

Natomas USD – Bannon Creek Roof Replacement Bid Form

PROPOSALS DUE BY 2:00 PM ON FRIDAY, APRIL 5, 2019

Name of Business: Madsen Roofing & Waterproofing

Address: PO Box 277730

Sacramento CA, 95827

Contact Person: David Patton

Phone: 916-361-3327

Fax: 916-361-3370

Base Bid – Replace Roof in Accordance with the Specifications & Addendum #1:

\$ 78,557.00

Contingency – Unforeseen conditions:

\$15,000

Bid Total (Base Bid + Contingency):

\$ 93,557.00

Contractor Signature:

Christopher Madsen

Date:

4/5/19

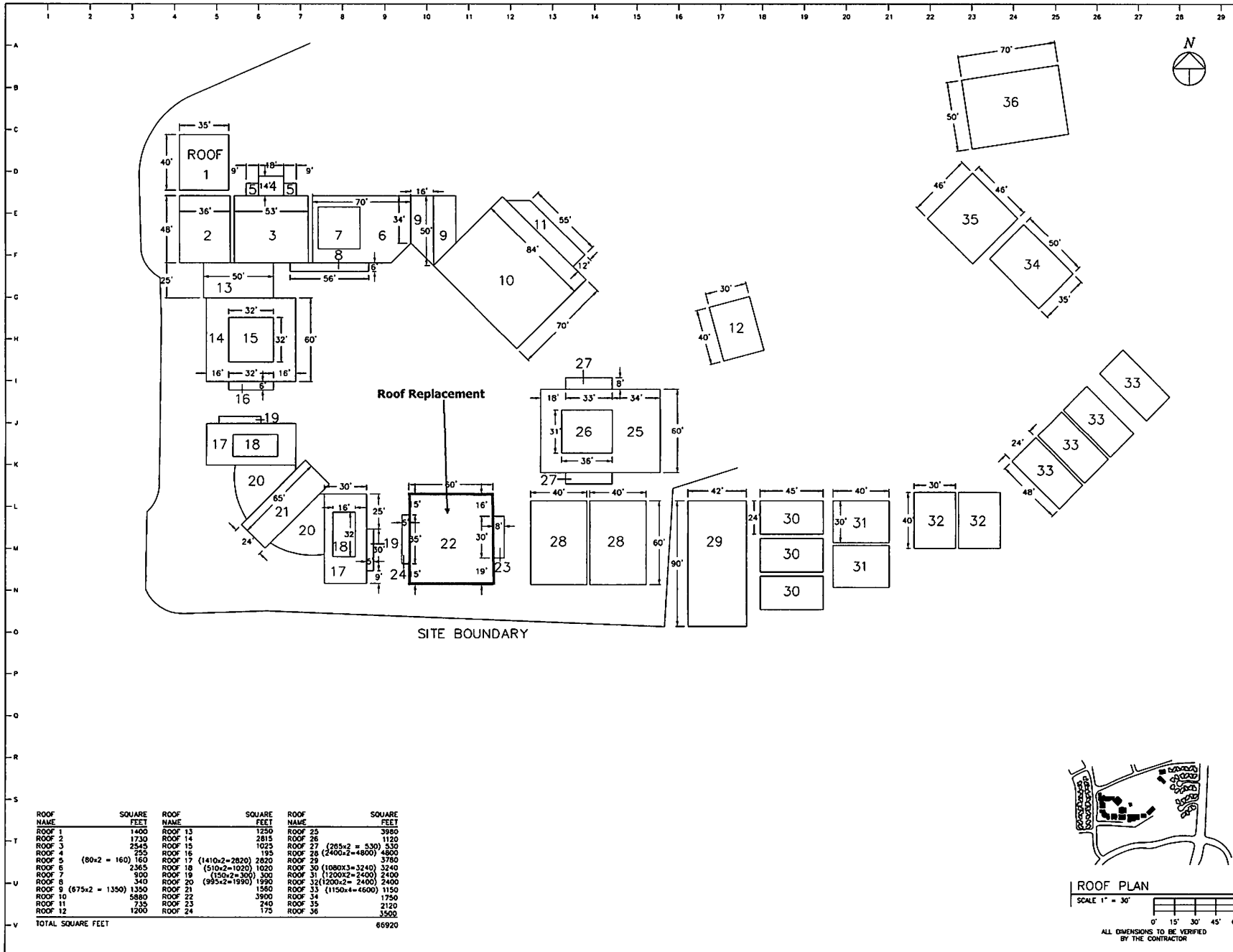
Email this completed form to both Mark Storace and Luis Huerta at:

