

SECTION 07320

CLAY BARREL TILE ROOFING

PART 1 GENERAL

1.01 SUMMARY

A. Related Sections:

1. 02072 - Removals.
2. 07600 - Flashing and Sheet Metal.

1.02 REFERENCES

A. American Society for Testing and Materials (ASTM):

1. C91-95c Specification for Masonry Cement.
2. C144-93 Specification for Aggregate for Masonry Mortar.
3. C150-96 Specification for Portland Cement.
4. C270-96a Specification for Mortar for Unit Masonry.
5. D41-94 Specification for Asphalt Primer Used in Roofing, Dampproofing, and Waterproofing.
6. D249-89(96) Specification for Asphalt Roll Roofing (Organic Felt) Surfaced with Mineral Granules.
7. D312-95a Specification for Asphalt Used In Roofing.
8. D2626-95 Specification for Asphalt-Saturated and Coated Organic Felt Base Sheet Used in Roofing.
9. D4586-93 Specification for Asphalt Roof Cement, Asbestos-Free.

B. National Roofing Contractors Association, latest edition.

C. Sheet Metal and Air Conditioning Contractors' National Association (SMACNA): Architectural Sheet Metal Manual, latest edition.

1.03 SUBMITTALS

- A. Submit copies of manufacturer's published material, handling, and application instructions for barrel tile roofing including mortar and sub-roofing data before starting work.

1.04 QUALITY ASSURANCE

- A. Qualifications of Roofing Applicator: Before starting work,

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submit a list of a minimum of 3 satisfactory roofing installations performed by applicator using materials and methods similar to as specified.

B. Reference Specifications and Codes:

1. Florida Department of Education, Office of Educational Facilities - State Requirements for Educational Facilities - 1999 (SREF).
2. South Florida Building Code - Chapter 34 Roof Covering and Application.
3. Underwriters Laboratories UL 790 and ASTM E108 requirements for Class "A" fire rating for roof coverings.
4. Uplift requirements based on the basic wind velocity pressures for the project according to the most stringent applicable requirements among the following:
 - a. M-DCPS Design Standards.
 - b. SREF.
 - c. American Society of Civil Engineers (ASCE) 7-98.
 - 1) Use ASCE 7-98 Exposure Category "C" for wind design at M-DCPS additions and new construction, except when required by a coastal building zone location to use Exposure Category "D".
 - 2) Use map wind speed of ± 150 mph.
 - 3) Wind load importance factor for educational buildings shall be 1.15.

NOTE TO SPECIFIER: Insert required FM wind uplift classification, in the following paragraph 5, as determined by ASCE 7-98 for "C" or "D" exposure category based on location and with a wind importance factor for educational buildings of 1.15.

5. Factory Mutual requirements for Class I rated assembly and FM 1-_____ uplift classifications as determined by ASCE 7-98.
6. Roofing manufacturer's specifications.

C. Submit tile sample panel demonstrating quality of construction.

1.05 ENVIRONMENTAL REQUIREMENTS

A. Do not apply roofing when precipitation is occurring or when frost, water, or dampness is visible on roof decks.

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- B. Do not apply roofing when ambient temperature is less than 40 degrees F.
- C. Maintain rolls of felt at a temperature of at least 60 degrees F. for not less than 24 hours before laying.

1.06 WARRANTY

- A. Contractor shall furnish the Board a 5 year written warranty, beginning at Substantial Completion, signed by Roofing applicator, covering materials and quality of work for entire "Roofing System", including repair and replacement of flashing and other roofing components deemed faulty or in disrepair by A/E during warranty period. This warranty shall include all other work performed by the contractor described in other sections, including but not limited to, caulking and sealants, sheet metal, insulation, and roofing accessories.
 - 1. Such items deemed faulty or in disrepair shall be repaired at no cost to the Board.
 - 2. No dollar limit on warranty.
 - 3. Single source responsibility.
 - 4. Definition of faulty components or roofing in disrepair includes but is not limited to:
 - a. Defects in the quality of work or materials.
 - b. Leaks of any kind.
- B. Manufacturer shall furnish the Board a 20 year written warranty, beginning at Substantial Completion, signed by manufacturer's authorized representative for repair and replacement period and terms:
 - 1. No dollar limit on warranty.
 - 2. Single source responsibility.
 - 3. Definition of faulty components or roofing in disrepair includes but is not limited to:
 - a. Defects in the quality of work or materials.
 - b. Leaks of any kind.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Clay Barrel Tile Roofing:
 - 1. Gladding McBean, Lincoln, CA.

2. Ludowici Celadon, New Lexington, OH.
3. MCA Clay Roofing Tile, Corona, CA.
4. Mediterranean Clay Corp., Medley, FL.
5. Palm Beach Clay Tile Co., Palm Beach, FL.

2.02 MATERIALS

A. Clay Barrel Tile:

1. Natural clay tile having authentic barrel configuration as accepted by A/E.
2. Colors: As selected by A/E from manufacturer's standards to match existing.

