in. (0.531 mm)]. Copper Easy-Lock, MS-100, MS-150, MS-200, Versa Span, Premier-Lock 100, Premier-Lock 150, and Clip-Lock 150 panels are manufactured to a finished weight not less than 16 ounces per square foot having a thickness of [0.0216 in. (0.549 mm)], with the allowable tolerances.

The panels are metal roof coverings complying with Section 1507.4 of the IBC and California Building Code and Section R905.10 of the IRC and California Residential Code.

Fire Certification: Taylor Metal Products' metal roofing panels covered under this report are UL Classified for Class A fire performance in accordance with UL790 (ASTM E108), which qualifies them for use under Section 1505.1 of the IBC, and Section R902.1 of the IRC and California Residential Code. Refer to Table 1, Table 2, Table 3, and Table 4.

See the Listing under TGFU.R25913 which includes T-3, Tuff-Rib, PBR/Marion R, Classic ⅞" Corrugated, HR-34, and BR-36 profiles.

Wind Resistance: Roofing assemblies shall be designed to resist the design wind load pressures for components and cladding in accordance with Section 1609.5 and Section 1507.4 of the IBC, the California Building Code, and Section R905.10 of the IRC and California Residential Code.

Wind Uplift Resistance: Taylor Metal Products' metal roofing panels covered under this report have been tested for wind uplift resistance in accordance with UL 580 or ASTM E1592 complying with Section 1504.4 of the 2021 IBC, and Section 1504.3 of the 2018, 2015, and 2012 IBC and the California Building Code. Refer to Tables 1 through 6.

Wind-Driven Rain Resistance: The metal roofing panels covered under this report are not intended for installation in High-Velocity Hurricane Zones. Therefore, the wind-driven rain test specified in AC166 was not conducted under this evaluation report.

Corrosion Resistance: Taylor metal roofing panels covered under this report comply with the material properties and performance requirements for metal panel roof coverings as outlined in Section 1507.4.3 of the IBC and California Building Code, Section 905.10.3 of the IRC and California Residential Code, and meet the requirements for resistance to corrosion in accordance with ASTM A792.

6. INSTALLATION

6.1 General

Taylor metal roofing panels must be installed in accordance with Section 1507.4 of the IBC, the California Building Code, Section R905.10 of the IRC and California Residential Code, except as noted in this report and the manufacturer's published installation instructions. The manufacturer's published installation instructions must be available at all times on the jobsite during installation. The metal roofing panels must be attached to the decked sheathing in a manner that will secure the panels in place.

6.2 Slope

MS-100, MS-150, , BR-36, Classic Corrugated, HR-34, and PBR/Marion R metal roofing panels are not to be installed on roof decks having slopes less than 1:12. MS-200 metal roofing panels are not to be installed on roof decks having slopes less than ½:12. Versa-Span metal roofing panels are not to be installed on roof decks having slopes less than 2:12. All other products covered in this report are intended for roof decks having 3:12 slope or greater. Installation of Taylor metal roofing panels covered in this report are to be installed in accordance with Section 507.4.2 of the IBC and the California Building Code, or Section R905.10.2 of the IRC and the 2019 California Residential Code.

6.3 Roof Deck

Roof decking is to be as described in Section 1507.4.1 of the IBC and the 2019 California Building Code, Section R905.10.1 of the IRC and the California Residential Code. Roof deck must be code-compliant, minimum nominal ½ inch-thick (11.9 mm) exterior sheathing complying with Section 2304.8.2 of the 2021 and 2018 IBC, Section 2304.7.2 of the 2015 and 2012 IBC and 2019 California Building Code, or Section R803 of the IRC and the 2019 California Residential Code, or minimum No. 22 gauge [0.030 inch thick (0.76 mm)] steel complying with Section 2210.1.1.2 of the IBC and the California Building Code. The sheathing must be structurally sound and adequately fastened to resist wind loads for components and cladding as specified in Section 1609 of the IBC, the California Building Code, or Section R301.6 of the IRC and the California Residential Code.

6.4 Underlayment

An ice barrier must be installed along the eaves in locations historically prone to ice in accordance with Section 1507.7.4 of the IBC and the California Building Code, the 2019 California Residential Code, or Section R905.5.3.1 of the IRC. In addition to the ice barrier, an underlayment must be installed over the entire roof deck in accordance with Section 1507.1.1 of the IBC, the California Building Code, and Section R905.6.3 of the IRC and California Residential Code.

Underlayments installed on roofs in locations prone to high winds must be installed in accordance with Section 1507.4.5 of the IBC and the 2019 California Building Code, or Section R905.6.3 of the IRC and the 2019 California Residential Code.

6.5 Flashing and Coping

Flashing materials are to be installed in accordance with Section 1503.2 of the IBC and California Building Code and Section R903.2 IRC and the California Residential Code, as applicable.

Coping materials are to be installed in accordance with Section 1503.3 of the and California Building Code and Section R903.3 of the IRC and California Residential Code, as applicable.

6.6 Hips and Ridges

Hips and ridges must be installed in accordance with Taylor Metal, Inc.'s published installation instructions for exposure dimension and fastener type.

6.7 Fasteners and Attachment

Attachment of the roof panels must be in accordance with Section 1507.4.4 of the IBC and the California Building Code. Cold-formed steel used as the substrate for the attachment of the metal panels covered in this report must be identified in accordance with AISI S100.

6.8 Reroofing

Existing roof covering materials detrimental to performance of the roofing assembly are to be completely removed and replaced prior to installation of the Taylor metal roofing panels. Installation is to be performed for new construction as described in Section 6 of this report.

The existing roof shall be inspected in accordance with the provisions and limitations of Section 1512 of the 2021 IBC, Section 1511 of the 2018 and 2015 IBC and 2019 California Building Code, Section 1510 of the 2012, and Section R908 of the 2021, 2018, and 2015 IRC and California Residential Code, or Section R907 of the 2012 IRC, as applicable. Prior to the reroofing, hip and ridge coverings must be removed.

Flashing and edging must comply with Section 6.6 of this report and with Section 1512.6 of the 2021 IBC, Section 1511.6 of the 2018 and 2015 IBC, Sections 1510.5 and 1510.6 of the 2012 IBC and 2019 California Building Code, and Section R908.6 of the 2021, 2018, and 2015 IRC, and Section R907.6 of the 2012 IRC, and California Residential Code, as applicable.

Taylor Metal Products' (TMP) metal roof panels may be installed over existing Class A asphalt glass fiber mat shingles or any Class A UL Listed roof system as described in the UL Certification Category for Prepared Roof-covering Materials, Formed or Molded Metal, Fiber-Cement, Plastic or Fire-retardant-treated Wood (TFXX), for applicable coverage and details of the roof assembly.

7. CONDITIONS OF USE

The metal roofing panels described in this report comply with, or are suitable alternatives to, what is specified in those codes listed in Section 2 of this report, subject to the following conditions:

7.1 Materials and methods of installation must comply with this report and the manufacturer's published installation instructions. In the event of a conflict between the installation instructions and this report, this report governs.

7.2 Only TMP specified fasteners shall be used in the installation of the roof covering system.

7.3 See UL's Product iQ™ database for Metal Roof Deck Panels (TJPV), Roofing Systems (TGFU), and Roof-covering Materials, Impact Resistance (TGAM), respectively.

7.4 Wind uplift pressures on any roof area, including edges and corner zones shall not exceed the allowable wind pressure for the roof covering installed in that particular area. The allowable wind uplift pressure for the roof assembly shall be based on a minimum factor of safety of 2.0. The allowable wind uplift pressure is for the roof system only. The deck and framing to which the roofing system is attached shall be designed for the applicable components and cladding wind loads in accordance with the applicable code.

7.5 The metal roofing panels covered under this report are produced under the UL LLC Listing/Certification and Follow-Up Service Program, which includes audits in accordance with quality elements of ICC-ES Acceptance Criteria for Quality Documentation, AC10.

8. SUPPORTING EVIDENCE

8.1 Data in accordance with ICC-ES Acceptance Criteria for Metal Roof Coverings (AC166).

8.2 Manufacturer's descriptive product literature, including installation instructions.

8.3 UL Certification reports in accordance with UL 580, UL 790, and UL 2218A. See UL Product Certification Categories (TJPV), (TGFU), and (TGAM), File R25913.

8.4 Documentation of quality system elements described in ICC-ES Acceptance Criteria for Quality Documentation (AC10).

9. IDENTIFICATION

Taylor Metal Products' metal roofing panels described in this evaluation report are identified by a marking bearing the report holder's name (Taylor, Inc.) and address, the product name, the UL Certification Mark, and the evaluation report number UL ER25913-01. The validity of the evaluation report is contingent upon this identification appearing on the product or UL Certification Mark certificate.

10. USE OF UL EVALUATION REPORT

10.1 The approval of building products, materials, or systems is the responsibility of the applicable authorities having jurisdiction.

10.2 UL Evaluation Reports shall not be used in any manner that implies an endorsement of the product, material or system by UL.

10.3 The status of this report, as well as a complete directory of UL Evaluation Reports may be found at UL.com via the Product iQ™ database.

TABLE 1: WIND UPLIFT ASSEMBLIES[1]

System Number	Combustible Deck		Barrier Product	Metal Panel[4] Attachment	Allowable Uplift Pressure UL 580
	Wood Sheathing[2]	Attachment[3]			
Minimum 29 Gauge Steel Easy-Lock[5], Maximum 18 inches wide					**Class 90**
1	Minimum nominal ⅝ inch APA Span-Rated plywood	Minimum #6 x 1-⅞ inch bugle head screws or #8d annular ring shank nails spaced 6 inches oc at board edge and 12 inches oc into framing members	Georgia Pacific ¼ inch minimum DensDeck board or ¼ inch minimum United States Gypsum Co SECUROCK Glass-Mat Roof Board (Type SGMRX), National Gypsum DEXcell Glass Mat Roof Board or DEXcell FV Glass Mat Roof Board, CertainTeed Gypsum GlasRoc or ½ inch minimum UL Certified gypsum board with all joints staggered a minimum of 6 inches from the plywood joints, or one layer Versashield® SOLO™ Fire Resistant Slip Sheet	(1) Minimum No. 10 x 1 inch pancake head screws spaced 12 inches oc in slotted fastener flange	**-52.5**
Minimum 24 Gauge Steel Easy-Lock[5], Maximum 18 inches wide					**Class 90**
2	Minimum $^{19}/_{32}$ inch APA Span-Rated plywood	#6 x 1-⅞ inch bugle head screws or #8d annular ring shank nails spaced 6 inches oc at board edge and 12 inches oc into framing members[5]	Georgia Pacific ¼ inch minimum DensDeck board or ¼ inch minimum United States Gypsum Co SECUROCK Glass-Mat Roof Board (Type SGMRX), National Gypsum DEXcell Glass Mat Roof Board or DEXcell FV Glass Mat Roof Board, CertainTeed Gypsum GlasRoc or ½ inch minimum UL Certified gypsum board with all joints staggered a minimum of 6 inches from the plywood joints, or one layer Versashield® SOLO™ Fire Resistant Slip Sheet	(2) Minimum No. 10-12 x 1 inch pancake head screws spaced 36 inches oc	**-52.5**

[1]These assemblies comply with UL790 (ASTM E108) for Class A fire performance at an unlimited slope
[2]All side and butt joints to be sealed with urethane caulk
[3]Structural members spaced maximum 24 inches oc
[4]Any UL Certified Type G1, G2 or G3 base or ply sheet, Type 15 or 30 felt or Prepared Roofing Accessory may be used directly below the metal roof cover[5]Classified as Class 4 Impact

TABLE 1: WIND UPLIFT ASSEMBLIES[1] (continued)

System Number	Combustible Deck		Barrier Product	Metal Panel[4] Attachment	Allowable Uplift Pressure UL 580
	Wood Sheathing[2]	Attachment[3]			
Minimum 24 Gauge Steel Versa Span[5], Maximum 18 inches wide					**Class 90**
3	Minimum $^{19}/_{32}$ inch APA Span-Rated plywood	Minimum #6 x 1-⅞ inch bugle head screws or #8d annular ring shank nails spaced 6 inches oc at board edge and 12 inches oc into framing members	Georgia Pacific ¼ inch minimum DensDeck board or ¼ inch minimum United States Gypsum Co SECUROCK Glass-Mat Roof Board (Type SGMRX), National Gypsum DEXcell Glass Mat Roof Board or DEXcell FV Glass Mat Roof Board, CertainTeed Gypsum GlasRoc or ½ inch minimum UL Certified gypsum board with all joints staggered a minimum of 6 inches from the plywood joints, or one layer Versashield® SOLO™ Fire Resistant Slip Sheet	(2) Minimum No. 10-12 x 1 inch pancake head screws spaced 36 inches oc	**-52.5**
4				(2) Minimum No. 10-12 x 1 inch pancake head screws spaced 36 inches oc	**-52.5**

[1]These assemblies comply with UL790 (ASTM E108) for Class A fire performance at an unlimited slope
[2]All side and butt joints to be sealed with urethane caulk
[3]Structural members spaced maximum 24 inches oc
[4]Any UL Certified Type G1, G2 or G3 base or ply sheet, Type 15 or 30 felt or Prepared Roofing Accessory may be used directly below the metal roof cover
[5]Meets Class 4 Impact Rating

TABLE 1: WIND UPLIFT ASSEMBLIES[1] (continued)

System Number	Combustible Deck		Barrier Product	Metal Panel[4] Attachment	Allowable Uplift Pressure UL 580
	Wood Sheathing[2]	Attachment[3]			
Minimum .032 Aluminum Versa Span[5], Maximum 16 inches wide					**Class 90**
5	Minimum $^{19}/_{32}$ inch APA Span-Rated plywood	No. 8 x 1-⅞ inch bugle head screws or #8d annular ring shank nails spaced 6 inches oc at board edge and 12 inches oc into framing members	Georgia Pacific ¼ inch minimum DensDeck board or ¼ inch minimum United States Gypsum Co SECUROCK Glass-Mat Roof Board (Type SGMRX), National Gypsum DEXcell Glass Mat Roof Board or DEXcell FV Glass Mat Roof Board, CertainTeed Gypsum GlasRoc or ½ inch minimum UL Certified gypsum board with all joints staggered a minimum of 6 inches from the plywood joints, or one layer GAF-Elk VersaShield Solo Underlayment or Firestone Building Products CLAD-GARD SA FR Underlayment	(2) Minimum No. 10-12 pancake head screws spaced 18 inches oc	**-52.5**
Minimum 24 Gauge Steel T-Panel Narrow Batten[5], Maximum 21-¼ inches wide					**Class 90**
6	Minimum $^{19}/_{32}$ inch APA Span-Rated plywood	No. 8 x 1-⅞ inch bugle head screws or #8d annular ring shank nails spaced 6 inches oc at board edge and 12 inches oc into framing members	Georgia Pacific ¼ inch min DensDeck board or ¼ inch min United States Gypsum Co SECUROCK Glass-Mat Roof Board (Type SGMRX), National Gypsum DEXcell Glass Mat Roof Board or DEXcell FV Glass Mat Roof Board, CertainTeed Gypsum GlasRoc or ½ inch min UL Certified gypsum board with all joints staggered a min of 6 in. from the plywood joints, or one layer Versashield® SOLO™ Fire Resistant Slip Sheet	(2) Minimum No. 10-12 x 1 inch pancake head screws spaced 36 inches oc	**-52.5**

[1]These assemblies comply with UL790 (ASTM E108) for Class A fire performance at an unlimited slope
[2]All side and butt joints to be sealed with urethane caulk
[3]Structural members spaced maximum 24 inches oc
[4]Any UL Certified Type G1, G2 or G3 base or ply sheet, Type 15 or 30 felt or Prepared Roofing Accessory may be used directly below the metal roof cover
[5]Meets Class 4 Impact Rating

TABLE 1: WIND UPLIFT ASSEMBLIES[1] (continued)

System Number	Combustible Deck		Barrier Product	Metal Panel[4] Attachment	Allowable Uplift Pressure UL 580
	Wood Sheathing[2]	Attachment[3]			
Minimum 24 Gauge Steel T-Panel Narrow Batten[5], Maximum 21-¼ inches wide					**Class 90**
7	Minimum $^{19}/_{32}$ inch APA Span-Rated plywood	No. 8 x 1-⅞ inch bugle head screws or #8d annular ring shank nails spaced 6 inches oc at board edge and 12 inches oc into framing members	Georgia Pacific ¼ inch min DensDeck board or ¼ inch min United States Gypsum Co SECUROCK Glass-Mat Roof Board (Type SGMRX), National Gypsum DEXcell Glass Mat Roof Board or DEXcell FV Glass Mat Roof Board, CertainTeed Gypsum GlasRoc or ½ inch min UL Certified gypsum board with all joints staggered a min of 6 in. from the plywood joints, or one layer Versashield® SOLO™ Fire Resistant Slip Sheet	(1) Minimum No. 10-12 x 1 inch pancake head screws spaced 24 inches oc	**-52.5**
Minimum 24 Gauge Steel T-Panel Narrow Batten[5], Maximum 20 inches wide					**Class 90**
8	Minimum $^{19}/_{32}$ inch APA Span-Rated plywood	No. 8 x 1-⅞ inch bugle head screws or #8d annular ring shank nails spaced 6 inches oc at board edge and 12 inches oc into framing members	Georgia Pacific ¼ inch minimum DensDeck board or ¼ inch minimum United States Gypsum Co SECUROCK Glass-Mat Roof Board (Type SGMRX), National Gypsum DEXcell Glass Mat Roof Board or DEXcell FV Glass Mat Roof Board, CertainTeed Gypsum GlasRoc or ½ inch minimum UL Certified gypsum board with all joints staggered a minimum of 6 inches from the plywood joints, or one layer Versashield® SOLO™ Fire Resistant Slip Sheet	(2) Minimum No. 10-12 pancake head screws spaced 18 inches oc	**-52.5**

[1]These assemblies comply with UL790 (ASTM E108) for Class A fire performance at an unlimited slope
[2]All side and butt joints to be sealed with urethane caulk
[3]Structural members spaced maximum 24 inches oc
[4]Any UL Certified Type G1, G2 or G3 base or ply sheet, Type 15 or 30 felt or Prepared Roofing Accessory may be used directly below the metal roof cover
[5]Meets Class 4 Impact Rating

TABLE 1: WIND UPLIFT ASSEMBLIES[1] (continued)

System Number	Combustible Deck		Barrier Product	Metal Panel[4] Attachment	Allowable Uplift Pressure UL 580
	Wood Sheathing[2]	Attachment[3]			
16 Oz. Copper MS-100[5], Maximum 17 inches wide					**Class 90**
9	Minimum $^{19}/_{32}$ inch APA Span-Rated plywood	#6 x 1-⅞ inch bugle head screws or #8d annular ring shank nails spaced 6 inches oc at board edge and 12 inches oc into framing members	Georgia Pacific ¼ inch minimum DensDeck board or ¼ inch minimum United States Gypsum Co SECUROCK Glass-Mat Roof Board (Type SGMRX), National Gypsum DEXcell Glass Mat Roof Board or DEXcell FV Glass Mat Roof Board, CertainTeed Gypsum GlasRoc or ½ inch minimum UL Certified gypsum board with all joints staggered a minimum of 6 inches from the plywood joints, or one layer GAF-Elk VersaShield Solo Underlayment or Firestone Building Products CLAD-GARD SA FR Underlayment	(2) Minimum No. 10-12 x 1 inch pancake head screws spaced 18	**-52.5**
Minimum 24 Gauge Steel MS-100[5], Maximum 18 inches wide					**Class 90**
10	Minimum nominal ⅝ inch APA Span-Rated plywood	No. 8 x 2-½ inch bugle head screws or #8d annular ring shank nails spaced 6 inches oc at board edge and 12 inches oc into framing members	Georgia Pacific ¼ inch minimum DensDeck board or ¼ inch minimum United States Gypsum Co SECUROCK Glass-Mat Roof Board (Type SGMRX), National Gypsum DEXcell Glass Mat Roof Board or DEXcell FV Glass Mat Roof Board, CertainTeed Gypsum GlasRoc or ½ inch minimum UL Certified gypsum board with all joints staggered a minimum of 6 inches from the plywood joints, or one layer Versashield® SOLO™ Fire Resistant Slip Sheet	(2) Minimum No. 10-12 x 1 inch pancake head screws spaced 24	**-52.5**

[1]These assemblies comply with UL790 (ASTM E108) for Class A fire performance at an unlimited slope
[2]All side and butt joints to be sealed with urethane caulk
[3]Structural members spaced maximum 24 inches oc
[4]Any UL Certified Type G1, G2 or G3 base or ply sheet, Type 15 or 30 felt or Prepared Roofing Accessory may be used directly below the metal roof cover
[5]Meets Class 4 Impact Rating

TABLE 1: WIND UPLIFT ASSEMBLIES[1] (continued)

System Number	Combustible Deck		Barrier Product	Metal Panel[4] Attachment	Allowable Uplift Pressure UL 580
	Wood Sheathing[2]	Attachment[3]			
Minimum 24 Gauge Steel MS-150[5], Maximum 16 inches wide					**Class 90**
11	Minimum nominal ½ inch APA Span-Rated plywood	#7-6 x 1-⅝ inch bugle head screws or #8d annular ring shank nails spaced 6 inches oc at board edge and 12 inches oc into framing members[5]	Georgia Pacific ¼ inch minimum DensDeck board or ¼ inch minimum United States Gypsum Co SECUROCK Glass-Mat Roof Board (Type SGMRX), National Gypsum DEXcell Glass Mat Roof Board or DEXcell FV Glass Mat Roof Board, CertainTeed Gypsum GlasRoc or ½ inch minimum UL Certified gypsum board with all joints staggered a min of 6 in. from the plywood joints, or one layer GAF-Elk VersaShield Underlayment or Firestone Building Products CLAD-GARD SA FR Underlayment	(4) Minimum No. 10-12 x 1 inch pancake head screws spaced 48 inches oc	**-52.5**
12	Minimum nominal ⅝ inch APA Span-Rated plywood	No. 8 x 2-½ inch bugle head screws spaced 6 inches oc at board edge and 12 inches oc into framing members	Georgia Pacific ¼ inch minimum DensDeck board or ¼ inch minimum United States Gypsum Co SECUROCK Glass-Mat Roof Board (Type SGMRX), National Gypsum DEXcell Glass Mat Roof Board or DEXcell FV Glass Mat Roof Board, CertainTeed Gypsum GlasRoc or ½ inch minimum UL Certified gypsum board with all joints staggered a min of 6 in. from the plywood joints, or one layer GAF-Elk VersaShield Underlayment or Firestone Building Products CLAD-GARD SA FR Underlayment	(2) Minimum ¼-13 x 1-⅝ inch truss head screws spaced 36 inches oc	**-52.5**