mstorace@natomasunified.org

luhuerta@natomasunified.org

Roof Replacement over Room 14 at Bannon Dunes Elementary School

Remove the existing roof down to the roof deck and dispose. Replace dry-rot decking as needed. Add tapered insulation near the drain areas to promote drainage. Install new roof deck cover board and single ply roof system with 20-year warranty.



ROOF NAME	SQUARE FEET	ROOF NAME	SQUARE FEET	ROOF NAME	SQUARE FEET
ROOF 1	1400	ROOF 13	1250	ROOF 25	3980
ROOF 2	1730	ROOF 14	2815	ROOF 26	1120
ROOF 3	2545	ROOF 15	1025	ROOF 27 (285x2 = 530)	530
ROOF 4	255	ROOF 16	195	ROOF 28 (2400x2 = 4800)	4800
ROOF 5 (80x2 = 160)	160	ROOF 17 (1410x2 = 2820)	2820	ROOF 29	3760
ROOF 6	2365	ROOF 18 (510x2 = 1020)	1020	ROOF 30 (1080x3 = 3240)	3240
ROOF 7	900	ROOF 19 (150x2 = 300)	300	ROOF 31 (1200x2 = 2400)	2400
ROOF 8	340	ROOF 20 (995x2 = 1990)	1990	ROOF 32 (1200x2 = 2400)	2400
ROOF 9 (675x2 = 1350)	1350	ROOF 21	1560	ROOF 33 (1150x4 = 4600)	1150
ROOF 10	5880	ROOF 22	3500	ROOF 34	1750
ROOF 11	735	ROOF 23	240	ROOF 35	2120
ROOF 12	1200	ROOF 24	175	ROOF 36	3500
TOTAL SQUARE FEET					66920

REVISIONS	No.	DATE	BY

NOTES:

- LEGEND:
- * CORE
 - ◆ DRAIN / OVERFLOW DRAIN
 - ◇ SCUPPER / OVERFLOW SCUPPER
 - EXPANSION JOINT / CONTROL JOINT
 - HIDDEN LINE
 - - - RIDGE LINE



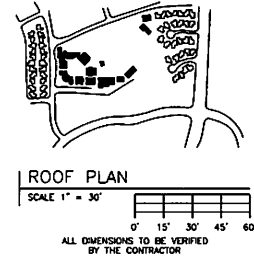
CUSTOMER: ---

BUILDING: BANNON CREEK ELEMENTARY SCHOOL

LOCATION: 2775 MELLCREEK DRIVE SACRAMENTO, CA 95835

FILE LOCATION & NAME: ---

DRAWN BY	DATE DRAWN	AGREEMENT #
JED	07/08/17	---
APPROVED	SURVEY DATE	SERVICE ORDER #
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DIVISION 07 - THERMAL AND MOISTURE PROTECTION

075419 Polyvinyl-Chloride (PVC/TPA) Roofing

SECTION 075419 - POLYVINYL-CHLORIDE (PVC/TPA) ROOFING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:

1. Mechanically-fastened thermoplastic PVC/TPA roofing system on wood deck, including:
2. Roof insulation.
3. Roof insulation cover board.
4. Walkway material.

