SECTION 01300
SUBMITTALS

PART I GENERAL

1.01 Related Documents

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, apply to this Section.

1.02 Summary

A. This Section includes administrative and procedural requirements for submittals required for the performance of the Work, including the following:

1. Contractors project schedule (Updated with each Pay Request)
2. Daily work reports
3. Shop Drawings
4. Product Data
5. Samples
6. Quality assurance submittals

B. Administrative Submittals: Submittals include but are not limited to, the following:

1. Permits
2. Performance and Payment Bonds
3. Insurance Certificates
4. Applications for Payment
5. Subcontractor List

1.03 Procedures

A. Processing: To avoid delays, allow sufficient time for submittal review including time for resubmittals.

1. Allow ten (10) days for review and resubmittal.
2. No extension of Contract Time will be authorized because of failure to transmit submittals sufficiently in advance of the Work to permit processing.

B. Submittal Preparation:

1. Provide a Title Page for each submittal package

2. Include the following information on the Title Page:
    a. Project name
    b. Date
    c. Name and address of Consultant
    d. Name and address of Contractor
    e. Table of Contents

3. Include the following information (if appropriate) for each item listed in the Table of Contents:
    a. Item identification
    b. Name of manufacturer
    c. Name of sub-contractor
    d. Name of supplier
    e. Number and title of appropriate Specification Section
    f. Drawing Number and detail references, as appropriate

4. Submittal Transmittal: Package submittals appropriately for handling and transport. Attach a Letter of Transmittal to each submittal package.
    a. Record relevant information and request for data on the transmittal letter. Record deviations from the Contract Specifications, including variations and limitations. Include Contractors certification that information complies with Contract Document requirements.

1.04 Contractors Schedule

A. Bar-Chart Schedule: Prepare a horizontal bar-chart type work schedule. Submit prior to the Pre-Construction Meeting.
    1. Provide a separate time bar for each significant construction activity. Use the same activities list on the Schedule of Values.
    2. Secure time commitments for performing critical elements of the Work from sub-contractors and suppliers. Show each activity on the chart.
    3. Indicate Substantial Completion on the schedule.

B. Distribution: Print and distribute copies to the Owner, Consultant, subcontractors, suppliers and other parties required to comply with scheduled dates.
    1. When revisions are made redistribute to the same parties. Delete parties who have completed their assigned task.

C. Schedule updating: Revise the schedule after each event or activity where revisions have been recognized or made.

1.05 Daily Work Reports

A. Prepare a daily work report recording the following information and submit copies

to the Consultant on a weekly basis.

1. Number of personnel at site
2. Sub-contractors at site
3. General weather conditions
4. Accidents and unusual events
5. Stoppages, shortages, delays and losses
6. Orders and request of governing authorities
7. Portions of work completed

1.06 Shop Drawings

A. Submit newly prepared information drawn to scale. Highlight, encircle or otherwise indicate deviations from the Project Manual. Reproduction of Contract Documents or Standard information is not a shop drawing.

B. Shop Drawings include fabrication and installation drawings, templates and similar drawings. Include the following information:

1. Dimensions
2. Identification of products and materials
3. Compliance with specified standards
4. Sheet Size: Submit drawings on sheets at least 8 1/2 by 11 inches.
5. Do not use Shop Drawings without final approval

1.07 Product Data

A. Group Product Data into elements of each system. Include product information and manufacturers installation instructions.

1. Mark each copy to show applicable choices and options. Where more than one product is shown, mark appropriate items.
2. Submittals: Submit 4 copies of each required submittal for review. The Consultant will retain one and return the other marked with action taken and corrections or modifications required.
    a. Unless rejected, the corrected or modified submittal may serve as the final document.
3. Furnish the required number of copies of the final submittal package for distribution.
    a. Provide one final copy of approved submittals to the job site superintendent, prior to starting the Work.
    b. Do not permit use of unmarked submittals.

1.08 Samples

A. Samples of aggregates, generic materials and other items deemed necessary by the Consultant may be required.

B. Refer to the Specification Sections for sample requirements

C. The Consultant will review and return preliminary samples indicating acceptance.

D. Maintain sets of Samples at the site for quality comparision throughout the Project

1.09 Review Actions

A. Where action and return is required, the Consultant will review each submittal, mark to indicate action taken, and return promptly.
   1. Compliance with specified characteristics is the Contractors responsibility.

B. Action Stamp: The Consultant will stamp each Submittal with a uniform, action stamp. The Consultant will mark the stamp to indicate the action taken as follows:
   1. Final Unrestricted Release: No Exceptions Taken the Work covered by the submittal may proceed provided it complies with the requirements of the Contract Documents. Final payment depends on that compliance.
   2. Final But Restricted Release: Make Corrections Noted the Work covered by the submittal may proceed provided it complies with the notations or corrections on the submittal and the requirements of the Contract Documents. Final payment depends on that compliance.
   3. Returned for Resubmittal: Rejected or Revise and Resubmit do not proceed with the Work covered by the submittal, including purchasing, fabrication, delivery or other activity. Revise or prepare a new submittal according to the notations; resubmit without delay. Repeat if necessary to obtain approved action mark.
      a. Do not use, or allow others to use, submittals marked for resubmittal.

End of Section

Section 01700
CONTRACT CLOSEOUT

PART I GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. This Section includes administrative and procedural requirements for contract closeout including but not limited to, the following:

1. Inspection procedures.
2. Submittal of Final Release of Liens.
3. Submittal of Contractors Final Affidavit.
4. Project record document submittal.
5. Maintenance manual submittal.
6. Submittal of warranties.
7. Final Cleaning.

1.03 Substantial Completion:

A. The Contractor shall submit a list of items remaining to be completed at such time as the Work is Substantially Complete in accordance with the contract documents and the Owner can use it for the use for which it was intended. The failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the contract documents.
B. The Owners Agent (the Roofing Consultant) shall thereupon promptly make a final inspection with the Contractor of the Work and will determine the accuracy of the list of items to be completed or corrected, as modified during the inspection, and certify in writing the achievement of Substantial Completion.
C. Warranty periods shall begin on the Date of Substantial Completion unless prior dates have been established for acceptance in which case warranties shall commence on such prior dates.

1.04 Closeout Documents:

A. Prior to receiving final payment the Contractor shall submit:

1. Satisfactory evidence to the Owner of the payment or satisfaction of all payroll; subcontracts; bills for materials; equipment, and other indebtedness in connection with the Work for which the Owner or his property might be liable or subject to liens; and consent of surety, if any, to final payment.
2. Manufacturers warranties and Contractors warranties as set forth in the Project Manual.
3. Maintenance manual outlining periodic maintenance and inspection requirements.
4. All permits and evidence of final inspections by appropriate building officials and manufacturers representatives, if required.
5. Contractors Final Affidavit.

1.05 Final Cleaning:

A. Cleaning

1. Discontinue and remove temporary facilities, construction tools and similar items.
2. Complete final cleanup requirements including touchup painting.
3. Clean site, including landscape areas, of rubbish, litter and other foreign substances. Sweep paved areas broom clean; remove stains, spills and other foreign deposits.
4. Remove temporary protection and facilities installed for protection of the Work during construction.
5. Touch up and otherwise repair and restore marred, exposed finishes.

B. Compliance: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not discharge volatile, harmful or dangerous materials into drainage systems. Remove waste materials from the site and dispose of lawfully.

1.06 Inspection Procedures:

A. On receipt of a request for inspection, the Consultant will either proceed with the inspection or advise the Contractor of unfilled requirements. The Consultant will prepare the Certificate of Substantial Completion following inspection or advise the Contractor of work that must be completed or corrected before the certificate will be issued.

1. The Consultant will repeat inspection when requested and assure that the Work is substantially complete.
2. Results of the completed inspection will form the basis of requirements for

final acceptance.

1.07 Final Acceptance:

A. Prior to requesting final inspection for certification of final acceptance and final payment, complete the following: (list exceptions in the request)

1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted.
2. Submit a statement that each item of the Consultants final inspection has been completed or resolved for acceptance; this list shall be endorsed and dated by the Consultant.
3. Submit consent of surety to final payment.
4. Submit a final liquidated damages settlement statement.

1.08 Final Payment:

A. Following notice by the Contractor of completion or correction of any items identified in Section 1.06, an inspection to verify completion or correction of such items shall be made promptly, together with the Contractor, by the Owners Agent, who made the inspection provided in Section 1.06. Upon determination on such inspection that all corrections listed have been accomplished, final payment shall be made to the Contractor of the entire unpaid balance of the contract sum or of the amount determined by the Owners agent, subject to further arbitration, if the parties do not agree upon the amount of the balance due.

B. If the contractor is unable to get LIEN WAIVERS from all unpaid subcontractors and suppliers, the owner can pay those subcontractors or suppliers directly. Direct payments can be made to anyone who has given a NOTICE TO OWNER or anyone listed in the Contractors Final Affidavit. In order to pay subcontractors or suppliers directly, the owner must give the contractor ten (10) days written notice of his intent to do so.

C. If there are CONDITIONAL LIEN WAIVERS from some of the subcontractors or suppliers who are listed in the Contractors Final Affidavit, the Owner should confirm the amount due with the Contractor and then pay that bill directly.

D. The Contractor will be paid the balance due after deducting any payments made directly to subcontractors or suppliers.

E. If there are insufficient funds left in the Contract to pay everyone in full, the Owner must make pro rata payments in accordance with the priorities established in the Florida Lien Law. (Section 713.06 liens of persons in privity; proper payments)

End of Section

SECTION 06100
Rough Carpentry

PART I GENERAL

1.01 Scope of Work

The work required consists of all carpentry work and related items necessary to complete the work described in this section.

1.02 Work Included

Without restricting the volume or generality of the above "Scope", the work to be performed under this section shall include, but is not limited to the following:

A. Plywood conventional decking.

B. Hip & Ridge Nailer. (P.T. Wood only)

C. Fascia, Soffit & related trim pieces (to match existing), and shall be primed on all sides and painted. Joints shall be sealed with Urethane Caulk during install.

D. Renailing of all wood decking, per current FBC code.

E. Wood Joists 2" x _____ Hem Fir. (Harry's Shed) See Bunker Engineering Package - Attached.

NOTE: If FRTP plywood is discovered in the field areas of roof, away from firewall, it shall be replaced with conventional plywood at a unit price cost.

E. Installation of light gauge metal strips at improper gaps in plywood deck

F. To prevent project delay, roof contractor shall provide "dated" photo documentation, attached to project wood tally sheet, per building.

PART II PRODUCTS

2.01 General

A. The type and location of the various kinds and thickness of wood products to be used is Specified hereinafter; however, where wood is indicated on drawings and kind or type is not specified or noted, product is to be No.1 Grade pressure treated.

B. All Carpentry and millwork and materials shall meet the requirements of applicable portions of Standards listed below.

1) - American Plywood Association. APA
2) - American Society for Testing Materials. ASTM
3) - Architectural Woodwork Institute. A.W. I.
4) - American Wood Preservers Institute. AWPI
5) - National Forest Products Association. NFPA
6) - Douglas Fir Plywood Association. DFPA
7) - National Fire Protection Association. NFPA
8) - Southern Building Code Congress International SBCCI
9) - Southern Pine Inspection Bureau. SPIB
10) - Western Wood Products Association. WWPA
11) - National Lumber Manufacturers Association. NLMA
12) - Underwriters Laboratories. UL

2.02 Materials

A. Framing, blocking and bracing that will remain hidden in the building shall be Grade Marked Number 2 KD Southern Yellow Pine, Construction Grade Douglas Fir, Hem/Fir of SPF which has been fire retardant treated or pressure treated.

B. Plywood Decking shall be minimum 5/8" x 4' x 8' CDX exterior grade plywood.

C. Fire Rated Treated Plywood shall be Pyroguard, as manufactured by Hover Treated Wood Products, Inc. 5/8"x 4' x 8'or approved equal, submitted for approval prior to project start.

D. Blocking and bracing that is permanent shall be similar to other framing lumber in grade and moisture content.

E. All framing and blocking lumber being replaced or used on the exterior shall be Southern Yellow Pine pressure treated with one of the following preservatives for protection from decay and termite attack.

1) - Pentachlorophenol
2) - Zinc Chloride
3) - Zinc-Meta Arsenate
4) - Wolman salts with arsenic content
5) - Chromated zinc chloride

F. Materials specified as pressure treated shall meet the requirements of AWPA standards P5, C1, C2, C3, C4, C5, C9, C14, C16, C18, and C23. Materials shall be treated to a net retention of .25 lbs per cubic foot for "above ground contact use".

G. Acceptable products are as follows:

Hoover Treated Wood Products - Dixie CCA
Koppers - Wolman CCA
Osmose Wood Preserving, Inc. - Flame Proof LHC or approved submitted product.

H. All framing lumber shall be free from any warp that cannot be corrected by mechanical attachment and shall be S4S.

I. All framing lumber shall be thoroughly air dried and shall possess moisture content under 19 percent.

J. Fasteners shall be minimum common hot dipped galvanized nails, sized as follows:

1) For exposed fasteners plywood deck nails, and tile nails (starter course and hip & ridge) Ring Shank Stainless steel of size required for specific installations.
2) Plywood deck - 8 d ring shanks hot dipped galvanized nails.
3) Sub-fascia/fascia - 16d ring shank hot dipped galvanized nails - all 2 x lumber, 8d ring shank hot dipped galvanized nails - all 1 x and trim pieces.
4) For all other hidden attachments, including roof membrane, hot dipped galvanized nails.

K. Wood nailer shall be pressure treated 2" x 4" or 2" x 6" to:

1) Accommodate tile profile and mechanical attachment.
2) All hip & ridge metal shall be fastened on top of modified roll roofing using minimum fastener spacing of 4” on center maximum, each side of unit.

2.03 Installation

A. Replace all deteriorated plywood decking at roof as necessary to achieve a suitable surface to receive new roof system and/or stucco veneer surface. If questionable it will be the judgment of the onsite foreman for replacement.

B. Renail all existing plywood sheathing in an acceptable pattern per the latest Florida Building Code 2014 Edition with amendments, 4" o.c. all perimeters, 6" o.c. all field areas. At the minimum place one (1) new nail between every existing fastener, except at board edge, all nails must be set flush, existing nails to be re-set also.

C. Replacement plywood decking shall be nailed to comply with 2.03, B (above).

D. On all plywood decks, gaps 3/8” or greater shall be covered with a light gauge 4” wide, by gap length, nailed at 3” o.c. all sides.

END OF SECTION

Special Condition - Roof Deck

Bidders and successful contractor(s) shall realize that in reroof projects the possibility of deteriorated/potentially dangerous deck, structural or other conditions may exist which may not be detected or disclosed during project review, specification production, pre-bid and pre-construction meetings.

Assuming this condition is found it will be incumbent upon contractor to notify appropriate parties, **especially Roof Consultant**, a dangerous condition exists, and then it will be dealt with via unit pricing and change orders, unless otherwise provided for in specifications and contract documents.

Should deteriorated/dangerous decking be discovered, roof contractor shall immediately become responsible to take every precaution necessary to secure area upon discovery, up to and through reconstruction, to prevent weather intrusion, fall or other hazards for any persons (crew, supervisors, owners, consultants, engineers or public inspectors), who find it necessary to access site.

Knopf & Associates, Inc.
3965 Investment Ln, A9
Riviera Beach, FL 33404

Project: _____

Contractor: _____

Wood Replacement Tally Sheet

Building # _____

Date	5/8" CDX Sheathing	"Fire Rated" Sheathing	2x4 Framing	2x6 Framing	2x8 Framing	Stucco/Paint Dormer Soffit	Stucco/Paint Veneer

Wood Replacement			
Item	Quantity	Amount	Sub-Total
5x8 Sheathing			
"Fire Rated Sheathing"			
2x4 Framing			
2x6 Framing			
2x8 Framing			
Stucco/Paint Dormer Repair			
Stucco/Paint Veneer			
		Total	

Change Order # _____

Pay Request # _____

SECTION 07320
ADHESIVE SET ROOF TILE

PART I. GENERAL

A. Related Work Specified Elsewhere:
A.1 Rough Carpentry - Section 06100 (Including Nailer for cover tiles)
A.2 Metal Flashing - Section 07600
A.3 SBS Modified Bitumen Roof System (Crickets) - Section 07536
A.4 Stucco - Section 09220
A.5 Painting - Section 09900

B. Quality Assurance:
B.1 Concrete Roof Tile - In compliance with physical test requirements of the building code.
B.2 All materials and installation methods shall be in accordance with the Florida Building Code, current edition with all Supplements.

C. Submittals:
C.1 Sample tile profile and color as selected
C.2 Product Data
C.3 Manufacturers Literature
C.4 Product description
C.5 Installation guide - Refer to FRSA/TRI / Concrete and Clay Tile Installation Manual, 4th Edition, System 4. (Large Paddy Method)

D. Compliance Reports:
All N.O.A. and testing documents shall be supplied for selected product.

E. Product Delivery, Storage and Handling:
E.1 Distribute stacks of tile uniformly, not in concentrated loads.
E.2 When stacking tile on rooftop prior to installation, install battens under nose of tile stacks when required.
E.3 Care shall be taken to protect the underlayment during the tile loading and stacking process.
E.4 Cross stacking is required.

F. Job Conditions:
F.1 Do not install underlayment or tiles on wet surfaces.
F.2 Ensure other trades are aware of precautions required when loading and stacking of tile, and their responsibility for protection of tile during and upon loading and stacking completion.

F.3 Any punctures or tears in the underlayment which occur during the loading and stacking of tile shall be immediately repaired with like materials.

G. Warranty:

G.1 Materials - Roof Tile: Refer to manufacturers Limited Lifetime Warranty.

G.2 Contractor - Material and workmanship for five (5) years, submitted on the Project Warranty form as found in the Project Manual.

PART II. PRODUCTS:

A. Roof Tile:

A.1 Tile Manufacturer: TBD

A.2 Tile Type: Spanish "S" color thru

A.3 Accessory Tile Type: TBD **(From standard color charts from Manufacturer)**

A.4 Surface Finish: Smooth

A.5 Color: Selected by Owner

A.6 Approximate Weight: 900#

B. Asphalt Saturated Roofing Underlayments:

B.1 Organic, type II, commonly called No. 30 or #30 conforming to ASTM Standard D 226- 97a, Type II organic saturated.

B.2 Modified bitumen, self adhered, SBS membrane, approved as tile underlayment. (Polyglass TU Plus)

C. Membranes:

C.1 Organic - Asphalt impregnated cotton membrane, minimum 4"- 6" wide.

C.2 Inorganic - Asphalt impregnated fiberglass membrane, minimum 4" - 6" wide.

D. Fasteners:

D.1 Tile Fasteners: Screw Fasteners - #8 tile screw, corrosion resistant meeting ASTM A 641 Class 1 stainless steel of sufficient length to properly penetrate the deck a minimum of ¾" or through thickness of the deck, whichever is less.

D.2 Underlayment Fasteners: Nails shall be of sufficient length to penetrate ¾" into or through thickness of deck.

D.3 Tin Tags: Not less than 1-5/8 or greater than 2" in diameter and a minimum 32 gauge sheet metal.

E.Metal Flashing:

E.1 Flashing shall be minimum 24 ga. 316/317 stainless steel corrosion resistant metal conforming to ASTM- B209-07, approved under the building code.

E.2 Lead for soil stacks shall be minimum 2.5 lbs. per sq. ft. For lead counterflashing requirements follow Lead Association recommendations.

F. Asphaltic Adhesive:

F.1 Asphalt plastic roof cement - conforming to ASTM D 4586-93, type II, non-asbestos, non-running, heavy body material composed of asphalt and other mineral ingredients.

F.2 Asphaltic Primer - (Required at all metal flashings). (Full priming)

G. Adhesive/Sealer:

G.1 Structural bonding adhesive - conforming to ASTM D 3498 (Ohio Sealants RT-600).

H. Polyurethane adhesives:

H.1 Polyurethane adhesive conforming to the following specifications: (Polyfoam single, large vertical island method only).

H.2 Density conforming to ASTM D 1622

H.3 Compressive strength conforming to ASTM D 1621

H.4 Tensile strength conforming to ASTM D 1623

H.5 Water absorption conforming to ASTM D 2127 or ASTM 2848

H.6 Moisture vapor transmission conforming to ASTM E 96

H.7 Dimensional stability conforming to ASTM D 2126

H.8 Closed cell content conforming to ASTM D 2856

H.9 Surface burning characteristics conforming to ASTM E 84.

H.10 Fire tests of roof coverings conforming to ASTM E 108.

H.11 Double stack patty method required on Mansard roof areas where battens are used.

I. Eave Closure:

I.1 Cement (color required to match tile selection) on underlayments with 1/2" functional weeps set at membrane level, one per tile.

J. Coatings:

J.1 Paint: Color coordinated paint for painting tile, flashing and/or accessories (optional).

J.2 Sealer: For point-up mortar.

J.3 Tint Seal: Color coordinate sealer for staining tile or accessories (as required).

K. Sheathing, (for replacement): Materials shall conform to APA rated sheathing. Refer to building code wind load requirements.