[1]These assemblies comply with UL790 (ASTM E108) for Class A fire performance at an unlimited slope
[2]All side and butt joints to be sealed with urethane caulk
[3]Structural members spaced maximum 24 inches oc
[4]Any UL Certified Type G1, G2 or G3 base or ply sheet, Type 15 or 30 felt or Prepared Roofing Accessory may be used directly below the metal roof cover
[5]Meets Class 4 Impact Rating

TABLE 1: WIND UPLIFT ASSEMBLIES[1] (continued)

System Number	Combustible Deck		Barrier Product	Metal Panel[4] Attachment	Allowable Uplift Pressure UL 580
	Wood Sheathing[2]	Attachment[3]			
Minimum .032 Aluminum MS-150[5], Maximum 20 inches wide					**Class 90**
13	Minimum nominal ⅝ inch APA Span-Rated plywood	No. 8 x 2-½ inch bugle head screws spaced 6 inches oc at board edge and 12 inches oc into framing members	Georgia Pacific ¼ inch minimum DensDeck board or ¼ inch minimum United States Gypsum Co SECUROCK Glass-Mat Roof Board (Type SGMRX), National Gypsum DEXcell Glass Mat Roof Board or DEXcell FV Glass Mat Roof Board, CertainTeed Gypsum GlasRoc or ½ inch minimum UL Certified gypsum board with all joints staggered a minimum of 6 inches from the plywood joints, or one layer GAF-Elk VersaShield Solo Underlayment or Firestone Building Products CLAD-GARD SA FR Underlayment	(2) Minimum ¼-13 x 1-⅝ inch truss head screws spaced 36 inches oc	**-52.5**
Minimum .032 Zinc MS-150[5], Maximum 16 inches wide					**Class 90**
14	Minimum nominal ⅝ inch APA Span-Rated plywood	No. 8 x 2-½ inch bugle head screws spaced 6 inches oc at board edge and 12 inches oc into framing members	Georgia Pacific ¼ inch minimum DensDeck board or ¼ inch minimum United States Gypsum Co SECUROCK Glass-Mat Roof Board (Type SGMRX), National Gypsum DEXcell Glass Mat Roof Board or DEXcell FV Glass Mat Roof Board, CertainTeed Gypsum GlasRoc or ½ inch minimum UL Certified gypsum board with all joints staggered a min of 6 in. from the plywood joints, or one layer GAF-Elk VersaShield Solo Underlayment or Firestone Building Products CLAD-GARD SA FR Underlayment	(2) Minimum ¼-13 x 1-⅝ inch truss head screws spaced 36 inches oc	**-52.5**

[1]These assemblies comply with UL790 (ASTM E108) for Class A fire performance at an unlimited slope
[2]All side and butt joints to be sealed with urethane caulk
[3]Structural members spaced maximum 24 inches oc
[4]Any UL Certified Type G1, G2 or G3 base or ply sheet, Type 15 or 30 felt or Prepared Roofing Accessory may be used directly below the metal roof cover
[5]Meets Class 4 Impact Rating

TABLE 1: WIND UPLIFT ASSEMBLIES[1] (continued)

System Number	Combustible Deck		Barrier Product	Metal Panel[4] Attachment	Allowable Uplift Pressure UL 580
	Wood Sheathing[2]	Attachment[3]			
Minimum 24 Gauge Steel Premier-Lock 100[5], Maximum 16 inches wide					**Class 90**
15	Minimum nominal ⅝ inch APA Span-Rated plywood	No. 8 x 2-½ inch bugle head screws or #8d annular ring shank nails spaced 6 inches oc at board edge and 12 inches oc into framing members[5]	Georgia Pacific ¼ in. min DensDeck board or ¼ inch minimum United States Gypsum Co SECUROCK Glass-Mat Roof Board (Type SGMRX), National Gypsum DEXcell Glass Mat Roof Board or DEXcell FV Glass Mat Roof Board, CertainTeed Gypsum GlasRoc or ½ inch minimum UL Certified gypsum board with all joints staggered a min of 6 in. from the plywood joints, or one layer Versashield® SOLO™ Fire Resistant Slip Sheet	(1) Minimum No. 10-12 x 1 inch pancake head screws spaced 16 inches oc	**-52.5**
16 oz. Copper MS-150[5], Maximum 16 inches wide					**Class 90**
16	Minimum nominal ⅝ inch APA Span-Rated plywood	No. 8 x 2-½ inch bugle head screws spaced 6 inches oc at board edge and 12 inches oc into framing members[5]	Georgia Pacific ¼ inch minimum DensDeck board or ¼ inch minimum United States Gypsum Co SECUROCK Glass-Mat Roof Board (Type SGMRX), National Gypsum DEXcell Glass Mat Roof Board or DEXcell FV Glass Mat Roof Board, CertainTeed Gypsum GlasRoc or ½ inch minimum UL Certified gypsum board with all joints staggered a min of 6 in. from the plywood joints, or one layer GAF-Elk VersaShield Solo Underlayment or Firestone Building Products CLAD-GARD SA FR Underlayment	(2) Minimum ¼-13 x 1-⅝ inch truss head screws spaced 36 inches oc	**-52.5**

[1]These assemblies comply with UL790 (ASTM E108) for Class A fire performance at an unlimited slope
[2]All side and butt joints to be sealed with urethane caulk
[3]Structural members spaced maximum 24 inches oc
[4]Any UL Certified Type G1, G2 or G3 base or ply sheet, Type 15 or 30 felt or Prepared Roofing Accessory may be used directly below the metal roof cover
[5]Meets Class 4 Impact Rating

TABLE 1: WIND UPLIFT ASSEMBLIES[1] (continued)

System Number	Combustible Deck		Barrier Product Configuration	Metal Panel[4] Attachment	Allowable Uplift Pressure UL 580
	Wood Sheathing[2]	Attachment[3]			
Minimum 24 Gauge Steel Premier-Lock 150[5], Maximum 14-½ inches wide					**Class 90**
17	Minimum nominal ⅝ inch APA Span-Rated plywood	No. 8 x 2-½ inch bugle head screws or #8d annular ring shank nails spaced 6 inches oc at board edge and 12 inches oc into framing members	Georgia Pacific ¼ inch minimum DensDeck board or ¼ inch minimum United States Gypsum Co SECUROCK Glass-Mat Roof Board (Type SGMRX), National Gypsum DEXcell Glass Mat Roof Board or DEXcell FV Glass Mat Roof Board, CertainTeed Gypsum GlasRoc or ½ inch minimum UL Certified gypsum board with all joints staggered a min of 6 in. from the plywood joints, or one layer GAF-Elk VersaShield Underlayment or Firestone Building Products CLAD-GARD SA FR Underlayment	(4) Minimum No. 10-12 x 1 inch pancake head screws spaced 18 inches oc	**-52.5**
Minimum 22 Gauge Steel Premier-Lock 150[5], Maximum 16-¼ inches wide					**Class 90**
18	Minimum nominal ⅝ inch thick APA Span-Rated plywood	No. 8 x 2-½ inch bugle head screws or #8d annular ring shank nails spaced 6 inches oc at board edge and 12 inches oc into framing members	Georgia Pacific ¼ inch minimum DensDeck board or ¼ inch minimum United States Gypsum Co SECUROCK Glass-Mat Roof Board (Type SGMRX), National Gypsum DEXcell Glass Mat Roof Board or DEXcell FV Glass Mat Roof Board, CertainTeed Gypsum GlasRoc or ½ inch minimum UL Certified gypsum board with all joints staggered a min of 6 in. from the plywood joints, or one layer Versashield® SOLO™ Fire Resistant Slip Sheet	(1) Minimum No. 10 x 1 inch pancake head screws spaced 20-$^{3}/_{4}$ inches oc	**-52.5**

[1]These assemblies comply with UL790 (ASTM E108) for Class A fire performance at an unlimited slope
[2]All side and butt joints to be sealed with urethane caulk
[3]Structural members spaced maximum 24 inches oc
[4]Any UL Certified Type G1, G2 or G3 base or ply sheet, Type 15 or 30 felt or Prepared Roofing Accessory may be used directly below the metal roof cover
[5]Meets Class 4 Impact Rating

TABLE 1: WIND UPLIFT ASSEMBLIES[1] (continued)

System Number	Combustible Deck		Barrier Product Configuration[5]	Metal Panel[4] Attachment	Allowable Uplift Pressure UL 580
	Wood Sheathing[2]	Attachment[3]			
Minimum 24 Gauge Steel Clip-Lock 150[5], Maximum 16 inches wide					**Class 90**
19	Minimum nominal ⅝ inch thick APA Span-Rated plywood	No. 8 x 2-½ inch bugle head screws or #8d annular ring shank nails spaced 6 inches oc at board edge and 12 inches oc into framing members	Georgia Pacific ¼ inch minimum DensDeck board or ¼ inch minimum United States Gypsum Co SECUROCK Glass-Mat Roof Board (Type SGMRX), National Gypsum DEXcell Glass Mat Roof Board or DEXcell FV Glass Mat Roof Board, CertainTeed Gypsum GlasRoc or ½ inch minimum UL Certified gypsum board with all joints staggered a min of 6 in. from the plywood joints, or one layer Versashield® SOLO™ Fire Resistant Slip Sheet	(2) Minimum No. 10-12 x 1 inch pancake head screws spaced 36 inches oc	**-52.5**
20	Minimum nominal ½ inch thick APA Span-Rated plywood	No. 7-6 coarse thread, No. 1 Phillips drive, bugle-head, coated steel wood screws.	Georgia Pacific ¼ inch minimum DensDeck board or ¼ inch minimum United States Gypsum Co SECUROCK Glass-Mat Roof Board (Type SGMRX), National Gypsum DEXcell Glass Mat Roof Board or DEXcell FV Glass Mat Roof Board, CertainTeed Gypsum GlasRoc or ½ inch minimum UL Certified gypsum board with all joints staggered a min of 6 in. from the plywood joints, or one layer Versashield® SOLO™ Fire Resistant Slip Sheet	(2) Minimum No. 10-12 x 1 inch pancake head screws spaced 36 inches oc	**-52.5**

[1]These assemblies comply with UL790 (ASTM E108) for Class A fire performance at an unlimited slope
[2]All side and butt joints to be sealed with urethane caulk
[3]Structural members spaced maximum 24 inches oc
[4]Any UL Certified Type G1, G2 or G3 base or ply sheet, Type 15 or 30 felt or Prepared Roofing Accessory may be used directly below the metal roof cover
[5]Meets Class 4 Impact Rating

TABLE 1: WIND UPLIFT ASSEMBLIES[1] (continued)

System Number	Combustible Deck		Barrier Product Configuration	Metal Panel[4] Attachment	Allowable Uplift Pressure UL 580
	Wood Sheathing[2]	Attachment[3]			
Minimum 24 Gauge Steel MS-200[5,6], Maximum 16 inches wide					**Class 90**
21	Minimum nominal ⅝ inch thick APA Span-Rated plywood or OSB	No. 8 x 1-⅞ inch bugle head screws or #8d annular ring shank nails spaced 6 inches oc at board edge and 12 inches oc into framing members	Georgia Pacific ¼ inch minimum DensDeck board or ¼ inch minimum United States Gypsum Co SECUROCK Glass-Mat Roof Board (Type SGMRX), National Gypsum DEXcell Glass Mat Roof Board or DEXcell FV Glass Mat Roof Board, CertainTeed Gypsum GlasRoc or ½ inch minimum UL Certified gypsum board with all joints staggered a min of 6 in. from the plywood joints, or one layer Versashield® SOLO™ Fire Resistant Slip Sheet	(2) Minimum No. 10-12 x 1 inch pancake head screws spaced 60 inches oc	**-52.5**
Minimum 24 Gauge Steel MS-200[5,6], Maximum 16 inches wide					**Class 90**
22	Minimum nominal ⅝ inch thick APA Span-Rated plywood	No. 8 x 1-⅞ inch bugle head screws or #8d annular ring shank nails spaced 6 inches oc at board edge and 12 inches oc into framing members	Georgia Pacific ¼ inch minimum DensDeck board or ¼ inch minimum United States Gypsum Co SECUROCK Glass-Mat Roof Board (Type SGMRX), National Gypsum DEXcell Glass Mat Roof Board or DEXcell FV Glass Mat Roof Board, CertainTeed Gypsum GlasRoc or ½ inch minimum UL Certified gypsum board with all joints staggered a min of 6 in. from the plywood joints, or one layer Versashield® SOLO™ Fire Resistant Slip Sheet	(2) Minimum No. 12-8 flat head screws spaced 30 inches oc	**-52.5**

[1]These assemblies comply with UL790 (ASTM E108) for Class A fire performance at an unlimited slope
[2]All side and butt joints to be sealed with urethane caulk
[3]Structural members spaced maximum 24 inches oc
[4]Any UL Certified Type G1, G2 or G3 base or ply sheet, Type 15 or 30 felt or Prepared Roofing Accessory may be used directly below the metal roof cover
[5]Meets Class 4 Impact Rating
[6]Panel side laps may be rolled to 90º or 180º

TABLE 1: WIND UPLIFT ASSEMBLIES[1] (continued)

System Number	Combustible Deck		Barrier Product Configuration	Metal Panel[4] Attachment	Allowable Uplift Pressure UL 580
	Wood Sheathing[2]	Attachment[3]			
Minimum 24 Gauge Steel MS-200[5,6], Maximum 16 inches wide					**Class 90**
23	Minimum nominal 2 inch thick dimensional lumber planks	No. 8 x 1-⅞ inch bugle head screws or #8d annular ring shank nails	Georgia Pacific ¼ inch minimum DensDeck board or ¼ inch minimum United States Gypsum Co SECUROCK Glass-Mat Roof Board (Type SGMRX), National Gypsum DEXcell Glass Mat Roof Board or DEXcell FV Glass Mat Roof Board, CertainTeed Gypsum GlasRoc or ½ inch minimum UL Certified gypsum board with all joints staggered a min of 6 in. from the plywood joints, or one layer Versashield® SOLO™ Fire Resistant Slip Sheet	(2) No. 14 pancake head screws spaced 24 inches oc	**-52.5**
Minimum 24 Gauge Steel MS-200[5,6], Maximum 16 inches wide					**Class 90**
24	Minimum nominal ⅝ inch thick APA Span-Rated plywood or minimum nominal 2 inch thick dimensional lumber planks	No. 8 x 1-⅞ inch bugle head screws or #8d annular ring shank nails spaced 6 inches oc at board edge and 12 inches oc into framing members	Georgia Pacific ¼ inch minimum DensDeck board or ¼ inch minimum United States Gypsum Co SECUROCK Glass-Mat Roof Board (Type SGMRX), National Gypsum DEXcell Glass Mat Roof Board or DEXcell FV Glass Mat Roof Board, CertainTeed Gypsum GlasRoc or ½ inch minimum UL Certified gypsum board with all joints staggered a min of 6 in. from the plywood joints, or one layer Versashield® SOLO™ Fire Resistant Slip Sheet	(2) Minimum No. 10-12 x 1 inch pancake head screws spaced 36 inches oc	**-52.5**

[1]These assemblies comply with UL790 (ASTM E108) for Class A fire performance at an unlimited slope
[2]All side and butt joints to be sealed with urethane caulk
[3]Structural members spaced maximum 24 inches oc
[4]Any UL Certified Type G1, G2 or G3 base or ply sheet, Type 15 or 30 felt or Prepared Roofing Accessory may be used directly below the metal roof cover
[5]Meets Class 4 Impact Rating
[6]Panel side laps may be rolled to 90º or 180º

TABLE 1: WIND UPLIFT ASSEMBLIES[1] (continued)

System Number	Combustible Deck		Barrier Product Configuration	Metal Panel[4] Attachment	Allowable Uplift Pressure UL 580
	Wood Sheathing[2]	Attachment[3]			
Minimum 24 Gauge Steel BR-36[5,6], Maximum 36 inches wide					**Class 90**
25	Minimum nominal ⅝ inch thick APA Span-Rated plywood	No. 8 x 1-⅞ inch bugle head screws spaced 12 inches oc into framing members	Georgia Pacific ¼ inch minimum DensDeck board or ¼ inch minimum United States Gypsum Co SECUROCK Glass-Mat Roof Board (Type SGMRX), National Gypsum DEXcell Glass Mat Roof Board or DEXcell FV Glass Mat Roof Board, CertainTeed Gypsum GlasRoc or ½ inch minimum UL Certified gypsum board with all joints staggered a min of 6 in. from the plywood joints, or one layer Versashield® SOLO™ Fire Resistant Slip Sheet	No. 14 by 1-½ inch long Type A $^{5}/_{16}$ inch hex head steel screw with $^{9}/_{16}$ diameter metal washer and bonded neoprene rubber seal spaced 30 inches oc in the bottom flute of the roof panel.	**-52.5**
Minimum 24 Gauge Steel BR-36[5,6], Maximum 36 inches wide					**Class 30**
26	Minimum nominal ⅝ inch thick APA Span-Rated plywood	No. 8 x 1-⅞ inch bugle head screws spaced 12 inches oc into framing members	Georgia Pacific ¼ inch minimum DensDeck board or ¼ inch minimum United States Gypsum Co SECUROCK Glass-Mat Roof Board (Type SGMRX), National Gypsum DEXcell Glass Mat Roof Board or DEXcell FV Glass Mat Roof Board, CertainTeed Gypsum GlasRoc or ½ inch minimum UL Certified gypsum board with all joints staggered a min of 6 in. from the plywood joints, or one layer Versashield® SOLO™ Fire Resistant Slip Sheet	No. 14 by 1-½ inch long Type A $^{5}/_{16}$ inch hex head steel screw with $^{9}/_{16}$ diameter metal washer and bonded neoprene rubber seal spaced 60 inches oc in the bottom flute of the roof panel.	**-15**

[1]These assemblies comply with UL790 (ASTM E108) for Class A fire performance at an unlimited slope
[2]All side and butt joints to be sealed with urethane caulk
[3]Structural members spaced maximum 24 inches oc
[4]Any UL Certified Type G1, G2 or G3 base or ply sheet, Type 15 or 30 felt or Prepared Roofing Accessory may be used directly below the metal roof cover
[5]Meets Class 4 Impact Rating
[6]Panel side laps fastened with No. 14 by ⅞ inch long hex head steel screws spaced 12 inches oc

TABLE 2: WIND UPLIFT ASSEMBLIES[1]

System Number	Noncombustible Deck Steel Decking	Insulation[2]	Coverboard or Barrier Product	Ply Sheet	Metal Panel Attachment	Allowable Uplift Pressure UL 580
Minimum 24 Gauge Steel BR-36[3], Maximum 36 inches wide						**Class 90**
27	Minimum 22 MSG, 50 ksi steel[4]	Any UL Listed Polyisocyanurate glass fiber, perlite or wood fiber, maximum 10-inches thick[5]	Minimum ½ inch thick tongue and groove UL Certified gypsum board, butt end joints staggered over top flutes of steel deck.	Any UL Certified Type G1, G2 or G3 base or ply sheet, Type 15 or 30 felt or UL Certified Prepared Roofing Accessory	No. 12-14 T3 flanged hex head steel screws with neoprene rubber seal installed 24 inches oc	**-52.5**
Minimum 24 Gauge Steel BR-36[3,6], Maximum 36 inches wide						**Class 60**
28	Minimum 22 MSG, 50 ksi steel[4]	Any UL Listed Polyisocyanurate glass fiber, perlite or wood fiber, maximum 10-inches thick[5]	Minimum ½ inch thick tongue and groove UL Certified gypsum board, butt end joints staggered over top flutes of steel deck.	Any UL Certified Type G1, G2 or G3 base or ply sheet, Type 15 or 30 felt or UL Certified Prepared Roofing Accessory	No. 12-14 T3 flanged hex head steel screws with neoprene rubber seal installed 60 inches oc	**-30**

[1]These assemblies comply with UL790 (ASTM E108) for Class A fire performance at an unlimited slope
[2]6 mil vapor barrier may be used between steel deck and foam plastic insulation
[3]Meets Class 4 Impact Rating
[4]Structural supports to be minimum 16 GA spaced maximum 60 inches oc
[5]Fasteners used to attach insulation layer to steel deck to be minimum No. 11-13 truss head screws and penetrate steel deck by minimum ½ inch
[6]Panel side laps fastened with No. 14 by ⅞ inch long hex head steel screws spaced 12 inches oc

TABLE 2: WIND UPLIFT ASSEMBLIES[1]

System Number	Noncombustible Deck Steel Decking	Insulation[2]	Coverboard or Barrier Product	Ply Sheet	Metal Panel Attachment	Allowable Uplift Pressure UL 580
Minimum 24 Gauge Steel MS-200[3], Maximum 16 inches wide						**Class 90**
29	Minimum 22 MSG, 33 ksi steel[4]	Any UL Listed Polyisocyanurate glass fiber, perlite or wood fiber, any thickness[5]	Minimum ½ inch thick tongue and groove UL Certified gypsum board, butt end joints staggered over top flutes of steel deck.	Any UL Certified Type G1, G2 or G3 base or ply sheet, Type 15 or 30 felt or UL Certified Prepared Roofing Accessory	(1) No. 18 hex washer head screws spaced 48 inches oc or (2) No. 14 truss head screws spaced 20 inches oc[6]	**-52.5**
Minimum 24 Gauge Steel MS-200[3,7], Maximum 16 inches wide						**Class 90**
30	Minimum 22 MSG, 33 ksi steel[4]	Any UL Listed Polyisocyanurate glass fiber, perlite or wood fiber, any thickness[5]	See TGIK Listing for optional components.	Any UL Certified Type G1, G2 or G3 base or ply sheet, Type 15 or 30 felt or UL Certified Prepared Roofing Accessory	(1) No. 11 hex washer head screws spaced 30 inches oc	**-52.5**
Minimum 24 Gauge Steel MS-200[3], Maximum 16 inches wide						**Class 90**
31	Minimum 22 MSG, 33 ksi steel[8]	Any UL Listed Polyisocyanurate glass fiber, perlite or wood fiber, any thickness[5]	See TGIK Listing for optional components.	Any UL Certified Type G1, G2 or G3 base or ply sheet, Type 15 or 30 felt or UL Certified Prepared Roofing Accessory	(2) No. 14 truss head screws spaced 48 inches oc	**-52.5**

