



SECTION 07321

CONCRETE ROOF TILE

Display hidden notes to specifier. (Don't know how? [Click Here](#))

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Concrete roof tiles and roof system components.
- B. Metal roof flashing.
- C. Underlayment.
- D. Related roof accessories.

1.2 RELATED SECTIONS

- A. Section 06100 - Rough Carpentry; Roof sheathing and nailers.
- B. Section 07600 - Flashing and Sheet Metal.
- C. Section 07710 - Roof Specialties; Roof gutters and downspouts.
- D. Section 08600 - Skylights.
- E. Division 15 - Mechanical: Mechanical work projecting through roof.
- F. Division 16: - Electrical: Electrical work projecting through roof.

1.3 REFERENCES

- A. IAPMO UES ER-2015 - TRI Concrete and Clay Roof Tile Installation Manual
- B. IAPMO ES Report – 412 for Boral Roofing Concrete Roof Tiles.
- C. Tile Roofing Institute (TRI) - Concrete and Clay Design Criteria for Cold and Snow Regions.
- D. FRSA/TRI Florida High Wind Tile Installation Manual, Revised 5th Edition, 2014.

- E. ICC ESR 1647 (ICC-ES) - International Code Council Evaluation Services.
- F. ICC AC 180 – Acceptance Criteria for Clay and Concrete Roof Tiles.
- G. Florida Building Codes, Product Approval - FL7849, FL601, FL14317, FL7804.
- H. CAN/CSA-A220. Series-06 –Concrete Roof Tiles.
- I. ICC AC 188 for Underlayments.
- J. AC 48 for Underlayments in severe climates.
- K. AC 148 for Wakaflex flashing and ridge venting products.
- L. Leadership in Energy and Environmental Design (LEED).
- M. California Title 24 Energy Efficient Standards.
- N. Cool Roof Rating Council (CRRC).

1.4 DESIGN REQUIREMENTS

- A. Roofing tile materials and installation shall conform to the requirements of ICC ESR 1647.
- B. Roofing tile materials and installation shall conform to the requirements of Miami Dade County Notice of Acceptance (NOA) as follows:
 - 1. NOA 18-0509.15 - Barcelona 900 Concrete Roof Tile
 - 2. NOA 15-0601.07 - Madera Concrete Roof Tile
 - 3. NOA 18-0509.17 - Saxony 900 Concrete Roof Tile
 - 4. NOA 14-0408.06 - Spanish "S" Nuevo Concrete Roof Tile
 - 5. NOA 17-1221.05 - Two Piece Mission Clay
 - 6. NOA 18-0509.16 - Villa 900 Concrete Roof Tile
 - 7. NOA 17-0406.03 - Boral Citadel Plus
 - 8. NOA 18-0502.03 - Boral TileSeal
 - 9. NOA 14-0416.10 - Wakaflex Flashing
 - 10. NOA 16-0112.07 - Bermuda Concrete Flat Roof Tile
 - 11. NOA 18-0829.03 - Estate "S" Tile
 - 12. NOA 14-0416.12 - Galena Spanish "S" Tile
 - 13. NOA 18-0829.02 - Plantation Roof Tile
- C. Roofing tile materials and installation shall conform to the requirements of the State of Florida Product Approvals as follows:
 - 1. FL 7849-R11
 - 2. FL 14317-R10
 - 3. FL 7804-R10
 - 4. FL 601-R13
- D. Roofing tile materials and installation shall conform to the SBCCI Standard for Hurricane Resistant Residential Construction, SSTD10-99, the International Building Code for One and Two Family Dwelling Code and the Florida Building Code 2017.

1.5 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:

1. Preparation instructions and recommendations.
 2. Storage and handling requirements and recommendations.
 3. Installation methods.
- C. Shop Drawings: Indicate metal flashing profiles, joint locations, fastening locations, and installation details. Indicate tile layout with location of cut and special shaped tiles identified.
- D. Selection Samples: For each finish product specified, two complete sets of tile colors representing manufacturer's full range of available colors and patterns.
- E. Verification Samples: For each finish product specified, two full size samples representing actual product, color, and patterns.
- F. Certificates of Compliance: Submit to certify compliance with referenced standards.
- G. LEED Submittals: Provide a roofing system that will achieve or aid in the qualification of points satisfying
1. Sustainable Site credit 7.2 – Heat Island Effect – Roof.
 2. Materials & Resources credit 5 – Local and Regional Materials.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Minimum five years documented experience producing concrete roof tile and member of Tile Roof Institute.
- B. Installer Qualifications: Minimum five years documented experience installing products specified in this section and/or attendance at manufacturer's training course.
- C. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
1. Finish areas designated by Architect.
 2. Mock-up shall be a minimum of a 10 foot (3.05 m) by 10 foot (3.05 m) area and include the edge, ridge, valley and other typical transition conditions anticipated.
 3. Do not proceed with remaining work until installation workmanship and appearance is approved by Architect.
 4. Mock-up may not remain as part of Work.
 5. Accepted mock-up may remain as part of Work.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Deliver products to project site in manufacturer's unopened pallets, labeled with data indicating compliance with specified requirements.
- C. Maintain dry storage area for products of this section until installation of products.

1.8 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.
- B. Do not overload the roof. Distribute stacks of tile uniformly on roof at not greater than 12 inches (305 mm) in height.

1.9 WARRANTY

- A. Roof Tile: Boral Roofing's Limited Lifetime, Fully Transferable, Non-Prorated Product Warranty against defects in roof tile for the life of the structure.
- B. Installation Warranty: Warrants products of this section, as installed, to be in accord with the Contract Documents and free from faults and defects in materials and workmanship for a period of 3 years after completion.

1.10 EXTRA MATERIALS

- A. Provide an additional 1 percent of installed roof tiles, but not less than one full square, for Owner's use in roof maintenance.
- B. Furnish extra materials packaged with protective covering for storage and identified with labels clearly describing contents.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Boral Roofing; 7575 Irvine Center Drive, Suite 100, Irvine, CA 92618-2930. ASD. Tel: (949) 585-8200. Toll Free Tel: 800-571-TILE (8453); Fax: (949) 756-2401. Web: www.boralroof.com.
- B. Manufacturing and Distribution Facility:
 - 1. Arizona Region:
 - a. Phoenix Plant, 1832 S. 51st Avenue, Phoenix, AZ 85043. Tel: 603-269-2288, Toll Free: 800-845-9921.
 - 2. Florida, Southeast, Northeast Regions:
 - a. Pompano Beach Plant, 1369 Hammondville Road, Pompano Beach, FL 33069. Tel: 954-786-5380, Toll Free: 800-818-0974.
 - b. Lake Wales Plant, 200 Story Road, Lake Wales, FL 33853. (P.O. Box 632, Lake Wales, FL 33859-0632), Tel: 863-678-9405, Toll Free: 800-282-3633.
 - c. Okeechobee Plant, 1289 NE 9th Ave, Okeechobee, FL 34972. Tel: 863-467-0042
 - 3. Hawaii Region:
 - a. Lathrop Plant, 342 Roth Road, Lathrop, CA 95330. Tel: 209-983-1600. Tel: 800-669-8453.
 - b. Stockton Plant, 9508 South Harlan, French Camp, CA 95231, Mailing: PO Box 6037, Stockton, CA 95206. Tel: 209-982-1473. Tel: 800-669-8453.
 - 4. Northern California Region:
 - a. Lathrop Plant, 342 Roth Road, Lathrop, CA 95330. Tel: 209-983-1600. Tel: 800-669-8453.
 - b. Stockton Plant, 9508 South Harlan, French Camp, CA 95231, Mailing: PO Box 6037, Stockton, CA 95206. Tel: 209-982-1473. Tel: 800-669-8453.
 - 5. Rocky Mountain and Heartland Regions:
 - a. Denver Plant, 10121 Dallas Street, Henderson, CO 80640. Tel: 303-286-3856.
 - 6. Southern California Region:
 - a. Rialto Plant: 3511 North Riverside Avenue, Rialto, CA 92377. Tel: 909-822-4407. Tel: 800-769-8453.
 - 7. Southern Nevada Region:
 - a. Henderson Plant, 430 Eastgate, Henderson, NV 95020. Tel: 702-564-8453, Toll Free: 800-224-3560.
 - 8. Texas Region:

- a. Katy Plant, 30595 FM 529, Brookside, TX 77434. Tel: 281-371-2634, Toll Free: 866-204-8426.