K.1 Minimum span rated 32/16; 19/32" thick APA rated sheathing.

K.2 Fire Rated Treated plywood sheathing shall be replaced, when necessary, with an approved sheathing meeting FBC requirements for Country Club fire-wall separation.

PART I. EXECUTION:

A. Inspection:

A.1 Verify that surfaces to receive underlayments and roof tile are uniform, smooth, clean and dry.

A.2 Proper ventilation is recommended on all tile applications. Verify ventilation requirements as set forth in the building code.

B. Underlayment Application:

B.1 Polyglass TU Plus; A two ply roof application system. The roof cover is terminated at approved metal flashings. A No. 30 anchor sheet shall be mechanically attached to the wood deck with approved nails and tin caps spaced a maximum 6” grid staggered in two rows in the field, and 6” on center at the laps. Anchor sheet side end laps shall be a minimum of 6” and head laps shall be a minimum of 4”. Over properly installed anchor sheet, apply one layer of self adhered modified bitumen cap sheet. End laps shall be a minimum of 6” and head laps shall be a minimum of 4” and back-nailed a maximum 8” on center, minimum 1” from top edge of sheet.

B.2 (Note: 1) Wrinkles/fishmouths are unacceptable). (Note: 2.) Technical bulletin no. 2003-001 issued by FRSA/RTI tile committee shall not apply under any circumstance. (Note: 3) All other FSRA/TRI technical bulletins are applicable.

C. Hip and Ridge Nailer Boards:

C.1 Ridge nailer board 2 x 4 or 2 x 6 PT wood can be attached by straps or brackets a minimum of 24 ga. stainless and a minimum width of 2" each strap every 12" o.c. to be attached to deck with two l0d stainless steel nails or one #8 x 1.5” stainless steel screw, on each side.

C.2 Provide roof cement and fabric stripping to seal each strap. (Top & Bottom)

C.3 Decrease spacing to insure fasteners engage at structural trusses whenever possible.

D. Tile Installation (Coordinate layout and installation of stucco system components for gable walls/chimneys to precede roofing installation.):

D.1 Layout - Horizontal; Chalk horizontal lines beginning one tile length from eave less desired overhang. Overhang shall be 3/4” to 2” depending on tile type, use of gutter, or other functional requirements. Chalk succeeding lines to accommodate a minimum 3” head-lap unless restricted by product design. Increase headlap when necessary for equal course spacing.

D.2 Layout - Vertical; tile installation. Chalk vertical line 90 degrees from eave line. Chalk additional lines, if necessary, to maintain alignment.

D.3 Stack tile to facilitate installation and minimize tile movement.

D.4 Eave treatment; Mortar eave closure.

D.5 Medium Profile Tile; NOTE: Adhesive set tile shall be applied at an incline up to and including 6”: 12”. For pitches above 6”: 12” up to and including 7”: 12” nail every

third tile in every fifth course in addition to adhesive. For pitches above 7": 12" nail every tile in addition to adhesive. Apply approved flashing cement to seal all nail penetrations.

a) Install first course of tile with foam adhesive, making certain all tile overhangs drip edge evenly along entire first course. Nail first tile course using 1-10d stainless steel nail driven thru a 1/8" dab of roof cement on membrane surface.

D.6 Adhesive Set Application - Medium Profile - Large Paddy Method; NOTE: Tile shall be attached to resist the aerodynamic moment determined when using the design pressures for the building and fixing calculations set forth in the building code. (Improper patty size or placement are unacceptable and immediate correction will be required). (See D.5 above)

a) Apply adhesive to the underlayment and/or tile in strict compliance with the adhesive manufacturer's recommendations.

b) Apply a continuous bed of foam to top of nailer board channels at hips/ridges and immediately set tile to create bond. Nail each fixture to nailer boards with stainless steel 1-10d nails. After foam has set, grout side-lap between hip & ridge tiles with approved color matching grout. Allow grout to cure for a few minutes then cut to a semi-smooth finish with trowel, then clean to a smooth finish using a brush or sponge. Clean excess mortar off tiles.

c)Saw cut, do not break, tile at all flashing or penetration intersects.

D.7 Valleys; NOTE: It may be necessary to remove the lugs from the field tile at walls and valley flashings for proper positioning of cut field tiles.

a) Preformed Metal Without Returns

Saw Cut - Miter tile to form straight border on valley centerline. Do not apply foam or mortar into valley to impede natural drainage.

Omit closure 4" either side of valley ends centerline, to facilitate proper drainage.

D.8 Hip and Ridge Installation:

a) Hip Starter: Use standard hip tiles as starter.

b)Mechanically attach/adhesive set and grout hip and ridge tiles to nailer board.

D.9 Rake/Gable Tile:

a) Install first rake tile to expose length of first course of field tile with factory finish to rake tile towards the eave.

b) Fasten rake tile with a minimum one stainless steel 10d and one stainless steel 20d nails of sufficient length to penetrate the framing a minimum of 3/4". Abut each succeeding rake tile to the nose of the field tile above and maintain a constant head-lap.

D.10 Wall Abutments:

a) Cut tile to fit approximately 1" to base of walls. Point-up mortar is required in areas where counter-flashing is omitted. NOTE: It may be necessary to remove the lugs from the field tile at wall flashing for proper position of cut field tiles. For tiles installed at headwalls, tile shall be installed with foam and approved roof tile adhesive.

b) NOTE: Proper ventilation is recommended on all tile applications. Verify ventilation requirements as set forth in the building code.

D.11 Small Valley and Hip Cuts:

a) Elevate nose end of tile in course above small cut tile. Apply adhesive per adhesive manufacturer's recommendations. Immediately set tile in course above in position which assures proper contact. NOTE: For roof pitches above 7": 12 on hip cuts only, mechanically fastening may be required in addition to foam adhesive.

D.12 On roof areas of high slope, battens shall be required per FBC 2014.

Four patties shall be applied in a double stack method to assure tile to adhesive contact.

D.13 Coatings - (Optional):

a) Sealer may be applied to exposed mortar.

b) Color coordinated paint may be applied to all metal finishes.

c) Tint Seal - color coordinated sealer for staining tile, mortar or accessories as required.

D.14 Tile Replacement:

a) Damaged Tile

b) Breakout and replace roof tile. Do not disturb underlayment. Repair underlayment if necessary.

c) Apply foam adhesive per adhesive manufacturer’s recommendations.

d) Immediately set replacement tile in position assuring proper contact.

D.15 Clean-up:

a) Remove all broken tile, debris and excess tile from roof.

b) Remove bituminous materials from all finished surfaces.

c) Repair or replace defaced or disfigured finishes caused by work in this section.

D.16 Miscellaneous Recommendations:

a) Instructions shall be given to all parties involved cautioning against traffic of any kind allowed on finished roof. Damage to roof tiles and/or sub-roof may result.

b) Roof contractor shall contact tile manufacturer in writing to obtain a written detailed mix quantity for color grout to match tile. Description shall include specific cement weight (bag size), type (brand name), sand, water and grout quantity to match field tile.

END OF SECTION

SECTION 075216

STYRENE-BUTADIENE-STYRENE (SBS)

MODIFIED BITUMINOUS MEMBRANE ROOFING

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. SBS-modified bituminous membrane roofing.

B. Cover board.

C. Roof insulation.

D. Base Sheet.

1.2 RELATED SECTIONS

A. Division 06 Section "Miscellaneous Rough Carpentry" for wood nailers, cants, curbs, and blocking.

B. Division 07 Section "Sheet Metal Flashing and Trim" for metal roof penetration flashings, flashings, and counterflashings.

C. Division 22 Section "Storm Drainage Piping Specialties" for roof drains.

1.3 REFERENCES

A. Roofing Terminology: Refer to the following publications for definitions of roofing work related terms in this Section:

1. ASTM D 1079 “Terminology Relating to Roofing and Waterproofing.”
2. Glossary of NRCA's "The NRCA Roofing and Waterproofing Manual."
3. Roof Consultants Institute “Glossary of Roofing Terms.”

B. Sheet Metal Terminology and Techniques: SMACNA Architectural Sheet Metal Manual.

C. Hot Roofing Asphalt: Roofing asphalt heated to temperature recommended by roofing manufacturer to flux modified roofing membrane, measured at the mop cart or mechanical spreader immediately before application.

1.4 DESIGN CRITERIA

A. General: Installed roofing membrane system shall remain watertight; and resist specified wind uplift pressures, thermally induced movement, and exposure to weather without failure.

B. Material Compatibility: Roofing materials shall be compatible with one another under conditions of service and application required, as demonstrated by roofing system manufacturer based on testing and field experience.

C. Wind Uplift Performance: Roofing system shall be identical to systems that have been successfully tested by a qualified testing and inspecting agency to resist wind uplift pressure calculated in accordance with ASCE 7-10.

D. Miami-Dade County NOA: Roofing membrane, base flashings, and component materials shall comply with requirements as part of a roofing system and that are listed in:

1. NOA No.: 13-0529.19

    a. System: A(1)
    b. Maximum Design Pressure: -305 psf.

2. NOA No.: 13-0529.14

    a. System: E(3)
    b. Maximum Design Pressure: -60 psf.

1.5 SUBMITTALS

A. Product Data: Manufacturer's data sheets for each product to be provided.

B. Detail Drawings: Provide roofing system plans, elevations, sections, details, and details attachment to other Work, including:

1. Base flashings, cants, and membrane terminations.
2. Tapered insulation, including slopes.
3. Crickets, saddles, and tapered edge strips, including slopes.
4. Insulation fastening patterns.

C. Verification Samples: Provide for each product specified.

D. Maintenance Data: Refer to Johns Manville's latest published documents on www.JM.com.

E. Guarantees: Special guarantees specified in this Section.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive the specified manufacturer's guarantee.

B. Manufacturer Qualifications: A qualified manufacturer that has UL listing for roofing system identical to that used for this Project.

C. Testing Agency Qualifications: An independent testing agency with the experience and capability to conduct the testing indicated, as documented according to ASTM E329.

D. Test Reports:

1. Roof drain and leader test or submit plumber's verification.

E. Source Limitations: Obtain all components from the single source roofing system manufacturer guaranteeing the roofing system. All products used in the system shall be labeled by the single source roofing manufacturer issuing the guarantee.

F. Fire-Test-Response Characteristics: Provide roofing materials with the fire-test-response characteristics indicated as determined by testing identical products per test method below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Materials shall be identified with appropriate markings of applicable testing and inspecting agency.

1. Exterior Fire-Test Exposure: Class A; ASTM E 108, for application and roof slopes indicated.
2. Fire-Resistance Ratings: ASTM E 119, for fire-resistance-rated roof assemblies of which roofing system is a part.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver roofing materials in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, and directions for storage.

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.

C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. 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.

1.8 PROJECT CONDITIONS

A. Weather Limitations: Proceed with installation only when current and forecasted weather conditions permit roofing system to be installed in accordance with manufacturer's written instructions and guarantee requirements.

1.9 GUARANTEE

A. Provide manufacturer's system guarantee equal to Johns Manville's Peak Advantage No Dollar Limit Roofing System Guarantee.

1. Single-Source special guarantee includes roofing plies, base flashings, liquid applied flashing, roofing membrane accessories, [granule surfaced roofing membrane] [roof insulation], [fasteners], [cover board], [walkway products], [manufacturer's edge metal products], and other single-source components of roofing system marketed by the manufacturer.
2. Guarantee Period: 20 years from date of Substantial Completion.

B. Installer's Guarantee: Submit roofing Installer's guarantee, signed by Installer, covering Work of this Section, including all components of roofing system, for the following guarantee period:

1. Guarantee Period: Two Years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SBS-MODIFIED ASPHALT-SHEET MATERIALS

A. Roofing Membrane Base Sheet: ASTM D 4601, Type II, asphalt-impregnated and -coated, glass-fiber sheet, dusted with fine mineral surfacing on both sides. Basis of Design: PermaPly 28

B. Roofing Membrane Ply Sheet: [ASTM D 6163, Grade S, Type I, glass-fiber-reinforced] SBS-modified asphalt sheet; smooth surfaced; suitable for application method specified. Basis of Design: DynaBase

C. Roofing Membrane Cap Sheet: [ASTM D 6164, Grade G, Type II, polyester-reinforced] SBS-modified asphalt sheet; granular surfaced; suitable for application method specified. Basis of Design: DynaLastic 250 FR

2.2 BASE FLASHING SHEET MATERIALS - SBS

A. Flashing Sheet: [ASTM D 6221, Type I, fiber glass/polyester composite reinforced], SBS-modified asphalt sheet; granular surfaced; suitable for application method specified. Basis of Design: DynaFlex

B. Liquid Applied Flashing: A liquid and fabric reinforced flashing system created with a stitch bonded polyester scrim and a two-component, moisture cured, elastomeric, liquid applied flashing material, consisting of an asphalt extended urethane base material and an activator. Basis of Design: PermaFlash System

2.3 AUXILIARY ROOFING MEMBRANE - BITUMINOUS

A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with built-up roofing.

B. Roofing Asphalt: ASTM D 312, Type IV.

C. Asphalt Primer: ASTM D 41. Basis of Design: Asphalt Primer

D. Asphalt Roofing Cement: ASTM D 4586, asbestos free, of consistency required by roofing system manufacturer for application. Basis of Design: MBR Utility Cement

E. Mastic Sealant: As required by Johns Manville.

F. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening roofing membrane components to substrate, tested by manufacturer for required pullout strength, and provided by the roofing system manufacturer. Basis of Design: UltraFast Fasteners and Plates

G. Roofing Granules: Ceramic-coated roofing granules matching specified cap sheet, provided by roofing system manufacturer.

H. Miscellaneous Accessories: Provide miscellaneous accessories recommended by roofing system manufacturer.

2.4 AUXILIARY ROOFING SYSTEM COMPONENTS

A. Metal Flashing Sheet: Metal flashing sheet is specified in Division 07 Section "Sheet Metal Flashing and Trim."

2.5 COVER BOARD (CONCRETE DECK SECTION)

A. Perlite Board: ASTM C 728, Type 2; composed of expanded perlite, cellulosic fibers, binders and waterproofing agents with top surface seal-coated. Basis of Design: 1/2" Retro-Fit Board

2.6 ROOF INSULATION (CONCRETE DECK SECTION)

A. General: Preformed roof insulation boards that comply with requirements and referenced standards, selected from manufacturer's standard sizes and of thicknesses indicated.

B. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, Class 1, Grade 2 (20 psi), Basis of Design: ENRGY 3

1. Provide insulation package with minimum thickness: 1.5 inches
2. Provide insulation package in multiple layers.
3. Minimum Long-Term Thermal Resistance (LTTR): 5.7 per inch.

    a. Determined in accordance with CAN/ULC S770 at 75ºF (24ºC)

2.7 TAPERED INSULATION (CONCRETE DECK SECTION)

A. Tapered Insulation: ASTM C 1289, Type II, Class 1, Grade 2 (20 psi), provide factory-tapered insulation boards fabricated to slope of [1/8 inch per 12 inches (1:96)], unless otherwise indicated. Basis of Design: Tapered ENRGY 3

2.8 INSULATION ACCESSORIES

A. General: Roof insulation accessories recommended by insulation manufacturer for intended use and compatible with membrane roofing.

B. Provide factory preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated. Basis of Design: [Diamondback Pre-Cut Cricket] [Diamondback Pre-Cut Miter] [Tapered Fesco Edge Strip]

C. Insulation Cant Strips: ASTM C 728, perlite insulation board. Basis of Design: FesCant Plus

D. Wood Nailer Strips: Comply with requirements in Division 06 Section "Miscellaneous Rough Carpentry."

2.9 BASE-SHEET MATERIALS (WOOD DECK SECTION)

A. Base Sheet: ASTM D 4601, Type II, non-perforated, asphalt-impregnated and -coated, glass-fiber sheet, dusted with fine mineral surfacing on both sides. Basis of Design: PermaPly 28

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions for compliance with the requirements affecting performance of roofing system.

1. General:
   a. Verify that roof openings and penetrations are in place and set and braced and that roof drains are securely clamped in place.
   b. Verify that wood cants, blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.

2. Concrete Decks:
   a. Verify that concrete curing compounds that will impair adhesion of roofing components to roof deck have been removed.
   b. Verify that concrete substrate is visibly dry and free of moisture.

3. Ensure general rigidity and proper slope for drainage.
4. Verify that 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.

B. Unacceptable panels should be brought to the attention of the General Contractor and Project Owner's Representative and must be corrected prior to installation of roofing system.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean and remove from substrate sharp projections, dust, debris, moisture, and other substances detrimental to roofing installation in accordance with roofing system manufacturer's written instructions.

B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction.

C. Prime surface of concrete deck with asphalt primer at a rate recommended by roofing manufacturer and allow primer to dry.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 RE-ROOF PREPARATION

A. Remove all roofing membrane, surfacing, coverboards, insulation, fasteners, asphalt, pitch, adhesives, etc.

1. Remove an area no larger than can be re-roofed in one day.

B. Tear out all base flashings, counterflashings, pitch pans, pipe flashings, vents and like components necessary for application of new membrane.

C. Remove abandoned equipment curbs, skylights, smoke hatches, and penetrations.

1. Install decking to match existing as directed by Owner's Representative.

D. Raise (disconnect by licensed craftsmen, if necessary) all HVAC units and other equipment supported by curbs to conform with the following:

1. Modify curbs as required to provide a minimum 8" base flashing height measured from the surface of the new membrane to the top of the flashing membrane.
2. Secure top of flashing and install new metal counterflashing prior to re-installation of unit.
3. Perimeter nailers must be elevated to match elevation of new roof insulation.

E. Remove and replace perimeter drain scuppers per scope of work requirements.

F. Install addition emergency flows per scope of work requirements and engineering calculations.

G. Immediately remove all debris from roof surface. Demolished roof system may not be stored on the roof surface.

H. Proceed with installation only after unsatisfactory conditions have been corrected.

3.4 BASE-SHEET INSTALLATION (WOOD DECK SECTION)

A. Install one lapped base sheet course and mechanically fasten to substrate according to roofing system manufacturer's written instructions.

1. Enhance fastening rate in perimeter and corner zones according to code or manufacturer, whichever is more stringent.

B. Comply with roofing system manufacturer's written instructions for installing roof insulation.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.5 INSULATION INSTALLATION (CONCRETE DECK SECTION)

A. Coordinate installation of roof system components so insulation and cover board is not exposed to precipitation or left exposed at the end of the workday.

B. Comply with roofing system manufacturer's written instructions for installation of roof insulation and cover board.

C. Install tapered insulation under area of roofing to conform to slopes indicated.

D. Install insulation boards with long joints in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch (6 mm) with like material.

E. Install 2 or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches (150 mm) in each direction.

F. Trim surface of insulation boards where necessary at roof drains so completed surface is flush and does not restrict flow of water.

G. Install tapered edge strips at perimeter edges of roof that do not terminate at vertical surfaces.

H. Adhered Insulation: Install each layer of insulation to substrate as follows:

1. Install each layer in a solid mopping of hot roofing asphalt according to roofing system manufacturer's instruction.

2. Install each layer to resist uplift pressure at corners, perimeter, and field of roof.

I. Proceed with installation only after unsatisfactory conditions have been corrected.

3.6 COVER BOARD INSTALLATION (CONCRETE DECK SECTION)

A. Coordinate installing membrane roofing system components so cover board is not exposed to precipitation or left exposed at the end of the workday.

B. Comply with membrane roofing system manufacturer's written instructions for installing roof cover board.

C. Install cover board with long joints of cover board in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch (6 mm) with cover board.

1. Cut and fit cover board within 1/4 inch (6 mm) of nailers, projections, and penetrations.

D. Trim surface of cover board where necessary at roof drains so completed surface is flush and does not restrict flow of water.

1. Install tapered edge strips at perimeter edges of roof that do not terminate at vertical surfaces.

E. Adhered Cover Board: Adhere cover board to substrate as follows:

1. Install in a solid mopping of hot roofing asphalt according to roofing system manufacturer's instruction.
2. Install to resist uplift pressure at corners, perimeter, and field of roof.

F. Proceed with installation only after unsatisfactory conditions have been corrected.

3.7 ROOFING MEMBRANE INSTALLATION, GENERAL

A. Install roofing membrane in accordance with roofing system manufacturer's written instructions, applicable recommendations of the roofing manufacturer and requirements in this Section.

B. Start installation of roofing membrane in presence of roofing system manufacturer's technical personnel.

C. Where roof slope exceeds 1/2 inch per 12 inches (1:24, contact the membrane manufacturer for installation instructions regarding installation direction and backnailing

D. Cooperate with testing and inspecting agencies engaged or required to perform services for installing roofing system.

E. Coordinate installing roofing system so insulation and other components of the roofing membrane system not permanently exposed are not subjected to precipitation or left uncovered at the end of the workday or when rain is imminent.

1. Provide tie-offs at end of each day's work to cover exposed roofing membrane sheets and insulation with a course of coated felt set in roofing cement or hot roofing asphalt with joints and edges sealed.
2. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system.
3. Remove and discard temporary seals before beginning work on adjoining roofing.