[1]These assemblies comply with UL790 (ASTM E108) for Class A fire performance at an unlimited slope
[2]6 mil vapor barrier may be used between steel deck and foam plastic insulation
[3]Meets Class 4 Impact Rating
[4]Structural supports spaced maximum 60 inches oc
[5]Fasteners used to attach insulation layer to steel deck to be minimum No. 11-13 truss head screws and penetrate steel deck by minimum ½ inch
[6]Insulation bearing plate not required if coverboard is used
[7]Panel side laps may be rolled to 90º or 180º
[8]Structural supports spaced maximum 72 inches oc

TABLE 2: WIND UPLIFT ASSEMBLIES[1] (continued)

System Number	Noncombustible Deck Steel Decking	Insulation[2]	Coverboard or Barrier Product	Ply Sheet	Metal Panel Attachment	Allowable Uplift Pressure UL 580
Minimum 24 Gauge Steel MS-200[3], Maximum 16 inches wide						**Class 90**
32	Minimum 22 MSG, 33 ksi steel[4]	Any UL Listed Polyisocyanurate glass fiber, perlite or wood fiber, any thickness[5]	See TGIK Listing for components.	Any UL Certified Type G1, G2 or G3 base or ply sheet, Type 15 or 30 felt or UL Certified Prepared Roofing Accessory	(2) No. 14 truss head screws spaced 20 inches oc, or (1) with continuous clip fastened 8 inches oc	**-52.5**
Minimum 24 Gauge Steel T-Panel Narrow Batten[5], Maximum 21-¼ inches wide						**Class 90**
33	Minimum 22 MSG, 33 ksi steel	Any UL Listed Polyisocyanurate glass fiber, perlite or wood fiber, any thickness[5]	Minimum 2.00 pcf extruded polystyrene foamed plastic insulation boards, maximum 4 inches thick.	Any UL Certified Type G1, G2 or G3 base or ply sheet, Type 15 or 30 felt or UL Certified Prepared Roofing Accessory	(1) Minimum No. No. 14 truss head screws spaced 20 inches oc spaced 24 inches oc	**-52.5**

[1]These assemblies comply with UL790 (ASTM E108) for Class A fire performance at an unlimited slope
[2]6 mil vapor barrier may be used between steel deck and foam plastic insulation
[3]Meets Class 4 Impact Rating
[4]Structural supports spaced maximum 60 inches oc
[5]Fasteners used to attach insulation layer to steel deck to be minimum No. 11-13 truss head screws and penetrate steel deck by minimum ½ inch
[6]Insulation bearing plate not required if coverboard is used

TABLE 2: WIND UPLIFT ASSEMBLIES[1] (continued)

System Number	Noncombustible Deck / Steel Decking[2]	Insulation[3]	Coverboard or Barrier Product	Ply Sheet	Metal Panel Attachment	Allowable Uplift Pressure UL 580
Minimum 24 Gauge Steel MS-200[4,8], Maximum 16 inches wide						**Class 90**
34	Minimum 22 MSG steel[5]	Maximum 4 inch thick, any UL Listed rigid foam insulation, minimum 2.25 pcf density	Optional-Min $^{15}/_{32}$ inch plywood, or min $^{7}/_{16}$ inch thick OSB, ½ inch thick gypsum board, ½ inch wood fiberboard, ¼ inch min. thickness G-P Gypsum DensDeck, ¼ inch min thick USG SECUROCK Glass Mat Board or SECUROCK Roof Board applied over steel deck in lieu of Foamed Plastic or over Foamed Plastic[6]	Any UL Certified Type G1, G2 or G3 base or ply sheet, Type 15 or 30 felt or UL Certified prepared	(1) No. 12 washered hex-head self-drilling steel screw maximum 24 inches oc[7] with continuous clip	**-52.5**
Minimum 24 Gauge Steel MS-200[4,8], Maximum 18 inches wide						**Class 90**
35	Minimum 22 MSG steel[9]	Any UL Listed Polyisocyanurate glass fiber, perlite or wood fiber, any thickness	Optional-Min $^{15}/_{32}$ inch plywood, or min $^{7}/_{16}$ inch thick OSB, ½ inch thick gypsum board, ½ inch wood fiberboard, ¼ inch min. thickness G-P Gypsum DensDeck, ¼ inch min thick USG SECUROCK Glass Mat Board or SECUROCK Roof Board applied over steel deck in lieu of Foamed Plastic or over Foamed Plastic[6]	Any UL Certified Type G1, G2 or G3 base or ply sheet, Type 15 or 30 felt or UL Certified Prepared Roofing Accessory	(2) No. 12 washered hex-head self-drilling steel screw maximum 48 inches oc[7]	**-52.5**

[1]These assemblies comply with UL790 (ASTM E108) for Class A fire performance at an unlimited slope
[2]Minimum 33 ksi
[3]6 mil vapor barrier may be used between steel deck and foam plastic insulation
[4]Meets Class 4 Impact Rating
[5]Structural supports spaced maximum 48 inches oc
[6]Fasteners used to attach insulation layer to steel deck to be minimum No. 11-13 truss head screws and penetrate steel deck by minimum ½ inch
[7]Insulation bearing plate not required if coverboard is used
[8]Panel side laps may be rolled to 90º or 180º
[9]Structural supports spaced maximum 60 inches oc

TABLE 2: WIND UPLIFT ASSEMBLIES[1] (continued)

System Number	Noncombustible Deck / Steel Decking[2]	Insulation[3]	Coverboard or Barrier Product	Ply Sheet	Metal Panel Attachment	Allowable Uplift Pressure UL 580
Minimum 24 Gauge Steel MS-200[4, 5], Maximum 18 inches wide						**Class 90**
36	Minimum 22 MSG steel[6]	Any UL Listed Polyisocyanurate glass fiber, perlite or wood fiber, any thickness	Optional-Min $^{15}/_{32}$ inch plywood, or min $^{7}/_{16}$ inch thick OSB, ½ inch thick gypsum board, ½ inch wood fiberboard, ¼ inch min. thickness G-P Gypsum DensDeck, ¼ inch min thick USG SECUROCK Glass Mat Board or SECUROCK Roof Board applied over steel deck in lieu of Foamed Plastic or over Foamed Plastic[7]	Any UL Certified Type G1, G2 or G3 base or ply sheet, Type 15 or 30 felt or UL Certified Prepared Roofing Accessory	(2) No. 14 truss head screws spaced 48 inches oc through NC3300, NCF-3300, NCF-3300-SS Series Clip with bearing plate[8]	**-52.5**
Minimum 24 Gauge Steel Versa Span[4], Maximum 18 inches wide						**Class 90**
37	Minimum 22 MSG steel[6]	Any UL Listed Polyisocyanurate glass fiber, perlite or wood fiber, any thickness, or 5 inch composite structural fiber cement with foam plastic core	Optional-Min $^{15}/_{32}$ inch plywood, or min $^{7}/_{16}$ inch thick OSB, ½ inch thick gypsum board, ½ inch wood fiberboard, ¼ inch min. thickness G-P Gypsum DensDeck, ¼ inch min thick USG SECUROCK Glass Mat Board or SECUROCK Roof Board applied over steel deck in lieu of Foamed Plastic or over Foamed Plastic[7]	Any UL Certified Type G1, G2 or G3 base or ply sheet, Type 15 or 30 felt or UL Certified Prepared Roofing Accessory	(2) Minimum No. 10-16 x 1 inch pancake head screws or (2) No. 14 truss head screws spaced 48 inches oc Clip with bearing plate[8]	**-52.5**

[1]These assemblies comply with UL790 (ASTM E108) for Class A fire performance at an unlimited slope
[2]Minimum 33 ksi
[3]6 mil vapor barrier may be used between steel deck and foam plastic insulation
[4]Meets Class 4 Impact Rating
[5]Structural supports spaced maximum 48 inches oc
[6]Structural supports spaced maximum 60 inches oc
[7]Fasteners used to attach insulation layer to steel deck to be minimum No. 11-13 truss head screws and penetrate steel deck minimum ½ inch
[8]Insulation bearing plate not required if coverboard is used

TABLE 2: WIND UPLIFT ASSEMBLIES[1] (continued)

System Number	Noncombustible Deck Steel Decking[2]	Insulation	Coverboard or Barrier Product	Ply Sheet	Metal Panel Attachment	Allowable Uplift Pressure UL 580
24 Gauge Steel Versa Span[3], Maximum 18 inches wide						**Class 90**
38	Minimum 22 MSG steel[4]	Any UL Listed Polyisocyanurate glass fiber, perlite or wood fiber, any thickness, or 5 inch composite structural fiber cement with foam plastic core	Minimum $^{7}/_{16}$ inch thick APA rated OSB[5]	Any UL Certified Type G1, G2 or G3 base or ply sheet, Type 15 or 30 felt or UL Certified Prepared Roofing Accessory	(2) No. 10-12 hex washer head screws spaced 36 inches oc in NC3300, NCF-3300, NCF-3300-SS Series Clip[6]	**-52.5**
Minimum .032 Aluminum Versa Span[4], Maximum 16 inches wide						**Class 90**
39	Minimum 22 MSG steel[4]	Optional-Any UL Listed Polyisocyanurate glass fiber, perlite or wood fiber, any thickness, or 5 inch composite structural fiber cement with foam plastic core	Optional-Min 15/32 inch plywood, or min $^{7}/_{16}$ inch thick OSB, ½ inch thick gypsum board, ½ inch wood fiberboard, ¼ inch min. thickness G-P Gypsum DensDeck, ¼ inch min thick USG SECUROCK Glass Mat Board or SECUROCK Roof Board applied over steel deck in lieu of Foamed Plastic or over Foamed Plastic[5]	Any UL Certified Type G1, G2 or G3 base or ply sheet, Type 15 or 30 felt or UL Certified Prepared Roofing Accessory	(2) No. 14 truss head screws spaced *18* inches oc through NC3300, NCF-3300, NCF-3300-SS Series Clip with bearing plate[6]	**-52.5**

[1]These assemblies comply with UL790 (ASTM E108) for Class A fire performance at an unlimited slope
[2]Minimum 33 ksi
[3]Meets Class 4 Impact Rating
[4]6 mil vapor barrier may be used between steel deck and foam plastic insulation
[5]Fasteners used to attach insulation layer to steel deck to be minimum No. 11-13 truss head screws and penetrate steel deck minimum ½-inch
[6]Insulation bearing plate not required if coverboard is used

TABLE 3: WIND UPLIFT ASSEMBLIES[1] (continued)

System Number	Insulation	Metal Panel Attachment	Allowable Uplift Pressure UL 580
Minimum 24 Gauge Steel MS-200[2], Maximum 18 inches wide			**Class 90**
40	Optional- Any compressible blanket insulation 8 in. max thick before compression, or 6 in. max thick when located between supports[3]	(2) Minimum ¼-14 x 1 inch truss head screws	**-52.5**
Minimum 24 Gauge Steel MS-200[2], Maximum 16 inches wide			**Class 90**
41	Optional- Any compressible blanket insulation 8 in. max thick before compression, or 6 in. max thick when located between supports[3]	(2) Minimum ¼-14 x 1 inch truss head screws	**-52.5**
42	Optional- Any compressible blanket insulation 8 in. max thick before compression, or 6 in. max thick when located between supports[4]	(2) No. 12 x 1 hex washer head screw when continuous or non-continuous clip is used	**-52.5**
Minimum 24 Gauge Steel Versa Span[2], Maximum 12 inches wide			**Class 90**
43	Optional- Any UL Listed rigid roofing insulation board; Any compressible blanket insulation 8 in. max thick before compression, or 6 in. max thick when located between supports[3]	(2) Minimum No. 10-16 x 1 inch pancake head screws or No. 14-13 DPI carbon, pancake head screw when rigid insulation is used.	**-52.5**
Minimum 24 Gauge Steel Versa Span[2], Maximum 18 inches wide			**Class 60**
44	Optional-Any UL Listed rigid roofing insulation board; Any compressible blanket insulation 8 in. max thick before compression, or 6 in. max thick when located between supports[4]	(2) Minimum No. 10-16 x 1 inch pancake head screws or No. 14-13 DPI carbon, pancake head screw when rigid insulation is used.	**-30**
Minimum 24 Gauge Steel Versa Span[2], Maximum 18 inches wide			**Class 90**
45	Optional-Any compressible blanket insulation 8 in. max thick before compression, or 6 in. max thick when located between supports[3]	(2) Minimum No. 10-16 x 1 inch pancake head or ¼-14 x 1 inch truss head screws.	**-52.5**

[1]Non-decked, open framing construction
[2]Meets Class 4 Impact Rating
[3]Structural supports spaced maximum 48 inches oc
[4]Structural supports spaced maximum 60 inches oc

TABLE 3: WIND UPLIFT ASSEMBLIES[1] (continued)

System Number	Insulation	Metal Panel Attachment	Allowable Uplift Pressure UL 580
Minimum 24 Gauge Steel Versa Span[2], Maximum 10-½ inches wide			**Class 90**
46	Optional- Any UL Listed rigid roofing insulation board; Any compressible blanket insulation 8 in. max thick before compression, or 6 in. max thick when located between supports[3]	(2) Minimum No. 10-16 x 1 inch pancake head screws or No. 14-13 DPI carbon, pancake head screw when rigid insulation is used.	**-52.5**
47	Optional-Any compressible blanket insulation 8 in. max thick before compression, or 6 in. max thick when located between supports[4]	¼-14 x 1-¼ inch hex head screws.	**-52.5**
Minimum 22 Gauge Steel Versa Span[2], Maximum 10-½ inches wide			**Class 90**
48	Optional-Any UL Listed rigid roofing insulation board; Any compressible blanket insulation 8 in. max thick before compression, or 6 in. max thick when located between supports[4]	(2) Minimum No. 10-16 x 1 inch pancake head screws or No. 14-13 DPI carbon, pancake head screw when rigid insulation is used.	**-52.5**
Minimum 22 Gauge Steel Versa Span[2], Maximum 12 inches wide			**Class 90**
49	Any compressible blanket insulation 8 in. max thick before compression, or 6 in. max thick when located between supports[4]	(2) Minimum No. 10-16 x 1 inch pancake head or ¼-14 x 1 inch truss head screws.	**-52.5**
Minimum .032 Aluminum Versa Span[2], Maximum 10-½ inches wide			**Class 60**
50	Optional- Any UL Listed rigid roofing insulation board; Any compressible blanket insulation 8 in. max thick before compression, or 6 in. max thick when located between supports[3]	(2) Minimum No. 10-16 x 1 inch pancake head screws or No. 14-13 DPI carbon, pancake head screw when rigid insulation is used.	**-30**

[1]Non-decked, open framing construction
[2]Meets Class 4 Impact Rating
[3]Structural supports spaced maximum 48 inches oc
[4]Structural supports spaced maximum 60 inches oc

TABLE 3: WIND UPLIFT ASSEMBLIES[1] (continued)

System Number	Insulation	Metal Panel Attachment	Allowable Uplift Pressure UL 580
Minimum .032 Aluminum Versa Span[2], Maximum 10-½ inches wide			**Class 90**
51	Optional- Any UL Listed rigid roofing insulation board; Any compressible blanket insulation 8 in. max thick before compression, or 6 in. max thick when located between supports[4]	(2) Minimum No. 10-16 x 1 inch pancake head screws or No. 14-13 DPI carbon, pancake head screw when rigid insulation is used.	**-52.5**
Minimum 24 Gauge Steel Versa Span[2], Maximum 10 inches wide			**Class 90**
52	Optional-Any compressible blanket insulation 8 in. max thick before compression, or 6 in. max thick when located between supports[3]	(2) Minimum No. 10-16 x 1 inch pancake head screws.	**-52.5**
Minimum 22 Gauge Steel Versa Span[2], Maximum 10 inches wide			**Class 90**
53	Optional-Any compressible blanket insulation 8 in. max thick before compression, or 6 in. max thick when located between supports[5]	(2) Minimum No. 10-16 x 1 inch pancake head screws.	**-52.5**
Minimum 22 Gauge Steel Versa Span[2], Maximum 21-¼ inches wide			**Class 60**
54	Optional-Any compressible blanket insulation 8 in. max thick before compression, or 6 in. max thick when located between supports[5]	(2) Minimum No. 10-16 x 1 inch pancake head or ¼-14 x 1 inch truss head screws.	**-30**
Minimum .032 Aluminum Versa Span[2], Maximum 10 inches wide			**Class 90**
55	Optional-Any compressible blanket insulation 8 in. max thick before compression, or 6 in. max thick when located between supports[4]	(2) Minimum No. 10-16 x 1 inch pancake head screws.	**-52.5**

[1]Non-decked, open framing construction
[2]Meets Class 4 Impact Rating
[3]Structural supports spaced maximum 48 inches oc
[4]Structural supports spaced maximum 36 inches oc
[5]Structural supports spaced maximum 60 inches oc

TABLE 4: WIND UPLIFT ASSEMBLIES[1]

System Number	Insulation	Metal Panel Attachment	Allowable Uplift Pressure UL 580
Minimum 24 Gauge Steel MS-200[3], Maximum 18 inches wide			**Class 90**
56	Minimum 5 inch thick structural cement fiber unit consisting of minimum 0.95 pcf expanded polystyrene foamed plastic core laminated to $^{7}/_{16}$ inch thick OSB structural panels between supports[3]	(2) Minimum ¼-14 x 1 hex washer head screws spaced 24 inches oc	**-52.5**
57	Minimum 5 inch thick structural cement fiber unit consisting of minimum 0.95 pcf expanded polystyrene foamed plastic core laminated to $^{7}/_{16}$ inch thick OSB structural panels between supports[3]	(2) Minimum No. 10-12 x 1 inch pancake head screws spaced 36 inches oc	**-52.5**
Minimum .032 Aluminum Versa Span[3], Maximum 16 inches wide			**Class 90**
58	Minimum 5 inch thick structural cement fiber unit consisting of minimum 0.95 pcf expanded polystyrene foamed plastic core laminated to $^{7}/_{16}$ inch thick OSB structural panels between supports[3]	(2) Minimum No. 10-12 x 1 inch pancake head screws spaced 18 inches oc	**-52.5**

[1]These assemblies comply with UL790 (ASTM E108) for Class A fire performance at an unlimited slope
[2]Meets Class 4 Impact Rating
[3]Rabbeted into truss tees spaced maximum 48 inches oc or over structural supports spaced according to design specifications

TABLE 5: FACTORY MUTUAL CLASS 1 A FIRE RATED WIND UPLIFT ASSEMBLIES

System Number	FM Approved Deck	Insulation	Metal Panel/Clip Attachment	Allowable Uplift Pressure FM 4471
Minimum 24 Gauge Steel MS-200[1], Maximum 16 inches wide				**Class 1-120**
59	Minimum 33 ksi steel[2, 3]	Any UL Listed standard density Polyisocyanurate roofing insulation board, minimum 2 inches thick	MS-200 Float Clip 24 inches oc. Clip rows staggered 6 inches oc. Each clip is placed over a MS-200 Bearing Plate secured to the deck with (2) SFS Intec Deckfast DF-#14-PH3 fasteners.	**-60**

[1]Class A rating for combustibility from above the roof deck at 5 in 12 slope. Severe Hail (SH) rated for hail and Foot Traffic Resistant
[2]Deck side laps fastened with ITW #10 HWH TEKS 1 6 inches oc
[3]Steel deck fastened with ITW #12 HWH TEKS 5 paced 6 inches oc into minimum ¼ inch thick steel supports spaced maximum 60 inches oc

System Number	Structural Supports	Metal Panel Attachment	Allowable Uplift Pressure FM 4471
Minimum 24 Gauge Steel MS-200[1], Maximum 16 inches wide			**Class 1-75**
60	Minimum 16 gauge 50 ksi steel purlins spaced maximum 60 inches oc	MS-200 Float Clip 60 inches oc. Clip rows staggered 6 inches oc. Each clip secured to the purlin deck with (2) ¼-14 x length Blazer 3, 5/16" HWH Tri-Seal Coated Self-Drilling Tapping Screw.	**-37.5**

[1]Class A rating for combustibility from above the roof deck at 5 in 12 slope. Severe Hail (SH) rated for hail and Foot Traffic Resistant

TABLE 6: ASTM E1592 LOAD SPAN DATA

MS-200 Aluminum, single lock									
Gage Thickness	Panel Width (inches)	Yield Strength (ksi)	Fastener Spacing (feet), Allowable Load						
			1	1.5	2	2.5	3	3.5	4
0.032	18	19	36.4	32.5	28.6	24.7	20.8	16.9	13.0
0.040	18	19	46.9	42.6	38.2	33.4	29.5	25.2	20.8

MS-200 Aluminum, double lock										
Gage Thickness	Panel Width (inches)	Yield Strength (ksi)	Fastener Spacing (feet), Allowable Load (psf)							
			1	1.5	2	2.5	3	3.5	4	4.5	5
0.032	18	19	83.3	77.4	71.5	65.7	59.8	54.0	48.1	42.3	36.4

MS-200 Steel, double lock											
Gage Thickness	Panel Width (inches)	Yield Strength (ksi)	Fastener Spacing (feet), Allowable Load								
			1	1.5	2	2.5	3	3.5	4	4.5	5
24	16	50	161.3	147.6	134.0	120.3	106.7	93.0	79.4	67.7	52.1
22	16	50	163.9	150.9	137.9	124.9	111.9	98.9	85.9	72.9	59.9
24	18	50	109.3	101.1	93.0	84.9	76.7	68.6	60.5	52.3	44.2
22	18	50	156.1	143.4	130.7	118.0	105.4	92.7	80.0	67.3	54.7