C. Substitutions: Not permitted.

D. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.2 CONCRETE ROOF TILE – ARIZONA

A. Standard Weight Tile: Mission “S” profile.

1. Finishing Tile: Provide Mansard Trim, Hip Starter and Mansard Apex 3-Way tiles.
2. Size: 16-1/2 inches (419 mm) by 13 inches (330 mm), nominal.
3. Coverage: 90 field tiles per 100 square feet (9.29 sq m) of roof area.
4. Installed weight per square: Approximately 1030 lbs (467 kg).
5. Color: As selected by the Architect.

B. Standard Weight Tile: Boosted Barcelona profile.

1. Size: 13-1/2 inches (343 mm) by 6-1/2 inches (165 mm), nominal.
2. Coverage: 10 percent application, 20 percent application, 30 percent application.
3. Installed weight per square including field tile: 10 percent, 945 lbs (429 kg), 20 percent, 990 lbs (449 kg), 30 percent, 1,050 lbs (476 kg).
4. Color: As selected by the Architect.

C. Standard Weight Tile: Saxony Slate profile.

1. Finishing Tile: Provide 90 degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Apex 3 tiles.
2. Size: 16-1/2 inches (419 mm) by 13 inches (330 mm), nominal.
3. Coverage: 88 field tiles per 100 square feet (9.29 sq m) of roof area.
4. Installed weight per square: Approximately 950 lbs (431 kg).
5. Color: As selected by the Architect.

D. Standard Weight Tile: Saxony Shake profile.

1. Finishing Tile: Provide 90 degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Apex 3 tiles.
2. Size: 16-1/2 inches (419 mm) by 13 inches (330 mm), nominal.
3. Coverage: 88 field tiles per 100 square feet (9.29 sq m) of roof area.
4. Installed weight per square: Approximately 950 lbs (431 kg).
5. Color: As selected by the Architect.

E. Standard Weight Tile: Saxony Country Slate profile.

1. Finishing Tile: Provide 90 degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Apex 3 tiles.
2. Size: 16-1/2 inches (419 mm) by 13 inches (330 mm), nominal.
3. Coverage: 88 field tiles per 100 square feet (9.29 sq m) of roof area.
4. Installed weight per square: Approximately 950 lbs (431 kg).
5. Color: As selected by the Architect.

F. Standard Weight Tile: Madera 900 profile.

1. Finishing Tile: Provide Rake, Hip/Ridge and Tapered Eave Starter tiles.
2. Size: 13-1/2 inches (343 mm) by 13 inches (330 mm), nominal.
3. Coverage: 120 field tiles per 100 square feet (9.29 sq m) of roof area.
4. Installed weight: Approximately 950 lbs (431 kg).
5. Color: As selected by the Architect.

G. Midweight Tile: Madera 700 profile.

1. Finishing Tile: Provide Rake, Hip/Ridge and Tapered Eave Starter tiles.
2. Size: 13-1/2 inches (343 mm) by 13 inches (330 mm), nominal.

3. Coverage: 120 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight: Approximately 720 lbs (327 kg).
 5. Color: As selected by the Architect.
- H. Lightweight Tile: Cedarlite 600 profile.
1. Finishing Tile: Provide Rake, Hip/Ridge and Tapered Eave Starter tiles.
 2. Size: 13-1/2 inches (343 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 120 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight: Approximately 590 lbs (268 kg).
 5. Color: As selected by the Architect.
- I. Lightweight Tile: Duralite Espana 600 profile.
1. Finishing Tile: Provide Capri Trim, Capri Hip Starter and Apex 3-Way tiles.
 2. Size: 17 inches (432 mm) by 12-3/8 inches (314 mm), nominal.
 3. Coverage: 89 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight: Approximately 590 lbs (268 kg).
 5. Color: As selected by the Architect.
- J. Lightweight Tile: Duralite Villa 600 profile.
1. Finishing Tile: Provide Capri Trim, Capri Hip Starter and Apex 3-Way tiles.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 87 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight: Approximately 580 lbs (263 kg).
 5. Color: As selected by the Architect.
- K. Lightweight Tile: Duralite Saxony 600 Shake profile. Finishing Tile: Provide 90 degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Apex 3 tiles.
1. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 2. Coverage: 85 field tiles per 100 square feet (9.29 sq m) of roof area.
 3. Installed weight: Approximately 570 lbs (258 kg).
 4. Color: As selected by the Architect.
- L. Lightweight Tile: Duralite Saxony 600 Split Shake profile.
1. Finishing Tile: Provide 90 degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Apex 3 or 4-Way tiles.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 85 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight: Approximately 570 lbs (258 kg).
 5. Color: As selected by the Architect.
- M. Lightweight Tile: Duralite Saxony 600 Slate profile.
1. Finishing Tile: Provide 90 degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Apex 3 tiles.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 85 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight: Approximately 570 lbs (258 kg).
 5. Color: As selected by the Architect.

2.3 ROOF SYSTEM COMPONENTS – ARIZONA

- A. Underlayment:
1. Boral TileSeal HT Self-Adhering Underlayment.
 2. GatorSeal Granular Heavy Duty Self-Adhering Underlayment
 3. Boral TileSeal 40 Underlayment.
 4. Boral Ply40.

- B. Fasteners: Sized to penetrate deck minimum 3/4 inch (19 mm) or through thickness of deck or batten.
- C. Flashings:
 1. Tile Pan, 26 gauge Galvanized Sheet Steel side wall flashing.
 2. Wakaflex universal flashing for abutments at chimneys, walls and other rising structures.
 3. Terminal Bar metal flashing for chimneys and other roof to wall structures.
 4. Ribbed Valley Metal 1 inch minimum Center Diverter, 26 gauge, Galvanized Sheet Steel.
 5. Plumbing Stacks and Other Pipes Penetrating Roofs.
- D. Adhesive: Code approved adhesive suitable to bond to concrete roof tile.
- E. Eave Closures:
 1. Vented Eave Riser - Metal to match tile profile.
 2. Eave Riser - Metal to match tile profile.
- F. Battens:
 1. Elevated Batten System 1 inch (25 mm) by 2 inches (51 mm) by 8 feet (2.44 m).
 2. Elevated Batten System 1 inch (25 mm) by 3 inches (76 mm) by 8 feet (2.44 m).
 3. Elevated Batten System 1 inch (25 mm) by 2 inches (51 mm) by 4 feet (1.22 m).
 4. FirePro Elevated Batten System 1 inch (25 mm) by 3 inches (76 mm) by 4 feet (1.22 m). Fire Retardant Treated.
 5. FirePro Elevated Batten System 1 inch (25 mm) by 2 inches (51 mm) by 4 feet (1.22 m). Fire Retardant Treated
 6. Batten Extenders 10 inches (254 mm) for use with standard battens at tile pans.
 7. Batten Extenders 18 inches (457 mm) for use with standard battens at valleys.
- G. Hip & Ridge:
 1. Figaroll Plus, ridge vent and weather block for all profiles.
 2. Zephyr Roll: ridge vent and weather block flat tiles, 11 inches by 33 feet (279 mm by 10 M).
 3. Zephyr Roll: ridge vent and weather block, 13.4 inches by 33 feet (340 mm by 10 M). For medium and high profile tiles.
 4. Ridge Riser: Elevates ridge board to proper height. For all profiles. For use with Figaroll Plus or Zephyr Roll.
- H. Ridge, Rake & Gable End Tiles:
 1. Choose to match tile profile and color.
- I. Field Venting: Select to match profile of concrete roof tile.