F. Asphalt Heating: Heat roofing asphalt to temperature recommended by roofing manufacturer to flux modified membrane. Do not exceed roofing asphalt manufacturer's recommended temperature limits during roofing asphalt heating. Discard roofing asphalt maintained at a temperature exceeding finished blowing temperature for more than 4 hours.

G. Substrate-Joint Penetrations: Prevent roofing asphalt from penetrating substrate joints, entering building, or damaging roofing system components or adjacent building construction.

H. Proceed with installation only after unsatisfactory conditions have been corrected.

3.8 SBS-MODIFIED BITUMINOUS MEMBRANE INSTALLATION

A. Concrete Deck: Install one modified bituminous roofing membrane base sheet, ply sheet and cap sheet according to roofing manufacturer's written instructions, starting at low point of roofing system. Extend roofing membrane sheets over and terminate beyond cants, installing as follows:

1. Adhere to substrate in a solid mopping of hot roofing asphalt applied at temperatures recommended by roofing system manufacturer.
2. Unroll roofing membrane sheets and allow them to relax for minimum time period required by manufacturer.

B. Wood Deck: Install one modified bituminous roofing membrane ply sheet and cap sheet according to roofing manufacturer's written instructions, starting at low point of roofing system. Extend roofing membrane sheets over and terminate beyond cants, installing as follows:

1. Adhere to substrate in a solid mopping of hot roofing asphalt applied at temperatures recommended by roofing system manufacturer.

2. Unroll roofing membrane sheets and allow them to relax for minimum time period required by manufacturer.

C. Laps: Accurately align roofing membrane sheets, without stretching, and maintain uniform side and end laps. Stagger end laps. Completely bond and seal laps, leaving no voids.

1. Repair tears and voids in laps and lapped seams not completely sealed.
2. Apply roofing granules to cover exuded bead at laps while bead is hot.

D. Install roofing membrane sheets so side and end laps shed water.

E. Proceed with installation only after unsatisfactory conditions have been corrected.

3.9 FLASHING AND STRIPPING INSTALLATION

A. Install base flashing over cant strips and other sloping and vertical surfaces, at roof edges, and at penetrations through roof, and secure to substrates according to roofing system manufacturer's written instructions and as follows:

1. Prime substrates with asphalt primer if required by roofing system manufacturer.
2. Flashing Sheet Application: Adhere flashing sheet to substrate in a solid mopping per manufacturer’s written instructions. Apply hot roofing asphalt to back of flashing sheet if recommended by roofing system manufacturer.

B. Extend base flashing up walls or parapets a minimum of 8 inches (200 mm) above roofing membrane and 4 inches (100 mm) onto field of roofing membrane.

C. Mechanically fasten top of base flashing securely at terminations and perimeter of roofing.

1. Seal top termination of base flashing with a strip of glass-fiber fabric set in MBR Flashing cement.

D. Flash all penetrations using PermaFlash system.

E. Proceed with installation only after unsatisfactory conditions have been corrected.

3.10 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to perform roof tests and inspections and to prepare test reports.

B. Final Roof Inspection: Arrange for roofing system manufacturer's Registered Roof Observer (RRO) to inspect roofing installation on completion and submit report to Architect.

C. Repair or remove and replace components of roofing system where test results or inspections indicate that they do not comply with specified requirements.

D. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.11 PROTECTION AND CLEANING

A. Protect roofing system from damage and wear during remainder of construction period.

B. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION 075216

SECTION 07600
SHEET METAL FLASHING AND TRIM

PART I. GENERAL:

1.01 Scope of Work: The work required consists of all sheet metal work and related items necessary to complete the work described in this section.

A. Work included: Without restricting the volume or generality of the above "scope", the work to be performed under this section shall include but is not limited to, the following:

1. All necessary additions and replacement of wood blocking and nailers
2. All pitch pans and/or cups and other miscellaneous metal flashings required for pipes, conduits, and other items piercing the roof
3. Eave Drip (Roof Edge)
4. Counter - Flashings
5. Parapet Cap
6. Roof Jacks & Vents
7. Drains

PART II. PRODUCTS:

2.01 General: The type and locations of the various kinds, gauges, thicknesses and finishes of sheet metal to be used is specified hereinafter, however, where sheet metal is indicated on drawings and kind or type of metal is not definitely specified or noted, minimum 24 ga. 316L Stainless Steel shall be provided. All sheet metal perimeter flashings are to provided and installed in accordance with RAS-111 Table 2.

A. Lead Flashings: Shall be minimum 2-1/2 lb common desilverized pig lead preformed pipe flashings

B. Fasteners:

1. Wood screws, annular threaded nails, self-topping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads.
2. Exposed Fasteners: Dome-headed, gasketed, matching color of sheet metal by means of factory-applied coating.
3. Fasteners for Flashing and Trim: Blind fasteners or self-drilling screws, gasketed, with domed hex washer head.
4. Blind Fasteners: High-strength aluminum or stainless-steel rivets.

C. Sealants: Shall be a gun grade, non-sag, one component urethane sealant, ASTM C-920-86, type S, grade NS, Tremco DyMonic or approved equal.

D. Solder for Copper: ASTM B 32, Grade Sn50, 50 percent tin and 50 percent lead.
E. Solder for Lead-Coated Copper: ASTM B 32, Grade Sn60, 60 percent tin and 40 percent lead.

F. Solder for Stainless Steel: ASTMB 32, Grade Sn60, with acid flax of type recommended by stainless-steel sheet manufacturer.

PART III EXECUTION:

3.01 General Requirements:

A. Proper Surfaces: Surfaces to which sheet metal is to be applied shall be even, smooth, sound, thoroughly clean and dry, and free from all defects that might affect the application.

B. Materials to be Built-in: Materials which are to be built-in by other trades shall be delivered in time to avoid delays to construction progress.

C. Accessories: All accessories or other items essential to the completeness of the sheet metal installation, though not specifically shown or specified, shall be provided. All such items, unless otherwise shown on the drawings or specified, shall be of the same kind of materials as the item to which applied. Nails, screws and bolts shall be the types best suited for the purpose intended and shall be of a composition that is compatible with the metal to which it will contact.

D. Dissimilar Materials: Where sheet metal abuts or members into adjacent dissimilar materials, the juncture shall be executed in a manner that will prevent electrolysis between the two materials.

E. Workmanship: Except as otherwise shown on drawings or specified, the workmanship, method of forming joints, anchoring, cleating, provisions for expansion, etc. shall conform to the standard details and recommendations of SMACNA in effect on the date of this specification.

3.02 Flashings:

A. Eave Drip: Fabricate eave drip with minimum 4 inch roof flange, and a face dimension wide enough to provide full coverage with a minimum of 1 inch below intersect of P.T. wood blocking and fascia concrete wall system. Eave drip shall be formed into ten (10) foot straight sections. Eave drip lower edge shall have a 45 degree angled drip kick. Fabricate corners from one piece with each leg a minimum of 2 feet in length.

B. Flashing Around Vent Pipes:

1. All vent pipes passing through the roof shall be flashed with 2.2 lb. sheet lead. Flashing shall not be less than 4" on the roof and shall extend up pipe and turn down inside the vent, one (1) inch.

*** Note: All vent pipes shall extend above new roof surface a minimum of 8". Contractor to provide no hub type connector with schedule 40 PVC piping where necessary to achieve 8" height. ***

C. Wall Base Flashing / Two Piece Counter Flashing - Replace all existing counter flashing, including chipping out of sufficient stucco veneer to allow for a new 4" x 5" "L" metal, plus two piece counter flashing. New metals shall be fabricated from 22 ga. 316L stainless steel sheet metal. Mount new counter top receiver to wall face and nail at 6" o.c. Strip to wall with 4" fabric, set in roof cement.

1. Place a 4-5" width of wire lath over counter receiver and fasten through roof cement and fabric to secure to wall. Install new stucco veneer, to match existing color and texture. Allow to dry. Install new 4 x 5 base flashing over #30 felt and fasten to roof at 4" o.c. Prime entire roof surface, then mop new modified membrane to 4" flange. Back nail end of roll to base flashing at 6"o.c. Apply roof cement and fabric stripping, to fully seal end of modified roll, plus all exposed nail heads. Cover fabric stripping and roof cement with minimum 6" strip of modified cap sheet to protect base flashings.
2. Install metal counter into receiver and lock into place with pop rivets at 12" o.c.

D. Termination Bar: All termination bars shall be 1/8 inch thick x 1.25 inch wide aluminum bar fastened at 8 inches on center at all vertical termination of membrane flashing.

E. Counter-Flashings: Provide one (1) piece stucco stop counter-flashings fabricated from 22 ga. 316L stainless steel sheet metal.

F. All vent and flashing components shall match existing, meeting the minimum design requirements per FBC.

G. All drains shall be cleaned and inspected and refurbished with new stainless steel hardware

3.03 Warranty:

A. Upon completion of the sheet metal work, the sheet metal sub-contractor shall furnish to the Owner a written five (5) year sheet metal flashing warranty, stating that the sheet metal flashing installation will be watertight and maintained so as to remain leak-free and that he will furnish the necessary materials and labor, at no additional cost to the Owner, to maintain the sheet metal flashing to be leak-free and to replace any defective sheet metal flashing work to the satisfaction of the Owner and Owner's Representative during the 5 year Warranty period.

END OF SECTION

SECTION 15430
PLUMBING SPECIALTIES

I. Scope of Work:

A. Inspection, refurbishment, repair and/or replacement of roof drains and parts.

II. Execution:

A. Inspect all roof drains and outlets, by licensed Plumbing contractor to determine drains and drain pipes are functioning as designed. This shall be performed prior to start, and written report of condition shall be issued to proper authorities.
B. Clean roof drain bowls of all roof materials and debris.
C. Remove existing drain flashings and replace broken or damaged bolts, strainers and clamping rings.
D. All clamping ring bolts are to be reset with stainless steel bolts, re-thread if necessary.
E. Remove roof drain inserts, inspect drain bowls and outlets for damage. Damaged drains are to be replaced with new drain assemblies, match existing as to size and style.(By Licensed Plumber)
F. All drains must be sumped to promptly remove water from the roof surface and meet code requirements.
G. Plastic drains are not acceptable.
H. Retro-fit drain inserts are not acceptable.

END OF SECTION

SECTION 221319
SANITARY WASTE AND VENT SPECIALTIES (Vent Pipe Extensions)

PART 1 - GENERAL

1.1 SECTION INCLUDES

1. Plumbing vent pipe extension fittings.

1.2 RELATED SECTIONS

1. Division 07 Section “Preparation for Re-Roofing” for general requirements for preparation for building re-roofing including coordination of related plumbing and mechanical work.
2. Division 22 Section “Sanitary Waste and Vent Piping” for general requirements for waste and vent piping.

1.3 REFERENCES

A. ASTM International (ASTM):

1. ASTM C 920 - Specification for Elastomeric Joint Sealants.
2. ASTM D 2564 - Standard Specification for Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Piping Systems.
3. ASTM D 2665 - Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings.
4. ASTM F 656 - Standard Specification for Primers for Use in Solvent Cement Joints of Poly (Vinyl Chloride) (PVC) Plastic Pipe and Fittings.

B. International Association of Plumbing and Mechanical Officials (IAPMO):

1. Universal Plumbing Code (UPC US and Canada) approvals

C. National Roofing Contractors Association (NRCA):

1. NRCA Roofing Manual, Latest Edition.

D. NSF International (NSF):

1. NSF/ANSI 14 - Plastics Piping Systems Components and Related Materials.

1.4 ACTION SUBMITTALS

A. Product Data: For plumbing vent pipe extensions, indicating mounting and securing requirements and extended heights required.

B. Shop Drawings: Submit annotated copy of roof plan indicating locations of plumbing vents requiring pipe extensions, based upon Contractor's field verification of existing conditions and requirements of applicable plumbing code.

1.5 INFORMATION SUBMITTALS

A. Manufacturer's Certificate: On roofing membrane manufacturer's letterhead, accepting us of proposed sealant in contact with roofing membrane.

1.6 QUALITY ASSURANCE

A. Comply with NSF/ANSI 14, "Plastics Piping Systems Components and Related Materials," for plastic piping components.
B. Comply with flashing requirements shown in NRCA Roofing Manual.

PART 2 - PRODUCTS

2.1 MANUFACTURES

A. Basis-of-Design Product: Subject to compliance with requirements, provide sanitary vent pipe extensions manufactured by Tubos, Inc., Clearwater FL; Phone: (727) 504-0633 info@tubos.biz.

2.2 MATERIALS

A. Solid-Wall PVC Pipe: ASTM D 2665, drain, waste, and vent.

B. Sealant: Single-Component, Nonsag, Urethane Joint Sealant: ASTM C 920, Type S, Grade NS Class 25, for Use NT, and acceptable to roofing membrane manufacturer.

2.3 PLUMBING VENT PIPE EXTENSION

A. Roof Vent Pipe Extension: Solid-wall PVC fitting consisting of pipe and splice sleeve inserts, configured for insertion and sealing to existing plumbing vent piping, sized to fit inside diameter of plumbing vent piping, enabling extension of piping to field-determined height.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine each plumbing vent piping location to determine required plumbing vent pipe extensions based upon minimum finished height requirements and measured existing conditions. Indicate plumbing vent pipe extensions on shop drawings.

1. Examine existing plumbing vent piping conditions and determine whether flashing reuse is acceptable or whether replacement of flashing is required. Indicate flashing replacement locations on shop drawings.

3.2 PREPARATION

A. Remove existing flashing from plumbing vent piping to extent required to enable installation of new plumbing vent pipe extensions and completion of flashings.

B. Clean plumbing vent piping to ensure that joint surfaces are clean, dry, and free from contamination including dirt, oils, grease, tar, wax, rust, and other substances that may inhibit adhesive or sealant performance.

3.3 INSTALLATION OF PLUMBING VENT PIPE EXTENSIONS

A. Insert end of plumbing vent pipe extension into existing plumbing vent piping.

1. Verify circumference of existing plumbing vent piping and plumbing vent pipe extension are appropriate to achieve secure, rigid installation.

2. Mark plumbing vent pipe extension at required height above finished roof surface level, and cut to required length.

3. Apply adhesive or sealant to plumbing vent piping as appropriate to existing pipe material and plumbing vent pipe extension, and mate plumbing vent pipe extension to existing piping. Apply adequate adhesive or sealant to achieve secure, rigid installation.

B. Flashing: Comply with primary roofing material manufacturer's published recommendations for installation of approved pipe flashings. Match existing flashing materials unless otherwise directed.

3.4 CLEANING AND PROTECTION

A. Repair or replace defective work, including loose plumbing vent extensions, or unsecured flashings or flashings that are not weathertight.

END OF SECTION

MIAMI-DADE COUNTY
PRODUCT CONTROL SECTION
11805 SW 26 Street, Room 208
Miami, Florida 33175-2474
T (786)315-2590 F (786) 31525-99
www.miamidade.gov/economy

DEPARTMENT OF REGULATORY AND ECONOMIC RESOURCES (RER)
BOARD AND CODE ADMINISTRATION DIVISION

NOTICE OF ACCEPTANCE (NOA)

Johns Manville Corporation
717 17th Street
Denver, CO 80202

SCOPE:

This NOA is being issued under the applicable rules and regulations governing the use of construction materials. The documentation submitted has been reviewed and accepted by Miami-Dade County RER - Product Control Section to be used in Miami Dade County and other areas where allowed by the Authority Having Jurisdiction (AHJ).

This NOA shall not be valid after the expiration date stated below. The Miami-Dade County Product Control Section (In Miami Dade County) and/or the AHJ (in areas other than Miami Dade County) reserve the right to have this product or material tested for quality assurance purposes. If this product or material fails to perform in the accepted manner, the manufacturer will incur the expense of such testing and the AHJ may immediately revoke, modify, or suspend the use of such product or material within their jurisdiction. RER reserves the right to revoke this acceptance, if it is determined by Miami-Dade County Product Control Section that this product or material fails to meet the requirements of the applicable building code.

This product is approved as described herein, and has been designed to comply with the Florida Building Code including the High Velocity Hurricane Zone of the Florida Building Code.

DESCRIPTION: Johns Manville Modified Bitumen Roofing Systems over Wood Decks.

LABELING: Each unit shall bear a permanent label with the manufacturer's name or logo, city, state and following statement: "Miami-Dade County Product Control Approved", unless otherwise noted herein.

RENEWAL of this NOA shall be considered after a renewal application has been filed and there has been no change in the applicable building code negatively affecting the performance of this product.

TERMINATION of this NOA will occur after the expiration date or if there has been a revision or change in the materials, use, and/or manufacture of the product or process. Misuse of this NOA as an endorsement of any product, for sales, advertising or any other purposes shall automatically terminate this NOA. Failure to comply with any section of this NOA shall be cause for termination and removal of NOA.

ADVERTISEMENT: The NOA number preceded by the words Miami-Dade County, Florida, and followed by the expiration date may be displayed in advertising literature. If any portion of the NOA is displayed, then it shall be done in its entirety.

INSPECTION: A copy of this entire NOA shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at the request of the Building Official.

This NOA revises NOA No. 13-0129.15 and consists of pages 1 through 27.
The submitted documentation was reviewed by Jorge L. Acebo.

MIAMI-DADE COUNTY APPROVED

9/15/15

APPROVED
Edgar V. Duenas, P.E.
Bunker Engineering & Construction
120 N. Federal Hwy, Suite #305
Lake Worth, FL 33460

NOA No.: 13-0529.14
Expiration Date: 07/19/16
Approval Date: 03/06/14

ROOFING SYSTEM APPROVAL

Category:	Roofing
Sub-Category:	Modified Bitumen
Materials:	SBS
Deck Type:	Wood
Maximum Design Pressure:	-82.5 psf.

TRADE NAMES OF PRODUCTS MANUFACTURED OR LABELED BY APPLICANT:

TABLE 1

Product	Dimensions	Test Specification	Product Description
DynaBase	39-3/8" x 49'2"	ASTM D6163 Type I Grade S	A glass reinforced SBS modified bitumen base sheet.
DynaBase PR	39-3/8" x 49'2"	ASTM D6164 Type I Grade S	A polyester reinforced SBS modified bitumen base sheet.
DynaWeld Base	39-3/8" x 32'10"	ASTM D6163 Type I Grade S	A glass reinforced SBS modified bitumen base sheet for heat welded applications.
DynaBase HW	39-3/8" x 49'2"	ASTM D 6163, Type 1, Grade S	A glass reinforced SBS modified bitumen base sheet for heat welded applications.
DynaFast 180 S	39-3/8" x 49'2"	ASTM D 6164	A polyester reinforced SBS modified bitumen base or inner ply sheet.
DynaFast 180 HW	39-3/8" x 49'2"	ASTM D6164	A polyester reinforced SBS modified bitumen base or inner ply sheet for use in heat weld applications.
DynaFast 250 HW	39-3/8" x 32'10"	ASTM D6164	A polyester reinforced SBS modified bitumen base or inner ply sheet for use in heat weld applications.
DynaGlas	39-3/8" x 32'10"	ASTM D6163 Type I Grade G	A glass reinforced SBS modified bitumen membrane surfaced with granules.
DynaWeld Cap FR	39-3/8" x 32'10"	ASTM D6163 Type I Grade G	A fire resistant, glass reinforced SBS modified bitumen membrane surfaced with granules for use in heat weld applications.
DynaWeld Cap FR CR	39-3/8" x 32'10"	ASTM D6163 Type I Grade G	A fire resistant, glass reinforced SBS modified bitumen membrane surfaced with granules and a white reflective coating for use in heat weld applications..
DynaWeld Cap 180 FR	39-3/8" x 32'10"	ASTM D6164 Type I Grade G	A fire resistant, polyester reinforced SBS modified bitumen membrane surfaced with granules for use in heat weld applications.
DynaGlas 30 FR	39-3/8" x 32'10"	ASTM D6163 Type I Grade G	A fire resistant, glass reinforced SBS modified bitumen membrane surfaced with granules.
DynaGlas FR	39-3/8" x 32'10"	ASTM D6163 Type I Grade G	A fire resistant, glass reinforced SBS modified bitumen membrane surfaced with granules.
DynaGlas FR CR	39-3/8" x 32'10"	ASTM D6163 Type I Grade G	A fire resistant, glass reinforced SBS modified bitumen membrane surfaced with granules and a white reflective coating.