MS-200 Steel, single lock									
Gage Thickness	Panel Width (inches)	Yield Strength (ksi)	Fastener Spacing (feet), Allowable Load (psf)						
			1	1.5	2	2.5	3	3.5	4
24	18	50	59.9	53.4	46.9	40.4	33.8	27.3	20.8
22	18	50	98.9	88.1	77.2	66.4	55.5	44.7	33.8

[1]Fasteners specified as per the manufacturer's installation instructions

[2]Load span values derived from ultimate load in ASTM E1592 tests and Allowable Stress Design

[3]Allowable loads employ a safety factor of 2.0 when compared with the tested value

[4]Allowable loads cannot be increased by ⅓ and do not consider self-weight of the panel or clip fastener connection resistance

TABLE 6: ASTM E1592 LOAD SPAN DATA (continued)

VersaSpan Aluminum									
Gage Thickness	Panel Width (inches)	Yield Strength (ksi)	Fastener Spacing (feet), Allowable Load (psf)						
			1	1.5	2	2.5	3	3.5	4
0.032	16	19	46.8	42.4	38.1	33.8	29.4	25.1	20.8
0.032	18	19	54.6	48.5	42.4	36.4	30.3	24.2	18.2

VersaSpan Steel									
Gage Thickness	Panel Width (inches)	Yield Strength (ksi)	Fastener Spacing (feet), Allowable Load (psf)						
			1	1.5	2	2.5	3	3.5	4
24	16	50	83.2	73.6	64.1	54.6	45.0	35.5	26.0
22	16	50	93.6	87.1	78.0	68.9	59.8	50.7	41.6
24	18	50	67.6	59.8	52.0	44.2	36.4	28.6	20.8
22	18	50	90.1	79.8	69.6	59.3	49.1	38.8	28.6

PBR/Marion R Steel, six screws									
Gage Thickness	Panel Width (inches)	Yield Strength (ksi)	Fastener Spacing (feet), Allowable Load (psf)						
			2	2.5	3	3.5	4	4.5	5
26	36	80	100.0	92.5	85.0	77.5	70.0	62.5	55.0
24	36	50	175.0	156.7	138.3	120.0	101.7	83.3	65.0
22	36	50	200.0	178.3	156.7	135.0	113.3	91.7	70.0

PBR/Marion R Aluminum, six screws									
Gage Thickness	Panel Width (inches)	Yield Strength (ksi)	Fastener Spacing (feet), Allowable Load (psf)						
			2	2.5	3	3.5	4	4.5	5
0.032	36	19	187.5	165.5	143.3	121.3	99.2	77.1	55.0

[1]Fasteners specified as per the manufacturer's installation instructions

[2]Load span values derived from ultimate load in ASTM E1592 tests and Allowable Stress Design

[3]Allowable loads employ a safety factor of 2.0 when compared with the tested value

[4]Allowable loads cannot be increased by ⅓ and do not consider self-weight of the panel or fastener resistance

TABLE 6: ASTM E1592 LOAD SPAN DATA (continued)

MS-150 Steel, single lock									
Gage Thickness	Panel Width (inches)	Yield Strength (ksi)	Fastener Spacing (feet), Allowable Load						
			1	1.5	2	2.5	3	3.5	4
24	16¾	50	13.0	12.1	11.3	10.4	9.5	8.7	7.8
22	16¾	50	57.3	50.4	43.4	36.5	29.5	22.6	15.6

MS-150 Steel, double lock									
Gage Thickness	Panel Width (inches)	Yield Strength (ksi)	Fastener Spacing (feet), Allowable Load (psf)						
			1	1.5	2	2.5	3	3.5	4
24	12-⅝	50	137.9	124	110.2	96.3	82.4	68.6	54.7
22	12	50	182.2	161.8	141.4	121.1	100.7	80.3	59.9
24	16-⅝	50	119.7	107.1	94.5	81.9	69.4	56.8	44.2
22	16-⅝	50	145.7	128.8	111.9	95.0	78.0	61.1	44.2
24	18	50	109.3	97.1	85.0	72.8	60.7	48.5	36.4
22	18	50	124.9	111.5	98.0	84.6	71.1	57.7	44.2

MS-150 Aluminum, single lock									
Gage Thickness	Panel Width (inches)	Yield Strength (ksi)	Fastener Spacing (feet), Allowable Load						
			1	1.5	2	2.5	3	3.5	4
0.032	16¾	19	36.4	32.5	28.6	24.7	20.8	16.9	13.0

MS-150 Aluminum, double lock									
Gage Thickness	Panel Width (inches)	Yield Strength (ksi)	Fastener Spacing (feet), Allowable Load (psf)						
			1	1.5	2	2.5	3	3.5	4
0.032	12-⅝	19	111.9	100.1	88.4	76.7	65	53.3	41.6
0.032	18	19	83.3	73.7	64.2	54.6	45.1	35.5	26.0

[1]Fasteners specified as per the manufacturer's installation instructions

[2]Load span values derived from ultimate load in ASTM E1592 tests and Allowable Stress Design

[3]Allowable loads employ a safety factor of 2.0 when compared with the tested value

[4]Allowable loads cannot be increased by ⅓ and do not consider self-weight of the panel or clip fastener connection resistance

TABLE 6: ASTM E1592 LOAD SPAN DATA (continued)

Classic ⅞" Corrugated Steel, seven screws									
Gage Thickness	Panel Width (inches)	Yield Strength (ksi)	Fastener Spacing (feet), Allowable Load (psf)						
			2	2.5	3	3.5	4	4.5	5
26	36	80	162.5	162.5	162.5	162.5	162.5	162.5	162.5
24	36	50	162.5	108.3	99.2	90.0	80.8	71.7	75.0
22	36	50	175.0	135.4	120.8	106.3	91.7	77.1	75.0

Classic ⅞" Corrugated Aluminum, seven screws									
Gage Thickness	Panel Width (inches)	Yield Strength (ksi)	Fastener Spacing (feet), Allowable Load (psf)						
			2	2.5	3	3.5	4	4.5	5
0.032	36	19	175.0	155.0	135.0	115.0	95.0	75.0	55.0

Classic ⅞" Corrugated Steel, five screws									
Gage Thickness	Panel Width (inches)	Yield Strength (ksi)	Fastener Spacing (feet), Allowable Load (psf)						
			2	2.5	3	3.5	4	4.5	5
26	36	80	110.0	100.4	90.8	81.3	71.7	62.1	52.5
24	36	50	117.5	108.3	99.2	90.0	80.8	71.7	62.5
22	36	50	150.0	135.4	120.8	106.3	91.7	77.1	62.5

Classic ⅞" Corrugated Aluminum, five screws									
Gage Thickness	Panel Width (inches)	Yield Strength (ksi)	Fastener Spacing (feet), Allowable Load (psf)						
			2	2.5	3	3.5	4	4.5	5
0.032	36	19	55.0	50.8	46.7	42.5	38.3	34.2	30.0

[1]Fasteners specified as per the manufacturer's installation instructions

[2]Load span values derived from ultimate load in ASTM E1592 tests and Allowable Stress Design

[3]Allowable loads employ a safety factor of 2.0 when compared with the tested value

[4]Allowable loads cannot be increased by ⅓ and do not consider self-weight of the panel or fastener resistance

TABLE 6: ASTM E1592 LOAD SPAN DATA (continued)

BR-36 Aluminum, five screws									
Gage Thickness	Panel Width (inches)	Yield Strength (ksi)	Fastener Spacing (feet), Allowable Load (psf)						
			2	2.5	3	3.5	4	4.5	5
0.032	36	19	135.0	122.7	110.3	98.0	85.7	73.3	61.0
0.040	36	19	171.0	150.8	130.7	110.5	90.3	70.2	50.0

BR-36 Steel, five screws									
Gage Thickness	Panel Width (inches)	Yield Strength (ksi)	Fastener Spacing (feet), Allowable Load (psf)						
			2	2.5	3	3.5	4	4.5	5
24	36	50	200.0	179.2	158.3	137.5	116.7	95.8	75.0
22	36	50	200.0	180.0	160.0	140.0	120.0	100.0	80.0
20	36	33	170.0	153.1	136.2	119.3	102.3	85.4	68.5

BR-36 Steel, three screws									
Gage Thickness	Panel Width (inches)	Yield Strength (ksi)	Fastener Spacing (feet), Allowable Load (psf)						
			2	2.5	3	3.5	4	4.5	5
24	36	50	137.5	122.1	106.7	91.3	75.8	60.4	45.0
22	36	50	100.0	90.0	80.0	70.0	60.0	50.0	40.0
20	36	33	100.0	89.8	79.7	69.5	59.3	49.2	39.0
BR-36 Aluminum, three screws									
Gage Thickness	Panel Width (inches)	Yield Strength (ksi)	Fastener Spacing (feet), Allowable Load (psf)						
			2	2.5	3	3.5	4	4.5	5
0.032	36	19	55.0	51.7	48.3	45.0	41.7	38.3	35.0
0.040	36	19	75.0	69.2	63.3	57.5	51.7	45.8	40.0

[1]Fasteners specified as per the manufacturer's installation instructions
[2]Load span values derived from ultimate load in ASTM E1592 tests and Allowable Stress Design
[3]Allowable loads employ a safety factor of 2.0 when compared with the tested value
[4]Allowable loads cannot be increased by ⅓ and do not consider self-weight of the panel or fastener resistance

TABLE 6: ASTM E1592 LOAD SPAN DATA (continued)

HR34 Steel, five screws									
Gage Thickness	Panel Width (inches)	Yield Strength (ksi)	Fastener Spacing (feet), Allowable Load (psf)						
			2	2.5	3	3.5	4	4.5	5
26	34	80	175.0	157.5	140.0	122.5	105.0	87.5	70.0
24	34	50	200.0	180.0	160.0	140.0	120.0	100.0	80.0
22	34	50	200.0	178.3	156.7	135.0	113.3	91.7	70.0
20	34	33	200.0	179.2	158.3	137.5	116.7	95.8	75.0

HR34 Aluminum, five screws									
Gage Thickness	Panel Width (inches)	Yield Strength (ksi)	Fastener Spacing (feet), Allowable Load (psf)						
			2	2.5	3	3.5	4	4.5	5
0.032	34	19	120.0	108.3	96.7	85.0	73.3	61.7	50.0
0.040	34	19	200.0	177.1	154.2	131.3	108.3	85.4	62.5

HR34 Aluminum, three screws									
Gage Thickness	Panel Width (inches)	Yield Strength (ksi)	Fastener Spacing (feet), Allowable Load (psf)						
			2	2.5	3	3.5	4	4.5	5
0.032	34	19	112.5	100.8	89.7	78.5	67.3	56.2	45.0
0.040	34	19	100.0	90.0	80.0	70.0	60.0	50.0	40.0

HR34 Steel, three screws									
Gage Thickness	Panel Width (inches)	Yield Strength (ksi)	Fastener Spacing (feet), Allowable Load (psf)						
			2	2.5	3	3.5	4	4.5	5
26	34	80	87.5	80.4	73.3	66.3	59.2	52.1	45.0
24	34	50	100.0	90.8	81.7	72.5	63.3	54.2	45.0
22	34	50	100.0	90.8	81.7	72.5	63.3	54.2	45.0
20	34	33	105.0	95.8	86.7	77.5	68.3	59.2	50.0

[1]Fasteners specified as per the manufacturer's installation instructions

[2]Load span values derived from ultimate load in ASTM E1592 tests and Allowable Stress Design

[3]Allowable loads employ a safety factor of 2.0 when compared with the tested value

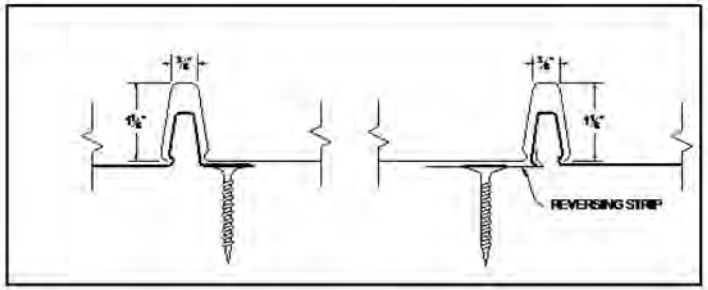
[4]Allowable loads cannot be increased by ⅓ and do not consider self-weight of the panel or fastener resistance

Easy-Lock Detail

STRIATED

ACCENT RIBS 3 Accent ribs for 12" panel
4 Accent ribs for 16" & 18" panel

FLAT PAN



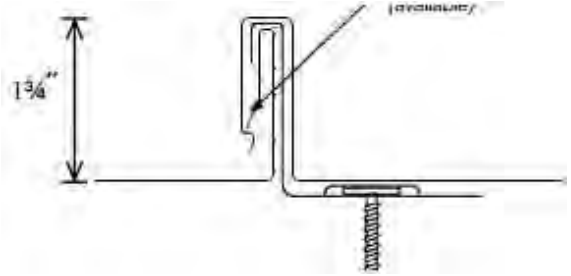
Versa-Span Detail

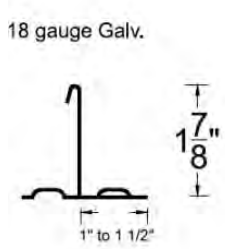
STRIATED

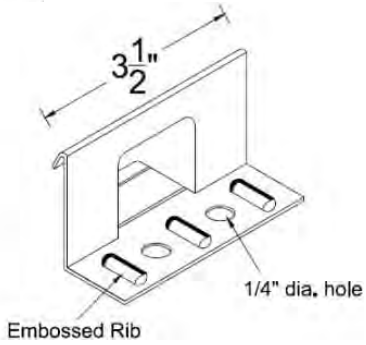
ACCENT RIBS

2 Accent ribs for 12" to 14⅝" panel
3 Accent ribs for 16" to 18" panel

FLAT PAN





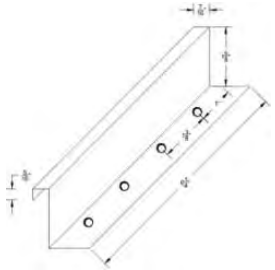


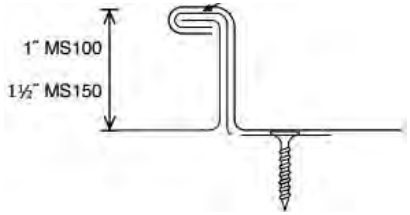
MS-100, MS-150 Detail

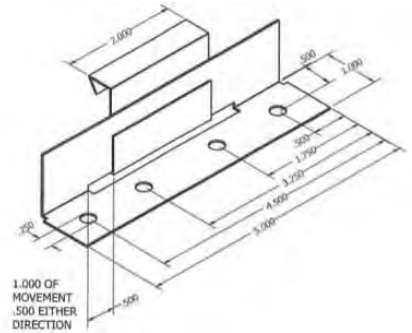
STRIATED

ACCENT RIBS

FLAT PAN

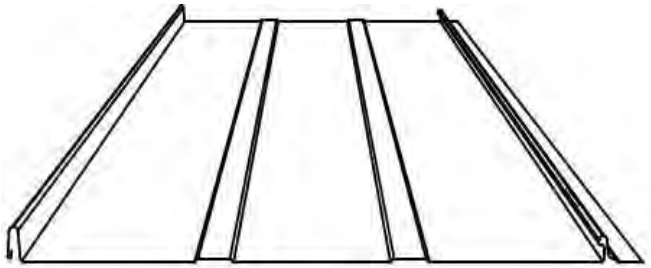




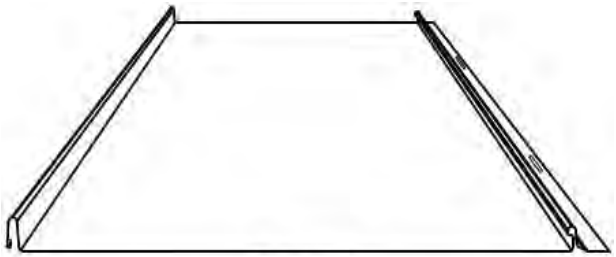


Premier-Lock Detail

STRIATED



ACCENT RIBS



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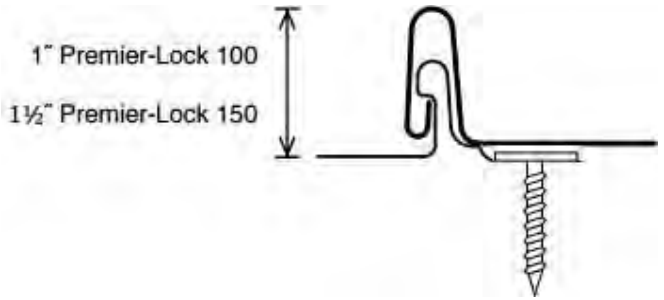
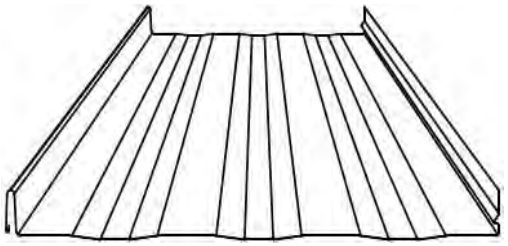
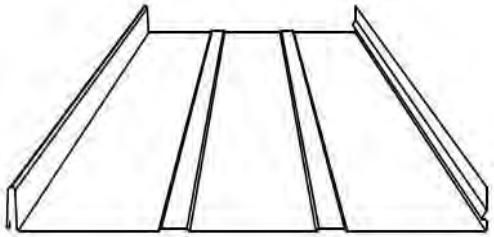
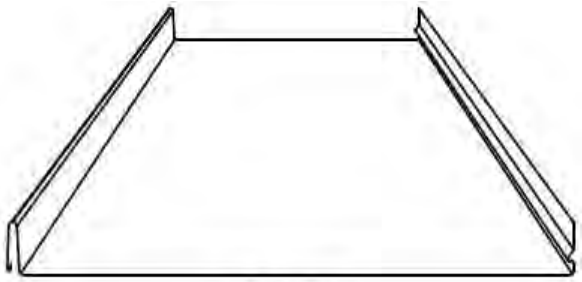


Clip-Lock Detail







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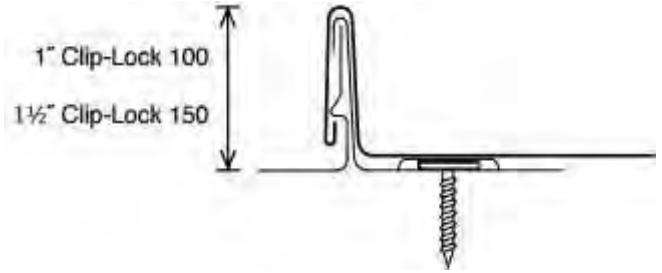
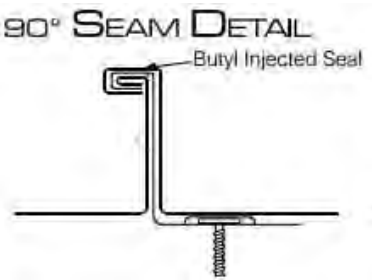


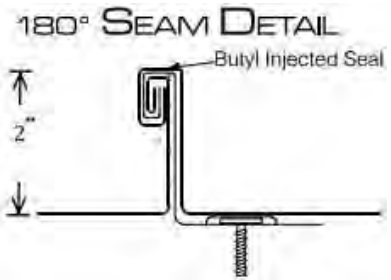
MS-200 Detail

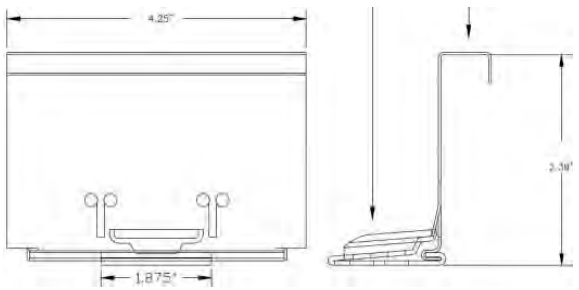
STRIATED

ACCENT RIBS 2 Accent ribs for 12" to 14⅜" panel
3 Accent ribs for 16" to 18" panel