2.4 CONCRETE ROOF TILE – FLORIDA, SOUTHEAST, NORTHEAST

- A. Standard Weight Tile: Barcelona 900 profile.
 1. Finishing Tile: Provide Capri Trim, Hip Starter and Capri Apex 3-Way tiles.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 85 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight per square: Approximately 950 lbs (431 kg).
 5. Color: As selected by the Architect.
- B. Standard Weight Tile: Boosted Barcelona profile.
 1. Size: 13-1/2 inches (343 mm) by 6-1/2 inches (165 mm), nominal.
 2. Coverage: 10 percent application, 20 percent application, 30 percent application.

3. Installed weight per square including field tile: 10 percent, 945 lbs (429 kg), 20 percent 990 lbs (449 kg), 30 percent, 1,050 lbs (476 kg).
 4. Color: As selected by the Architect.
- C. Standard Weight Tile: Villa 900 profile.
1. Finishing Tile: Provide Rake, Ridge, Capri Trim, Hip Starter and Capri Apex 3-Way.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 85 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight per square: Approximately 920 lbs (418 kg).
 5. Color: As selected by the Architect.
- D. Standard Weight Tile: Saxony 900 Slate profile.
1. Finishing Tile: Provide 90 degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Apex 3 or 4 Way tiles.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 85 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight per square: Approximately 950 lbs (432 kg).
 5. Color: As selected by the Architect.
- E. Standard Weight Tile: Saxony 900 Shake profile.
1. Finishing Tile: Provide 90 degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Apex 3 or 4 Way tiles.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 85 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight per square: Approximately 950 lbs (432 kg).
 5. Color: As selected by the Architect.
- F. Standard Weight Tile: Saxony 900 Split Shake profile.
1. Finishing Tile: Provide 90 degree Rake, 3 Sided Ridge, 3 Sided Hip Starter and Apex 3 or 4 Way tiles.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 85 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight per square: Approximately 950 lbs (432 kg).
 5. Color: As selected by the Architect.
- G. Standard Weight Tile: Boral Roofing's Madera 900 profile.
1. Finishing Tile: Provide Rake, V Ridge and Tapered Eave Starter tiles.
 2. Size: 13-1/2 inches (343 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 120 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight: Approximately 950 lbs (432 kg).
 5. Color: As selected by the Architect.
- 2.5 CONCRETE ROOF TILE – FLORIDA, SOUTHEAST, NORTHEAST (Okeechobee)
- A. Standard Weight Tile: Galena Spanish profile.
1. Finishing Tile: Provide Barrel, Rake Trim tiles.
 2. Size: 17 inches (432 mm) by 10 inches (254 mm), nominal.
 3. Coverage: 111 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight per square: Approximately 877 lbs. (398 kg).
 5. Color: As selected by the Architect.
- B. Standard Weight Tile: Plantation profile.
1. Finishing Tile: Provide V-Ridge, Rake tiles.
 2. Size: 16-1/2 inches (419 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 91 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight per square: Approximately 974 lbs. (442 kg).
 5. Color: As selected by the Architect.

- C. Standard Weight Tile: Estate "S" profile.
 - 1. Finishing Tile: Provide Barrel and Rake trim.
 - 2. Size: 16-1/2 inches (419 mm) by 13 inches (330 mm), nominal.
 - 3. Coverage: 91 field tiles per 100 square feet (9.29 sq m) of roof area.
 - 4. Installed weight per square including field tile: 828 lbs. (376 kg).
 - 5. Color: As selected by the Architect.

- D. Standard Weight Tile: Bermuda profile.
 - 1. Finishing Tile: Provide V-Ridge, Rake and Thick Butt tile.
 - 2. Size: 16 inches (406 mm) by 10 inches (254 mm), nominal.
 - 3. Coverage: 123 field tiles per 100 square feet (9.29 sq m) of roof area.
 - 4. Installed weight per square: Approximately 1255 lbs. (569 kg).
 - 5. Color: As selected by the Architect.

- E. Standard Weight Tile: Saxony 900 Series profiles.
 - 1. Finishing Tile: Provide 90-degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Apex 3 or 4 Way tiles.
 - 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 - 3. Coverage: 85 field tiles per 100 square feet (9.29 sq m) of roof area.
 - 4. Installed weight per square: Approximately 950 lbs. (432 kg).
 - 5. Color: As selected by the Architect.

2.6 ROOF SYSTEM COMPONENTS – FLORIDA, SOUTHEAST, NORTHEAST

- A. Underlayment:
 - 1. Boral TileSeal HT Self-Adhering Underlayment.
 - 2. Citadel Plus Base Sheet.

- B. Fasteners: Sized to penetrate deck minimum 3/4 inch (19 mm) or through thickness of deck or batten.
 - 1. Quik Drive Screws, Roofing Specific.

- C. Wind Clips:
 - 1. Zip-Clip Adjustable Tile Clip.

- D. Flashings:
 - 1. Ribbed Tile Pan, 26 gauge Galvanized Sheet Steel sidewall flashing.
 - 2. Wakaflex universal flashing for abutments at chimneys, walls and other rising structures.
 - 3. Terminal Bar metal flashing for chimneys and other roof to wall structures.
 - 4. Ribbed Valley Metal 1 inch Center Diverter, 26 gauge, Galvanized Sheet Steel.
 - 5. Plumbing Stacks and Other Pipes Penetrating.

- E. Adhesive: Code approved adhesive suitable to bond to concrete roof tile.

- F. Eave Closures: Provide to match tile profile.
 - 1. Vented Eave Riser - Metal.
 - 2. Eave Riser - Metal.

- G. Battens:
 - 1. Elevated Batten System 1 inch (25 mm) by 2 inches (51 mm) by 8 feet (2.44 m).

- H. Hip & Ridge:
 - 1. Figaroll Plus, ridge vent and weather block for all profiles.

2. Zephyr Roll: ridge vent and weather block flat tiles, 11 inches by 33 feet (279 mm by 10 M).
 3. Zephyr Roll: ridge vent and weather block, 13.4 inches by 33 feet (340 mm by 10 M). For medium and high profile tiles.
 4. Ridge Riser: Elevates ridge board to proper height. For all profiles. For use with Figaroll Plus or Zephyr Roll.
 5. Trim Lock Hip & Ridge Metal. Choose size to match tile profile.
- I. Ridge, Rake & Gable End Tiles:
1. Choose to match tile profile and color.
- J. Field Venting
1. Select to match profile of concrete roof tile.
- 2.7 CONCRETE ROOF TILE – HAWAII
- A. Standard Weight Tile: Barcelona 900 profile.
1. Finishing Tile: Provide Capri Trim, Hip Starter and Capri Apex 3-Way tiles as needed.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 85 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Approximately 930 lbs (422 kg).
 5. Color: As selected by the Architect.
- B. Standard Weight Tile: Villa 900 profile.
1. Finishing Tile: Provide Capri Trim, Hip Starter and Capri Apex 3-Way tiles as needed.
 2. Size: 16-1/2 inches (419 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 90 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight per square: Approximately 900 lbs (409 kg).
 5. Color: As selected by the Architect.
- C. Standard Weight Tile: Saxony 900 Slate profile.
1. Finishing Tile: Provide 90 degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Apex 3 tiles as needed.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 85 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight per square: Approximately 910 lbs (413 kg).
 5. Color: As selected by the Architect.
- D. Standard Weight Tile: Saxony 900 Hartford Slate profile.
1. Finishing Tile: Provide 90 degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Apex 3 tiles as needed.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 85 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight per square: Approximately 910 lbs (413 kg).
 5. Color: As selected by the Architect.
- E. Standard Weight Tile: Saxony 900 Shake profile.
1. Finishing Tile: Provide 90 degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Apex 3 tiles as needed.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 85 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight per square: Approximately 910 lbs (413 kg).
 5. Color: As selected by the Architect.
- F. Standard Weight Tile: Madera 900 profile.
1. Finishing Tile: Provide Rake, V Ridge and Tapered Eave Starter tiles as needed.
 2. Size: 13-1/2 inches (343 mm) by 13 inches (330 mm), nominal.