1.3 DEFINITIONS

- A. Roofing Terminology: See ASTM D 1079 and glossary in NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other work.
 1. Tapered insulation, including slopes.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer, Manufacturer, and Roofing Inspector.
 1. Include letter from Manufacturer written for this Project indicating approval of Installer.
- B. Manufacturer Certificates: Signed by roofing manufacturer certifying that roofing system complies with requirements specified in "Performance Requirements" Article.
- C. Warranties: Unexecuted sample copies of special warranties.

1.6 INFORMATIONAL SUBMITTALS

- A. Maintenance Data: To include in maintenance manuals.

1.7 QUALITY ASSURANCE

- A. Installer Qualifications: An employer of workers trained and certified by manufacturer, including a full-time on-site supervisor with a minimum of five years' experience installing products comparable to those specified, able to communicate verbally with Contractor, Architect, and employees, and qualified by the manufacturer to install manufacturer's product and furnish warranty of type specified.
- B. Manufacturer Qualifications: Approved manufacturer listed in this Section, UL listed for roofing systems identical to that specified for this Project, with minimum ten years' experience in manufacture of specified products in successful use in similar applications.
1. Approval of Comparable Products: Submit the following in accordance with project substitution requirements, within time allowed for substitution review:
 - a. Product data, including certified independent test data indicating compliance with requirements.
 - b. Samples of each component.
 - c. Sample submittal from similar project.
 - d. Project references: Minimum of five installations of specified products not less than ten years old, with Owner and Architect contact information.
 - e. Sample warranty.
- C. Roofing Inspector Qualifications: A technical representative of manufacturer not engaged in the sale of products and experienced in the installation and maintenance of the specified roofing system, qualified to perform roofing observation and inspection specified, to determine Installer's compliance with the requirements of this Project, and approved by the manufacturer to issue warranty certification. The Roofing Inspector shall be on site a minimum of two days per week, and provide a written report with photos to the owner within 24 hours of each inspection. The Inspector shall be the following:
1. An authorized full-time technical employee of the manufacturer.
- D. Preinstallation Roofing Conference: Conduct conference at Project site.
1. Meet with Owner, Architect,, roofing Installer, roofing system manufacturer's representative, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
 2. Review drawings and specifications.
 3. Review methods and procedures related to roofing installation, including manufacturer's written instructions.

Natomas Unified School District
Bannon Creek Roof Replacement Specification

4. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
5. Examine substrate conditions and finishes for compliance with requirements, including flatness and fastening.
6. Review structural loading limitations of roof deck during and after roofing.
7. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
8. Review governing regulations and requirements for insurance and certificates if applicable.
9. Review temporary protection requirements for roofing system during and after installation.
10. Review roof observation and repair procedures after roofing installation.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, approval or listing agency markings, and directions for storing and mixing with other components.
- B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
 1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.
- C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.
- D. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

1.9 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.
- B. Daily Protection: Coordinate installation of roofing so insulation and other components of roofing system not permanently exposed are not subjected to precipitation or left uncovered at the end of the workday or when rain is forecast.
 1. Provide tie-offs at end of each day's work to cover exposed roofing and insulation with a course of roofing sheet securely in place with joints and edges sealed.

Natomas Unified School District
Bannon Creek Roof Replacement Specification

2. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing.
3. Remove temporary plugs from roof drains at end of each day.
4. Remove and discard temporary seals before beginning work on adjoining roofing.