Product	Dimensions	Test Specification	Product Description
DynaKap T1	39-3/8" x 32'10"	ASTM D6162 Type I Grade G	A composite reinforced SBS modified bitumen membrane surfaced with granules.
DynaKap FR T1	39-3/8" x 32'10"	ASTM D6162 Type I Grade G	A fire resistant, composite reinforced SBS modified bitumen membrane surfaced with granules.
DynaLastic 180	39-3/8" x 32'10"	ASTM D6164 Type I Grade G	A polyester reinforced SBS modified bitumen membrane surfaced with granules.
DynaLastic 180 FR	39-3/8" x 32'10"	ASTM D6164 Type I Grade G	A fire resistant, polyester reinforced SBS modified bitumen membrane surfaced with granules.
DynaLastic 180 S	39-3/8" x 32'10"	ASTM D6164 Type I Grade S	A polyester reinforced SBS modified bitumen base or inner ply sheet.
DynaWeld 180 S	39-3/8" x 32'10"	ASTM D6162 Type I Grade S	A composite reinforced SBS modified bitumen base or inner ply sheet for use in heat weld applications.
DynaWeld Cap 250 FR	39-3/8" x 32'10"	ASTM D 6164 Type II Grade G	A fire resistant, polyester reinforced SBS modified bitumen membrane surfaced with granules for use in heat weld applications.
DynaWeld Cap 250 FR CR	39-3/8" x 32'10"	ASTM D 6164 Type II Grade G	A fire resistant, polyester reinforced SBS modified bitumen membrane surfaced with granules and a reflective white coating for use in heat weld applications.
DynaWeld Cap 250	39-3/8" x 32'10"	ASTM D 6164 Type II Grade G	A polyester reinforced SBS modified bitumen membrane surfaced with granules for use in heat weld applications.
DynaWeld 250 S	39-3/8" x 32'10"	ASTM D 6164 Type II Grade S	A polyester reinforced SBS modified bitumen base or inner ply sheet for use in heat weld applications.
DynaPly T1	39-3/8" x 32'10"	ASTM D6162 Type I Grade S	A composite reinforced SBS modified bitumen base or inner ply sheet.
DynaLastic 250 FR	39-3/8" x 32'10"	ASTM D6164 Type II Grade G	A fire resistant, polyester reinforced SBS modified bitumen membrane surfaced with granules.
DynaLastic 250 FR CR	39-3/8" x 32'10"	ASTM D6164 Type II Grade G	A fire resistant, polyester reinforced SBS modified bitumen membrane surfaced with granules and a reflective white coating.
DynaLastic 250 S	39-3/8" x 32'10"	ASTM D 6164 Type II Grade S	A polyester reinforced SBS modified bitumen base or inner ply sheet.
DynaMax FR	39-3/8" x 32'10"	ASTM D6162 Type III Grade G	A fire resistant, composite reinforced SBS modified bitumen membrane surfaced with granules.
DynaMax S	39-3/8" x 32'10"	ASTM D6162 Type III Grade S	A composite reinforced SBS modified bitumen base or inner ply sheet.
DynaClad	39-3/8" x 33'10"	ASTM D6298	A glass reinforced base sheet SBS modified bitumen membrane surfaced with foil.
DynaBase XT	39-3/8" x 49'2"	ASTM D6163 Type I Grade S	A glass reinforced SBS modified bitumen base or inner ply sheet.

Product	Dimensions	Test Specification	Product Description
DynaGlas FR XT	39-3/8" x 32'10"	ASTM D6163 Type I Grade G	A fire resistant, glass reinforced SBS modified bitumen membrane surfaced with granules.
GlasKap	36" x 36'	ASTM D3909	A mineral surfaced, asphalt coated, fiberglass cap sheet.
GlasKap CR	36" x 36'	ASTM D3909	A white mineral surfaced, white acrylic coated, fiberglass cap sheet.
Ventsulation Felt	36" x 36'	ASTM D4897 Type II	Heavy duty fiber glass base sheet impregnated and coated on both sides with asphalt with or without fine mineral stabilizer. Surfaced on the bottom side with coarse mineral granules embedded in asphaltic coating.
GlasBase Plus	36" x 108'	ASTM D4601	Type II asphalt impregnated and coated glass fiber base sheet for use in conventional and modified bitumen built-up roofing.
GlasPly IV	36" x 180'	ASTM D2178 Type IV	Type IV asphalt impregnated glass felt for use in conventional and modified bitumen built-up roofing.
GlasPly Premier	36" x 180'	ASTM D2178 Type VI	Type VI asphalt impregnated glass felt for use in conventional and modified bitumen built-up roofing.
PermaPly 28	36" x 106'	ASTM D4601 Type II	Type II asphalt impregnated and coated glass fiber base sheet for use in conventional and modified bitumen built-up roofing.
FesCant Plus Cant Strips, and Taper Edge	various	ASTM C728	Factory pre-fabricated cant strips and taper edge, manufactured from expanded perlite insulation.
MBR Flashing Cement Base and Activator	N/A	Proprietary	A two component elastomeric, cold application adhesive, consisting of a modified proprietary compound with an asphalt base.
MBR Bonding Adhesive	N/A	Proprietary	A two component urethane cold application adhesive.
MBR Cold Application Adhesive	5, 55, and 350 gal,	ASTM D3019 Type III	One part, elastomeric cold application adhesive
MBR Low VOC Membrane Adhesive	5 gal	Proprietary	One part, asphalt modified urethane adhesive
MBR RA Membrane Adhesive	1.5L Cartridge	Proprietary	Two part, cold process membrane adhesive
JM Urethane Insulation Adhesive	N/A	Proprietary	Urethane insulation adhesive.

Product	Dimensions	Test Specification	Product Description
JM Two Part Urethane Insulation Adhesive	N/A	Proprietary	A two-part urethane insulation adhesive
Flex-I-Drain	various	BOCA 76-61 SBCCI 89204 UBC 3236	Two piece flexible drain system composed of a Noryl deck flange, a flexible neoprene bellows and no hub connection. Available in various sizes and styles for most retro-fit applications.
PC/PET RetroDrain	various	N/A	Engineered resin copolymer fabricated drain for retrofit applications.
USII RetroDrain	various	N/A	One piece, aluminum fabricated drain for retrofit applications.
SuperDome RetroDrain	various	N/A	Cast aluminum, heavy-duty drain for retrofit applications.
FP-10 Vents	10" deck flange, base diameter of 4" and a height of 6"	N/A	One-way roof vent, designed for use in various roof systems, for the release of pressure created by gases or moisture vapor trapped within the roofing system.
Expand-O-Guard	various	N/A	Elastomeric expansion joint cover for vertical expansion and seismic joints. Manufactured from non-reinforced, form-supported elastomeric bellows with a bifurcated waterproof attachment to metal flanges.
Expand-O-Flash	various	N/A	Expansion joint covers manufactured from non-reinforced, form-supported elastomeric bellows with a bifurcated waterproof attachment to metal flanges.
Presto-Lok Fascia and Flashing System	various	TAS 114	A multi-piece fascia and flashing system for built-up and modified bitumen roofing systems manufactured from aluminum or steel.
DynaTred & DynaTred Plus Roof Walkway	various	N/A	Preformed, skid-resistant boards.

APPROVED INSULATIONS:

TABLE 2

Product Name	Product Description	Manufacturer (With Current NOA)
ENRGY 3, ENRGY 3 25 PSI, ValuTherm, ValuTherm 25 PSI, R-Panel, R-Panel 25 PSI	Isocyanurate Insulation.	Johns Manville
ENRGY 3 AGF, ENRGY 3 AGF 25 PSI, ENRGY 3 CGF, ENRGY 3 CGF 25 PSI, ValuTherm AGF, ValuTherm AGF 25 PSI, ValuTherm CGF, ValuTherm CGF 25 PSI	Isocyanurate Insulation with glass reinforced facers	Johns Manville
ENRGY 3 FR	Isocyanurate Insulation with inorganic coated glass reinforced facers; bottom face is premium coated for combustible decks.	Johns Manville
Fesco Foam, DuraFoam	Isocyanurate Insulation with perlite facer	Johns Manville
Retro-Fit Board, DuraBoard	A high-density perlite roof insulation.	Johns Manville
Fesco Board	Rigid perlite roof insulation board.	Johns Manville
Invinsa Roof Board	High density polyisocyanurate board	Johns Manville
JM SECUROCK Gypsum-Fiber Roof Board	Rigid, gypsum-based board stock	Johns Manville
DensDeck, DensDeck Prime	Silicon treated gypsum	Georgia Pacific Gypsum, LLC

APPROVED FASTENERS:

TABLE 3

Fastener Number	Product Name	Product Description	Dimensions	Manufacturer (With Current NOA)
1.	UltraFast Fastener	Insulation fastener for wood and steel.	Various	Johns Manville
2.	UltraFast ASAP	Pre-assembled Insulation fastener and plate	Various	Johns Manville
3.	UltraFast 3" Round Metal Plate or UltraFast Square Recessed Metal Plate	Galvalume AZ55 steel plate	3" square & 3" round	Johns Manville
4.	UltraFast Plastic Plate	High Density Polyolefin round plate	3" round	Johns Manville
5.	High Load Fasteners	Insulation and membrane fastener for steel, wood, or concrete	#15 x 14" max.	Johns Manville
6.	High Load Plate	Seam plate with reinforcing ribs and eyehooks	2-3/8" round steel plate	Johns Manville
7.	High Load LH	#15 Large Head fastener for steel, wood, or concrete	#15 x 14" max.	Johns Manville
8.	Polymer Membrane Batten	Plastic membrane batten strips	1" x 250' coil	Johns Manville
10.	APB Plates	Seam plate with reinforcing ribs and barbs	2" round	Johns Manville
11.	Deep Well Batten Bar	galvalume coated steel membrane batten	1" x 100' coil	Altenloh, Brink & Co. U.S., Inc.

EVIDENCE SUBMITTED:

Test Agency/Identifier	Name	Report	Date
Underwriters Laboratories, Inc.	R10167	UL 790	05/27/13
Factory Mutual Research	3001482	FM 4470	08/11/98
	3001629	FM 4470	09/10/98
	0Z8A9.AM	FM 4470	09/10/98
	3D4A4.AM	FM 4470	09/28/98
	3009499	FM 4470	04/04/01
	3007148	FM 4450	04/19/00
	3009499	FM 4470	04/04/01
	3011248	FM 4470	11/01/02
	3001457	FM 4470	04/04/02
	3014090	FM 4470	09/05/02
	3012974	FM 4450	06/03/02
	3026130	FM 4470	04/26/09
	3037540	FM 4470	10/20/10
Exterior Research & Design	#4361-2.04.97-1	TAS 114	02/04/97
	#10390A-12.97-1	TAS 114	12/00/97
	10391.01.03	TAS 114	01/29/03
	00257.03.05-1	ASTM D6162/D6163 ASTM D6164/D6298	03/17/05
Trinity | ERD	J7670.06.08	ASTM D3909	06/16/08
	J6990.12.07	ASTM D6162/D6164	12/03/07
	J17040.11.09	ASTM D6164	11/16/09
	J13700.05.10-1-R1	ASTM D5147/D6163	01/25/11
	J13700.05.10-2	ASTM D5147/D6164	05/11/10
	J45020.07.13	TAS 114	07/12/13
IRT, Inc.	#99004	TAS 114	03/00/99
Atlantic & Caribbean Roof Consulting, LLC	ACRC 03017	TAS 114	09/30/03
	ACRC 06-005	TAS 114	03/27/06
IRT-ARCON Inc.	02-026	TAS 114	07/26/02
	02-011		02/06/02
PRI Construction Materials Technologies, LLC	JMC-066-02-01	ASTM D6163	06/04/12
	JMC-065-02-01	ASTM D6163	05/29/12
	JMC-070-02-01	ASTM D2178 Type IV	04/17/12
	JMC-071-02-01	ASTM D2178 Type VI	04/17/12
	JMC-072-02-01	ASTM D4601 Type II	06/14/12
	JMC-074-02-01	ASTM D4897 Type II	04/17/12
	JMC-075-02-04.2	ASTM D5147/D6164 Type II	12/27/13
	JMC-078-02-01	ASTM D5147/D6298	07/17/12
	JMC-091-02-01	ASTM D4601 Type I	06/04/12
	JMC-093-02-01	ASTM D4601 Type II	08/02/12
	JMC-081-02-01.02	TAS 117 B & C	06/11/12
	JMC-105-02-01	ASTM D5147/D6162	05/22/13
	JMC-106-02-01	ASTM D6164	04/15/13

EVIDENCE SUBMITTED: (CONTINUED):

Test Agency/Identifier	Name	Report	Date
	JMC-107-02-01 Rev 4	ASTM D903 ASTM D1876 ASTM D5147 TAS 117(B) TAS 117(A) TAS 114(C)	11/01/13
	JMC-108-02-01	FM 4474 (D)/TAS 114 (J)	04/16/13
	JMC-113-02-01	ASTM D 6164	04/19/13
	JMC-126-02-01	FM 4474 (D)/TAS 114 (J)	04/17/13
	JMC-141-02-01	FM 4474 (D)/TAS 114 (J)	04/18/13
	JMC-171-02-01	ASTM D6163	01/10/14
	JMC-171-02-02	ASTM D6163	01/10/14
	JMC-171-02-10	ASTM D6162	01/10/14
	JMC-171-02-03	ASTM D6164	01/10/14

APPROVED ASSEMBLIES

Membrane Type: SBS

Deck Type 11: Wood, Insulated

Deck Description: $^{19}/_{32}$" or greater plywood or wood plank, fastened with #8 screws.

System Type A(1): Anchor sheet mechanically fastened; all layers of insulation fully adhered with approved asphalt.

All General and System limitations apply.

Anchor Sheet: One ply of GlasPly Premier, PermaPly 28 or Ventsulation fastened to the deck as described below:

Fastening: Anchor sheet shall be lapped 3" and fastened with 12 ga. annular ring shank nails and 1-5/8" diameter tin caps 9" o.c. in the lap and two rows staggered in the center of the sheet 9" o.c.

One or more layers of any of the following insulations:

Base Insulation Layer	**Insulation Fasteners (Table 3)**	**Fastener Density/ft²**
ENRGY 3, ENRGY 3 25 PSI, ValuTherm, ValuTherm 25 PSI, R-Panel, R-Panel 25 PSI, ENRGY 3 AGF, ENRGY 3 AGF 25 PSI, ValuTherm AGF, ValuTherm AGF 25 PSI, ENRGY 3 AGF, ENRGY 3 AGF 25 PSI, ValuTherm AGF, ValuTherm AGF 25 PSI		
Minimum 1.3" thick	**N/A**	**N/A**

Base or Top Insulation Layer	**Insulation Fasteners (Table 3)**	**Fastener Density/ft²**
Fesco Foam, DuraFoam		
Minimum 1.5" thick	**N/A**	**N/A**
Fesco Board		
Minimum ¾" thick	**N/A**	**N/A**
Retro-Fit Board, DuraBoard		
Minimum ½" thick	**N/A**	**N/A**

Note: All insulation shall be adhered to the anchor sheet in full mopping of approved hot asphalt within the EVT range and at a rate of 20-40 lbs./100 ft². Please refer to Roofing Application Standard RAS 117 for insulation attachment. Insulation listed as base layer only shall be used only as base layers with a second layer of approved top layer insulation installed as the final membrane substrate. Composite insulation panels may be used as a top layer placed with the polyisocyanurate side facing down.

Base Sheet: (Optional) One ply of PermaPly 28, DynaBase, DynaBase XT or GlasBase Plus adhered to the insulated substrate in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.

Ply Sheet:	(Optional) One or more plies of GlasPly Premier, Glas Ply IV, DynaLastic 180 S, DynaFast 180 S, DynaLastic 250 S, DynaBase, DynaBase PR, DynaBase XT, DynaMax S or DynaPly T1 adhered to the a base sheet or perlite top layer with approved mopping of asphalt applied within the EVT range and at a rate of 20-40 lbs./sq. or one ply DynaWeld Base, DynaBase HW, DynaWeld 180 S, DynaFast 180 HW, DynaWeld 250 S or DynaFast 250 HW heat welded.
Membrane:	One or more plies of DynaKap T1, DynaKap FR T1, DynaMax FR, DynaGlas, DynaGlas FR, DynaGlas FR CR, DynaGlas 30 FR, DynaGlas FR XT, DynaLastic 180, DynaLastic 180 FR, DynaLastic 180 S, DynaLastic 250 FR, DynaLastic 250 FR CR or DynaPly T1 adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq. or one ply DynaWeld Cap FR, DynaWeld Cap FR CR, DynaWeld Cap 180 FR, DynaWeld Cap 250, DynaWeld Cap 250 FR or DynaWeld Cap 250 FR CR heat welded. Or (Only with a modified Base or Ply sheet) GlasKap or GlasKap CR adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.
Surfacing:	(Optional) Install one of the following: 1. Flood coat and gravel/slag with an application rate of 60 lbs./sq. & 400 lbs./sq., respectively. 2. GlasKap or GlasKap CR adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.
Maximum Design Pressure:	-60 psf. (See General Limitation #7).

Membrane Type: SBS

Deck Type 1I: Wood, Insulated

Deck Description: $^{19}/_{32}$" or greater plywood or wood plank, fastened with #12-3" Olympic STD screws @ 6" o.c.

System Type A(2): Anchor sheet mechanically fastened; all layers of insulation fully adhered with approved asphalt.

All General and System limitations apply.

Anchor Sheet: One ply of GlasPly Premier, PermaPly 28 or Ventsulation fastened to the deck as described below:

Fastening: Anchor sheet shall be lapped 3" and fastened with JM Ultrafast screws and 3" plates, 8" o.c. at the lap and three rows staggered in the center of the sheet 8" o.c..

One or more layers of any of the following insulations:

Base Insulation Layer	**Insulation Fasteners (Table 3)**	**Fastener Density/ft²**
ENRGY 3, ENRGY 3 25 PSI, ValuTherm, ValuTherm 25 PSI, R-Panel, R-Panel 25 PSI, ENRGY 3 AGF, ENRGY 3 AGF 25 PSI, ValuTherm AGF, ValuTherm AGF 25 PSI, ENRGY 3 AGF, ENRGY 3 AGF 25 PSI, ValuTherm AGF, ValuTherm AGF 25 PSI		
Minimum 1.3" thick	**N/A**	**N/A**
Base or Top Insulation Layer	**Insulation Fasteners (Table 3)**	**Fastener Density/ft²**
Fesco Foam, DuraFoam		
Minimum 1.5" thick	**N/A**	**N/A**
Fesco Board		
Minimum ¾" thick	**N/A**	**N/A**
Retro-Fit Board, DuraBoard		
Minimum ½" thick	**N/A**	**N/A**

Note: All insulation shall be adhered to the anchor sheet in full mopping of approved hot asphalt within the EVT range and at a rate of 20-40 lbs./100 ft². Please refer to Roofing Application Standard RAS 117 for insulation attachment. Insulation listed as base layer only shall be used only as base layers with a second layer of approved top layer insulation installed as the final membrane substrate. Composite insulation panels may be used as a top layer placed with the polyisocyanurate side facing down.

Base Sheet: (Optional if ply sheet used) One ply of PermaPly 28, DynaBase, DynaBase XT or GlasBase Plus adhered to the insulated substrate in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.

Ply Sheet:	(Optional if base sheet used) One or more plies of GlasPly Premier, Glas Ply IV, DynaLastic 180S, DynaFast 180 S, DynaLastic 250 S, DynaBase, DynaBase PR, DynaBase XT, DynaMax S or DynaPly T1 adhered to the a base sheet or perlite top layer with approved mopping of asphalt applied within the EVT range and at a rate of 20-40 lbs./sq. or one ply DynaWeld Base, DynaBase HW, DynaWeld 180 S, DynaFast 180 HW, DynaWeld 250 S or DynaFast 250 HW heat welded.
Membrane:	One or more plies of DynaKap T1, DynaKap FR T1, DynaMax FR, DynaGlas, DynaGlas FR, DynaGlas FR CR, DynaGlas 30 FR, DynaGlas FR XT, DynaLastic 180, DynaLastic 180 FR, DynaLastic 180 S, DynaLastic 250 FR, DynaLastic 250 FR CR or DynaPly T1 adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq. or one ply DynaWeld Cap FR, DynaWeld Cap FR CR, DynaWeld Cap 180 FR, DynaWeld Cap 250, DynaWeld Cap 250 FR or DynaWeld Cap 250 FR CR heat welded. Or (Only with a modified Base or Ply sheet) GlasKap or GlasKap CR adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.
Surfacing:	(Optional) Install one of the following: 1. Flood coat and gravel/slag with an application rate of 60 lbs./sq. & 400 lbs./sq., respectively. 2. GlasKap or GlasKap CR adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.
Maximum Design Pressure:	-52.5 psf. (See General Limitation #7).

Membrane Type: SBS

Deck Type 11: Wood, Insulated

Deck Description: $^{15}/_{32}$" or greater plywood or wood plank

System Type A(3): Anchor sheet mechanically fastened; all layers of insulation fully adhered with approved asphalt.

All General and System limitations apply.

Anchor Sheet: Two plies of PermaPly 28, DynaBase, GlasBase Plus, or Ventsulation fastened to the deck as described below:

Fastening: Anchor sheet shall be lapped 4" and fastened with approved roofing nails and tin caps 9" o.c. at the lap and two rows staggered in the center of the sheet 12" o.c.