3. Coverage: 120 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight: Approximately 950 lbs (432 kg).
 5. Color: As selected by the Architect.
- G. Lightweight Tile: Cedarlite 600 profile.
1. Finishing Tile: Provide Rake, V Ridge and Tapered Eave Starter tiles as needed.
 2. Size: 13-1/2 inches (343 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 120 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight: Approximately 590 lbs (268 kg).
 5. Color: As selected by the Architect.
- H. Lightweight Tile: Duralite Espana 600 profile.
1. Finishing Tile: Provide Capri Trim, Capri Hip Starter and Apex 3-Way tiles as needed.
 2. Size: 17 inches (432 mm) by 12-3/8 inches (314 mm), nominal.
 3. Coverage: 89 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight: Approximately 590 lbs (268 kg).
 5. Color: As selected by the Architect.
- I. Lightweight Tile: Duralite Villa profile.
1. Finishing Tile: Provide 600 Capri Trim, Hip Starter Capri and Apex 3-Way tiles as needed.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 87 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight: Approximately 600 lbs (272 kg).
 5. Color: As selected by the Architect.
- J. Lightweight Tile: Duralite Saxony 600 Shake profile.
1. Finishing Tile: Provide 90 degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Apex 3y tiles as needed.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 85 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight: Approximately 570 lbs (258 kg).
 5. Color: As selected by the Architect.
- K. Lightweight Tile: Duralite Saxony 600 Split Shake profile.
1. Finishing Tile: Provide 90 degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Apex 3 tiles as needed.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 85 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight: Approximately 579 lbs (263 kg).
 5. Color: As selected by the Architect.
- L. Lightweight Tile: Duralite Saxony 600 Slate profile.
1. Finishing Tile: Provide 90 degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Apex 3 tiles as needed.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 85 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight: Approximately 570 lbs (259 kg).
 5. Color: As selected by the Architect.
- M. Midweight Tile: Duralite Saxony 700 Shake profile.
1. Finishing Tile: Provide 90 degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Apex 3 tiles as needed.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 85 field tiles per 100 square feet (9.29 sq m) of roof area.

4. Installed weight: Approximately 720 lbs (327 kg).
 5. Color: As selected by the Architect.
- N. Midweight Tile: Duralite Saxony 700 Split Shake profile.
1. Finishing Tile: Provide 90 degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Apex 3 tiles as needed.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 85 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight: Approximately 720 lbs (327 kg).
 5. Color: As selected by the Architect.
- O. Midweight Tile: Duralite Saxony 700 Slate profile.
1. Finishing Tile: Provide 90 degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Apex 3 tiles as needed.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 85 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight: Approximately 720 lbs (327 kg).
 5. Color: As selected by the Architect.

2.8 ROOF SYSTEM COMPONENTS – HAWAII

- A. Underlayment:
1. Boral TileSeal HT Self-Adhering Underlayment.
- B. Fasteners: Sized to penetrate deck minimum 3/4 inch (19 mm) or through thickness of deck or batten.
- C. Wind Clips:
1. Zip-Clip, Adjustable Tile Clip.
 2. Wind Clips, stainless steel.
- D. Flashings:
1. Ribbed Tile Pan, 26 gauge Galvanized Sheet Steel side wall flashing.
 2. Wakaflex universal flashing for abutments at chimneys, walls and other rising structures.
 3. Terminal Bar metal flashing for chimneys and other roof to wall structures.
 4. Ribbed Valley Metal 1 inch Center Diverter, 26 gauge, Galvanized Sheet Steel.
 5. Plumbing Stacks and Other Pipes Penetrating Roof: Wakaflex Pipe Flashing.
- E. Adhesive: Code approved adhesive suitable to bond to concrete roof tile.
- F. Eave Closures: Provide to match tile profile.
1. Vented Eave Riser - Metal.
 2. Eave Riser - Metal.
- G. Battens:
1. Elevated Batten System
 - a. Nominal 1 inch (25 mm) by 2 inches (51 mm) by 4 feet (1.22 m). Pressure Treated.
 - b. Nominal 1 inch (25 mm) by 3 inches (76.2 mm). Pressure Treated.
- H. Hip & Ridge
1. Figaroll Plus, ridge vent and weather block for all profiles.
 2. Zephyr Roll: ridge vent and weather block flat tiles, 11 inches by 33 feet (279 mm by 10 M).

3. Zephyr Roll: ridge vent and weather block, 13.4 inches by 33 feet (340 mm by 10 M). For medium and high profile tiles.
 4. Ridge Riser: Elevates ridge board to proper height. For all profiles. For use with Figaroll Plus or Zephyr Roll.
 5. Trim Lock Hip & Ridge Metal. Choose size to match tile profile.
- I. Ridge, Rake & Gable End
1. Choose to match tile profile and color.
- J. Field Venting
1. Select to match profile of concrete roof tile.

2.9 CONCRETE ROOF TILE – NORTHERN CALIFORNIA

- A. Standard Weight Tile: Barcelona 900 profile.
1. Finishing Tile: Provide Capri Trim, Hip Starter and Capri Apex 3-Way tiles.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 85 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight per square: Approximately 930 lbs (422 kg).
 5. Color: As selected by the Architect.
- B. Standard Weight Tile: Boosted Barcelona profile.
1. Size: 13-1/2 inches (343 mm) by 7 inches (178 mm), nominal.
 2. Coverage: 10 percent application, 20 percent application, 30 percent application.
 3. Installed weight per square including field tile: 10 percent application, 945 lbs (429 kg), 20 percent application, 990 lbs (449 kg), 30 percent application, 1,050 lbs (476 kg).
 4. Color: As selected by the Architect.
- C. Standard Weight Tile: Villa 900 profile.
1. Finishing Tile: Provide Capri Trim, Hip Starter and Capri Apex 3-Way tiles.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 87 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight per square: Approximately 930 lbs (423 kg).
 5. Color: As selected by the Architect.
- D. Standard Weight Tile: Saxony 900 Hartford Slate profile.
1. Finishing Tile: Provide manufacturer's 90 degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Apex 3 tiles.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 85 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight per square: Approximately 910 lbs (414 kg).
 5. Color: Natural Marble, Classics Finish.
- E. Standard Weight Tile: Saxony 900 Slate profile.
1. Finishing Tile: Provide manufacturer's 90 degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Apex 3 tiles.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 85 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight per square: Approximately 910 lbs (414 kg).
 5. Color: Natural Marble, Classics Finish.
- F. Standard Weight Tile: Saxony 900 Shake profile).
1. Finishing Tile: Provide 90 degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Apex 3 tiles.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.