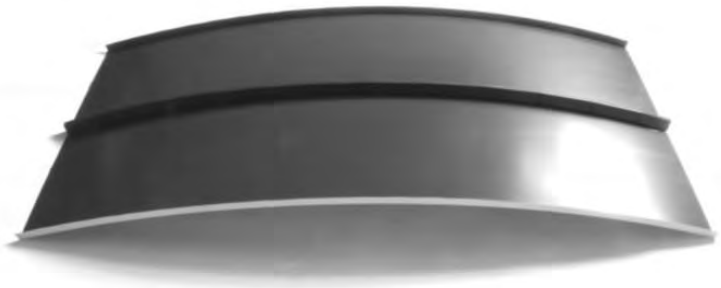
FLAT PAN

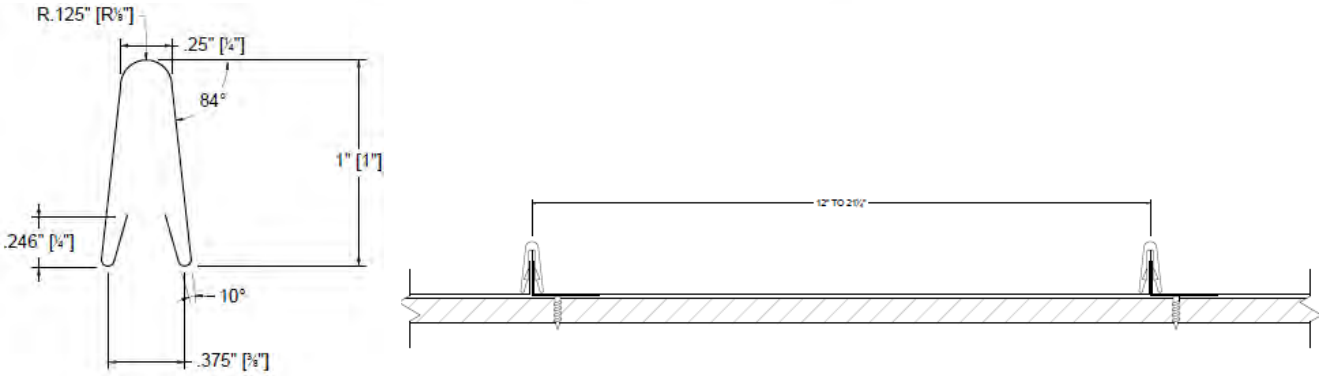




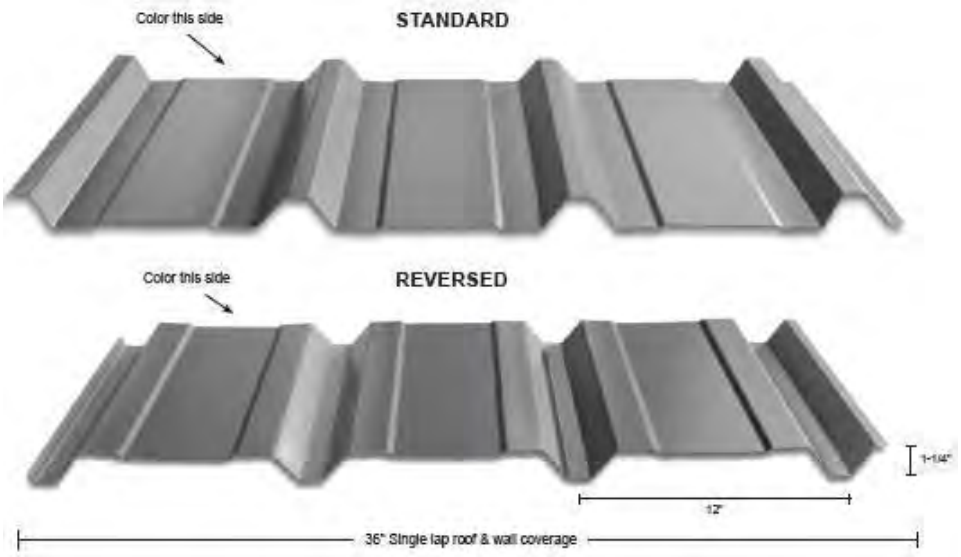


T Panel Narrow Batten Detail

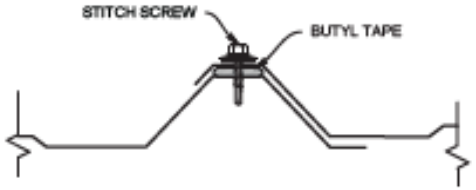




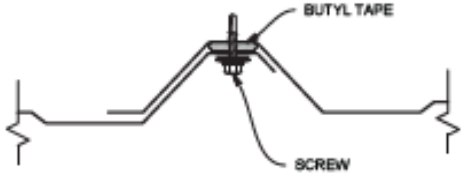
PBR/Marion R Detail



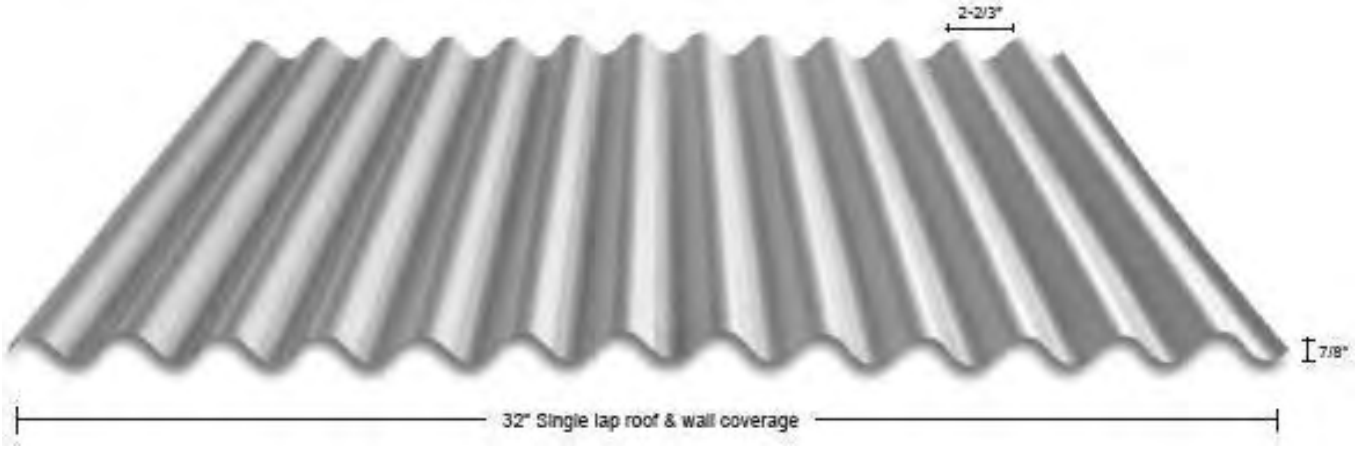
STANDARD LAP DETAIL



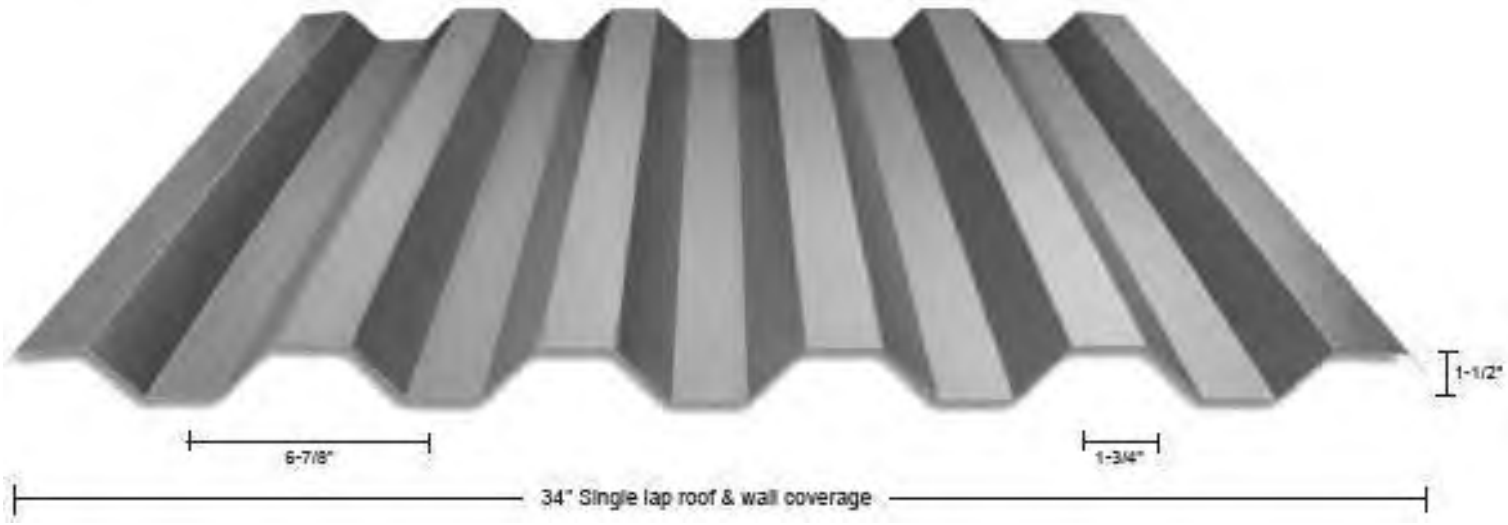
REVERSE LAP DETAIL

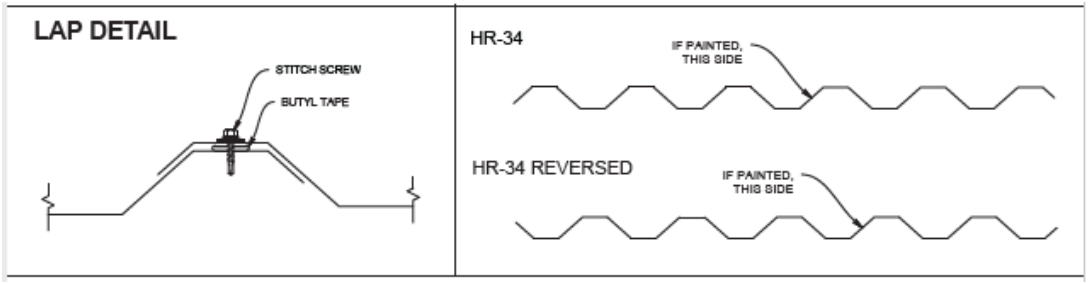


Classic ⅞” Corrugated Detail

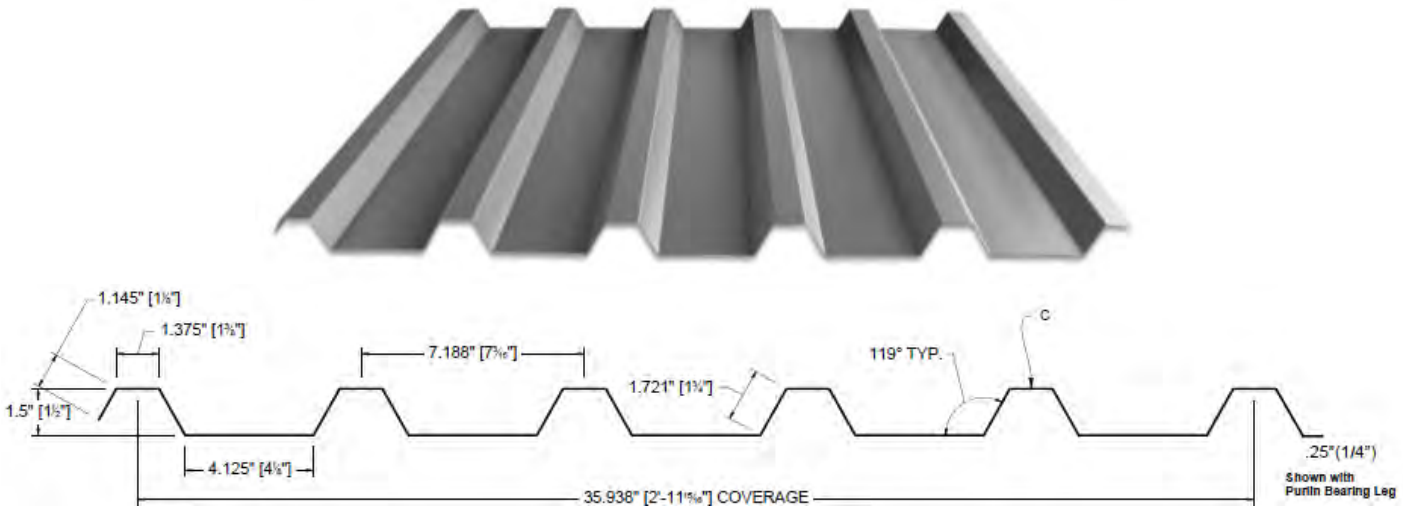


HR-34 Detail

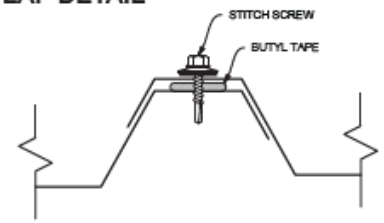

1-1/2"
6-7/8"
1-3/4"
34" Single lap roof & wall coverage


LAP DETAIL
STITCH SCREW
BUTYL TAPE
HR-34
IF PAINTED, THIS SIDE
HR-34 REVERSED
IF PAINTED, THIS SIDE

BR-36 Detail



LAP DETAIL



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UL Product iQ™

TGFU.R25913 - ROOFING SYSTEMS

Roofing Systems

See General Information for Roofing Systems

TAYLOR METAL INC, DBA TAYLOR METAL PRODUCTS R25913
4566 RIDGE DR NE
SALEM, OR 97301-6992 USA

OTHER SYSTEMS

Any roof covering system listed for use over a combustible roof deck can be installed over a non-combustible roof deck and achieve the same classification.

Class A

1. **Deck:** NC **Incline:** Unlimited **Impact:** 4
Insulation (Optional): — Any UL Classified (except EPS), any thickness.
Surfacing: — "EASY LOCK", "MS 200", "Versa Span", MS200-90C", "T-Panel Narrow Panel", "MS150-S", "MS200-S", "MS150", "Tuff-Rib", "T-3", "PBR/Marion R", "HR-34", "GR-7", or "Classic 7/8 Corrugated" roofing panels, mechanically fastened. OR: Aluminum or zinc roofing panels designated "Clip-Lock 150", "MS100", "Premier-Lock 100", or "Premier-Lock 150", mechanically fastened.

2. **Deck:** NC **Incline:** Unlimited **Impact:** 4
Barrier Board: — 5/8 in. min plywood.
Ply Sheet (Optional): — Any UL Classified Type G1, G2 or G3 base/ply sheet, Type 15 or 30 felt or UL Classified prepared roofing accessory.
Surfacing: — "EASY LOCK", "MS 200", "Versa Span", "MS200-90C", "T-Panel Narrow Panel", "MS150-S", "MS200-S", "MS150", "Tuff-Rib", "T-3", "PBR/Marion R", "HR-34", "GR-7", or "Classic 7/8 Corrugated" roofing panels, mechanically fastened. OR: Aluminum or zinc roofing panels designated "Clip-Lock 150", "MS100", "Premier-Lock 100", or "Premier-Lock 150", mechanically fastened.

3. **Deck:** NC **Incline:** Unlimited **Impact:** 4
Barrier Board: — 7/16 OSB or 5/8 in. plywood over polyisocyanurate insulation board or polyisocyanurate composite board, any thickness.
Ply Sheet (Optional): — Any UL Classified Type G1, G2 or G3 base/ply sheet, Type 15 or 30 felt or UL Classified prepared roofing accessory.
Surfacing: — "EASY LOCK", "MS 200", "Versa Span", "MS200-90C", "T-Panel Narrow Panel", "MS150-S", "MS200-S," "MS150", "Tuff-Rib", "T-3", "PBR/Marion R", "HR-34", "GR-7", or "Classic 7/8 Corrugated" roofing panels, mechanically fastened. OR: Aluminum or zinc roofing panels designated "Clip-Lock 150", "MS100", "Premier-Lock 100", or "Premier-Lock 150", mechanically fastened.

4. **Deck:** C-15/32 or spaced sheathing **Incline:** Unlimited **Impact:** 4

Barrier Board: — Georgia Pacific 1/4 in. min "DensDeck" board or 1/4 in. min United States Gypsum Co SECUROCK® Glass-Mat Roof Board (Type SGMRX), National Gypsum "DEXcell Glass Mat Roof Board" or "DEXcell FV Glass Mat Roof Board", CertainTeed Gypsum "GlasRoc"or 1/2 in. min UL classified gypsum board with all joints staggered a min of 6 in. from the plywood joints.

Ply Sheet (Optional): — Any UL Classified Type G1, G2 or G3 base/ply sheet, Type 15 or 30 felt or UL Classified prepared roofing accessory.

Surfacing: — "EASY LOCK", "MS 200", "Versa Span", "MS200-90C", "T-Panel Narrow Panel", "MS150-S", "MS200-S," "MS150", "Tuff-Rib", "T-3", "PBR/Marion R", "HR-34", "GR-7, or "Classic 7/8 Corrugated" roofing panels, mechanically fastened. OR: Aluminum or zinc roofing panels designated "Clip-Lock 150", "MS100", "Premier-Lock 100", or "Premier-Lock 150", mechanically fastened.

5. **Deck:** NC **Incline:** Unlimited **Impact:** 4

Insulation: — Polyisocyanurate, glass fiber, perlite or wood fiber, any thickness.

Ply Sheet (Optional): — Any UL Classified Type G1, G2 or G3 base/ply sheet, Type 15 or 30 felt or UL Classified prepared roofing accessory.

Surfacing: — "EASY LOCK", "MS 200", "Versa Span", "MS200-90C", "T-Panel Narrow Panel", "MS150-S", "MS200-S," "MS150", "Tuff-Rib", "T-3", "PBR/Marion R", "HR-34" , "GR-7", or "Classic 7/8 Corrugated" roofing panels, mechanically fastened. OR: Aluminum or zinc roofing panels designated "Clip-Lock 150", "MS100", "Premier-Lock 100", or "Premier-Lock 150", mechanically fastened.

6. **Deck:** NC **Incline:** Unlimited **Impact:** 4

Barrier Board: — Georgia Pacific 1/4 in. min "DensDeck" board or 1/4 in. min United States Gypsum Co SECUROCK® Glass-Mat Roof Board (Type SGMRX), National Gypsum "DEXcell Glass Mat Roof Board" or "DEXcell FV Glass Mat Roof Board", CertainTeed Gypsum "GlasRoc"or 1/2 in min UL Classified gypsum board.

Ply Sheet (Optional): — Any UL Classified Type G1, G2 or G3 base/ply sheet, Type 15 or 30 felt or UL Classified prepared roofing accessory.

Surfacing: — "EASY LOCK", "MS 200", "Versa Span", "MS200-90C", "T-Panel Narrow Panel", "MS150-S", "MS200-S," "MS150", "Tuff-Rib, "T-3", "PBR/Marion R", "HR-34", "GR-7", or "Classic 7/8 Corrugated" roofing panels, mechanically fastened. OR: Aluminum or zinc roofing panels designated "Clip-Lock 150", "MS100", "Premier-Lock 100", or "Premier-Lock 150", mechanically fastened.

7. **Deck:** C-15/32 or spaced sheathing **Incline:** Unlimited **Impact:** 4

Underlayment: — One layer GAF "VersaShield® Solo™ Fire-Resistant Slip Sheet", mechanically fastened, or Firestone Building Products Co. LLC "CLAD-GARD SA-FR" self-adhered underlayment.

Ply Sheet (Optional): — Any UL Classified Type G1, G2 or G3 base/ply sheet, Type 15 or 30 felt or UL Classified prepared roofing accessory.

Surfacing: — "EASY LOCK", "MS 200", "Versa Span", "MS200-90C", "T-Panel Narrow Panel", "MS150-S", "MS200-S", "MS150", "Tuff-Rib, "T-3", "PBR/Marion R", "HR-34", "GR-7", or "Classic 7/8 Corrugated" roofing panels, mechanically fastened. OR: Aluminum or zinc roofing panels designated "Clip-Lock 150", "MS100", "Premier-Lock 100", or "Premier-Lock 150", mechanically fastened.

8. **Deck:** C-15/32 or spaced sheathing **Incline:** Unlimited **Impact:** 4

Underlayment: — One layer GAF "VersaShield® Solo™ Fire-Resistant Slip Sheet"", mechanically fastened, or Firestone Building Products Co. LLC "CLAD-GARD SA-FR" self-adhered underlayment.

Surfacing: — "EASY LOCK", "MS 200", "Versa Span", "MS200-90C", "T-Panel Narrow Panel", "MS150-S", "MS200-S", "MS150", "Tuff-Rib", "T-3", "PBR/Marion R", "HR-34", "GR-7", or "Classic 7/8 Corrugated" roofing panels, mechanically fastened. OR: Aluminum or zinc roofing panels designated "Clip-Lock 150", "MS100", "Premier-Lock 100", or "Premier-Lock 150", mechanically fastened.

9. **Deck:** NC **Incline:** Unlimited

Insulation (Optional): — Any UL Classified (except EPS), any thickness.

Surfacing: — "EASY LOCK", "MS 200", "Versa Span", "MS200-90C", "T-Panel Narrow Panel", "MS150-S", "MS200-S", "MS150", "Tuff-Rib", "T-3", "PBR/Marion R", "HR-34", "GR-7", or "Classic 7/8 Corrugated" roofing panels, mechanically fastened. OR: Aluminum or zinc roofing panels designated "Clip-Lock 150", "MS100", "Premier-Lock 100", or "Premier-Lock 150", mechanically fastened.

10. **Deck:** NC **Incline:** Unlimited

Barrier Board: — 5/8 in. min plywood.

Ply Sheet (Optional): — Any UL Classified Type G1, G2 or G3 base/ply sheet, Type 15 or 30 felt or UL Classified prepared roofing accessory.

Surfacing: — "EASY LOCK", "MS 200", "Versa Span", "MS200-90C", "T-Panel Narrow Panel", "MS150-S", "MS200-S", "MS150", "Tuff-Rib", "T-3", "PBR/Marion R", "HR-34", "GR-7", or "Classic 7/8 Corrugated" roofing panels, mechanically fastened. OR: Aluminum or zinc roofing panels designated "Clip-Lock 150", "MS100", "Premier-Lock 100", or "Premier-Lock 150", mechanically fastened.

11. **Deck:** NC **Incline:** Unlimited

Barrier Board: — 7/16 OSB or 5/8 in. plywood over polyisocyanurate insulation board or polyisocyanurate composite board, any thickness.

Ply Sheet (Optional): — Any UL Classified Type G1, G2 or G3 base/ply sheet, Type 15 or 30 felt or UL Classified prepared roofing accessory.

Surfacing: — "EASY LOCK", "MS 200", "Versa Span", "MS200-90C", "T-Panel Narrow Panel", "MS150-S", "MS200-S", "MS150", "Tuff-Rib", "T-3", "PBR/Marion R", "HR-34", "GR-7", or "Classic 7/8 Corrugated" roofing panels, mechanically fastened. OR: Aluminum or zinc roofing panels designated "Clip-Lock 150", "MS100", "Premier-Lock 100", or "Premier-Lock 150", mechanically fastened.

12. **Deck:** C-15/32 or spaced sheathing **Incline:** Unlimited

Barrier Board: — Georgia Pacific 1/4 in. min "DensDeck" board or 1/4 in. min United States Gypsum Co SECUROCK® Glass-Mat Roof Board (Type SGMRX), National Gypsum "DEXcell Glass Mat Roof Board" or "DEXcell FV Glass Mat Roof Board", CertainTeed Gypsum "GlasRoc"or 1/2 in. min UL classified gypsum board with all joints staggered a min of 6 in. from the plywood joints.

Ply Sheet (Optional): — Any UL Classified Type G1, G2 or G3 base/ply sheet, Type 15 or 30 felt or UL Classified prepared roofing accessory.