One or more layers of any of the following insulations:

Base Insulation Layer	**Insulation Fasteners (Table 3)**	**Fastener Density/ft²**
ENRGY 3, ENRGY 3 25 PSI, ValuTherm, ValuTherm 25 PSI, R-Panel, R-Panel 25 PSI, ENRGY 3 AGF, ENRGY 3 AGF 25 PSI, ValuTherm AGF, ValuTherm AGF 25 PSI, ENRGY 3 AGF, ENRGY 3 AGF 25 PSI, ValuTherm AGF, ValuTherm AGF 25 PSI Minimum 1.3" thick	**N/A**	**N/A**

Base or Top Insulation Layer	**Insulation Fasteners (Table 3)**	**Fastener Density/ft²**
Fesco Foam, DuraFoam Minimum 1.5" thick	**N/A**	**N/A**
Fesco Board Minimum ¾" thick	**N/A**	**N/A**
Retro-Fit Board, DuraBoard Minimum ½" thick	**N/A**	**N/A**

Note: All insulation shall be adhered to the anchor sheet in full mopping of approved hot asphalt within the EVT range and at a rate of 20-40 lbs./100 ft². Please refer to Roofing Application Standard RAS 117 for insulation attachment. Insulation listed as base layer only shall be used only as base layers with a second layer of approved top layer insulation installed as the final membrane substrate. Composite insulation panels may be used as a top layer placed with the polyisocyanurate side facing down.

Base Sheet: (Optional) One ply of PermaPly 28, DynaBase, DynaBase XT or GlasBase Plus adhered to the insulated substrate in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.

Ply Sheet: (Optional) One or more plies of GlasPly Premier, Glas Ply IV, DynaLastic 180S, DynaFast 180 S, DynaLastic 250 S, DynaBase, DynaBase PR, DynaBase XT, DynaMax S or DynaPly T1 adhered to the a base sheet or perlite top layer with approved mopping of asphalt applied within the EVT range and at a rate of 20-40 lbs./sq. or one ply DynaWeld Base, DynaBase HW, DynaWeld 180 S, DynaFast 180 HW, DynaWeld 250 S or DynaFast 250 HW heat welded.

Membrane:	One or more plies of DynaKap T1, DynaKap FR T1, DynaMax FR, DynaGlas, DynaGlas FR, DynaGlas FR CR, DynaGlas 30 FR, DynaGlas FR XT, DynaLastic 180, DynaLastic 180 FR, DynaLastic 180 S, DynaLastic 250 FR, DynaLastic 250 FR CR or DynaPly T1 adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq. or one ply DynaWeld Cap FR, DynaWeld Cap FR CR, DynaWeld Cap 180 FR, DynaWeld Cap 250, DynaWeld Cap 250 FR or DynaWeld Cap 250 FR CR heat welded. Or (Only with a modified Base or Ply sheet) GlasKap or GlasKap CR adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.
Surfacing:	(Optional) Install one of the following: 1. Flood coat and gravel/slag with an application rate of 60 lbs./sq. & 400 lbs./sq., respectively. 2. GlasKap or GlasKap CR adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.
Maximum Design Pressure:	-52.5 psf. (See General Limitation #7).

Membrane Type: SBS

Deck Type 11: Wood, Insulated

Deck Description: $^{19}/_{32}$" or greater plywood over supports spaced 24" o.c. and attached with 10d nails spaced 4" o.c. at panel edges and 8d nails spaced 6" o.c. at center supports or wood plank

System Type B: Base layer of insulation mechanically attached, top layer fully adhered with approved asphalt or adhesive.

All General and System limitations apply.

One or more layers of any of the following insulations:

Base Insulation Layer	**Insulation Fasteners (Table 3)**	**Fastener Density/ft²**
ENRGY 3, ENRGY 3 25 PSI, ValuTherm, ValuTherm 25 PSI, R-Panel, R-Panel 25 PSI		
Minimum 1.5" thick	**1 with 3 or 2**	**1:1.3 ft²**

Note: Base layer shall be mechanically attached with fasteners and density described. Insulation panels listed are minimum sizes and dimensions; if larger panels are used the number of fasteners per board shall be increased maintaining the same fastener density (See Roofing Application Standard RAS 117 for fastening details).

Top Insulation Layer	**Insulation Fasteners (Table 3)**	**Fastener Density/ft²**
DuraBoard		
Minimum ½" thick	**N/A**	**N/A**

Note: Top layer of insulation shall be adhered with approved asphalt within the EVT range and at a rate of 20-40 lbs./100 ft² or with MBR Bonding Adhesive with a notched squeegee at 2 gallons per square. Please refer to Roofing Application Standard RAS 117 for insulation attachment. Composite insulation boards used as a top layer shall be installed with the polyisocyanurate face down.

Base Sheet: (Optional) One ply of PermaPly 28, DynaBase, DynaBase XT or GlasBase Plus adhered to the insulated substrate in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq. or with MBR Bonding Adhesive with a notched squeegee at 1.5 to 2.0 gallons per square.

Ply Sheet: (Optional) One or more plies of DynaBase, DynaBase PR, DynaBase XT, DynaMax S, GlasBase Plus, PermaPly 28, GlasPly Premier, Glas Ply IV, DynaLastic 180 S, DynaFast 180 S, DynaLastic 250 S or DynaPly T1 adhered to the a base sheet or insulation top layer with approved mopping of asphalt applied within the EVT range and at a rate of 20-40 lbs./sq. or with MBR Bonding Adhesive with a notched squeegee at 1.5 to 2.0 gallons per square or one ply DynaWeld Base, DynaBase HW, DynaWeld 180 S, DynaFast 180 HW, DynaWeld 250 S or DynaFast 250 HW heat welded to a base sheet.

Membrane:	One or more plies of DynaKap T1, DynaKap FR T1, DynaMax FR, DynaGlas, DynaGlas FR, DynaGlas FR CR, DynaGlas 30 FR, DynaGlas FR XT, DynaLastic 180, DynaLastic 180 FR, DynaLastic 180 S, DynaLastic 250 FR, DynaLastic 250 FR CR or DynaPly T1 adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq. or with MBR Bonding Adhesive with a notched squeegee at 1.5 to 2.0 gallons per square or one ply DynaWeld Cap FR, DynaWeld Cap FR CR, DynaWeld Cap 180 FR, DynaWeld Cap 250, DynaWeld Cap 250 FR or DynaWeld Cap 250 FR CR heat welded. Or (Only with a modified Base or Ply sheet) GlasKap or GlasKap CR adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq. or with MBR Bonding Adhesive with a notched squeegee at 1.5 to 2.0 gallons per square.
Surfacing:	(Optional) Install one of the following: 1. Flood coat and gravel/slag with an application rate of 60 lbs./sq. & 400 lbs./sq., respectively. 2. GlasKap or GlasKap CR adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.
Maximum Design Pressure:	-60 psf. (See General Limitation #7).

Membrane Type: SBS

Deck Type 11: Wood, Insulated

Deck Description: $^{19}/_{32}$" or greater plywood or wood plank, fastened with #12-3" Olympic STD screws @ 6" o.c.

System Type D(1): All layers of insulation and base sheet simultaneously mechanically fastened.

All General and System limitations apply.

One or more layers of any of the following insulations:

Insulation Layer	**Insulation Fasteners (Table 3)**	**Fastener Density/ft²**
ENRGY 3, ENRGY 3 25 PSI, ValuTherm, ValuTherm 25 PSI, R-Panel, R-Panel 25 PSI, ENRGY 3 AGF, ENRGY 3 AGF 25 PSI, ValuTherm AGF, ValuTherm AGF 25 PSI, ENRGY 3 AGF, ENRGY 3 AGF 25 PSI, ValuTherm AGF, ValuTherm AGF 25 PSI , ENRGY 3 FR, ENRGY 3 FR 25 PSI		
Minimum 1.3" thick	**N/A**	**N/A**
Fesco Foam, DuraFoam		
Minimum 1.5" thick	**N/A**	**N/A**
Fesco Board		
Minimum ¼" thick	**N/A**	**N/A**
Retro-Fit Board, DuraBoard		
Minimum ½" thick	**N/A**	**N/A**
DensDeck, DensDeck Prime, SECUROCK, Invinsa Roof Board		
Minimum ¼" thick	**N/A**	**N/A**

Note: Top layer shall have preliminary attachment, prior to the installation of the base/anchor sheet, at a minimum application rate of two fasteners per board for insulation boards having no dimension greater than 4 ft., and four fasteners for any insulation board having no dimension greater than 8 ft. All layers of insulation and base sheet shall be simultaneously fastened. See base/anchor sheet below for fasteners and density.

Base Sheet: One ply of GlasPly Premier, PermaPly 28 or Ventsulation fastened to the deck as described below:

Fastening : Fasten base sheet with JM UltraFast screws and 3" metal plates at 8" o.c. in the lap and three additional rows in the field at 8" o.c.

Ply Sheet: (Optional) One or more plies of DynaBase, DynaBase PR, DynaBase XT, DynaMax S, GlasBase Plus, PermaPly 28, GlasPly Premier, Glas Ply IV, DynaLastic 180 S, DynaFast 180 S, DynaLastic 250 S or DynaPly T1 adhered to the a base sheet or perlite top layer with approved mopping of asphalt applied within the EVT range and at a rate of 20-40 lbs./sq. or with MBR Bonding Adhesive at an application rate of 1.5 gal./sq. or one ply DynaWeld Base, DynaBase HW, DynaWeld 180 S, DynaFast 180 HW, DynaWeld 250 S or DynaFast 250 HW heat welded.

Membrane:	One or more plies of DynaKap T1, DynaKap FR T1, DynaMax FR, DynaGlas, DynaGlas FR, DynaGlas FR CR, DynaGlas 30 FR, DynaGlas FR XT, DynaLastic 180, DynaLastic 180 FR, DynaLastic 180 S, DynaLastic 250 FR, DynaLastic 250 FR CR or DynaPly T1 adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq. or with MBR Bonding Adhesive at an application rate of 1.5 gal./sq. or one ply DynaWeld Cap FR, DynaWeld Cap FR CR, DynaWeld Cap 180 FR, DynaWeld Cap 250, DynaWeld Cap 250 FR or DynaWeld Cap 250 FR CR heat welded. Or (Only with a modified Base or Ply sheet) GlasKap or GlasKap CR adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.
Surfacing:	(Optional) Install one of the following: 1. Flood coat and gravel/slag with an application rate of 60 lbs./sq. & 400 lbs./sq., respectively. 2. GlasKap or GlasKap CR adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.
Maximum Design Pressure:	-52.5 psf. (See General Limitation #7).

Membrane Type: SBS

Deck Type 1I: Wood, Insulated

Deck Description: $^{19}/_{32}$" or greater plywood or wood plank for new construction, $^{15}/_{32}$" or greater plywood or wood plank fastened with #8 screws @ 6" o.c.

System Type D(2): All layers of insulation simultaneously mechanically fastened with base sheet

All General and System Limitations apply.

Base or Top Insulation Layer	**Insulation Fasteners (Table 3)**	**Fastener Density/ft^2**
ENRGY 3, ENRGY 3 25 PSI, ValuTherm, ValuTherm 25 PSI, R-Panel, R-Panel 25 PSI, ENRGY 3 AGF, ENRGY 3 AGF 25 PSI, ValuTherm AGF, ValuTherm AGF 25 PSI, ENRGY 3 AGF, ENRGY 3 AGF 25 PSI, ValuTherm AGF, ValuTherm AGF 25 PSI , ENRGY 3 FR, ENRGY 3 FR 25 PSI		
Minimum 1.5" thick	**N/A**	**N/A**

Note: Insulation shall be loose-laid and membrane mechanically fastened. See base sheet attachment below for fasteners and density. Refer to Roofing Application Standard RAS 117 for insulation attachment requirements.

Base Sheet: One ply of DynaFast 180 HW, DynaFast 180 S, or DynaFast 250 HW mechanically fastened through the optional insulation with High Load LH Fastener and Polymer Membrane Batten or High Load Fastener and Deep well Batten Bar spaced 6" o.c. in the center of the minimum 4" torch welded side laps.

Ply Sheet: (Optional) One or more plies of DynaFast 180 HW, DynaWeld 250 S or DynaFast 250 HW heat welded while maintaining minimum 4" side laps and 6" end laps.

Membrane: One ply of DynaWeld Cap FR, DynaWeld Cap FR CR, DynaWeld Cap 180 FR, DynaWeld Cap 250, DynaWeld Cap 250 FR or DynaWeld Cap 250 FR CR heat welded while maintaining 4" side laps and 6" end laps.

Maximum Design Pressure: -82.5 psf. (See General Limitation #7).

Membrane Type: SBS

Deck Type 1I: Wood, Insulated

Deck Description: $^{19}/_{32}$" or greater plywood or wood plank for new construction, $^{15}/_{32}$" or greater plywood or wood plank fastened with #8 screws @ 6" o.c.

System Type D(3): All layers of insulation simultaneously mechanically fastened with base sheet

All General and System Limitations apply.

Base or Top Insulation Layer	**Insulation Fasteners (Table 3)**	**Fastener Density/ft^2**
ENRGY 3, ENRGY 3 25 PSI, ValuTherm, ValuTherm 25 PSI, R-Panel, R-Panel 25 PSI, ENRGY 3 AGF, ENRGY 3 AGF 25 PSI, ValuTherm AGF, ValuTherm AGF 25 PSI, ENRGY 3 AGF, ENRGY 3 AGF 25 PSI, ValuTherm AGF, ValuTherm AGF 25 PSI , ENRGY 3 FR, ENRGY 3 FR 25 PSI		
Minimum 1.5" thick	**N/A**	**N/A**

Note: Insulation shall be loose-laid and membrane mechanically fastened. See base sheet attachment below for fasteners and density. Refer to Roofing Application Standard RAS 117 for insulation attachment requirements.

Base Sheet: One ply of DynaFast 180 S mechanically fastened through the optional insulation with High Load LH Fastener and Polymer Membrane Batten or HIgh Load Fastener and Deep well Batten Bar spaced 6" o.c. in the center of the minimum 4" torch welded side laps.

Ply Sheet: (Optional) One or more plies of DynaFast 180 S, DynaPly T1 or DynaLastic 250 S adhered in MBR Cold Application Adhesive at a rate of 1.5-2 gal./sq. or approved asphalt with the EVT range at a rate of 20-40 lbs./sq

Membrane: One ply of DynaGlas FR, DynaLastic 180, DynaLastic 180 FR, DynaGlas FR XT, DynaKap FR T1, DynaMax FR, DynaLastic 250 FR or DynaLastic 250 FR CR adhered in MBR Cold Application Adhesive at a rate of 1.5-2 gal./sq. or approved asphalt with the EVT range at a rate of 20-40 lbs./sq. while maintaining 4" side laps and 6" end laps.

Maximum Design Pressure: -82.5 psf. (See General Limitation #7).

Membrane Type: SBS

Deck Type 1I: Wood, Insulated

Deck Description: $^{19}/_{32}$" or greater plywood or wood plank for new construction, $^{15}/_{32}$" or greater plywood or wood plank fastened with #8 screws @ 6" o.c.

System Type D(4): All layers of insulation simultaneously mechanically fastened with base sheet

All General and System Limitations apply.

Base or Top Insulation Layer	**Insulation Fasteners (Table 3)**	**Fastener Density/ft²**
ENRGY 3, ENRGY 3 25 PSI, ValuTherm, ValuTherm 25 PSI, R-Panel, R-Panel 25 PSI, ENRGY 3 AGF, ENRGY 3 AGF 25 PSI, ValuTherm AGF, ValuTherm AGF 25 PSI, ENRGY 3 AGF, ENRGY 3 AGF 25 PSI, ValuTherm AGF, ValuTherm AGF 25 PSI , ENRGY 3 FR, ENRGY 3 FR 25 PSI		
Minimum 1.5" thick	**N/A**	**N/A**

Note: Insulation shall be loose-laid and membrane mechanically fastened. See base sheet attachment below for fasteners and density. Refer to Roofing Application Standard RAS 117 for insulation attachment requirements.

Base Sheet:	One ply of DynaFast 180 HW, DynaFast 180 S, or DynaFast 250 HW mechanically fastened through the optional insulation with High Load Fastener & APB Plates or High Load Plates spaced 9" o.c. in the center of the minmum 4" torch welded side laps.
Ply Sheet:	(Optional) One or more plies of DynaFast 180 HW, DynaWeld 250 S or DynaFast 250 HW heat welded while maintaining minimum 4" side laps and 6" end laps.
Membrane:	One ply of DynaWeld Cap FR, DynaWeld Cap FR CR, DynaWeld Cap 180 FR, DynaWeld Cap 250, DynaWeld Cap 250 FR or DynaWeld Cap 250 FR CR heat welded while maintaining 4" side laps and 6" end laps.
Maximum Design Pressure:	-60 psf. (See General Limitation #7).

Membrane Type: SBS

Deck Type 11: Wood, Insulated

Deck Description: $^{19}/_{32}$" or greater plywood or wood plank for new construction, $^{15}/_{32}$" or greater plywood or wood plank fastened with #8 screws @ 6" o.c.

System Type D(5): All layers of insulation simultaneously mechanically fastened with base sheet

All General and System Limitations apply.

Base or Top Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft^2
ENRGY 3, ENRGY 3 25 PSI, ValuTherm, ValuTherm 25 PSI, R-Panel, R-Panel 25 PSI, ENRGY 3 AGF, ENRGY 3 AGF 25 PSI, ValuTherm AGF, ValuTherm AGF 25 PSI, ENRGY 3 AGF, ENRGY 3 AGF 25 PSI, ValuTherm AGF, ValuTherm AGF 25 PSI , ENRGY 3 FR, ENRGY 3 FR 25 PSI		
Minimum 1.5" thick	**N/A**	**N/A**

Note: Insulation shall be loose-laid and membrane mechanically fastened. See base sheet attachment below for fasteners and density. Refer to Roofing Application Standard RAS 117 for insulation attachment requirements.

Base Sheet: One ply of DynaFast 180 S mechanically fastened through the optional insulation with High Load Fastener & APB Plates or High Load Plates spaced 9" o.c. in the center of the minimum 4" torch welded side laps.

Ply Sheet: (Optional) One or more plies of DynaFast 180 S, DynaPly T1 or DynaLastic 250 S adhered in MBR Cold Application Adhesive at a rate of 1.5-2 gal./sq. or approved asphalt with the EVT range at a rate of 20-40 lbs./sq

Membrane: One ply of DynaGlas FR, DynaLastic 180, DynaLastic 180 FR, DynaGlas FR XT, DynaKap FR T1, DynaMax FR, DynaLastic 250 FR or DynaLastic 250 FR CR adhered in MBR Cold Application Adhesive at a rate of 1.5-2 gal./sq. or approved asphalt with the EVT range at a rate of 20-40 lbs./sq. while maintaining 4" side laps and 6" end laps.

Maximum Design Pressure: -60 psf. (See General Limitation #7).

Membrane Type: SBS

Deck Type 1: Wood, Non-insulated

Deck Description: $^{19}/_{32}$" or greater plywood or wood plank decks

System Type E(1): Base sheet mechanically fastened.

All General and System limitations apply.

Base Sheet:	Two plies of PermaPly 28, DynaBase, GlasBase Plus or Ventsulation fastened to the deck as described below:
Fastening:	Base sheet shall be lapped 4" and fastened with approved roofing nails and tin caps 9" o.c. in the lap and two rows staggered in the center of the sheet 12" o.c..
Ply Sheet:	(Optional) One or more plies of DynaBase, DynaBase PR, DynaBase XT, DynaMax S, GlasBase Plus, PermaPly 28, GlasPly Premier, Glas Ply IV, DynaLastic 180 S, DynaFast 180 S, DynaLastic 250 S or DynaPly T1 adhered to the a base sheet or perlite top layer with approved mopping of asphalt applied within the EVT range and at a rate of 20-40 lbs./sq. or with MBR Bonding Adhesive at an application rate of 1.5 gal./sq. or one ply DynaWeld Base, DynaBase HW, DynaWeld 180 S, DynaFast 180 HW, DynaWeld 250 S or DynaFast 250 HW heat welded.
Membrane:	One or more plies of DynaKap T1, DynaKap FR T1, DynaMax FR, DynaGlas, DynaGlas FR, DynaGlas FR CR, DynaGlas 30 FR, DynaGlas FR XT, DynaLastic 180, DynaLastic 180 FR, DynaLastic 180 S, DynaLastic 250 FR, DynaLastic 250 FR CR or DynaPly T1 adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq. or with MBR Bonding Adhesive at an application rate of 1.5 gal./sq. or one ply DynaWeld Cap FR, DynaWeld Cap FR CR, DynaWeld Cap 180 FR, DynaWeld Cap 250, DynaWeld Cap 250 FR or DynaWeld Cap 250 FR CR heat welded. Or (Only with a modified Base or Ply sheet) GlasKap or GlasKap CR adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.
Surfacing:	(Optional) Install one of the following: 1. Flood coat and gravel/slag with an application rate of 60 lbs./sq. & 400 lbs./sq., respectively. 2. GlasKap or GlasKap CR adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.
Maximum Design Pressure:	-52.5 psf. (See General Limitation #7).