3. Coverage: 85 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight per square: Approximately 910 lbs (414 kg).
 5. Color: As selected by the Architect.
- G. Standard Weight Tile: Saxony 900 Split Old English Thatch profile.
1. Finishing Tile: Provide 90 degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Apex 3 tiles.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 91 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight per square: Approximately 980 lbs (445 kg).
 5. Color: As selected by the Architect.
- H. Standard Weight Tile: Madera 900 profile.
1. Finishing Tile: Provide Rake, V Ridge and Tapered Eave Starter tiles.
 2. Size: 13-1/2 inches (343 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 120 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight: Approximately 950 lbs (431 kg).
 5. Color: As selected by the Architect.
- I. Lightweight Tile: Cedarlite 600 profile.
1. Finishing Tile: Provide Rake, V Ridge and Tapered Eave Starter tiles.
 2. Size: 13-1/2 inches (343 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 120 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight: Approximately 590 lbs (268 kg).
 5. Color: As selected by the Architect.
- J. Lightweight Tile: Duralite Espana 600 profile.
1. Finishing Tile: Provide Capri Trim, Hip Starter Capri and Apex 3-Way tiles.
 2. Size: 17 inches (432 mm) by 12-3/8 inches (314 mm), nominal.
 3. Coverage: 89 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight: Approximately 590 lbs (268 kg).
 5. Color: As selected by the Architect.
- K. Lightweight Tile: Duralite 600 Villa profile.
1. Finishing Tile: Provide Capri Trim, Hip Starter Capri and Apex 3-Way tiles.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 87 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight: Approximately 600 lbs (272 kg).
 5. Color: As selected by the Architect.
- L. Lightweight Tile: Duralite Saxony 600 Shake profile.
1. Finishing Tile: Provide 90 degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Apex 3 tiles.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 85 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight: Approximately 570 lbs (259 kg).
 5. Color: As selected by the Architect.
- M. Lightweight Tile: Duralite Saxony 600 Split Shake profile.
1. Finishing Tile: Provide 90 degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Apex 3 tiles.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 85 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight: Approximately 570 lbs (259 kg).
 5. Color: As selected by the Architect.

- N. Lightweight Tile: Duralite Saxony 600 Slate profile.
 1. Finishing Tile: Provide 90 degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Apex 3 or 4-Way tiles as needed.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 85 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight: Approximately 570 lbs (259 kg).
 5. Color: As selected by the Architect.

- O. Midweight Tile: Duralite Saxony 700 Shake profile.
 1. Finishing Tile: Provide 90 degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Apex 3 tiles.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 85 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight: Approximately 720 lbs (327 kg).
 5. Color: As selected by the Architect.

- P. Midweight Tile: Duralite Saxony 700 Split Shake profile.
 1. Finishing Tile: Provide 90 degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 2. Coverage: 85 field tiles per 100 square feet (9.29 sq m) of roof area.
 3. Installed weight: Approximately 720 lbs (327 kg).
 4. Color: As selected by the Architect.

- Q. Midweight Tile: Duralite Saxony 700 Slate profile.
 1. Finishing Tile: Provide 90 degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Apex 3 tiles.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 85 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight: Approximately 720 lbs (327 kg).
 5. Color: As selected by the Architect.

2.10 ROOF SYSTEM COMPONENTS – NORTHERN CALIFORNIA

- A. Underlayment:
 1. Boral TileSeal HT Self-Adhering Underlayment.
 2. GatorSeal Granular Heavy Duty Self-Adhering Underlayment
 3. Boral TileSeal 40 Underlayment.
 4. Boral Ply40.

- B. Fasteners: Sized to penetrate deck minimum 3/4 inch (19 mm) or through thickness of deck or batten.
 1. Quik Drive Screws, Roofing Specific.

- C. Wind Clips:
 1. Zip-Clip, Adjustable Tile Clip.

- D. Flashings:
 1. Ribbed Tile Pan, 26 gauge Galvanized Sheet Steel side wall flashing.
 2. Wakaflex universal flashing for abutments at chimneys, walls and other rising structures.
 3. Terminal Bar metal flashing for chimneys and other roof to wall structures.
 4. Ribbed Valley Metal 1 inch Center Diverter, 26 gauge, Galvanized Sheet Steel.
 5. Plumbing Stacks and Other Pipes Penetrating Roof: Wakaflex Pipe Flashing.

- E. Adhesive: Code approved adhesive suitable to bond to concrete roof tile.

- F. Eave Closures:
1. Vented Eave Riser - Metal.
 2. Eave Riser - Metal.
 3. Eave Closure "T" - Metal.
- G. Battens:
1. Elevated Batten System 1 inch (25 mm) by 3 inches (76 mm) by 8 feet (2.44 m). Pressure treated.
 2. Elevated Batten System 1 inch (25 mm) by 3 inches (76 mm) by 8 feet (2.44 m).
 3. Elevated Batten System 1 inch (25 mm) by 2 inches (51 mm) by 8 feet (2.44 m).
 4. Elevated Batten System 1 inch (25 mm) by 3 inches (76 mm) by 4 feet (1.22 m).
 5. Elevated Batten System 1 inch (25 mm) by 2 inches (51 mm) by 4 feet (1.22 m).
 6. FirePro Elevated Batten System 1 inch (25 mm) by 3 inches (76 mm) by 4 feet (1.22 m). Fire Retardant Treated.
 7. FirePro Elevated Batten System 1 inch (25 mm) by 2 inches (51 mm) by 4 feet (1.22 m). Fire Retardant Treated
 8. Batten Extenders 18 inches (457 mm) for use with standard battens.
 9. Batten Extenders 10 inches (254 mm) for use with standard battens.
- H. Hip and Ridge:
1. Figaroll Plus: Ridge vent and weather block, for all profiles.
 2. Zephyr Roll: Ridge vent and weather block, 11 inches by 33 feet (279 by 10 m). For flat tiles.
 3. Zephyr Roll: Ridge vent and weather block, 13.4 inches by 33 feet (340 by 10 m). For medium and high profile tiles.
 4. Ridge Riser: Elevates ridge board to proper height. For all profiles. For use with Figaroll Plus or Zephyr Roll.
- I. Ridge, Rake and Gable End Tiles:
1. Choose to match tile profile and color.
 2. Metal Rake Trim.
 3. Gable End Rubber Wedges.
- J. Field Venting: Select to match profile of concrete roof tile.

2.11 CONCRETE ROOF TILE – ROCKY MOUNTAIN, HEARTLAND

- A. Standard Weight Tile: Barcelona 900 profile.
1. Finishing Tile: Provide Capri Trim, Hip Starter and Capri Apex 3-Way tiles.
 2. Size: 17 inches (432 mm) by 12-3/8 inches (314 mm), nominal.
 3. Coverage: 89 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight per square: Approximately 900 lbs (408 kg).
 5. Color: As selected by the Architect.
- B. Standard Weight Tile: Boosted Barcelona 900 profile.
1. Size: 13-1/2 inches (343 mm) by 6-1/2 inches (165 mm), nominal.
 2. Coverage: 10 percent application, 20 percent application, 30 percent application.
 3. Installed weight per square including field tile: 10 percent application, 945 lbs (429 kg), 20 percent application, 990 lbs (449 kg), 30 percent application, 1,050 lbs (476 kg).
 4. Color: As selected by the Architect.
- C. Standard Weight Tile: Villa 900 profile.
1. Finishing Tile: Provide Capri Trim, Hip Starter and Capri Apex 3-Way tiles.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 87 field tiles per 100 square feet (9.29 sq m) of roof area.

4. Installed weight per square: Approximately 900 lbs (408 kg).
 5. Color: As selected by the Architect.
- D. Standard Weight Tile: Saxony Slate profile.
1. Finishing Tile: Provide 90 degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Apex 3 tiles.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 85 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight per square: Approximately 960 lbs (436 kg).
 5. Color: As selected by the Architect.
- E. Standard Weight Tile: Saxony Slate Impact profile.
1. Finishing Tile: Provide 90 degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Apex 3 tiles.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 85 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight per square: Approximately 1000 lbs (454 kg).
 5. Color: As selected by the Architect.
- F. Standard Weight Tile: Saxony Shake profile.
1. Finishing Tile: Provide 90 degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Apex 3 tiles.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 85 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight per square: Approximately 960 lbs (435 kg).
 5. Color: As selected by the Architect.
- G. Standard Weight Tile: Saxony Split Old English Thatch profile.
1. Finishing Tile: Provide Ridge Angled, Rake Angled, and Hip Starter Angled tiles.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 88 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight per square: Approximately 960 lbs (435 kg).
 5. Color: As selected by the Architect.
- H. Standard Weight Tile: Madera 900 profile.
1. Finishing Tile: Provide Rake, V Ridge and Tapered Eave Starter tiles.
 2. Size: 13-1/2 inches (343 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 120 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight: Approximately 950 lbs (431 kg).
 5. Color: As selected by the Architect.