Surfacing: — "EASY LOCK", "MS 200", "Versa Span", "MS200-90C", "T-Panel Narrow Panel", "MS150-S", "MS200-S," "MS150", "Tuff-Rib", "T-3", "PBR/Marion R", "HR-34", "GR-7", or "Classic 7/8 Corrugated" roofing panels, mechanically fastened. OR: Aluminum or zinc roofing panels designated "Clip-Lock 150", "MS100", "Premier-Lock 100", or "Premier-Lock 150", mechanically fastened.

13. **Deck:** NC **Incline:** Unlimited

Insulation: — Polyisocyanurate, glass fiber, perlite or wood fiber, any thickness.

Ply Sheet (Optional): — Any UL Classified Type G1, G2 or G3 base/ply sheet, Type 15 or 30 felt or UL Classified prepared roofing accessory.

Surfacing: — "EASY LOCK", "MS 200", "Versa Span", "MS200-90C", "T-Panel Narrow Panel", "MS150-S", "MS200-S", MS150", "Tuff-Rib", "T-3", "PBR/Marion R", "HR-34", "GR-7", or "Classic 7/8 Corrugated" roofing panels, mechanically fastened. OR: Aluminum or zinc roofing panels designated "Clip-Lock 150", "MS100", "Premier-Lock 100", or "Premier-Lock 150", mechanically fastened.

14. **Deck:** NC **Incline:** Unlimited

Barrier Board: — Georgia Pacific 1/4 in. min "DensDeck" board or 1/4 in. min United States Gypsum Co SECUROCK® Glass-Mat Roof Board (Type SGMRX), National Gypsum "DEXcell Glass Mat Roof Board" or "DEXcell FV Glass Mat Roof Board", CertainTeed Gypsum "GlasRoc"or 1/2 in min UL Classified gypsum board.

Ply Sheet (Optional): — Any UL Classified Type G1, G2 or G3 base/ply sheet, Type 15 or 30 felt or UL Classified prepared roofing accessory.

Surfacing: — "EASY LOCK", "MS 200", "Versa Span", "MS200-90C", "T-Panel Narrow Panel", "MS150-S", "MS200-S", "MS150", "Tuff-Rib", "T-3", "PBR/Marion R", "HR-34", "GR-7", or "Classic 7/8 Corrugated" roofing panels, mechanically fastened. OR: Aluminum or zinc roofing panels designated "Clip-Lock 150", "MS100", "Premier-Lock 100", or "Premier-Lock 150", mechanically fastened.

15. **Deck:** C-15/32 or spaced sheathing **Incline:** Unlimited
Underlayment: — One layer GAF "VersaShield® Solo™ Fire-Resistant Slip Sheet", mechanically fastened, or Firestone Building Products Co. LLC "CLAD-GARD SA-FR" self-adhered underlayment.
Ply Sheet (Optional): — Any UL Classified Type G1, G2 or G3 base/ply sheet, Type 15 or 30 felt or UL Classified prepared roofing accessory.
Surfacing: — "EASY LOCK", "MS 200", "Versa Span", "MS200-90C", "T-Panel Narrow Panel", "MS150-S", "MS200-S", "MS150", "Tuff-Rib", "T-3", "PBR/Marion R", "HR-34", "GR-7", or "Classic 7/8 Corrugated" roofing panels, mechanically fastened. OR: Aluminum or zinc roofing panels designated "Clip-Lock 150", "MS100", "Premier-Lock 100", or "Premier-Lock 150", mechanically fastened.

16. **Deck:** C-15/32 or spaced sheathing **Incline:** Unlimited
Underlayment: — One layer GAF "VersaShield® Solo™ Fire-Resistant Slip Sheet", mechanically fastened, or Firestone Building Products Co. LLC "CLAD-GARD SA-FR" self-adhered underlayment.
Surfacing: — "EASY LOCK", "MS 200", "Versa Span", "MS200-90C", "T-Panel Narrow Panel", "MS150-S", "MS200-S", "MS150"", "Tuff-Rib, "T-3", "PBR/Marion R", "HR-34", "GR-7", or "Classic 7/8 Corrugated" roofing panels, mechanically fastened. OR: Aluminum or zinc roofing panels designated "Clip-Lock 150", "MS100", "Premier-Lock 100", or "Premier-Lock 150", mechanically fastened.

MAINTENANCE AND REPAIR

Class A

1. **Deck:** C-15/32 **Incline:** Unlimited **Impact:** 4
Existing Roof System: — Any Class A UL Listed shingle.
Slip Sheet: — GAF "VersaShield® Solo™ Fire-Resistant Slip Sheet", mechanically fastened, or Firestone Building Products Co. LLC "CLAD-GARD SA-FR" self-adhered underlayment.
Surfacing: — "EASY LOCK", "MS 200", "Versa Span", "MS200-90C", "T-Panel Narrow Panel", "MS150-S", "MS200-S", "MS150", "Tuff-Rib", "T-3", "PBR/Marion R", "HR-34", "GR-7", or "Classic 7/8 Corrugated" roofing panels, mechanically fastened. OR: Aluminum or zinc roofing panels designated "Clip-Lock 150", "MS100", "Premier-Lock 100", or "Premier-Lock 150", mechanically fastened.

2. **Deck:** C-15/32 **Incline:** Unlimited
Existing Roof System: — Any Class A UL Listed shingle.
Slip Sheet: — One layer GAF "VersaShield® Solo™ Fire-Resistant Slip Sheet", mechanically fastened, or Firestone Building Products Co. LLC "CLAD-GARD SA-FR" self-adhered underlayment.
Surfacing: — "EASY LOCK", "MS 200", "Versa Span", MS200-90C", "T-Panel Narrow Panel", "MS150-S", "MS200-S", "MS150", "Tuff-Rib", "T-3", "PBR/Marion R", "HR-34", "GR-7", or "Classic 7/8 Corrugated" roofing panels, mechanically fastened. OR: Aluminum or zinc roofing panels designated "Clip-Lock 150", "MS100", "Premier-Lock 100", or "Premier-Lock 150", mechanically fastened.

Last Updated on 2019-12-16

SUBSTITUTION REQUEST FORM

Project: PALOMAR COLLEGE ATHLETIC FIELD Substitution Request Number: _____

To: HMC Architects, Inc. From: _____

Re: _____ Date: _____

Architect's Project Number: _____ Contract For: _____

Specification Title: FENCES & GATES, ORNAMENTAL Description: _____

Section: 323119 Page: _____ Article/Paragraph: _____

Proposed Substitution: CHANGE AMERISTAR TO FORTRESS

Manufacturer: FORTRESS BUILDING PRODUCTS Address: _____

Trade Name: FENCING & GATES

Attached data shall include: product description, specifications, drawings, photographs, and performance and test data adequate for evaluation of the request; applicable portions of the date are clearly identified.
Attached data also includes a description of changes to the Contract Documents that the proposed substitutions will require for its proper installation, at no cost to the Owner.
The Undersigned Certifies:

- Proposed substitution has been fully investigated and determined shall be equal or superior in respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing and construction costs caused by the substitutions.
- Reason(s) why substitution is being submitted.
  - ☐ Specified product or material is not available. Explain in detail as attachment.
  - ☒ Cost savings to Owner. Indicate comparative cost analysis as attachment.
  - ☐ Other. Explain:

Submitted by TEAM WEST CONTRACTING CORPORATION

Signed by: _____

Firm: _____

Address: _____

_____

Telephone: _____

A/E's REVIEW AND ACTION

☐ Substitution Approved

☒ Substitution Rejected as marked below:

- ☒ Insufficient information submitted
- ☐ Submitted late.
- ☐ Information not clearly marked.
- ☐ Full line product information (Binder not provided).
- ☐ Does not meet performance / design requirements of Paragraph _____
- ☐ Comparisons not properly identified on product data sheets.

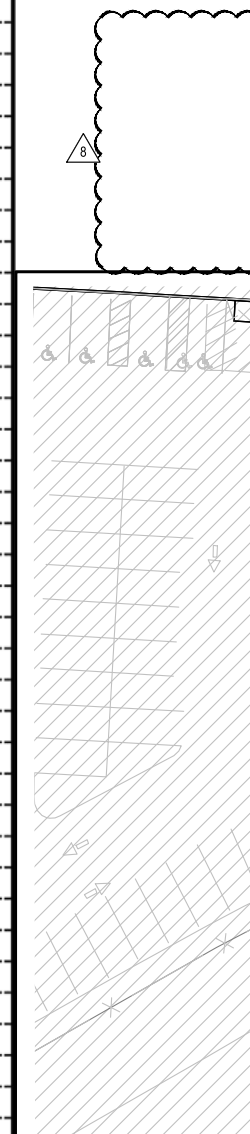
Signed by: Matt Mori Date: 8/11/2022

Substantiating Data Required:

☐ Drawings	☐ Tests if required in individual sections
☒ Product Data	☐ Reports if required in individual sections
☒ Samples	☐ Other: _____

OVERALL TREE & SHRUB INVENTORY

Tree No.	Botanic Name	Species	City Protected	Disposition	Reasoning
1	Caesalpinia cacalaco	Cascalote Tree	No	Store, Maintain & Transplant	Construction
2	Beaucarnea recurvata	Ponytail Palm	No	Store, Maintain & Transplant	Construction
3	Caesalpinia cacalaco	Cascalote Tree	No	Store, Maintain & Transplant	Construction
4	Caesalpinia cacalaco	Cascalote Tree	No	Store, Maintain & Transplant	Construction
5	Beaucarnea recurvata	Ponytail Palm	No	Store, Maintain & Transplant	Construction
6	Plumeria spp.	Frangipani Tree	No	Store, Maintain & Transplant	Construction
7	Caesalpinia cacalaco	Cascalote Tree	No	Store, Maintain & Transplant	Construction
8	Plumeria spp.	Frangipani Tree	No	Store, Maintain & Transplant	Construction
9	Plumeria spp.	Frangipani Tree	No	Store, Maintain & Transplant	Construction
10	Plumeria spp.	Frangipani Tree	No	Store, Maintain & Transplant	Construction
11	Parkinsonia florida	Blue Palo Verde	No	Store, Maintain & Transplant	Construction
12	Plumeria spp.	Frangipani Tree	No	Store, Maintain & Transplant	Construction
13	Plumeria spp.	Frangipani Tree	No	Store, Maintain & Transplant	Construction
14	Plumeria spp.	Frangipani Tree	No	Store, Maintain & Transplant	Construction
15	Plumeria spp.	Frangipani Tree	No	Store, Maintain & Transplant	Construction
16	Parkinsonia florida	Blue Palo Verde	No	Store, Maintain & Transplant	Construction
17	Plumeria spp.	Frangipani Tree	No	Store, Maintain & Transplant	Construction
18	Erythrina coralloides	Naked Coral Tree	No	Store, Maintain & Transplant	Construction
19	Plumeria spp.	Frangipani Tree	No	Store, Maintain & Transplant	Construction
20	Erythrina coralloides	Naked Coral Tree	No	Store, Maintain & Transplant	Construction
21	Erythrina coralloides	Naked Coral Tree	No	Store, Maintain & Transplant	Construction
22	Plumeria spp.	Frangipani Tree	No	Store, Maintain & Transplant	Construction
23	Erythrina coralloides	Naked Coral Tree	No	Store, Maintain & Transplant	Construction
24	Plumeria spp.	Frangipani Tree	No	Store, Maintain & Transplant	Construction
25	Erythrina coralloides	Naked Coral Tree	No	Store, Maintain & Transplant	Construction
26	Plumeria spp.	Frangipani Tree	No	Store, Maintain & Transplant	Construction
27	Plumeria spp.	Frangipani Tree	No	Store, Maintain & Transplant	Construction
28	Plumeria spp.	Frangipani Tree	No	Store, Maintain & Transplant	Construction
29	Plumeria spp.	Frangipani Tree	No	Store, Maintain & Transplant	Construction
30	Erythrina coralloides	Naked Coral Tree	No	Store, Maintain & Transplant	Construction
31	Plumeria spp.	Frangipani Tree	No	Store, Maintain & Transplant	Construction
32	Erythrina coralloides	Naked Coral Tree	No	Store, Maintain & Transplant	Construction
33	Plumeria spp.	Frangipani Tree	No	Store, Maintain & Transplant	Construction
34	Erythrina coralloides	Naked Coral Tree	No	Store, Maintain & Transplant	Construction
35	Plumeria spp.	Frangipani Tree	No	Store, Maintain & Transplant	Construction
36	Erythrina coralloides	Naked Coral Tree	No	Store, Maintain & Transplant	Construction
37	Firmiana simplex	Chinese Parasol Tree	No	Store, Maintain & Transplant	Construction
38	Firmiana simplex	Chinese Parasol Tree	No	Store, Maintain & Transplant	Construction
39	Ficus altissima	Council Tree	No	Store, Maintain & Transplant	Construction
40	Ficus altissima	Council Tree	No	Store, Maintain & Transplant	Construction
41	Ginko biloba	Maidenhair Tree	No	Protect	Construction
42	Ginko biloba	Maidenhair Tree	No	Remove	Construction
43	Bombax ceiba	Cotton Tree	No	Store, Maintain & Transplant	Construction



PRESSURE CALCULATIONS FOR DOMESTIC IRRIGATION

Project Name and/or Tract#:
Date and Source of Information: 10/21/2019
Name of Contact Person & Phone #: ANTONIO RANGEL 760.744.1150 EXT 2133
P.O.C. Water Meter #:
Water Meter Size and Type:
Hydraulic Grade Level: FT
Water Meter Elevation: 571.0 FT
Highest Head Elevation on the System: 570.0 FT
Basis for Calculations: GREATEST DEMAND

Remote Control Valve#: 17

Size of Remote Control Valve: 1"
Demand at Remote Control Valve: 25 GPM

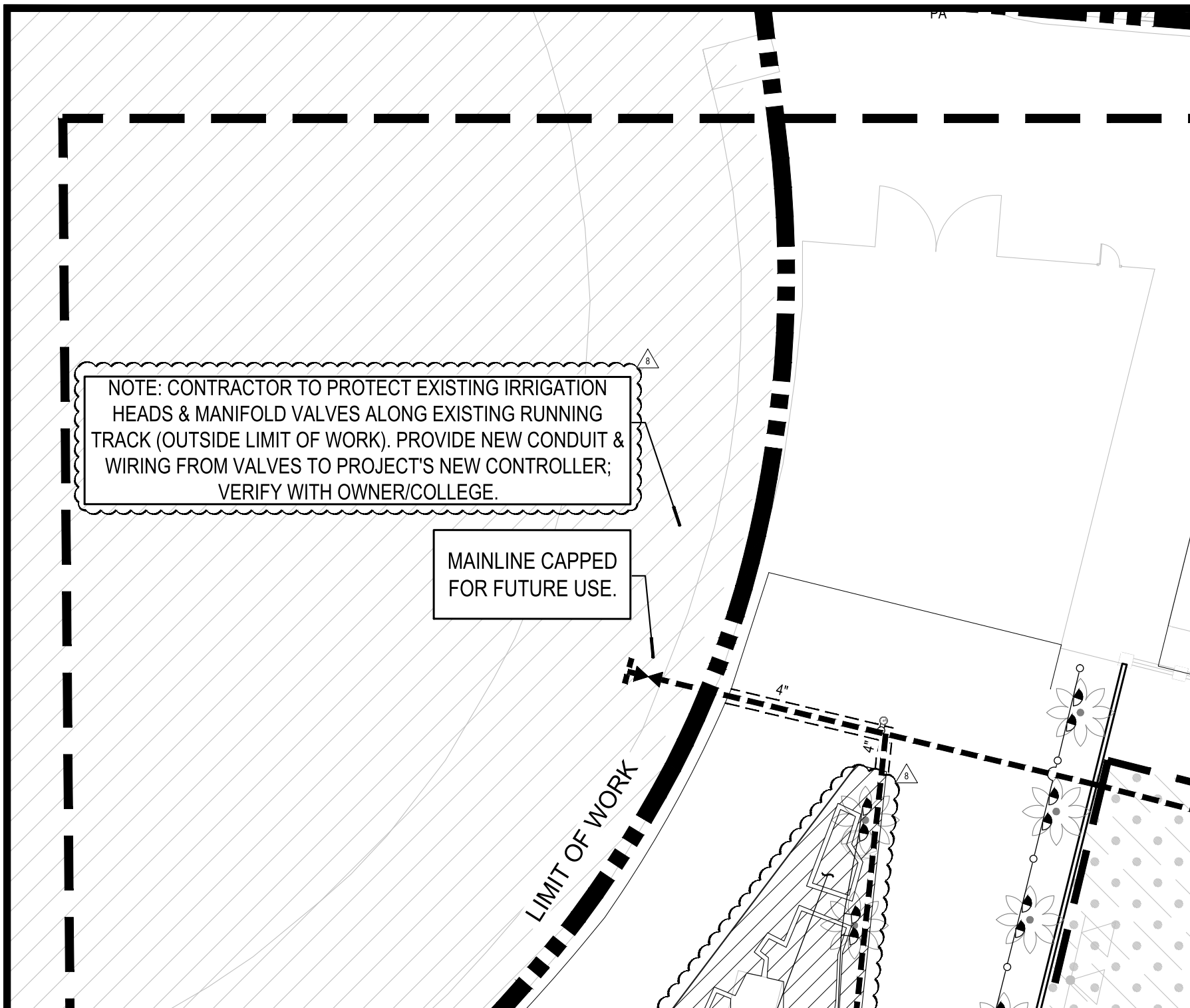
QUANTITY	SIZE	DESCRIPTION	FLOW (GPM)	LOSS (PSI)
1	4"	Water Meter	25	0
1	3"	Backflow RP	25	0
-	-	Pressure Regulator	-	-
3	2"	Ball Valve(s)	25	0
-	-	Gate Valve(s)	-	-
1	3"	Master Valve	25	0
1	1 1/2"	Flow Sensor	25	0
-	-	Mainline	-	-
-	-	Mainline	-	-
-	-	Mainline	-	-
818.5 FT	4"	Mainline	25	1
1	1"	Remote Control Valve	25	4
		Lateral Line Losses(10%)		1
		Other Losses		1
		Elevation Loss or Gain	GAIN	-1
		Total		6

PRESSURE (PSI)

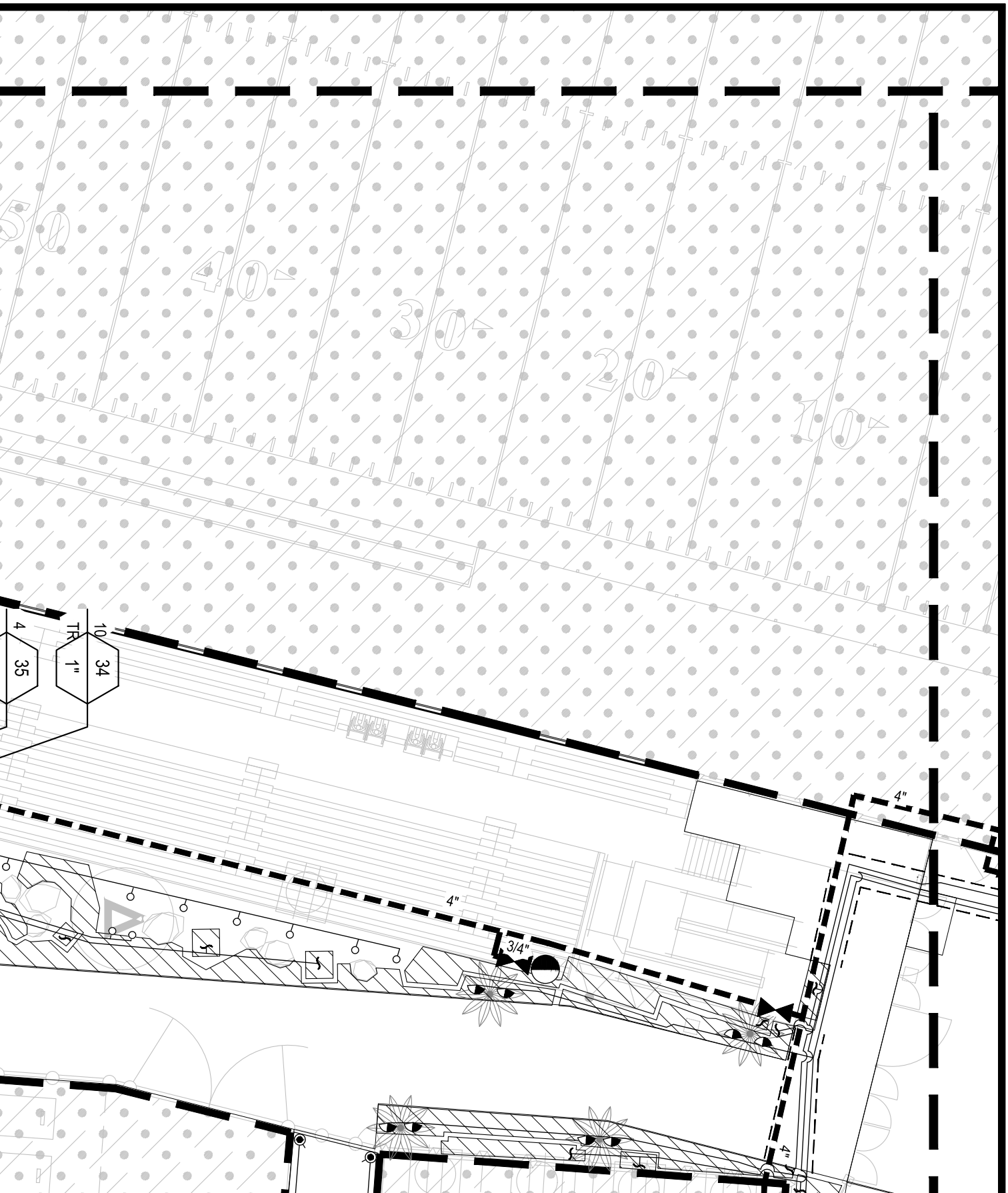
Pressure Required to Operate Irrigation Head	40
Sub-Total Pressure Required for Irrigation System	46
Total Pressure Required for Irrigation System (Sub-Total Pressure + 25%)	58
Static Pressure Available	82
Residual Pressure (Subtract Total Pressure from Static Pressure)	25