Membrane Type: SBS

Deck Type 1: Wood, Non-insulated

Deck Description: $^{19}/_{32}$" or greater plywood or wood plank, fastened with #12-3" Olympic STD screws @ 6" o.c.

System Type E(2): Base sheet mechanically fastened.

All General and System limitations apply.

Base Sheet:	One ply of GlasPly Premier, PermaPly 28 or Ventsulation fastened to the deck as described below:
Fastening:	Base sheet shall be lapped 3" and fastened with JM UltraFast screws and 3" plates 8" o.c. in the lap and three rows staggered in the center of the sheet 8" o.c..
Ply Sheet:	(Optional) One or more plies of DynaBase, DynaBase PR, DynaBase XT, DynaMax S, GlasBase Plus, PermaPly 28, GlasPly Premier, Glas Ply IV, DynaLastic 180 S, DynaFast 180 S, DynaLastic 250 S or DynaPly T1 adhered to the a base sheet or perlite top layer with approved mopping of asphalt applied within the EVT range and at a rate of 20-40 lbs./sq. or with MBR Bonding Adhesive at an application rate of 1.5 gal./sq. or one ply DynaWeld Base, DynaBase HW, DynaWeld 180 S, DynaFast 180 HW, DynaWeld 250 S or DynaFast 250 HW heat welded.
Membrane:	One or more plies of DynaKap T1, DynaKap FR T1, DynaMax FR, DynaGlas, DynaGlas FR, DynaGlas FR CR, DynaGlas 30 FR, DynaGlas FR XT, DynaLastic 180, DynaLastic 180 FR, DynaLastic 180 S, DynaLastic 250 FR, DynaLastic 250 FR CR or DynaPly T1 adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq. or with MBR Bonding Adhesive at an application rate of 1.5 gal./sq. or one ply DynaWeld Cap FR, DynaWeld Cap FR CR, DynaWeld Cap 180 FR, DynaWeld Cap 250, DynaWeld Cap 250 FR or DynaWeld Cap 250 FR CR heat welded. Or (Only with a modified Base or Ply sheet) GlasKap or GlasKap CR adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.
Surfacing:	(Optional) Install one of the following: 1. Flood coat and gravel/slag with an application rate of 60 lbs./sq. & 400 lbs./sq., respectively. 2. GlasKap or GlasKap CR adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.
Maximum Design Pressure:	-52.5 psf. (See General Limitation #7).

Membrane Type: SBS

Deck Type 1: Wood, Non-insulated

Deck Description: $^{19}/_{32}$" or greater plywood or wood plank, fastened with #8 screws.

System Type E(3): Base sheet mechanically fastened.

All General and System limitations apply.

Base Sheet:	One ply of GlasPly Premier, PermaPly 28 or Ventsulation fastened to the deck as described below:
Fastening:	Base sheet shall be lapped 3" and fastened with 12 ga. annular ring shank nails and 1-5/8" diameter tin caps 9" o.c. in the lap and two rows staggered in the center of the sheet 9" o.c.
Ply Sheet:	(Optional) One or more plies of DynaBase, DynaBase PR, DynaBase XT, DynaMax S, GlasBase Plus, PermaPly 28, GlasPly Premier, Glas Ply IV, DynaLastic 180 S, DynaFast 180 S, DynaLastic 250 S or DynaPly T1 adhered to the a base sheet or perlite top layer with approved mopping of asphalt applied within the EVT range and at a rate of 20-40 lbs./sq. or with MBR Bonding Adhesive at an application rate of 1.5 gal./sq. or one ply DynaWeld Base, DynaBase HW, DynaWeld 180 S, DynaFast 180 HW, DynaWeld 250 S or DynaFast 250 HW heat welded.
Membrane:	One or more plies of DynaKap T1, DynaKap FR T1, DynaMax FR, DynaGlas, DynaGlas FR, DynaGlas FR CR, DynaGlas 30 FR, DynaGlas FR XT, DynaLastic 180, DynaLastic 180 FR, DynaLastic 180 S, DynaLastic 250 FR, DynaLastic 250 FR CR or DynaPly T1 adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq. or with MBR Bonding Adhesive at an application rate of 1.5 gal./sq. or one ply DynaWeld Cap FR, DynaWeld Cap FR CR, DynaWeld Cap 180 FR, DynaWeld Cap 250, DynaWeld Cap 250 FR or DynaWeld Cap 250 FR CR heat welded. Or (Only with a modified Base or Ply sheet) GlasKap or GlasKap CR adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.
Surfacing:	(Optional) Install one of the following: 1. Flood coat and gravel/slag with an application rate of 60 lbs./sq. & 400 lbs./sq., respectively. 2. GlasKap or GlasKap CR adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.
Maximum Design Pressure:	-60 psf. (See General Limitation #7).

WOOD DECK SYSTEM LIMITATIONS:

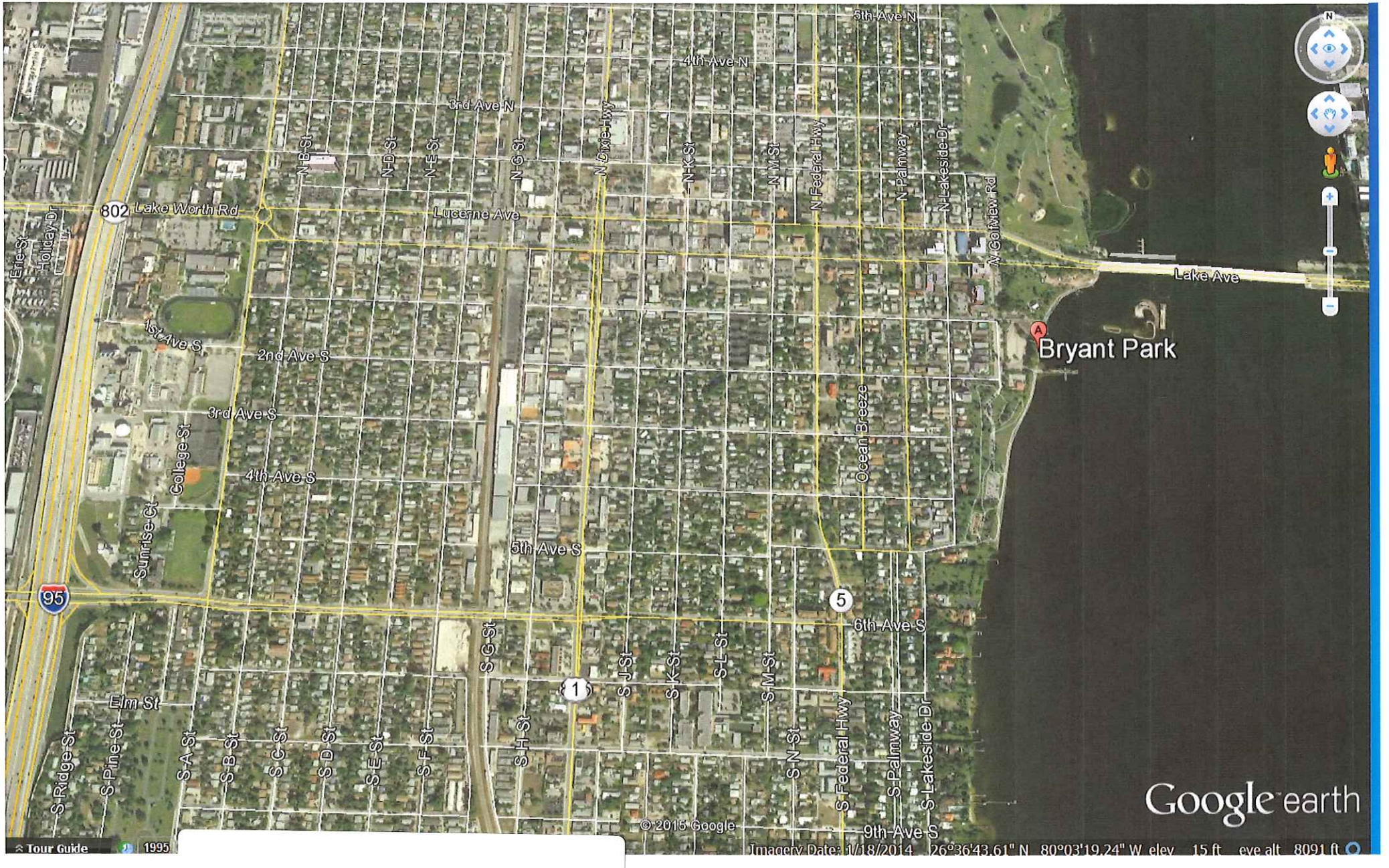
1 A slip sheet is required with Ply 4 and Ply 6 when used as a mechanically fastened base or anchor sheet.

GENERAL LIMITATIONS:

1. Fire classification is not part of this acceptance, refer to a current Approved Roofing Materials Directory for fire ratings of this product.
2. Insulation may be installed in multiple layers. The first layer shall be attached in compliance with Product Control Approval guidelines. All other layers shall be adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq., or mechanically attached using the fastening pattern of the top layer
3. All standard panel sizes are acceptable for mechanical attachment. When applied in approved asphalt, panel size shall be 4' x 4' maximum.
4. An overlay and/or recovery board insulation panel is required on all applications over closed cell foam insulations when the base sheet is fully mopped. If no recovery board is used the base sheet shall be applied using spot mopping with approved asphalt, 12" diameter circles, 24" o.c.; or strip mopped 8" ribbons in three rows, one at each side lap and one down the center of the sheet allowing a continuous area of ventilation. Encircling of the strips is not acceptable. A 6" break shall be placed every 12' in each ribbon to allow cross ventilation. Asphalt application of either system shall be at a minimum rate of 12 lbs./sq.
   Note: Spot attached systems shall be limited to a maximum design pressure of -45 psf.
5. Fastener spacing for insulation attachment is based on a Minimum Characteristic Force (F') value of 275 lbf., as tested in compliance with Testing Application Standard TAS 105. If the fastener value, as field-tested, are below 275 lbf. Insulation attachment shall not be acceptable.
6. Fastener spacing for mechanical attachment of anchor/base sheet or membrane attachment is based on a minimum fastener resistance value in conjunction with the maximum design value listed within a specific system. Should the fastener resistance be less than that required, as determined by the Building Official, a revised fastener spacing, prepared, signed and sealed by a Florida Registered Engineer, Architect, or Registered Roof Consultant may be submitted. Said revised fastener spacing shall utilize the withdrawal resistance value taken from Testing Application Standards TAS 105 and calculations in compliance with Roofing Application Standard RAS 117.
7. Perimeter and corner areas shall comply with the enhanced uplift pressure requirements of these areas. Fastener densities shall be increased for both insulation and base sheet as calculated in compliance with Roofing Application Standard RAS 117. Calculations prepared, signed and sealed by a Florida registered Professional Engineer, Registered Architect, or Registered Roof Consultant **(When this limitation is specifically referred within this NOA, General Limitation #9 will not be applicable.)**
8. All attachment and sizing of perimeter nailers, metal profile, and/or flashing termination designs shall conform to Roofing Application Standard RAS 111 and applicable wind load requirements.
9. The maximum designed pressure limitation listed shall be applicable to all roof pressure zones (i.e. field, perimeters, and corners). Neither rational analysis, nor extrapolation shall be permitted for enhanced fastening at enhanced pressure zones (i.e. perimeters, extended corners and corners). **(When this limitation is specifically referred within this NOA, General Limitation #7 will not be applicable.)**
10. All products listed herein shall have a quality assurance audit in accordance with the Florida Building Code and Rule 61G20-3 of the Florida Administrative Code.

END OF THIS ACCEPTANCE

Site Map


Lake Worth Rd
Lucerne Ave
Lake Ave
Bryant Park
1st Ave S
2nd Ave S
3rd Ave S
4th Ave S
5th Ave S
6th Ave S
9th Ave S
3rd Ave N
4th Ave N
5th Ave N
N B St
N D St
N E St
N G St
N Dixie Hwy
N K St
N M St
N Federal Hwy
N Palmway
N Lakeside Dr
N Golfview Rd
Ocean Breeze
College St
Sunrise Ct
Holiday Dr
Erie St
S Ridge St
S Pine St
S A St
S B St
S C St
S D St
S E St
S F St
S G St
S H St
S J St
S K St
S L St
S M St
S N St
S Federal Hwy
S Palmway
S Lakeside Dr
Elm St
802
95
1
5
Google earth
© 2015 Google
Imagery Date: 1/18/2014 26°36'43.61" N 80°03'19.24" W elev 15 ft eye alt 8091 ft
Tour Guide
1995

Area Map

UTILITY BUILDING ROOF REPLACEMENT PROJECT

BRYANT PARK, LAKE WORTH, FL

SCOPE OF WORK:

1) DEMO EXISTING HIP ROOF STRUCTURE
2) CONSTRUCT NEW MONOSLOPE ROOF AS INDICATED

DESIGN CRITERIA:

1) LEVEL OF ALTERATION: 2 (PER FBC 2014, SEC 403.1)

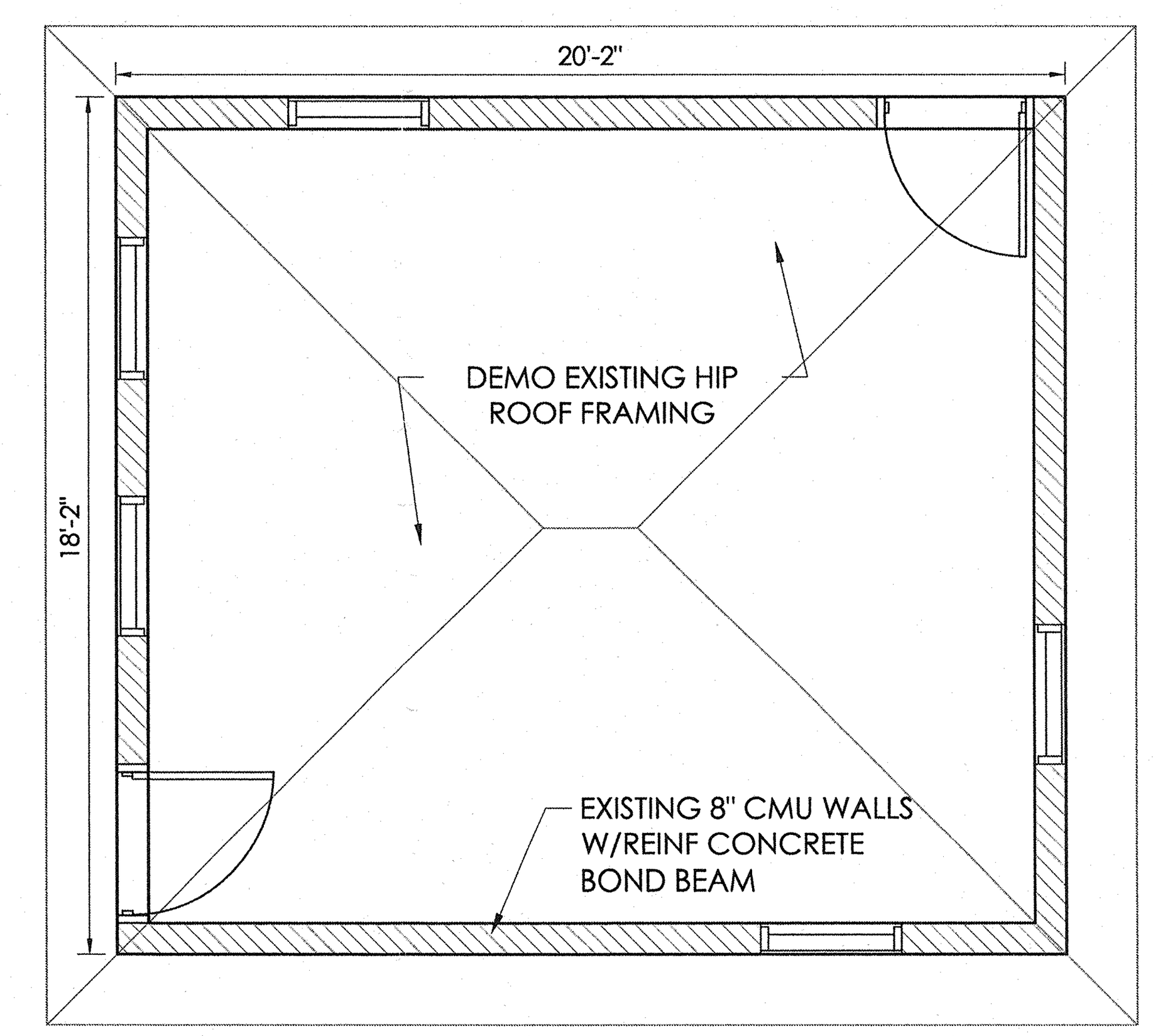
2) WIND LOAD DESIGN CRITERIA: (PER SEC.1609 AND 1620-FBC 2014):
- WIND VELOCITY: 170 MPH
- EXPOSURE CATEGORY: 'C'
- RISK CATEGORY: II
- INT. PRESSURE COEF: +/- 0.18

3) ZONING: MZ - MUNTI ZONING

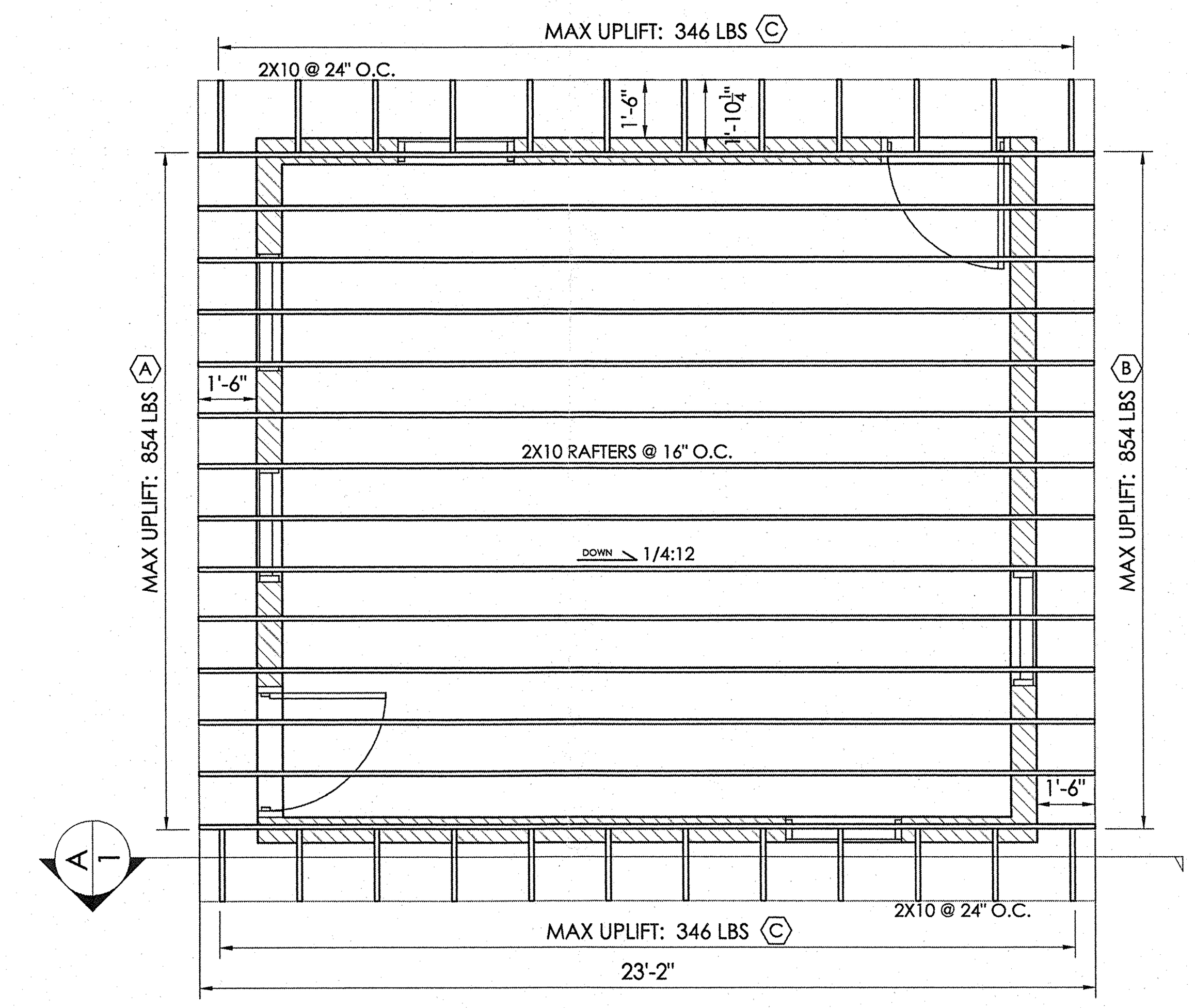
4) OCCUPANCY: U - UTILITY

GENERAL NOTES:

1. THE RESPONSIBILITY OF THE ENGINEER OF RECORD IS LIMITED ONLY TO THE SCOPE OF WORK AND THE INFORMATION PRESENTED IN THIS PACKAGE. IT SHOULD BE NOTED THAT THE DESIGN AND RECOMMENDATIONS PRESENTED IN THIS PACKAGE ARE BASED ON INFORMATION GIVEN TO THE ENGINEER OF RECORD. CONSEQUENTLY, THE RECOMMENDATIONS STATED WITHIN THIS DRAWING MAY BE CONTRADICTED IF INSPECTION SUGGESTS OTHERWISE.
2. THIS DRAWING SHOULD IN NO WAY BE TAKEN AS AN IMPLIED WARRANTY THAT THERE ARE NO HIDDEN DEFECTS PRESENT AND WHETHER OR NOT THIS STRUCTURE WAS ORIGINALLY CONSTRUCTED IN ACCORDANCE WITH APPLICABLE BUILDING CODES, THE ORIGINAL CONSTRUCTION DOCUMENTS, OR ON SOUND ENGINEERING PRINCIPLES AND PRACTICES.
3. THE EXISTING STRUCTURE ELEMENTS INCLUDING, BUT NOT LIMITED TO SLAB, FOOTERS, BEAMS, POSTS, AND WALLS ARE ALL BY OTHERS. THEY ARE NOT THE RESPONSIBILITY OF THE ENGINEER OR RECORD.
4. BUILDER MUST INSPECT THE STRUCTURAL CONDITIONS OF ANY UNAUTHORIZED EXISTING IMPROVEMENTS BUILT BEFORE THE COMMENCEMENT OF THIS ADDITION. ANY DEFECTS AND/OR INCONSISTENCIES WITH THE PRESENTED DRAWINGS MUST BE REPORTED TO THE ENGINEER OR RECORD IMMEDIATELY.
5. BUILDER MUST VERIFY THAT ALL DIMENSIONS AND CHARACTERISTICS OF THE STRUCTURAL ELEMENTS OF THE EXISTING BUILDING ARE AS SHOWN ON THE DRAWINGS AND NOTES. IF ANY INCONSISTENCY IS OBSERVED, BUILDER MUST NOTIFY THE ENGINEER OF RECORD IMMEDIATELY.
6. BUILDER SHALL MAKE A THOROUGH INSPECTION OF ALL EXISTING STRUCTURAL ELEMENTS, EXISTING JOINTS, AND EXISTING UPLIFT CONNECTIONS OF THE BUILDING AND REPORT ANY DEFECT OR DISCREPANCIES TO THE ENGINEER OF RECORD.
7. BUILDER SHALL USE WORK STANDARDS AND EXERCISE CAUTION WHEN DEALING WITH THE EXISTING BUILDING ELEMENTS, HAMMERING, CRACKING, SPLITTING, AND/OR DAMAGING IS STRICTLY PROHIBITED TO ANY OF THE EXISTING STRUCTURAL ELEMENTS, JOINTS, OR CONNECTORS.