2.12 ROOF SYSTEM COMPONENTS - ROCKY MOUNTAIN, HEARTLAND

- A. Underlayment:
1. Boral TileSeal HT Self-Adhering Underlayment.
 2. Boral Ply 40 Underlayment.
- B. Fasteners: Sized to penetrate deck minimum 3/4 inch (19 mm) or through thickness of deck or batten.
- C. Wind Clips:
1. Zip-Clip, Adjustable Tile Clip.
 2. Wind Clips, galvanized.
- D. Flashings:
1. Ribbed Tile Pan, 26 gauge Galvanized Sheet Steel side wall flashing.

2. Wakaflex universal flashing for abutments at chimneys, walls and other rising structures.
 3. Terminal Bar metal flashing for chimneys and other roof to wall structures.
 4. Ribbed Valley Metal 1 inch Center Diverter, 26 gauge, Galvanized Sheet Steel.
 5. Plumbing Stacks and Other Pipes Penetrating Roof: Wakaflex Pipe Flashing.
- E. Adhesive: Code approved adhesive suitable to bond to concrete roof tile.
- F. Eave Closures:
1. Vented Eave Riser - Metal.
 2. Eave Riser - Metal.
- G. Battens:
1. Elevated Batten System 1 inch (25 mm) by 2 inches (51 mm) by 8 feet (2.44 m).
 2. Elevated Batten System 1 inch (25 mm) by 3 inches (76 mm) by 8 feet (2.44 m).
 3. Elevated Batten System 1 inch (25 mm) by 2 inches (51 mm) by 4 feet (1.22 m).
 4. FirePro Elevated Batten System 1 inch (25 mm) by 3 inches (76 mm) by 4 feet (1.22 m). Fire Retardant Treated.
 5. FirePro Elevated Batten System 1 inch (25 mm) by 2 inches (51 mm) by 4 feet (1.22 m). Fire Retardant Treated
 6. Batten Extenders 10 inches (254 mm) for use with standard battens at tile pans.
 7. Batten Extenders 18 inches (457 mm) for use with standard battens at valleys.
- H. Hip and Ridge:
1. Figaroll Plus, ridge vent and weather block for all profiles.
 2. Zephyr Roll: ridge vent and weather block flat tiles, 11 inches by 33 feet (279 mm by 10 M).
 3. Zephyr Roll: ridge vent and weather block, 13.4 inches by 33 feet (340 mm by 10 M). For medium and high profile tiles.
 4. Ridge Riser: Elevates ridge board to proper height. For all profiles. For use with Figaroll Plus or Zephyr Roll
- I. Ridge, Rake and Gable End Tiles:
1. Choose to match tile profile and color.
- J. Field Venting: Select to match profile of concrete roof tile.

2.13 CONCRETE ROOF TILE – SOUTHERN CALIFORNIA

- A. Standard Weight Tile: Barcelona 900 profile.
1. Finishing Tile: Provide Capri Trim, Hip Starter and Capri Apex 3 tiles.
 2. Size: 17 inches (432 mm) by 12-3/8 inches (314 mm), nominal.
 3. Coverage: 89 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight per square: Approximately 900 lbs (408 kg).
 5. Color: As selected by the Architect.
- B. Standard Weight Tile: Boosted Barcelona 900 profile.
1. Size: 13-1/2 inches (343 mm) by 6-1/2 inches (165 mm), nominal.
 2. Coverage: 10 percent application, 20 percent application, 30 percent application.
 3. Installed weight per square including field tile: 10 percent application, 945 lbs (429 kg), 20 percent application, 990 lbs (449 kg), 30 percent application, 1,050 lbs (476 kg).
 4. Color: As selected by the Architect.
- C. Standard Weight Tile: Villa 900 profile.
1. Finishing Tile: Provide Capri Trim, Hip Starter and Capri Apex 3 tiles.

2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 87 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight per square: Approximately 900 lbs (408 kg).
 5. Color: As selected by the Architect.
- D. Standard Weight Tile: Saxony 900 Slate profile.
1. Finishing Tile: Provide 90 degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Apex 3 tiles.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 85 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight per square: Approximately 930 lbs (422 kg).
 5. Color: As selected by the Architect.
- E. Standard Weight Tile: Saxony 900 Hartford Slate profile.
1. Finishing Tile: Provide 90 degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Apex 3 tiles.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 85 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight per square: Approximately 930 lbs (422 kg).
 5. Color: As selected by the Architect.
- F. Standard Weight Tile: Saxony 900 Country Slate profile.
1. Finishing Tile: Provide 90 degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Apex 3 or 4-Way tiles.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 85 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight per square: Approximately 930 lbs (422 kg).
 5. Color: As selected by the Architect.
- G. Standard Weight Tile: Saxony 900 Split Old English Thatch profile.
1. Finishing Tile: Provide 90 degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Apex 3 tiles.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 85 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight per square: Approximately 930 lbs (422 kg).
 5. Color: As selected by the Architect.
- H. Standard Weight Tile: Saxony 900 Shake profile.
1. Finishing Tile: Provide 90 degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Apex 3 tiles.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 85 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight per square: Approximately 930 lbs (422 kg).
 5. Color: As selected by the Architect.
- I. Standard Weight Tile: Madera 900 profile.
1. Finishing Tile: Provide Rake, V Ridge and Tapered Eave Starter tiles.
 2. Size: 13-1/2 inches (343 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 120 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight: Approximately 950 lbs (431 kg).
 5. Color: As selected by the Architect.
- J. Lightweight Tile: Cedarlite 600 profile.
1. Finishing Tile: Provide Rake, V Ridge and Tapered Eave Starter tiles.
 2. Size: 13-1/2 inches (343 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 120 field tiles per 100 square feet (9.29 sq m) of roof area.

4. Installed weight: Approximately 590 lbs (268 kg).
 5. Color: As selected by the Architect.
- K. Lightweight Tile: Duralite Espana 600 profile.
1. Finishing Tile: Provide Capri Trim, Hip Starter Capri and Apex 3-Way tiles.
 2. Size: 17 inches (432 mm) by 12-3/8 inches (314 mm), nominal.
 3. Coverage: 89 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight: Approximately 590 lbs (268 kg).
 5. Color: As selected by the Architect.
- L. Lightweight Tile: Duralite Villa 600 profile.
1. Finishing Tile: Provide Capri Trim, Hip Starter Capri and Apex 3-Way tiles.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 87 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight: Approximately 580 lbs (263 kg).
 5. Color: As selected by the Architect.
- M. Lightweight Tile: Duralite Saxony 600 Shake profile.
1. Finishing Tile: Provide 90 degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Apex 3 tiles.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 85 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight: Approximately 570 lbs (259 kg).
 5. Color: As selected by the Architect.
- N. Lightweight Tile: Duralite Saxony 600 Split Shake profile.
1. Finishing Tile: Provide 90 degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Apex 3 tiles.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 85 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight: Approximately 570 lbs (259 kg).
 5. Color: As selected by the Architect.
- O. Lightweight Tile: Duralite Saxony 600 Slate profile.
1. Finishing Tile: Provide 90 degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Apex 3 tiles.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 85 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight: Approximately 570 lbs (259 kg).
 5. Color: As selected by the Architect.
- P. Lightweight Tile: Duralite Saxony 700 Shake profile.
1. Finishing Tile: Provide 90 degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Apex 3 tiles.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 85 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight: Approximately 720 lbs (327 kg).
 5. Color: As selected by the Architect.
- Q. Lightweight Tile: Duralite Saxony 700 Split Shake profile.
1. Finishing Tile: Provide 90 degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Apex 3 tiles.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 85 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight: Approximately 720 lbs (327 kg).
 5. Color: As selected by the Architect.