1.10 WARRANTY

- A. **Warranty, General:** Warranties specified shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
- B. **Manufacturer's Warranty:** Manufacturer's standard or customized form, in which manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within specified warranty period. Failure includes roof leaks.
 1. Manufacturer's warranty includes roofing membrane, base flashings, fasteners, roofing membrane accessories and other components of roofing system specified in this Section.
 2. Warranty Period: 20 years from date of Substantial Completion.
- C. **Installer's Warranty:** Submit roofing Installer's warranty, on warranty form at end of this Section, signed by Installer, covering the Work of this Section and related Sections indicated above, including all components of membrane roofing such as single ply roofing membrane, base flashing, roof insulation, fasteners, cover boards, substrate boards, vapor retarders, roof pavers, and walkway products, for the following warranty period:
 1. Warranty Period: Two years from date of Substantial Completion.
- D. **Extended Roof System Warranty:** Warranties specified in this Section include the following components and systems specified in other sections supplied by the roofing system Manufacturer, and installed by the roofing system Installer:
 1. Sheet metal flashing and trim, including roof penetration flashings.
 2. Manufactured copings, roof edge, counterflashings, and reglets.
 3. Roof curbs, hatches, and penetration flashings.
 4. Roof and parapet expansion joint assemblies.
 5. Metal roof, wall, and soffit panels and trim.
- E. **Manufacturer Inspection Requirement:** By manufacturer's technical representative, to report maintenance responsibilities to Owner necessary for preservation of Owner's warranty rights. The cost of manufacturer's inspections is included in the Contract Sum. Inspections to occur in Years 2, 5, 10 and 15 following completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis-of-Design Manufacturer/Product: The roof system specified in this Section is based upon products of Tremco, Inc., Beachwood, OH, (800) 562-2728, www.tremcoroofing.com that are named in other Part 2 articles. Provide specified products.
1. TPA by Tremco, Inc.
 2. Or equal.
- B. Source Limitations: Obtain components for roofing system from same manufacturer as membrane roofing or manufacturer approved by membrane roofing manufacturer.

2.2 THERMOPLASTIC MEMBRANE MATERIALS

- A. Thermoplastic PVC/TPA sheet, ASTM D4434 Type IV internally fabric reinforced, Energy Star qualified, CRRC listed, and California Title 24 Energy Code compliant.
1. Basis of design product: Tremco, TPA Roof Membrane.
 2. Tensile Strength at 0 deg. F (-18 deg. C), minimum, ASTM D 751: 300 lbf/in (52 kN/m).
 3. Tear Strength at 77 deg. F (25 deg. C), minimum, ASTM D 751: 100 lbf (440 N).
 4. Elongation at 0 deg. F (-18 deg. C), minimum at fabric break, ASTM D 751: 25 percent.
 5. Minimum Thickness, nominal, ASTM D 751: 60 mils (1.5 mm).
 6. Exposed Face Color: White.
 7. Reflectance, ASTM C 1549: 86 percent.
 8. Thermal Emittance, ASTM C 1371: 0.86.
 9. Solar Reflectance Index (SRI), ASTM E 1980: 108.
 10. Recycled Content, minimum: 25 percent preconsumer.
- B. Sheet Flashing: Manufacturer's standard sheet flashing of same material, type, reinforcement, thickness, and color as PVC/TPA sheet membrane.

2.3 AUXILIARY ROOFING MATERIALS

- A. General: Auxiliary membrane roofing materials recommended by roofing system manufacturer for intended use, and compatible with membrane roofing.
1. Liquid-type auxiliary materials shall comply with VOC limits of authorities having jurisdiction.
- B. Membrane Bonding Adhesive:

Natomas Unified School District
Bannon Creek Roof Replacement Specification

1. Elastomeric low-VOC solvent-based contact-type adhesive for bonding TPA non-fleece-backed single ply membranes and flashings to substrates.
 - a. Basis of design product: Tremco, TPA LV Single Ply Bonding Adhesive.
 - b. VOC, maximum, ASTM D 3960: <200 g/L.
- C. Metal Termination Bars: Manufacturer's standard, predrilled stainless-steel or aluminum bars, approximately 1 by 1/8 inch (25 mm by 3 mm) thick; with anchors.
- D. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening components to substrate, and acceptable to membrane roofing system manufacturer.
- E. Termination Joint Sealant: Silicone, S, NS, 25 or 50, NT: Single-component, nonsag, plus 25 to 50 percent and minus 25 to 50 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 25, Use NT, and compatible with adjacent materials.
- F. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, lap sealants, termination reglets, and other accessories.