B. Mortar Materials:

1. Portland cement: ASTM C150, Type 1, domestic.
2. Masonry cement: ASTM C91, domestic.
3. Sand: ASTM C144.
4. Water: Portable.

C. Roofing Membrane Materials:

1. Asphalt Primer: ASTM D41.
2. Asphalt ASTM D312, Type III or IV according to code.
3. Asphalt Roof Cement: ASTM D4586.
4. Asphalt #30 Coated Base Sheet Roofing Felt: ASTM D2626, Type 1.
5. Asphalt #90 Mineral Surface Roll Roofing: ASTM D249.
6. Sheathing Paper: Rosin sized sheathing paper.
7. Fastening for Roofing Felt to Concrete Deck Surface: Galvanized concrete nails of length conforming to Fed. Spec. FF-N-105B, Type 11, Style 11.
8. Tin Caps: 1-5/8" diameter, 32 gage.

D. Foam Attachment: According to South Florida Building Code - Chapter 34 Roof Covering and Application.

E. Mortar Mix (used for appearance only):

1. ASTM C270, Type S, 1,800 psi or stronger.
 - a. Mix accurately in following proportions by volume:

TYPE S

- 1 part masonry cement
- 1/2 part Portland cement
- 4 parts sand maximum

PART 3 EXECUTION

3.01 APPLICATION

A. Requirements:

1. Coordinate removal of existing roofing with reroofing work so building interior is not exposed to water damage.
 - a. Provide sufficient crew and overtime work as required to weatherproof each roof deck area worked on before end of each day's work or before rainfall, if rain is imminent.
 - b. Extend roofing plies up abutting vertical surfaces and seal with bituminous cement.
 - c. Seal pipe and conduit penetrations with bituminous plastic cement.
2. Heat Type III or IV asphalt, as required by slope and code, to maximum 450 degrees F. and do not keep heated overnight.
3. Apply asphalt at minimum 350 degrees F.
 - a. Use thermometers to check temperature of asphalt during heating and applications.
 - b. Assign personnel to oversee heating operation at all times to prevent exceeding maximum specified temperatures.
4. Apply roofing felts without wrinkles or buckles while asphalt is hot. Broom, press, or roll felts in.
 - a. Apply asphalt adhered felts in solid mopping so felts do not touch felts, at rate of 25 pounds of asphalt per square.
5. Follow manufacturer's published instructions relating to handling and use of materials except as specified.

B. Application of Roofing Felts over Concrete Decks:

1. Apply rosin paper and base sheet, lapping each sheet over preceding felt, turning up at vertical surfaces as shown on drawings.
 - a. Type and number of plies shall be according to code application and uplift requirements.
 - b. Tin cap nail 12 inches on center both ways.
2. Apply one ply of #90 mineral surfaced felt shingled in over base sheet in solid mopping of hot steep asphalt,

lapping each sheet 2 inches minimum over preceding felt and turning up at vertical surfaces as shown on drawings.

- a. Stagger end laps 12 inches minimum.
- b. Back nail top edge of felt 18 inches on center.

C. Application of Barrel Tile:

1. Sample Panel:

a. Before proceeding with tile work, provide approximately 4 foot by 3 foot sample panel of work for A/E's approval.

- 1) Remainder of work shall have quality of construction that matches approved sample.

2. Mark off roof at 11-1/4" spacing, right to left, after position of first line is determined and horizontal lines to insure proper alignment and consistent headlap.
3. Allowing for overhang, set first line 16 inches from eave and then each line at 15 inches.
4. Tile Head Lap: Not less than 2 inches.
5. Tile Side Laps: Not less than 1-1/2".
6. Do not wet tile before laying.
7. Extend roof tiles beyond roof sheathing at eaves, not less than 3/4" nor more than 2 inches.
8. Lay each pan tile and cover tile with specified foam as required.
9. Miter tile for proper fit at hips and where tile abuts vertical surfaces.
10. Provide cover tile for hips and ridges properly mortared in.
11. Fill opening at eaves ends of tile smoothly with mortar and provide 1/4" diameter weep holes at each tile for adequate drainage.
12. Remove excess mortar from tile while mortar is still moist. Clean smears from exposed surfaces with moist cloth as required.

D. Repair of Existing Concrete Roof Deck:

1. Removal of existing clay barrel tile and roofing membrane may reveal areas of existing concrete deck deteriorated to the point of requiring patching or repair.

a. Patch or repair such areas with matching material

as directed by A/E before proceeding with application of roofing membrane materials.

E. Application of Sheet Metal Work:

1. Provide new sheet metal drip strips to match existing.
 - a. Secure in place over tin capped base sheet and cover by mineral surfaces felt ply.
2. Provide new sanitary vent stack flashings and other penetration flashings, set in place in bituminous plastic cement and secure.
 - a. After mineral surface felt ply is applied, seal around penetration with bituminous plastic cement.

END OF SECTION