1 PLAN VIEW - EXISTING
SCALE: 3/16" = 1'-0"



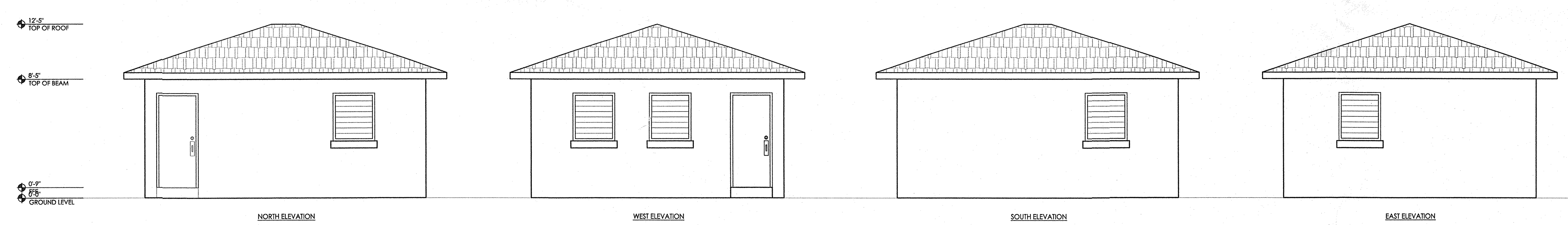
2 NEW ROOF FRAMING PLAN
SCALE: 3/16" = 1'-0"

DEMOLITION NOTES:

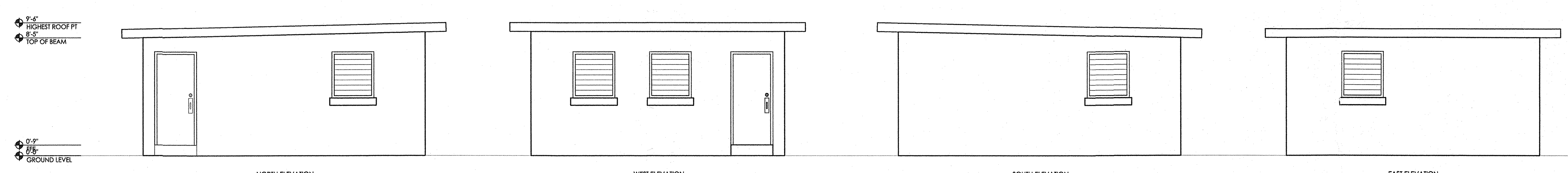
1. PRIOR TO DEMOLITION THE GENERAL CONTRACTOR IS TO VERIFY EXISTING CONDITIONS AND REPORT ANY DISCREPANCIES TO THE OWNER.
2. SALVAGE ITEMS AND MATERIALS SHALL REMAIN THE PROPERTY OF THE OWNER AS PART OF THE CONTRACT. CONTRACTOR SHALL DELIVER THESE ITEMS TO A LOCATION AS DIRECTED BY OWNER.
3. WHERE EXISTING PLUMBING AND PIPING IS TO BE REMOVED OR REPLACED CARE SHALL BE TAKEN WHEREVER CUTTING OR DRILLING IS INDICATED OR REQUESTED. WORK SHALL BE NEATLY SAW-CUT OR DONE IN A MANNER NOT TO DAMAGE ANY WORK THAT IS TO REMAIN. PATCH ADJACENT WALLS, FLOORS AND CEILINGS AS REQUIRED TO MATCH EXISTING CONDITIONS.
4. ELECTRICAL CONTRACTOR IS TO DISCONNECT, CAP, AND REMOVE ALL ELECTRICAL CONDUIT AND WIRING AFFECTED BY THOSE AREAS DESIGNATED TO BE DEMOLISHED.
5. CONTRACTOR TO PROVIDE TEMPORARY WEATHERPROOF CLOSURES AT ALL EXTERIOR OPENINGS RESULTING FROM DEMOLITION WORK AND INTERIOR AND EXTERIOR SHORING BRACING, OR SUPPORT TO PREVENT MOVEMENT, SETTLEMENT OR COLLAPSE OF AREAS TO BE DEMOLISHED AND ADJACENT AREAS TO REMAIN.
6. CONTRACTOR IS TO CONSTRUCT TEMPORARY DUST-PROOF PARTITIONS AT INTERSECTION OF THOSE AREAS TO REMAIN AND THOSE THAT ARE TO BE DEMOLISHED.
7. DEMOLITION AND NEW BUILDING MATERIAL STOCK SHALL NOT INTERFERE OR HINDER EMERGENCY ACCESS OR RESPONSE TO STRUCTURE OR VICINITY, INCLUDING FIRE LANES

ROOF NOTES:

1. THE SUPPORTING SUPERSTRUCTURE HAS BEEN DESIGNED UNDER THE ASSUMPTION THAT THE FRAMING SCHEME SHOWN WILL CLOSELY PARALLEL FINAL TRUSS MFG. LAYOUT. THIS FRAMING SCHEME (DIRECTION OF TRUSSES, MAJOR G.T. BEARING POINTS, ETC.) CAN BE MODIFIED ONLY AFTER OBTAINING PERMISSION FROM THE PRIME PROFESSIONAL OF RECORD WHO MUST REVIEW PROPOSED CHANGES AND MAKE STRUCTURAL REVISIONS ACCORDINGLY, FINAL SIGNED AND SEALED TRUSS DRAWINGS MUST BE SUBMITTED TO THIS OFFICE FOR REVIEW PRIOR TO PERMIT SUBMITTAL AS PER GENERAL NOTES.
2. REFER TO DESIGNERS FLOOR/FOUNDATION PLAN DRAWING FOR ALL ROOM VAULTS, TIE BEAM HEIGHTS, SIZE AND REINFORCING.
3. ALL CONNECTOR STRAPS SHALL BE GALVANIZED SHEET STEEL. ASTM A446-75 GRADE A (fy=33,000 PSI).
4. ALL STEEL SEAT DETAILS SUPPORTING GIRDER TRUSSES SHALL BE COORDINATED WITH THE TRUSS MANUFACTURER FOR SIZE AND BOLT SPACING REQUIREMENTS (SEE PLANS).
5. ALL FLAT ROOF AREAS SHOULD HAVE A MINIMUM SLOPE OF ¼" PER LINEAR FOOT.
6. GABLE END TRUSSES: NAIL 8d RING-SHANK 6" O.C.; USE 8d RING SHANKS OR 10d NAILS FIRST 5 FEET; BLOCKING @ 48" O.C. MAX IN FIRST 2 FRAMING SPACES ON EACH END.
7. GIRDER TRUSSES SIZED BY MANUFACTURER.
8. TRUSSES AND GIRDERS ARE TO BE SECURED TO BEARING POINTS WITH HURRICANE TIES SPECIFIED BY ENGINEER.
9. ON ANY TRUSSES 40' OR GREATER, CONTRACTOR SHALL NOTIFY DESIGNER OR ENGINEER ONE WEEK IN ADVANCE TO ARRANGE FOR FIELD SUPERVISION.
10. ROOF MUST WITHSTAND WIND LOADS SPECIFIED IN FBC 2014, SECTION 1609.
11. CONTRACTOR SHALL PROVIDE MANUFACTURERS SPECS ON ROOFING.
12. ROOF SPECS AND PRODUCT APPROVAL TO MATCH EXISTING ROOF MATERIAL (UNLESS ENTIRE ROOF IS TO BE REPLACED).
13. PLYWOOD ROOF SHEATHING:
    a. PLYWOOD ROOF SHEATHING SHALL BE 19/32", EXTERIOR GRADE SHEATHING WITH 32/16.
    b. LAY PANELS, CONTINUOUS OVER TWO OR MORE SPANS AND WITH FACE GRAIN APA SPAN RATING PERPENDICULAR TO PRIMARY FRAMING MEMBERS. END JOINTS SHALL OCCUR AT CENTER OF PRIMARY FRAMING MEMBERS. END JOINTS SHALL OCCUR AT THE CENTER OF PRIMARY FRAMING MEMBER WITH BOTH PANELS FASTENED TO IT. END JOINTS SHALL BE STAGGERED.
    c. ALL ROOF SHEATHING SHALL BE ATTACHED TO A MINIMUM 2" THICK NOMINAL MEMBER WITH ITS DEPTH EQUAL TO OR ONE SIZE GREATER THAN THE INTERSECTING TOP CHORD. THIS SHALL BE ACHIEVED WITH CONTINUOUS STRUCTURAL SUBFASCIA OR FASCIA WITH NAILS 3" O.C.
    d. FASTEN PLYWOOD ROOF SHEATHING PANELS TO ALL SUPPORTING MEMBERS USING 8d RING-SHANK NAILS. NAIL SPACING SHALL BE 3" O.C. AT EXTERIOR MEMBERS WITHIN 3" FROM HOUSE PERIMETER AND 6" O.C. IN OTHER AREAS.
    e. EXTERIOR PORCH CEILING AND SOFFIT 7/8" STUCCO ON HIGH RIB LATH WITH 2 ¼" EMBEDDED NAILING.

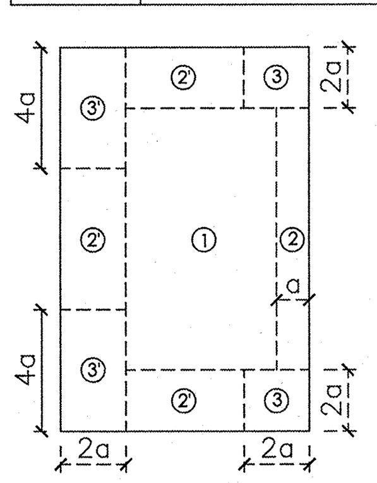


3 EXISTING ELEVATIONS
SCALE: 3/16" = 1'-0"



4 PROPOSED ELEVATIONS
SCALE: 3/16" = 1'-0"

COMPONENTS & CLADDING		
ZONE	NAIL SIZE	SPACING
1	8d RING-SHANK FASTENER	6" @ EDGES & INTERMEDIATE
2	8d RING-SHANK FASTENER	6" @ EDGES & INTERMEDIATE
3	8d RING-SHANK FASTENER	4" O.C.

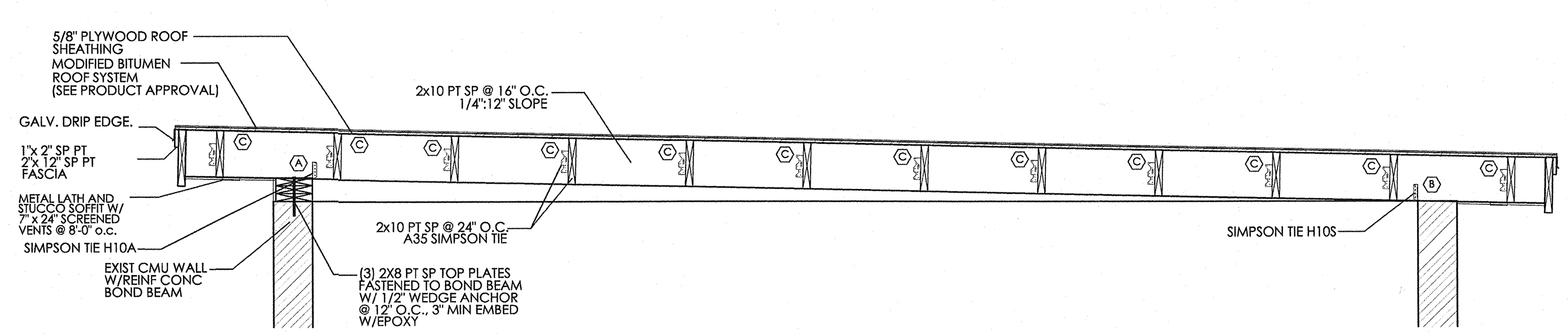


ROOF PRESSURE

ZONE	PRESSURE (psf) +	PRESSURE (psf) -
1	21.78	34.59
2	21.78	60.22
3	21.78	89.04

MINIMUM BUILDING DIMENSION 18'-2"
A = 3 FT

PLAN VIEW
MONOSLOPE
0.25:12



A SECTION
SCALE: 1/4" = 1'-0"

SIMPSON TIE SCHEDULE

NO.	TYPE	NAILS TO FACE	FASTENERS TO PLATE	ALLOWABLE LOADS (LBS) UPLIFT	ALLOWABLE LOADS (LBS) FLOOR	ALLOWABLE LOADS (LBS) ROOF	LATERAL LOADS (LBS) F1	LATERAL LOADS (LBS) F2
A	H10A	9-10dX1-1/2	9-10dX1-1/2	1140			590	285
B	H10S	8-8dX1-1/2	(TO CONCRETE) 2-3/8X4 TITEN	1065				
C	A35	6-8dX1-1/2	6-8dX1-1/2	695	595	695		670

BUNKER

BUNKER ENGINEERING & CONSTRUCTION SERVICES, INC.
120 N FEDERAL HWY, SUITE 305, LAKE WORTH, FL 33460
PH #561-585-5696 -- FAX #561-585-5697

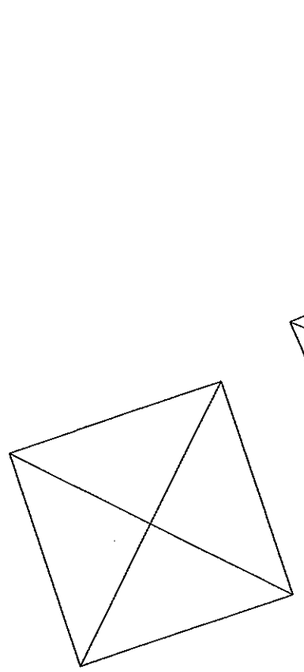
DESIGN CRITERIA, SCOPE OF WORK, LOCATION MAP, SQUARE FOOTAGE, SITE PLAN, EXISTING PLAN, PROPOSED PLAN, FRAMING PLAN, SECTION

ROOF REPLACEMENT PROJECT
CITY OF LAKE WORTH - BRYANT PARK
100 S GOLFVIEW RD
LAKE WORTH, FL 33460

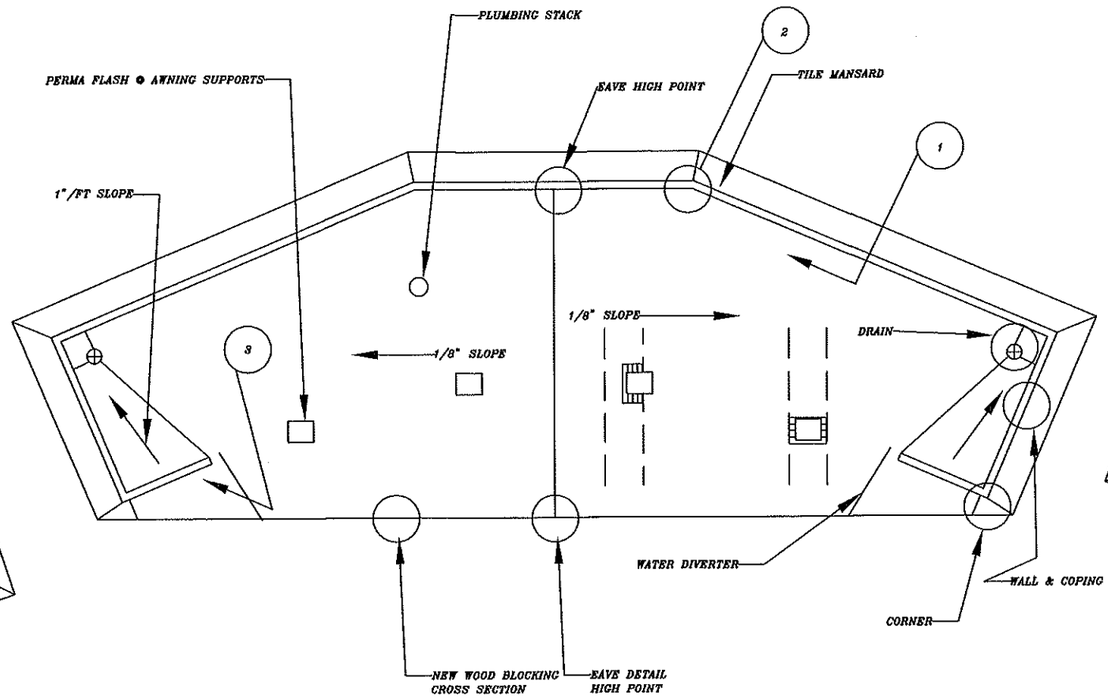
EDGAR V. DUENAS LICENSE No. 57831 STATE OF FLORIDA PROFESSIONAL ENGINEER
EDGAR DUENAS PE
FL REG. ENG. #57831
CA# 26268

SCALE: AS NOTED
DRAWN BY: KMT
DATE: SEPT 14, 2015
REVISION:

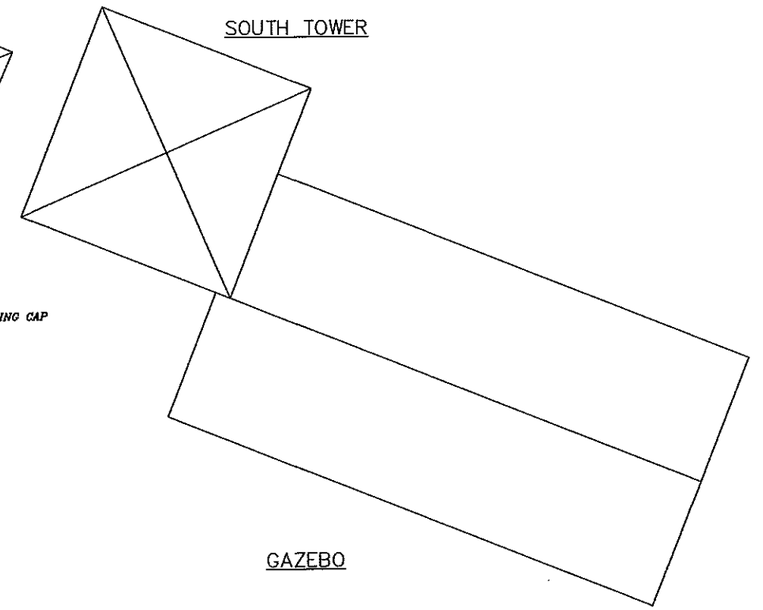
SHEET 1 OF 1



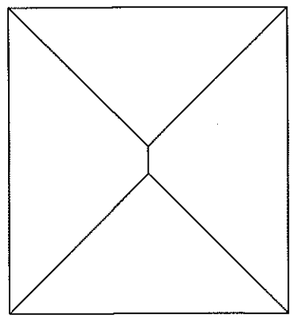
NORTH TOWER



BANDSHELL



GAZEBO



HARRY'S SHED

NOTE: 100 YARDS NORTH PF BANDSHELL

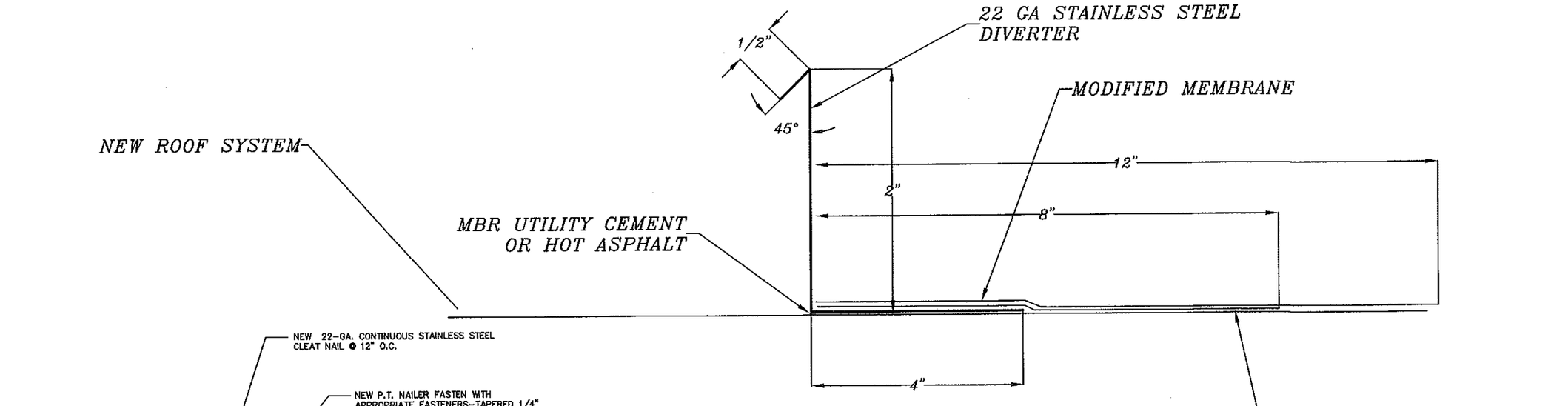
NOTE:
CONTRACTORS SHALL FIELD VERIFY ALL DIMENSIONS.