2.4 ROOF INSULATION MATERIALS

- A. Glass-mat-faced gypsum panel, ASTM C1177/C 1177M.
 1. Basis of design product: Tremco/GP Gypsum DensDeck.
 2. Thickness: 1/4 inch.
- B. General: Preformed roof insulation boards manufactured or approved by roofing manufacturer, selected from manufacturer's standard sizes suitable for application, of thicknesses indicated [and that produce FM Global-approved roof insulation].
- C. Tapered Insulation: Provide factory-tapered insulation boards fabricated to slope of 1/2 inch per 12 inches (1:48) unless otherwise indicated.
- D. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.

2.5 WALKWAY MATERIALS

- A. Walkway roll, reinforced PVC/TPA membrane roll with serrated slip-resistant surface, fabricated for heat welding to compatible PVC/TPA membrane surface.
 1. Basis of design product: Tremco, TPA Walkway Roll.
 2. Roll Size: 36 inches by 60 foot (914 mm by 18.3 m).
 3. Thickness: 0.080 inch (2 mm).

4. Color: Grey.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing system:
 1. Verify that roof openings and penetrations are in place and curbs are set and braced and that roof drain bodies are securely clamped in place.
 2. Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.
 3. Wood Roof Deck: Verify that wood deck is securely fastened with no projecting fasteners and with no adjacent units in excess of 1/16 inch (1.6 mm) out of plane relative to adjoining deck. Bring dry rot decking to the attention of the owner prior to replacement.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Remove existing roofing, insulation, flashings and penetration flashings down to deck and dispose.
- B. Remove existing copings and set aside for reinstallation.
- C. Have the District inspect the roof deck prior to covering with new roof system.
- D. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.
- E. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.
- F. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at the end of the workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.

3.3 INSTALLATION, GENERAL

- A. Install roofing system in accordance with manufacturer's recommendations.
- B. NRCA Installation Details: Install roofing system in accordance with the following NRCA Manual Plates and NRCA recommendations; modify as required to comply with perimeter fastening requirements of FM Global references if applicable:
 1. Base Flashing at Parapet Wall: Plates TP-1 and TP-1S.

Natomas Unified School District
Bannon Creek Roof Replacement Specification

2. Base Flashing and Counterflashing at Parapet Wall: Plates TP-5 and TP-5S.
3. Base Flashing and Counterflashing at Parapet Wall, Movement Joint: Plates TP-6 and TP-6S.
4. Base and Surface-mounted Counterflashing: Plates TP-4 and TP-4S.
5. Perimeter Edge, Raised: Plates TP-2 and TP-2S.
6. Perimeter Edge, Embedded Edge: Plates TP-3 and TP-3S.
7. Perimeter Edge, Draining: Plates TP-3A and TP-3AS.
8. Options for Perimeter Base Securement (Roof-to-Wall and Roof-to-Curb Intersections): Single Ply Table 7.1.
9. Options for Perimeter Base Securement (Roof-to-Wall and Roof-to-Curb Intersections): Single Ply Table 7.2.
10. Guide for Sheet Metal Fascia Edges for Thermoset and Thermoplastic Membrane: Single-Ply – Table 1.
11. Scupper, Raised: Plates TP-21 and TP-21S.
12. Gutter at Draining Edge: Plates TP-22 and TP-22S.
13. Expansion Joint, with metal cover: Plates TP-7 and TP-7S and Division 7 Section “Sheet Metal Flashing and Trim.”
14. Expansion Joint, with premanufactured cover: Plates TP-7A and TP-7AS and Division 7 Section “Roof Expansion Assemblies.”
15. Curb Detail at Rooftop HVAC Units, Premanufactured: Plates TP-12 and TP-12S.
16. Curb Detail at Rooftop HVAC Units, Job-Built, Wood: Plates TP-13 and TP-13S.
17. Curb Detail at Skylight, Roof Hatch, and Smoke Vents: Plates TP-14 and TP-14S.
18. Penetration, Structural Member: Plates TP-15 and TP-15S.
19. Penetration, Sheet Metal Enclosure: Plates TP-16 and TP-16S.
20. Penetration, Stack Flashing: Plates TP-17 and TP-17S.
21. Penetration, Plumbing Vent: Plates TP-18 and TP-18S.
22. Penetration, Plumbing Vent, Premanufactured Boot: Plates TP-18A and TP-18AS.
23. Penetration, Pocket: Plates TP-19 and TP-19S.
24. Roof Drain: Plates TP-20 and TP-20S.