- R. Lightweight Tile: Duralite Saxony 700 Slate profile.
1. Finishing Tile: Provide 90 degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Apex 3 tiles.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 85 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight: Approximately 720 lbs (327 kg).
 5. Color: As selected by the Architect.

2.14 ROOF SYSTEM COMPONENTS - SOUTHERN CALIFORNIA

- A. Underlayment:
1. Boral TileSeal HT Self-Adhering Underlayment.
 2. Boral TileSeal 50 HT Self-Adhering Underlayment.
 3. Boral Ply 40 Underlayment.
- B. Fasteners: Sized to penetrate deck minimum 3/4 inch (19 mm) or through thickness of deck or batten.
1. Quik Drive Screws, Roofing Specific.
- C. Wind Clips:
1. Zip-Clip, Adjustable Tile Clip.
- D. Flashings:
1. Ribbed Tile Pan, 26 gauge Galvanized Sheet Steel side wall flashing.
 2. Wakaflex universal flashing for abutments at chimneys, walls and other rising structures.
 3. Terminal Bar metal flashing for chimneys and other roof to wall structures.
 4. Ribbed Valley Metal 1 inch Center Diverter, 26 gauge, Galvanized Sheet Steel.
 5. Plumbing Stacks and Other Pipes Penetrating Roof: Wakaflex Pipe Flashing.
- E. Adhesive: Code approved adhesive suitable to bond to concrete roof tile.
- F. Eave Closures: Provide to match tile profile.
1. Vented Eave Riser - Metal.
 2. Eave Riser - Metal.
 3. Eave Closure "T" - Metal.
- G. Battens:
1. Elevated Batten System 1 inch (25 mm) by 3 inches (76 mm) by 8 feet (2.44 m) pressure treated.
 2. Elevated Batten System 1 inch (25 mm) by 3 inches (76 mm) by 8 feet (2.44 m).
 3. Elevated Batten System 1 inch (25 mm) by 2 inches (51 mm) by 8 feet (2.44 m).
 4. Elevated Batten System 1 inch (25 mm) by 3 inches (76 mm) by 4 feet (1.22 m). Fire Retardant Treated.
 5. Elevated Batten System 1 inch (25 mm) by 2 inches (51 mm) by 4 feet (1.22 m). Fire Retardant Treated
 6. FirePro Elevated Batten System 1 inch (25 mm) by 3 inches (76 mm) by 4 feet (1.22 m). Fire Retardant Treated.
 7. FirePro Elevated Batten System 1 inch (25 mm) by 2 inches (51 mm) by 4 feet (1.22 m). Fire Retardant Treated.
 8. Batten Extenders 18 inches (457 mm) for use with standard battens.
- H. Hip and Ridge:
1. Figaroll Plus, ridge vent and weather block for all profiles.

2. Zephyr Roll: ridge vent and weather block flat tiles, 11 inches by 33 feet (279 mm by 10 M).
 3. Zephyr Roll: ridge vent and weather block, 13.4 inches by 33 feet (340 mm by 10 M). For medium and high profile tiles.
 4. Ridge Riser: Elevates ridge board to proper height. For all profiles. For use with Figaroll Plus or Zephyr Roll.
- I. Ridge, Rake and Gable End Tiles:
 1. Choose to match tile profile and color.
 2. Metal Rake Trim.
 3. Gable End Rubber Wedges.
 - J. Field Venting Select to match profile of concrete roof tile.

2.15 CONCRETE ROOF TILE – SOUTHERN NEVADA

- A. Standard Weight Tile: Barcelona profile.
 1. Finishing Tile: Provide Capri Trim, Hip Starter and Capri Apex 3-Way tiles.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 89 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight per square: Approximately 900 lbs (408 kg).
 5. Color: As selected by the Architect.
- B. Standard Weight Tile: Boosted Barcelona profile.
 1. Size: 13-1/2 inches (343 mm) by 6-1/2 inches (165 mm), nominal.
 2. Coverage: 10 percent application, 20 percent application, 30 percent application.
 3. Installed weight per square including field tile: 10 percent application, 945 lbs (429 kg), 20 percent application, 990 lbs (449 kg), 30 percent application, 1,050 lbs (476 kg).
 4. Color: As selected by the Architect.
- C. Standard Weight Tile: Saxony 900 Slate profile.
 1. Finishing Tile: Provide 90 degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Apex 3 tiles.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 85 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight per square: Approximately 910 lbs (413 kg).
 5. Color: As selected by the Architect.
- D. Standard Weight Tile: Saxony 900 Shake profile.
 1. Finishing Tile: Provide 90 degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Apex 3 tiles.
 2. Size: 17 inches (432 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 85 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight per square: Approximately 910 lbs (414 kg).
 5. Color: As selected by the Architect.
- E. Standard Weight Tile: Madera 900 profile.
 1. Finishing Tile: Provide Rake, V Ridge and Tapered Eave Starter tiles.
 2. Size: 13-1/2 inches (343 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 120 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight: Approximately 950 lbs (431 kg).
 5. Color: As selected by the Architect.

2.16 ROOF SYSTEM COMPONENTS - SOUTHERN NEVADA

- A. Underlayment:
 1. Boral TileSeal HT Self-Adhering Underlayment.
- B. Fasteners: Sized to penetrate deck minimum 3/4 inch (19 mm) or through thickness of deck or batten.
- C. Wind Clips:
 1. Wind Clips, Galvanized.
- D. Flashings:
 1. Ribbed Tile Pan, 26 gauge Galvanized Sheet Steel side wall flashing.
 2. Wakaflex universal flashing for abutments at chimneys, walls and other rising structures.
 3. Terminal Bar metal flashing for chimneys and other roof to wall structures.
 4. Ribbed Valley Metal 1 inch Center Diverter, 26 gauge, Galvanized Sheet Steel.
 5. Plumbing Stacks and Other Pipes Penetrating Roof: Wakaflex Pipe Flashing.
- E. Adhesive: Code approved adhesive suitable to bond to concrete roof tile.
- F. Eave Closures: Provide to match tile profile.
 1. Vented Eave Riser - Metal.
 2. Eave Riser - Metal.
- G. Battens:
 1. Elevated Batten System 1 inch (25 mm) by 2 inches (51 mm) by 8 feet (2.44 m).
 2. Elevated Batten System 1 inch (25 mm) by 3 inches (76 mm) by 8 feet (2.44 m).
 3. Elevated Batten System 1 inch (25 mm) by 2 inches (51 mm) by 4 feet (1.22 m).
 4. FirePro Elevated Batten System 1 inch (25 mm) by 3 inches (76 mm) by 4 feet (1.22 m). Fire Retardant Treated.
 5. FirePro Elevated Batten System 1 inch (25 mm) by 2 inches (51 mm) by 4 feet (1.22 m). Fire Retardant Treated
 6. Batten Extenders 10 inches (254 mm) for use with standard battens at tile pans.
 7. Batten Extenders 18 inches (457 mm) for use with standard battens at valleys.
- H. Hip and Ridge:
 1. Figaroll Plus, ridge vent and weather block for all profiles.
 2. Zephyr Roll: ridge vent and weather block flat tiles, 11 inches by 33 feet (279 mm by 10 M).
 3. Zephyr Roll: ridge vent and weather block, 13.4 inches by 33 feet (340 mm by 10 M). For medium and high profile tiles.
 4. Ridge Riser: Elevates ridge board to proper height. For all profiles. For use with Figaroll Plus or Zephyr Roll.
- I. Ridge, Rake and Gable End Tiles:
 1. Choose to match tile profile and color.
- J. Field Venting: Select to match profile of concrete roof tile.