NORTH

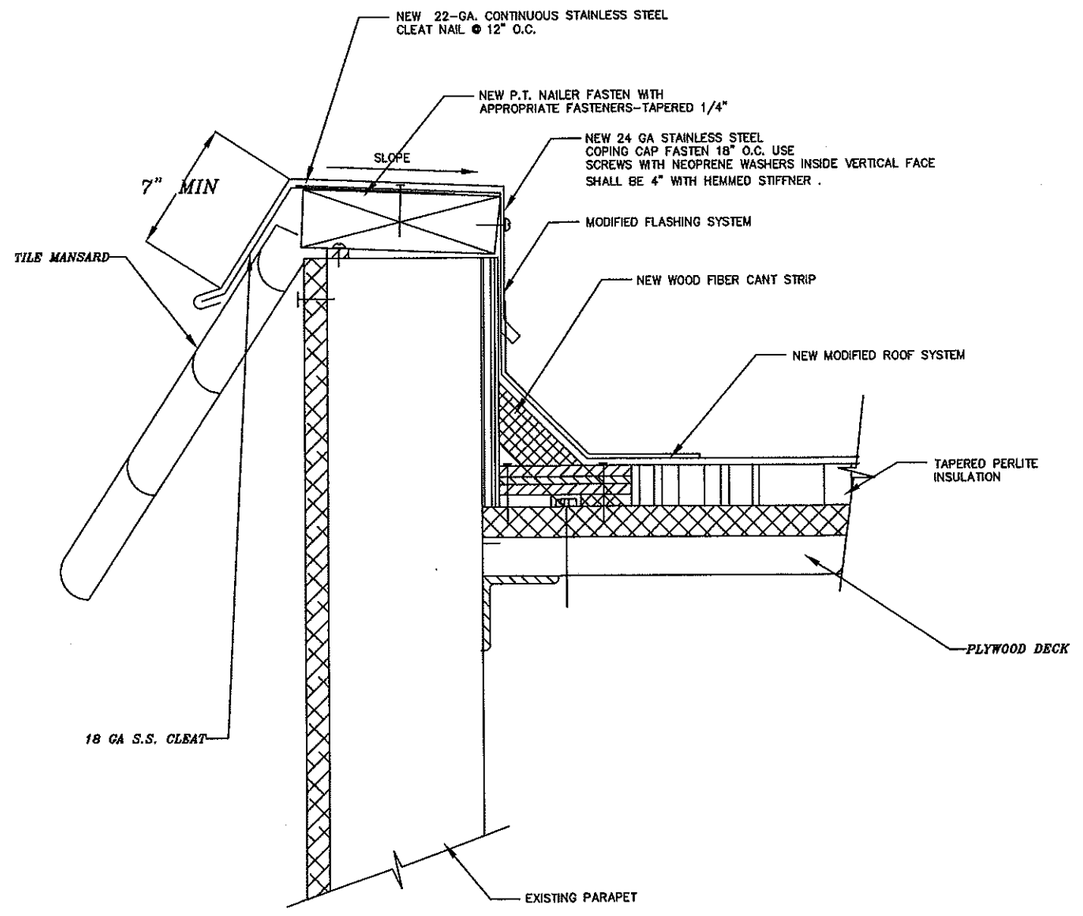
KNOPF & ASSOCIATES
ROOFING CONSULTANTS

TITLE: BAND SHELTER
LAKE WORTH, FLORIDA

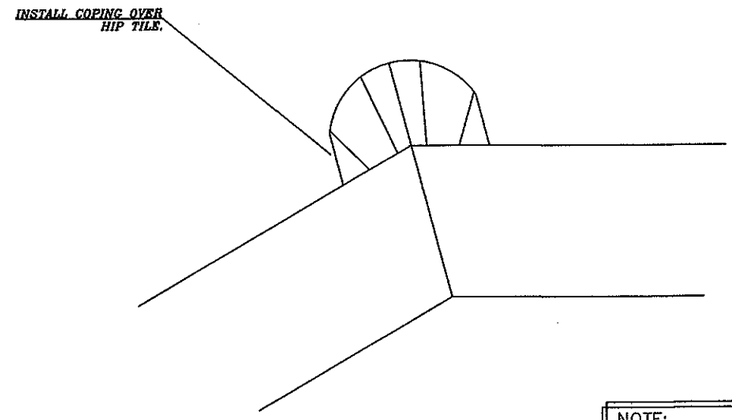
DWG. NAME:	DWG. BY:	REV.
ROOF PLAN	K.KNOPF	
SCALE: FIELD VERIFY	DATE: 09-17-15	SHEET 1 OF 4



3 WATER DIVERTER



1 COPING CAP DETAIL

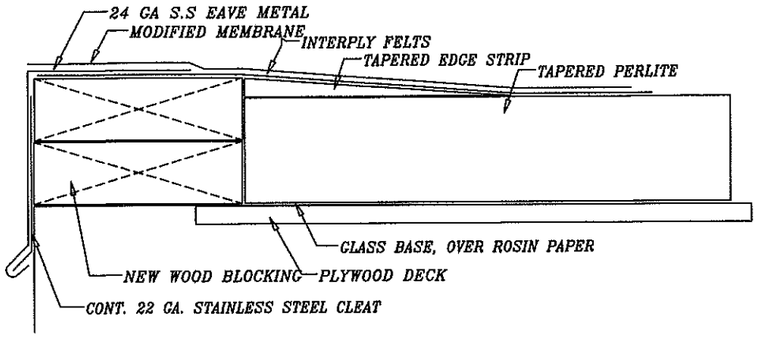


2 COPING CAP @ HIP

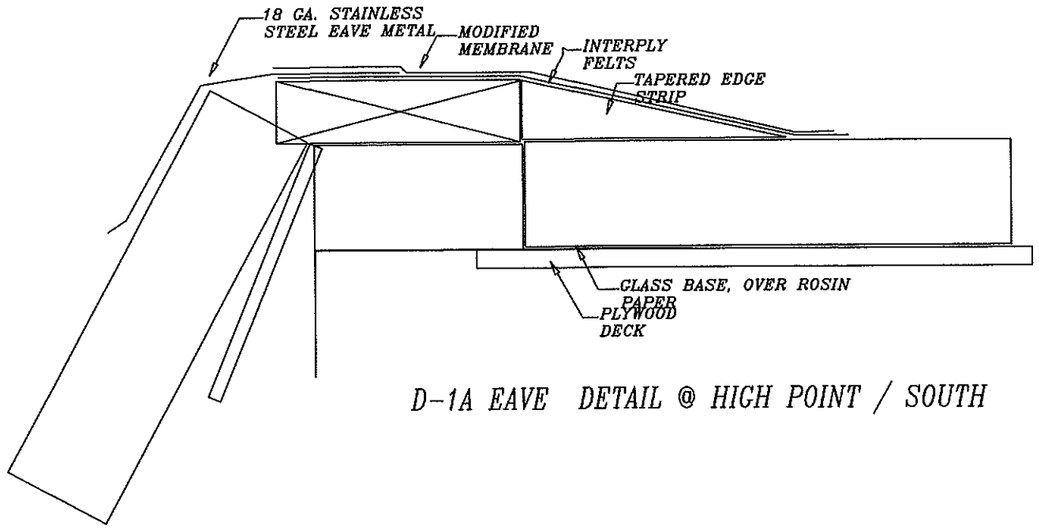
NOTE:
CONTRACTORS SHALL FIELD
VERIFY ALL DIMENSIONS.

KNOPF & ASSOCIATES
ROOFING CONSULTANTS

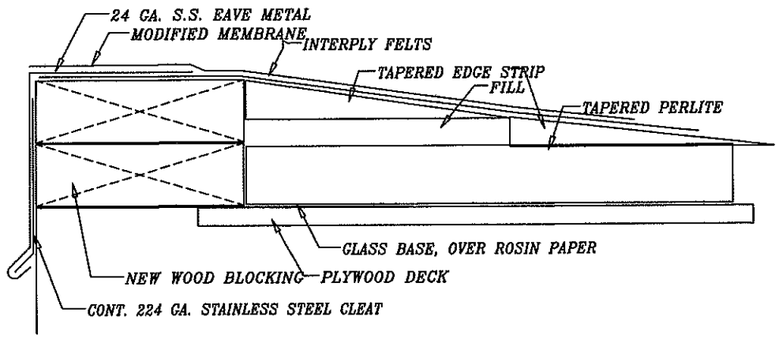
TITLE: LAKE WORTH BANDSHELL LAKE WORTH, FLORIDA		
DWG. NAME: DETAILS	DWG. BY: K.KNOPF	REV.
SCALE: FIELD VERIFY	DATE: 09-17-15	SHEET 2 OF 4



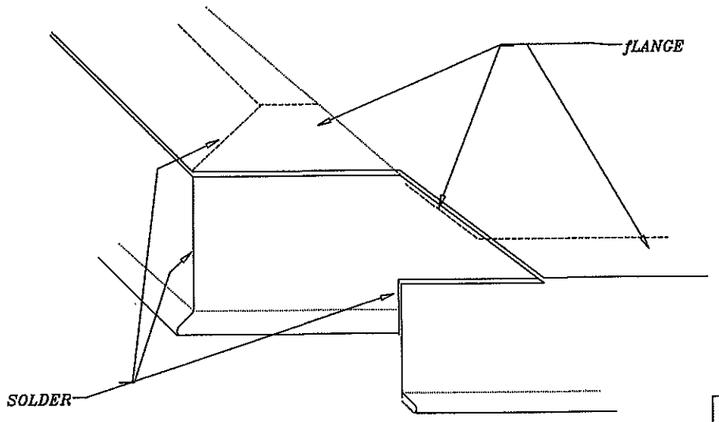
D-3 EAVE DETAIL @ HIGH POINT



D-1A EAVE DETAIL @ HIGH POINT / SOUTH



D-4 EAVE DETAIL @ MID-POINT



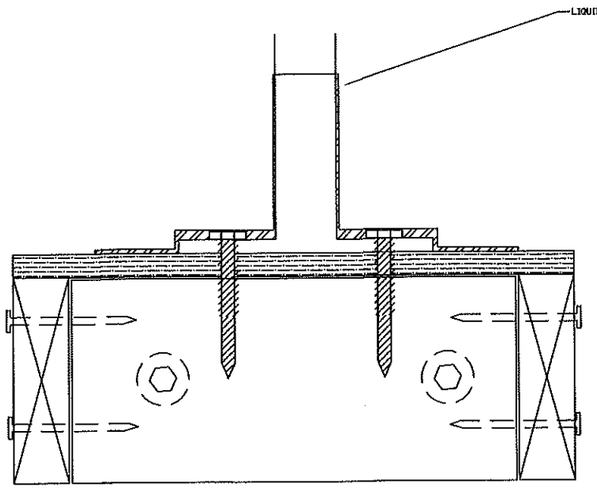
D-5 DETAIL @ CORNERS

NOTE:
CONTRACTORS SHALL FIELD VERIFY ALL DIMENSIONS.

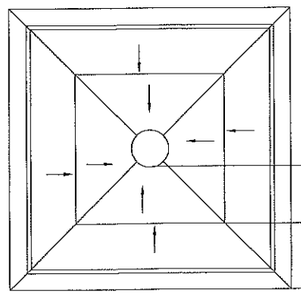
KNOPF & ASSOCIATES
ROOFING CONSULTANTS

TITLE: LAKE WORTH BANDSHELL
LAKE WORTH, FLORIDA

DWG. NAME:	DWG. BY:	REV.
DETAILS	K.KNOPF	
SCALE:	DATE:	SHEET OF
FIELD VERIFY	09-17-15	3 4



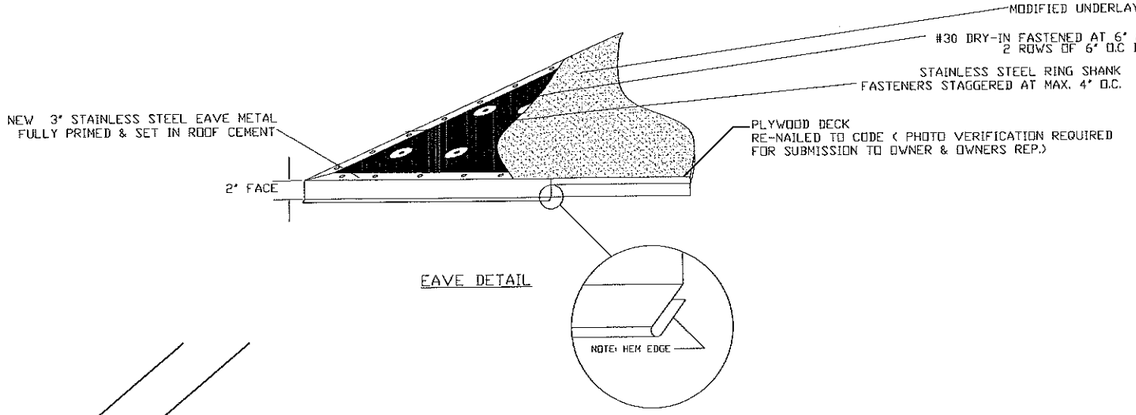
PENETRATION FLASHING



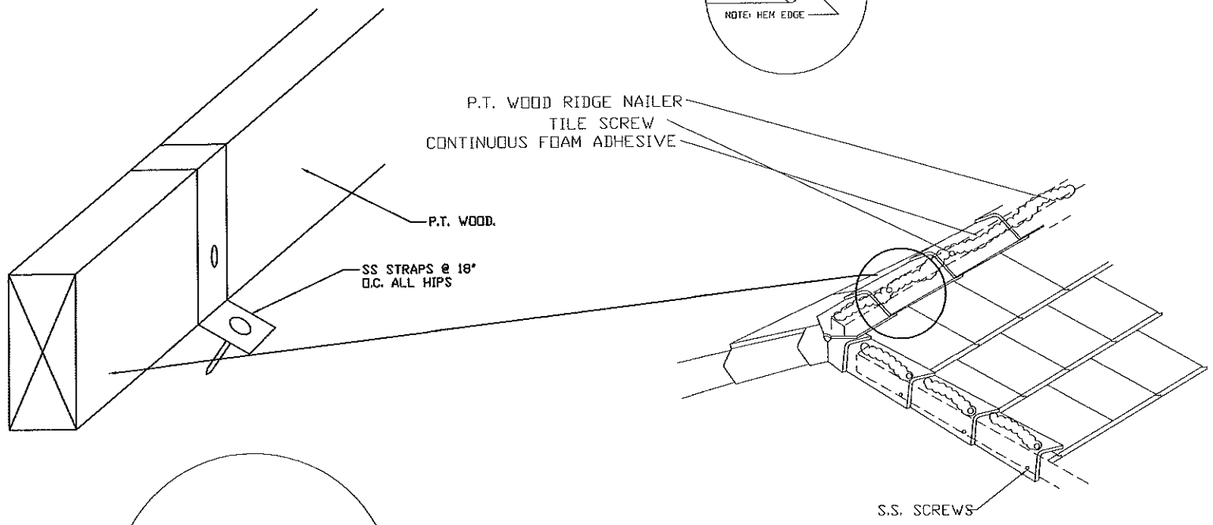
TOTAL SUMP AREA WILL BE
4' MINIMUM

TAPERED EDGE STRIP
(TYP.)

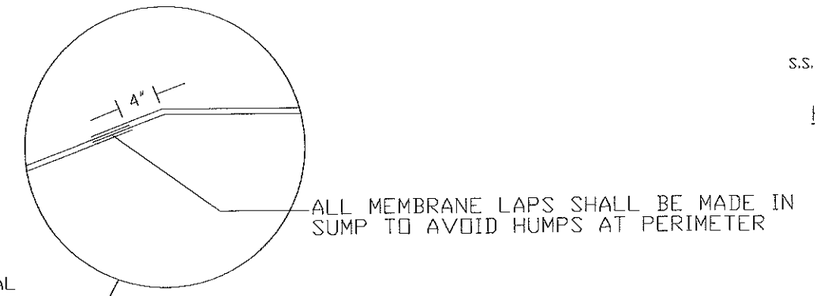
PLAN VIEW TAPERED DRAIN SUMP



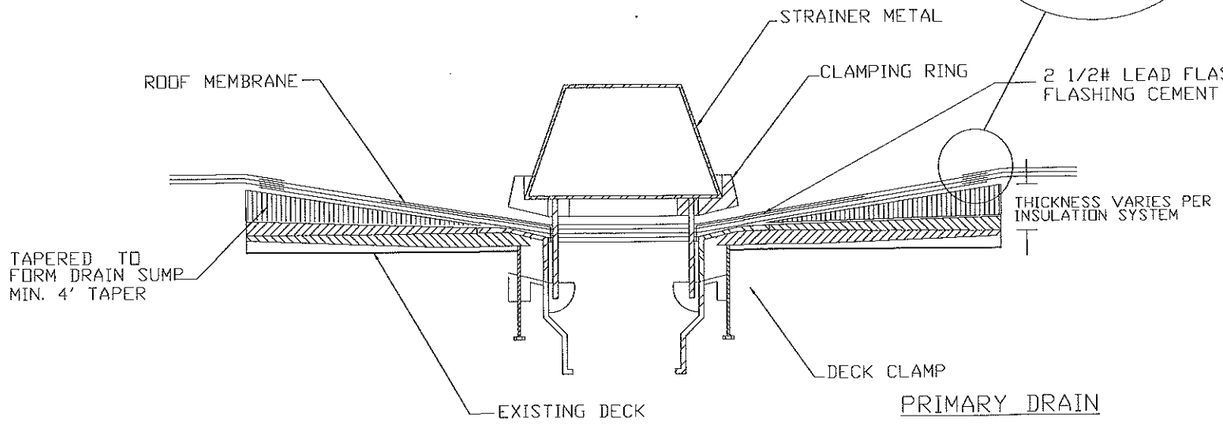
EAVE DETAIL



HIP & RIDGE



ALL MEMBRANE LAPS SHALL BE MADE IN
SUMP TO AVOID HUMPS AT PERIMETER



PRIMARY DRAIN

NOTE:
CONTRACTORS SHALL FIELD
VERIFY ALL DIMENSIONS.

KNOPF & ASSOCIATES

ROOFING CONSULTANTS

TITLE: LAKE WORTH BANDSHELL LAKE WORTH, FLORIDA		
DWG. NAME: DETAILS	DWG. BY: K.KNOPF	REV.
SCALE: FIELD VERIFY	DATE: 09-17-15	SHEET 4 OF 4