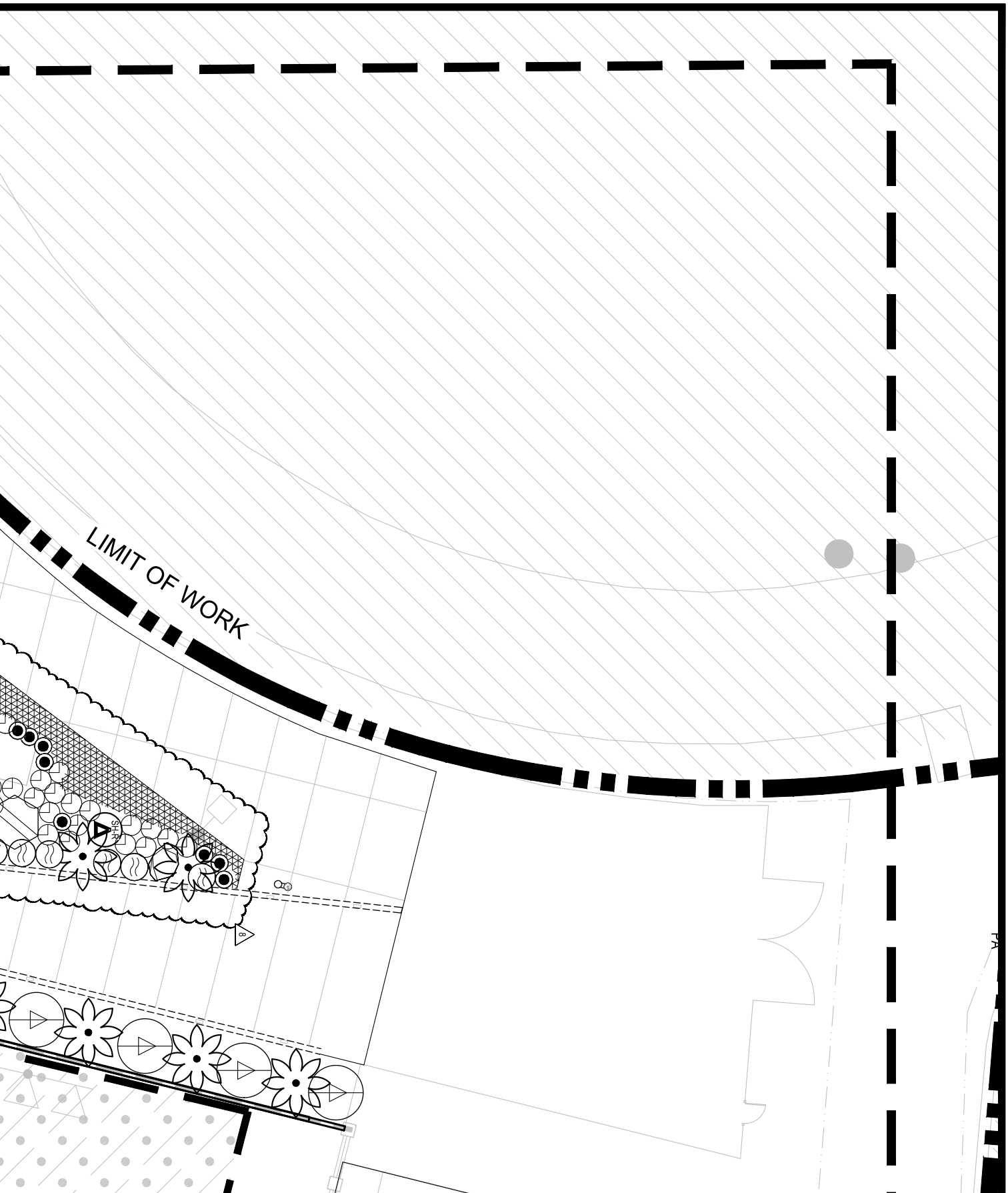
GENER

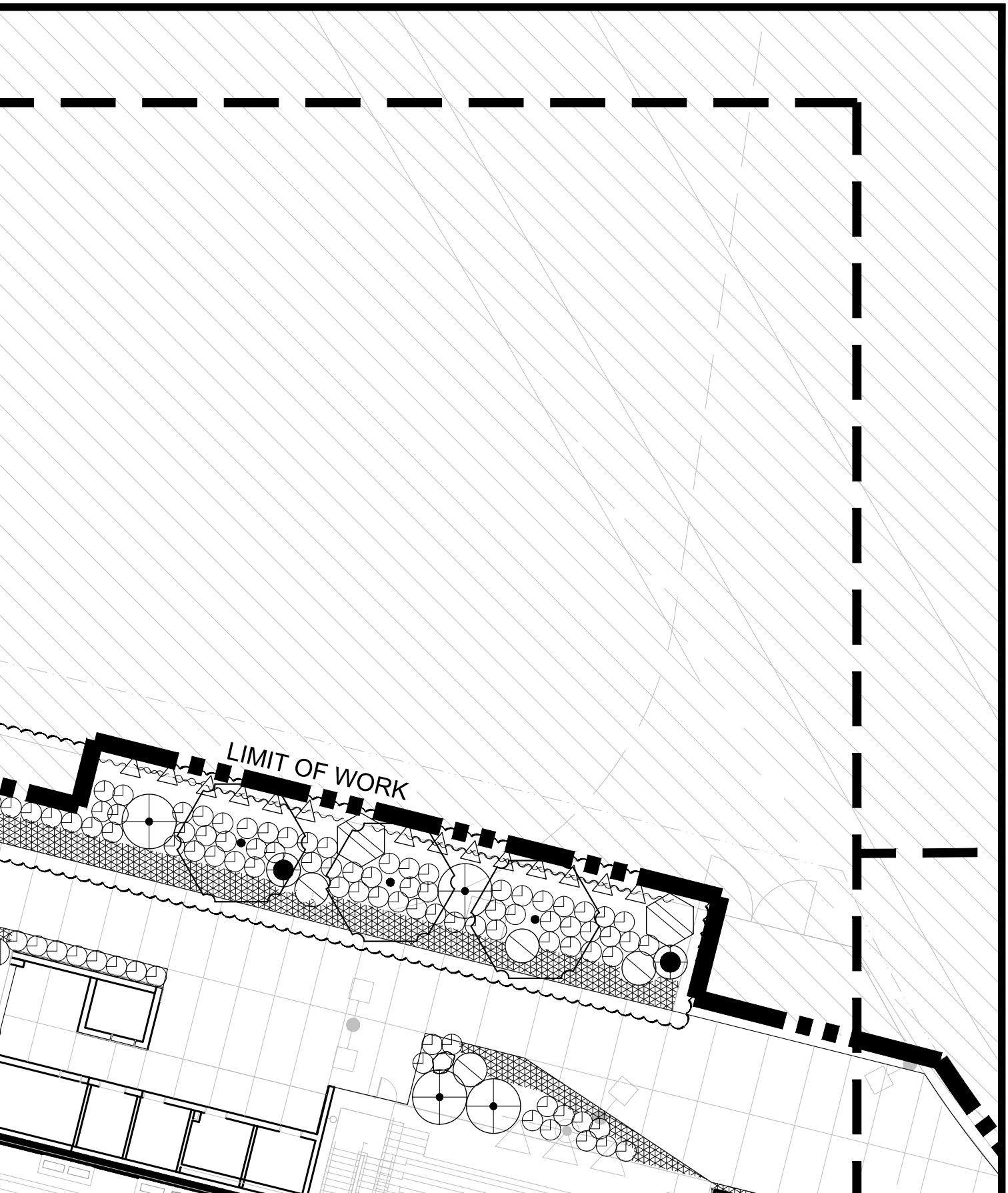
1. The irri retainin contrac roadwa
2. The irri etc. sho all remo landsca
3. The irri drawing the wat reporte constru owner's
4. When it dimens irrigatio such ob the irrig represe
5. The irri the con
6. All pipir pipe thr
7. All pop- finish g
8. All pop- adjacer for adju
9. The irri spray o irrigatio system
10. The irri farthest (not to
11. The irri circle sp with the
12. Drainag drainag showing shall be

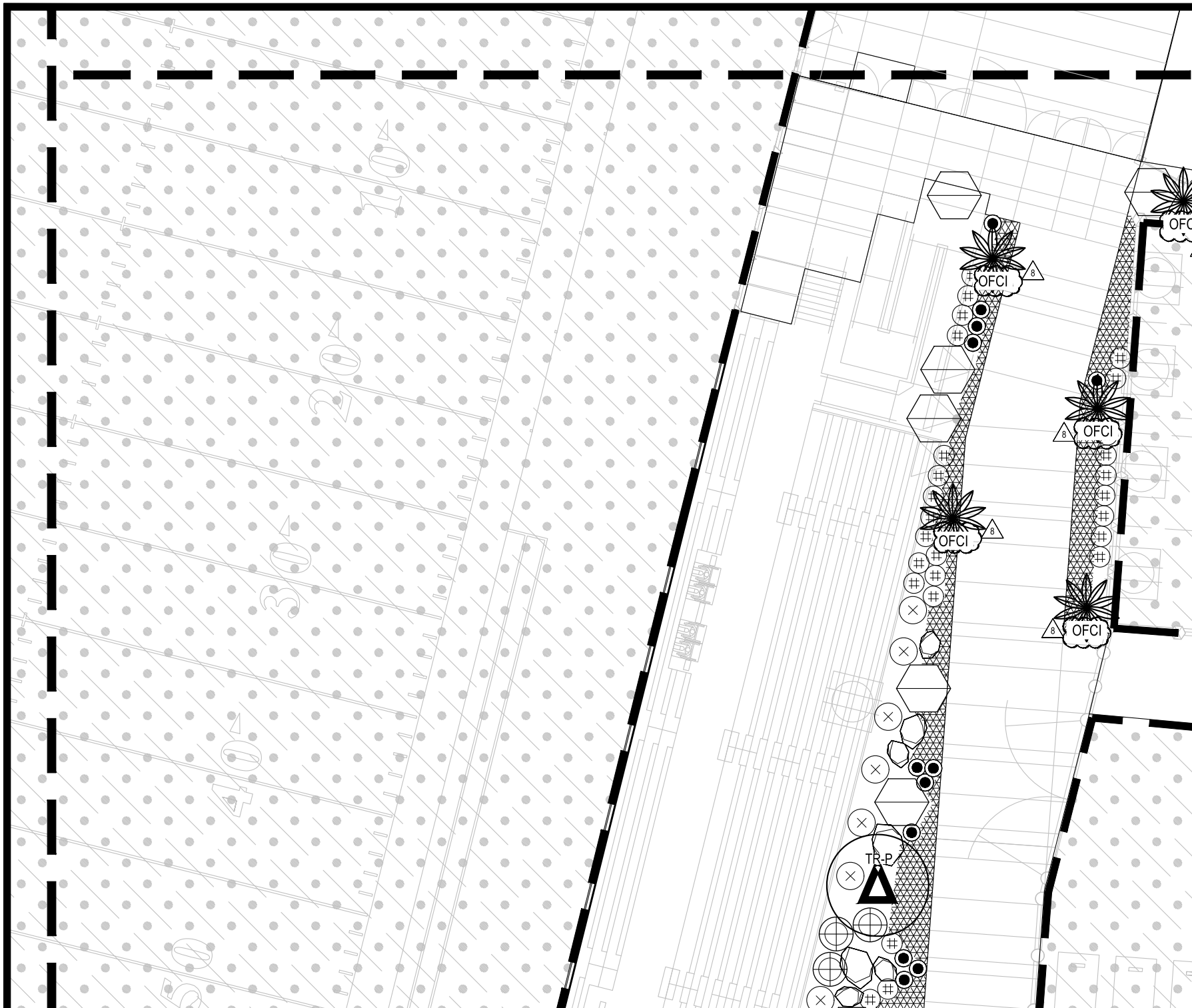

PA
NOTE: CONTRACTOR TO PROTECT EXISTING IRRIGATION HEADS & MANIFOLD VALVES ALONG EXISTING RUNNING TRACK (OUTSIDE LIMIT OF WORK). PROVIDE NEW CONDUIT & WIRING FROM VALVES TO PROJECT'S NEW CONTROLLER; VERIFY WITH OWNER/COLLEGE.
8
MAINLINE CAPPED FOR FUTURE USE.
4"
4"
8
LIMIT OF WORK

LIMIT OF WORK
4
1"
4
TR
6
1"
7
VI
8
7
1"
6
SB


50'
40'
30'
20'
10'
4
35
10
TR
1"
34
4"
4"
3/4"
4"


LIMIT OF WORK
SHRUB
8


LIMIT OF WORK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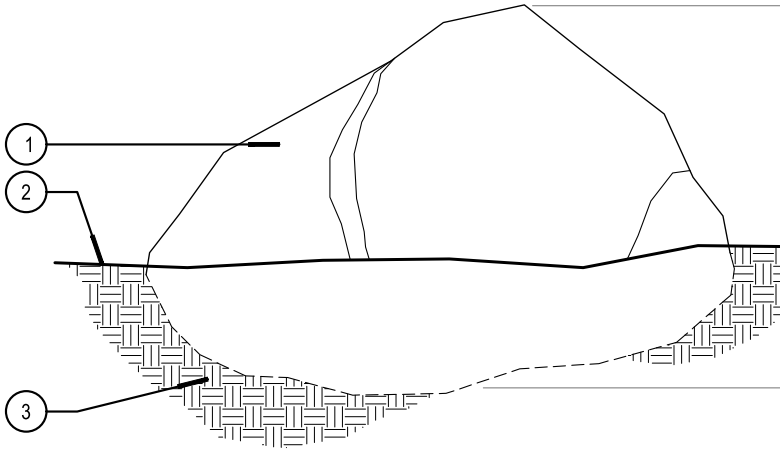
TR-P

NOTES:

A. BOULDERS ARE TO BE FIELD SELECTED BY LANDSCAPE ARCHITECT.
B. LANDSCAPE ARCHITECT TO DIRECT FINAL BOULDER PLACEMENT ON SITE.
C. BOULDER PLACEMENT TO OCCUR PRIOR TO IRRIGATION AND PLANTING INSTALLATION.
D. SEE PLANS & BOULDER SCHEDULE FOR SIZING INFORMATION.
E. REFER TO MASTER CONSTRUCTION LEGEND FOR ADDITIONAL INFORMATION.

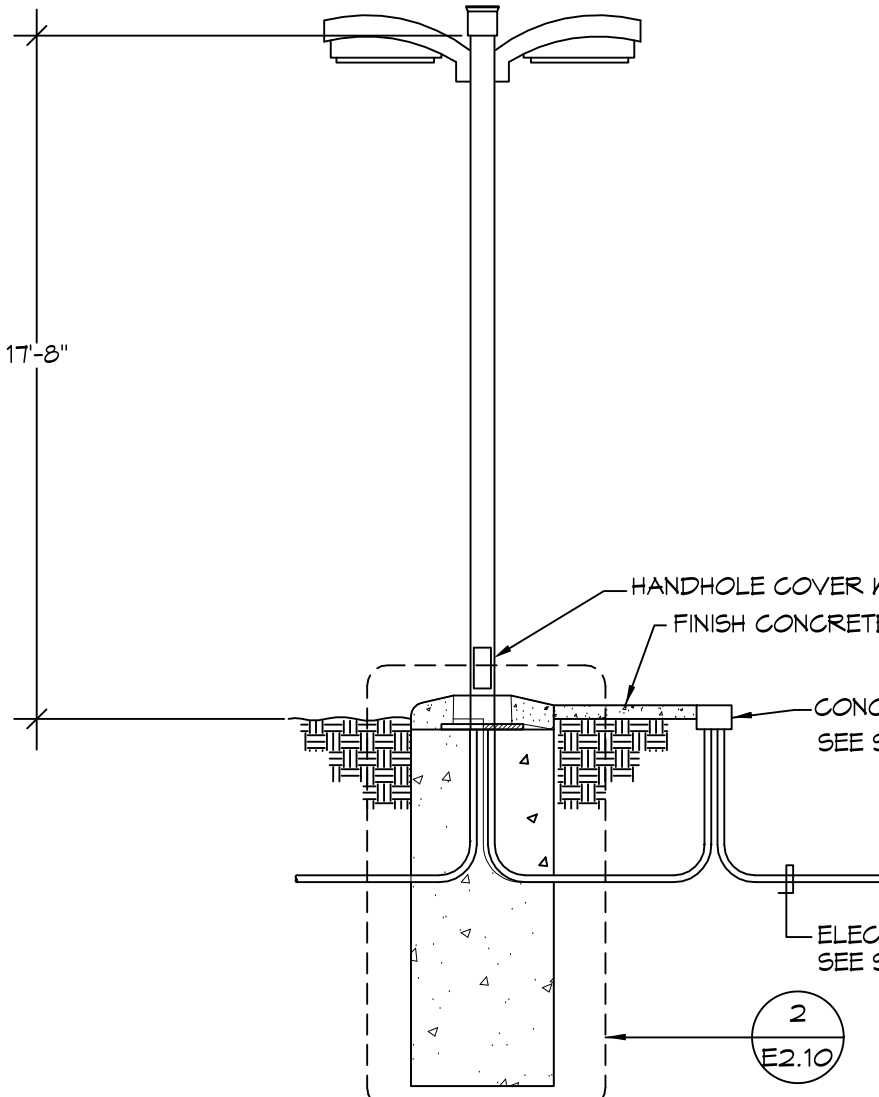
1. BOULDER PER PLAN.
2. FINISHED GRADE @ ADJACENT PLA AREA.
3. COMPACTED SUB-GRADE PER GEOTECHNICAL REPORT.