25. Guide for Clearances between Pipes / Walls / Curbs – Table 4.
26. Guide for Crickets and Saddles – Table 5.
27. Guide for Edge Scuppers with Tapered Saddles - Table 6.

3.4 INSULATION AND COVER BOARD INSTALLATION

- A. Install ½” 12” tapered crickets at the drain parapet walls.
- B. Cover Boards: Install cover boards over insulation with long joints in continuous straight lines with end joints staggered between rows. Offset joints of insulation below a minimum of 6 inches (150 mm) in each direction. Loosely butt cover boards together.
 1. Mechanically fasten cover boards using eight fasteners per 4' x 8' board.

3.5 MECHANICALLY FASTENED MEMBRANE ROOFING INSTALLATION

- A. Start installation of membrane roofing in presence of roofing system manufacturer's technical personnel.
- B. Accurately align membrane roofing and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.
- C. Mechanically fasten membrane roofing securely at terminations, penetrations, and perimeter of roofing.
- D. Apply membrane roofing with side laps shingled with slope of roof deck where possible.
- E. In-Seam Attachment: Secure one edge of membrane sheet using fastening plates centered within membrane seam and mechanically fasten membrane sheet to roof deck.
- F. Welded Seams: Clean seam areas, overlap membrane roofing, and hot-air weld side and end laps of membrane roofing and sheet flashings according to manufacturer's written instructions to ensure a watertight seam installation.
 1. Test lap edges with probe to verify seam weld continuity. Apply lap sealant to seal cut edges of sheet membrane.
 2. Verify field strength of seams a minimum of twice daily and repair seam sample areas.
 3. Repair tears, voids, and lapped seams in roofing that does not comply with requirements.
- G. Spread sealant bed over deck drain flange at roof drains and securely seal membrane roofing in place with clamping ring.
- H. Install membrane roofing and auxiliary materials to tie in to existing roofing to maintain weathertightness of transition [and to not void warranty for existing membrane roofing system].

3.6 BASE FLASHING INSTALLATION

- A. Install sheet flashings and preformed flashing accessories and adhere to substrates according to membrane roofing system manufacturer's written instructions.
- B. Apply bonding adhesive to substrate and underside of sheet flashing at required rate and allow to partially dry. Do not apply to seam area of flashing.
- C. Install up an over parapet walls terminating to the outside edge.
- D. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.
- E. Clean seam areas, overlap, and firmly roll sheet flashings into the adhesive. Hot-air weld side and end laps to ensure a watertight seam installation.
- F. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars. Install skirt flashings at the top of the base flashings.
- G. Reinstall existing copings.

3.7 WALKWAY INSTALLATION

- A. Flexible Walkways: Install walkway products at roof access point to surrounding roof top equipment. Heat weld to substrate or adhere walkway products to substrate with compatible adhesive according to roofing system manufacturer's written instructions.

3.8 PROTECTING AND CLEANING

- A. Protect membrane roofing system from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.
- B. Correct deficiencies in or remove membrane roofing system that does not comply with requirements; repair substrates; and repair or reinstall membrane roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.
- C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION 075419