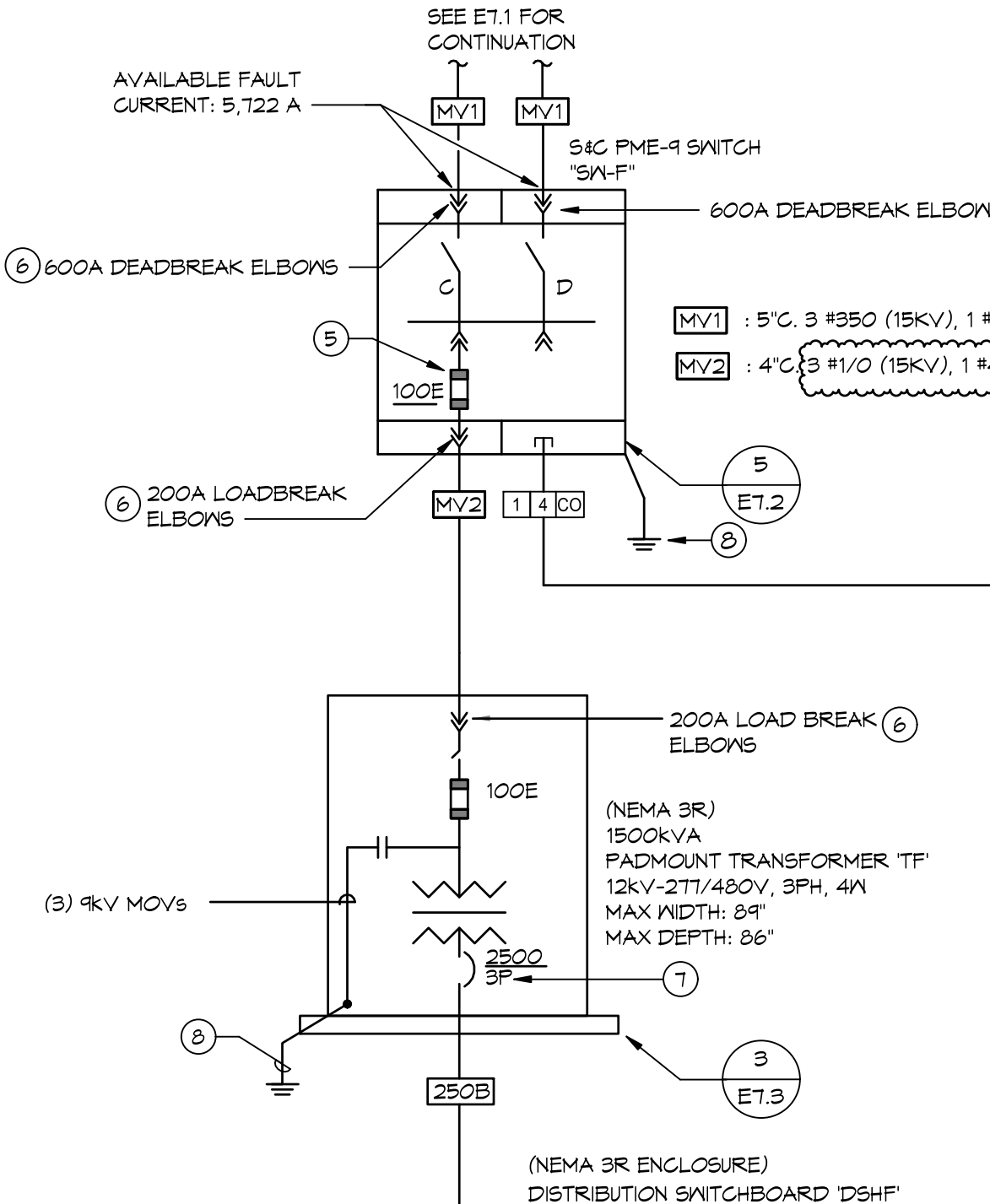


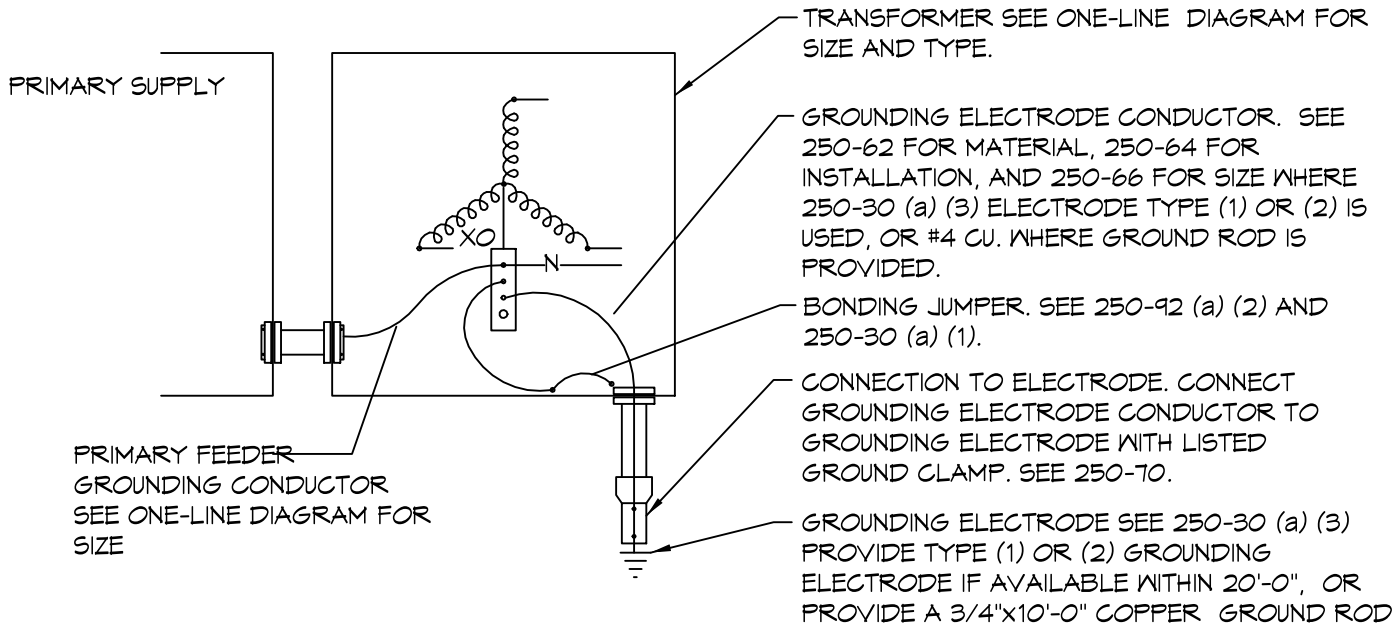
M

Boulder Placement in Planting Area

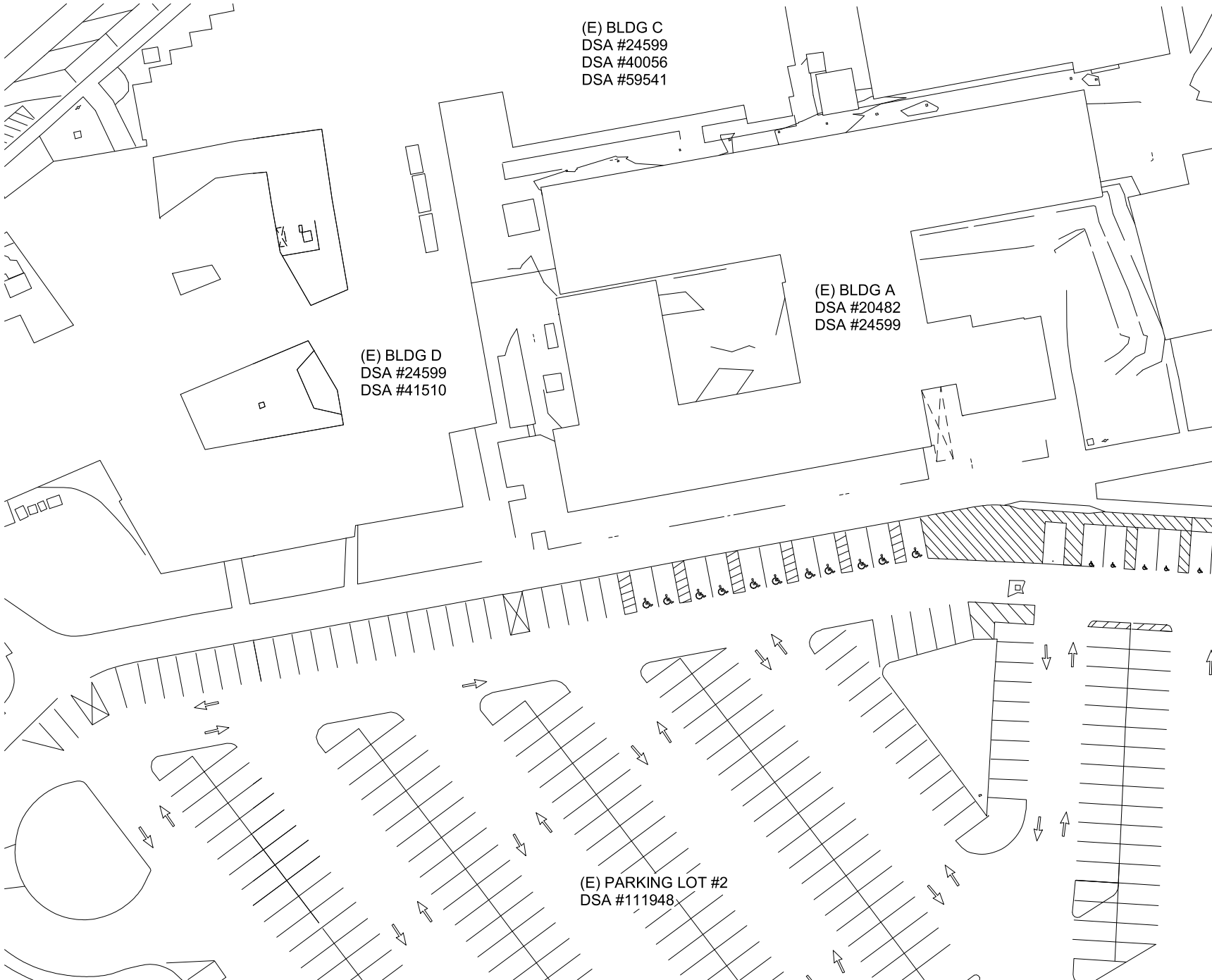
Scale: 1"=1'-0"


17'-8"
HANDHOLE COVER
FINISH CONCRETE
CONC
SEE
ELEC
SEE
2
E2.10


SEE E7.1 FOR CONTINUATION
AVAILABLE FAULT CURRENT: 5,722 A
MV1
MV1
S&C PME-9 SWITCH "SW-F"
600A DEADBREAK ELBOW
6 600A DEADBREAK ELBOWS
C
D
MV1 : 5"C. 3 #350 (15KV), 1 #
MV2 : 4"C. 3 #1/0 (15KV), 1 #
5
100E
6 200A LOADBREAK ELBOWS
MV2
1 4 C0
5
E7.2
8
200A LOAD BREAK ELBOWS 6
100E
(NEMA 3R)
1500kVA
PADMOUNT TRANSFORMER 'TF'
12kV-277/480V, 3PH, 4W
MAX WIDTH: 89"
MAX DEPTH: 86"
(3) 9kV MOVs
2500
3P
7
8
3
E7.3
250B
(NEMA 3R ENCLOSURE)
DISTRIBUTION SWITCHBOARD 'DSHF'


PRIMARY SUPPLY
XO
N
TRANSFORMER SEE ONE-LINE DIAGRAM FOR SIZE AND TYPE.
GROUNDING ELECTRODE CONDUCTOR. SEE 250-62 FOR MATERIAL, 250-64 FOR INSTALLATION, AND 250-66 FOR SIZE WHERE 250-30 (a) (3) ELECTRODE TYPE (1) OR (2) IS USED, OR #4 CU. WHERE GROUND ROD IS PROVIDED.
BONDING JUMPER. SEE 250-92 (a) (2) AND 250-30 (a) (1).
CONNECTION TO ELECTRODE. CONNECT GROUNDING ELECTRODE CONDUCTOR TO GROUNDING ELECTRODE WITH LISTED GROUND CLAMP. SEE 250-70.
GROUNDING ELECTRODE SEE 250-30 (a) (3) PROVIDE TYPE (1) OR (2) GROUNDING ELECTRODE IF AVAILABLE WITHIN 20'-0", OR PROVIDE A 3/4"x10'-0" COPPER GROUND ROD
PRIMARY FEEDER GROUNDING CONDUCTOR SEE ONE-LINE DIAGRAM FOR SIZE

THE LINE SHOWN ABOVE IS
EXACTLY ONE INCH LONG AT THIS
SHEETS ORIGINAL PAGE SIZE



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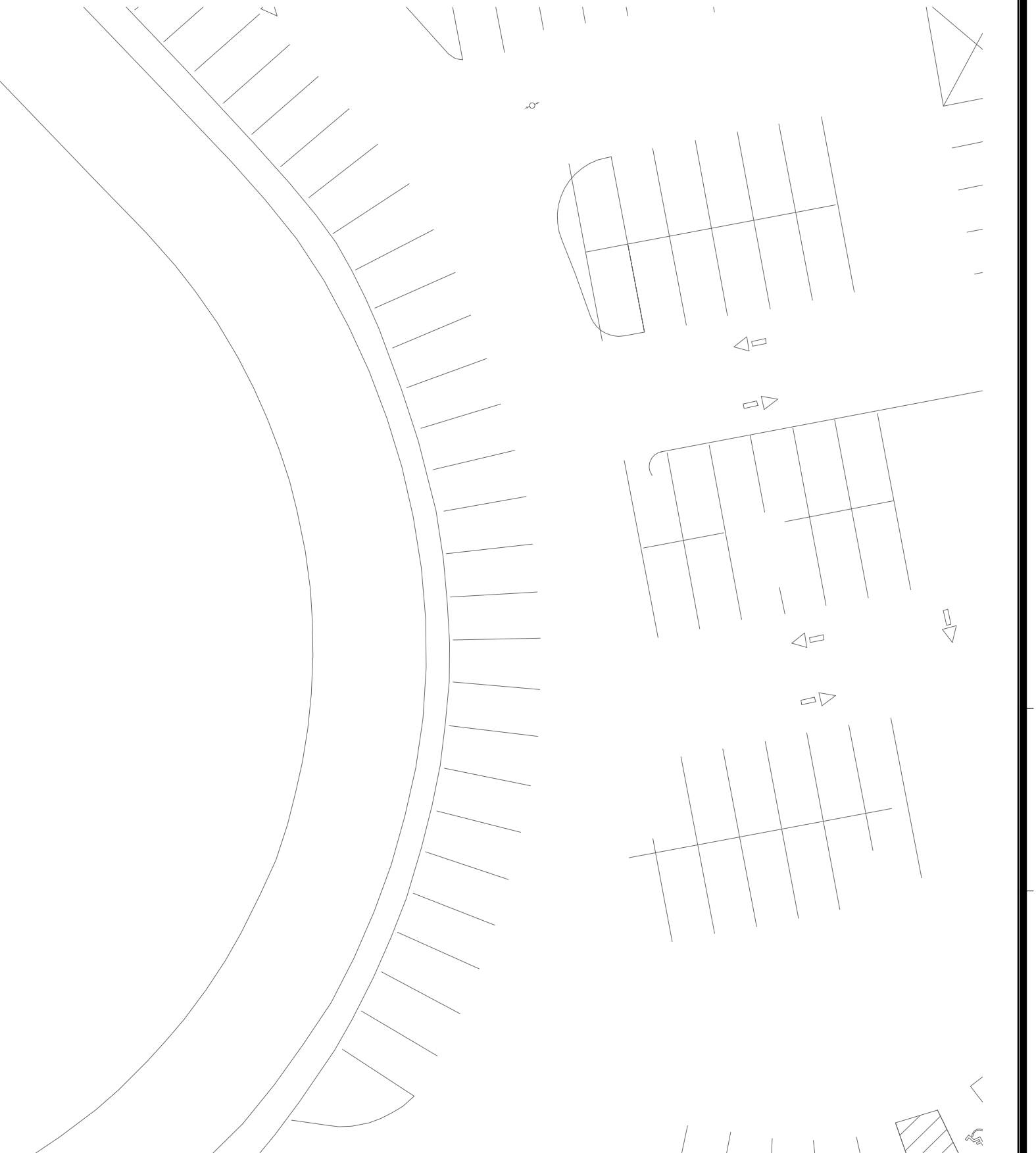

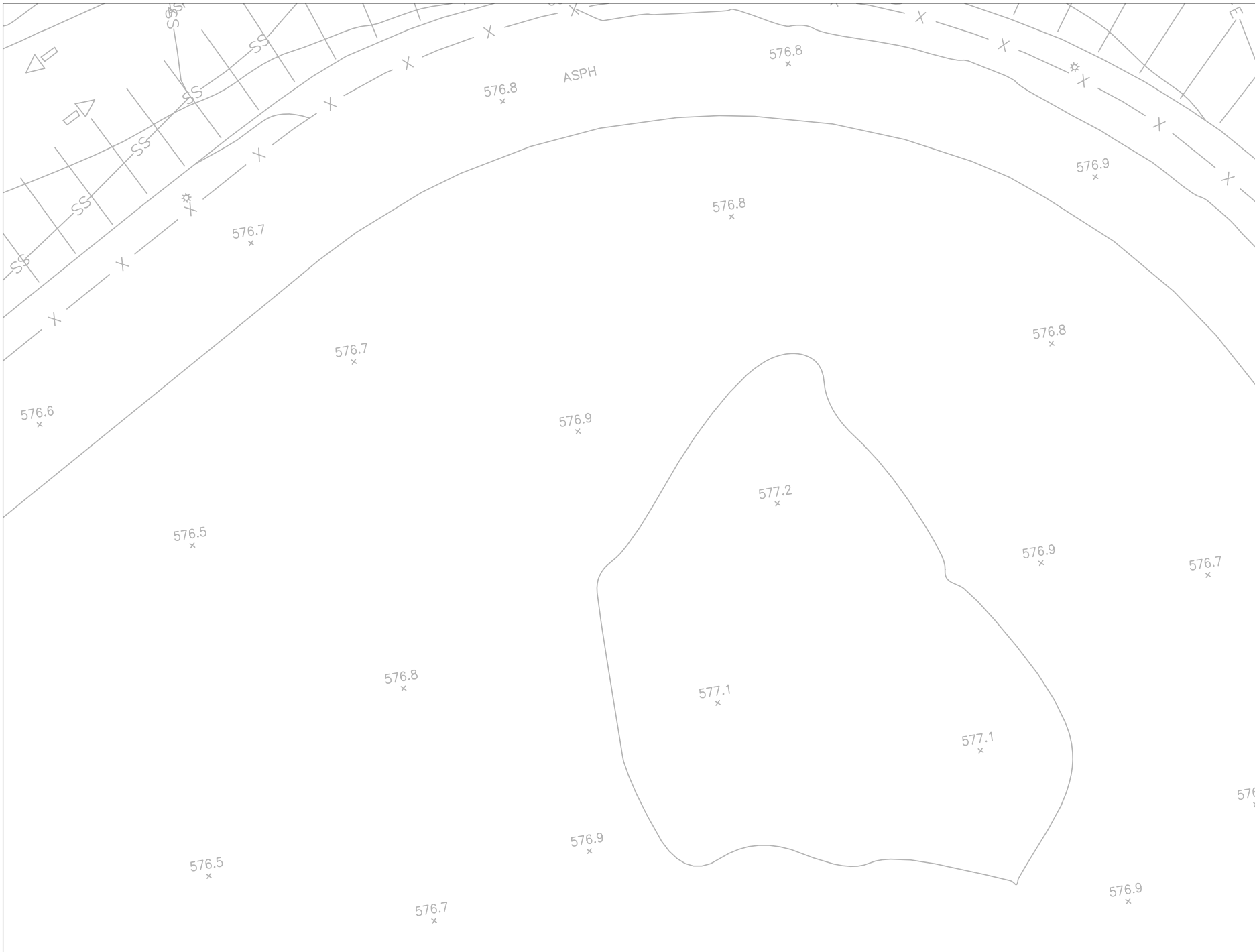
ASPH
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576.8
576.8
576.9
576.7
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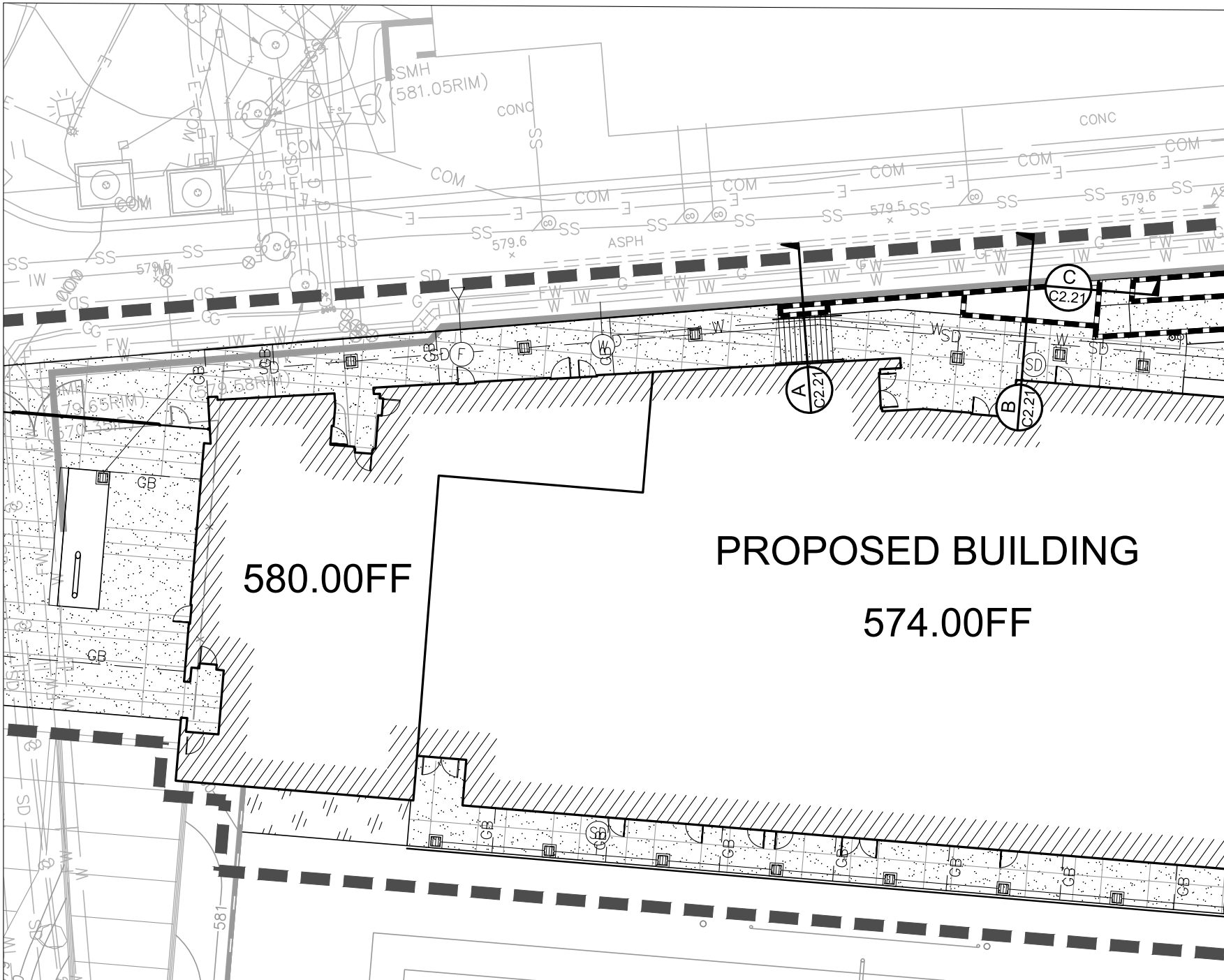
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C2.21
A
B
C
SMH
(581.05RIM)
CONC
COM
SS
SD
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FW
IW
W
ASPH
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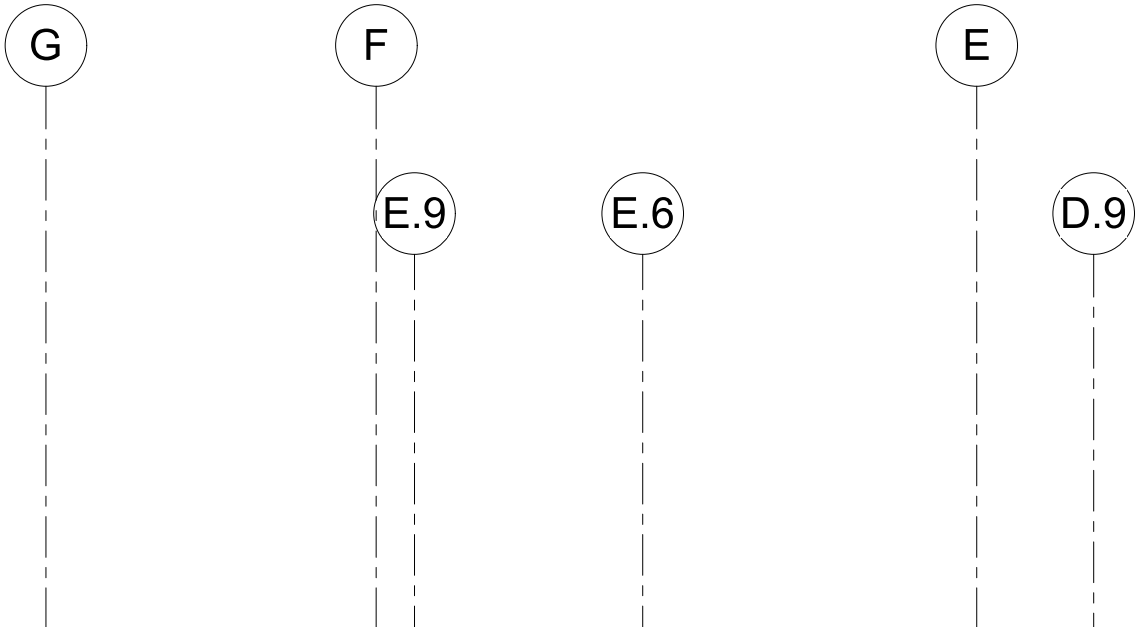
581

THE LINE SHOWN ABOVE IS
EXACTLY ONE INCH LONG AT THIS
SHEETS ORIGINAL PAGE SIZE



Palomar College Bid 104-22 Athletics Stadium Re-bid - Addendum #1

Final Audit Report 2022-08-15

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