2.17 CONCRETE ROOF TILE – TEXAS

- A. Standard Weight Tile: Tejas Espana profile.
 1. Finishing Tile: Provide Capri Trim, Hip Starter and Capri Apex 3-Way tiles.
 2. Size: 16-1/2 inches (419 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 87 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight per square: Approximately 900 lbs (408 kg).
 5. Color: As selected by the Architect.

- B. Standard Weight Tile: Barcelona Impact profile.
1. Finishing Tile: Provide Capri Trim, Hip Starter and Capri Apex 3-Way tiles.
 2. Size: 16-1/2 inches (419 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 89 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight per square: Approximately 1030 lbs (467 kg).
 5. Color: As selected by the Architect.
- C. Standard Weight Tile: Boosted Barcelona profile.
1. Size: 13-1/2 inches (343 mm) by 6-1/2 inches (165 mm), nominal.
 2. Coverage: 10 percent application, 20 percent application, 30 percent application.
 3. Installed weight per square including field tile: 10 percent application, 945 lbs (429 kg), 20 percent application, 990 lbs (449 kg), 30 percent application, 1,050 lbs (476 kg).
 4. Color: As selected by the Architect.
- D. Standard Weight Tile: Villa profile.
1. Finishing Tile: Provide Capri Trim, Hip Starter and Capri Apex 3 tiles.
 2. Size: 16-1/2 inches (419 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 90 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight per square: Approximately 900 lbs (408 kg).
 5. Color: As selected by the Architect.
- E. Standard Weight Tile: Saxony Shake profile.
1. Finishing Tile: Provide 90 degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Apex 3 tiles.
 2. Size: 16-1/2 inches (419 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 92 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight per square: Approximately 1030 lbs (467 kg).
 5. Color: As selected by the Architect.
- F. Standard Weight Tile: Saxony Country Slate profile.
1. Finishing Tile: Provide 90 degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Apex 3 tiles.
 2. Size: 16-1/2 inches (419 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 92 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight per square: Approximately 1030 lbs (467 kg).
 5. Color: As selected by the Architect.
- G. Standard Weight Tile: Saxony Country Slate Impact profile.
1. Finishing Tile: Provide 90 degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Apex 3 tiles.
 2. Size: 16-1/2 inches (419 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 92 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight per square: Approximately 1080 lbs (490 kg).
 5. Color: As selected by the Architect.
- H. Standard Weight Tile: Saxony Country Split Shake profile.
1. Finishing Tile: Provide 90 degree Rake, 3-Sided Ridge, 3-Sided Hip Starter and Apex 3y tiles.
 2. Size: 16-1/2 inches (419 mm) by 13 inches (330 mm), nominal.
 3. Coverage: 92 field tiles per 100 square feet (9.29 sq m) of roof area.
 4. Installed weight per square: Approximately 1030 lbs (467 kg).
 5. Color: As selected by the Architect.
- I. Standard Weight Tile: Madera 900 profile.

1. Finishing Tile: Provide Rake, V Ridge and Tapered Eave Starter tiles.
2. Size: 13-1/2 inches (343 mm) by 13 inches (330 mm), nominal.
3. Coverage: 120 field tiles per 100 square feet (9.29 sq m) of roof area.
4. Installed weight: Approximately 935 lbs (424 kg).
5. Color: As selected by the Architect.

2.18 ROOF SYSTEM COMPONENTS - TEXAS

- A. Underlayment:
 1. Boral TileSeal HT Self-Adhering Underlayment.
 2. Boral TileSeal 50 HT Self-Adhering Underlayment.
 3. GatorSeal Granular Heavy Duty Self-Adhering Underlayment.
 4. Boral Ply40 Underlayment.
- B. Fasteners: Sized to penetrate deck minimum 3/4 inch (19 mm) or through thickness of deck or batten.
 1. Quik Drive Screws, Roofing Specific.
- C. Wind Clips:
 1. Zip-Clip, Adjustable Tile Clip.
 2. Wind Clips, Galvanized.
- D. Flashings:
 1. Ribbed Tile Pan, 26 gauge Galvanized Sheet Steel side wall flashing.
 2. Wakaflex universal flashing for abutments at chimneys, walls and other rising structures.
 3. Terminal Bar metal flashing for chimneys and other roof to wall structures.
 4. Ribbed Valley Metal 1 inch Center Diverter, 26 gauge, Galvanized Sheet Steel.
 5. Plumbing Stacks and Other Pipes Penetrating Roof: Wakaflex Pipe Flashing.
- E. Adhesive: Code approved adhesive suitable to bond to concrete roof tile.
- F. Eave Closures: Provide to match tile profile.
 1. Vented Eave Riser - Metal.
 2. Eave Riser - Metal.
 3. Eave Closure "T" - Metal. For flat tiles only.
- G. Battens:
 1. Elevated Batten System 1 inch (25 mm) by 3 inches (76 mm) by 8 feet (2.44 m).
 2. Elevated Batten System 1 inch (25 mm) by 2 inches (51 mm) by 8 feet (2.44 m).
 3. Elevated Batten System 1 inch (25 mm) by 2 inches (51 mm) by 4 feet (1.22 m).
 4. Batten Extenders 18 inches (457 mm) for use with standard battens.
- H. Hip and Ridge:
 1. Figaroll Plus, ridge vent and weather block for all profiles.
 2. Zephyr Roll: ridge vent and weather block flat tiles, 11 inches by 33 feet (279 mm by 10 M).
 3. Zephyr Roll: ridge vent and weather block, 13.4 inches by 33 feet (340 mm by 10 M). For medium and high profile tiles.
 4. Ridge Riser: Elevates ridge board to proper height. For all profiles. For use with Figaroll Plus or Zephyr Roll.
- I. Ridge, Rake and Gable End Tiles:
 1. Choose to match tile profile and color.
 2. Gable End Rubber Wedges.

- J. Field Venting: Select to match profile of concrete roof tile.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. Verify surfaces are uniform, smooth, clean and dry
- C. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result under the project conditions.

3.3 INSTALLATION - GENERAL

- A. Install in accordance with manufacturer's instructions and the following:
 - 1. IAPMO UES ER-2015 - TRI Concrete and Clay Roof Tile Installation Manual – 2015 (TRI Installation Manual). TRI/WSRCA Standard Installation Guides for Concrete and Clay Roof Tile in Cold Weather Applications.
 - 2. FRSA/TRI Concrete and Clay Roof Tile Installation Manual Fifth Edition (For Florida Applications).
 - 3. CAN/CSA-A220.1-Series-06 - Concrete Roof Tiles.

3.4 UNDERLAYMENT APPLICATION:

- A. Underlayment: Install in accordance with the manufacturer's instructions and TRI Installation Manual.
- B. Install ridge vents; follow vent manufacturer's installation recommendations and TRI Installation Manual.

3.5 FLASHING INSTALLATION

- A. Install flashings to shed water and prevent water penetration under tiles.
- B. Valleys: Install preformed metal flashing over underlayment.
 - 1. Follow manufacturer's installation recommendations.
 - 2. Follow TRI Installation Manual.
- C. Side Wall Flashing:
 - 1. Follow manufacturer's installation recommendations.
 - 2. Follow TRI Installation Manual.
- D. Counter Flashing:
 - 1. Follow manufacturer's installation recommendations.
 - 2. Follow TRI Installation Manual.
- E. Install batten extenders to support tile over flashing.

- F. Install tiles so as not to inhibit water flow on flashings.
- G. Head and Apron Flashing:
 - 1. Follow vent manufacturer's installation recommendations.
 - 2. Follow TRI Installation Manual.
- H. Flashing at Curb Mounted Skylights and Other Items:
 - 1. Follow manufacturer's installation recommendations.
 - 2. Follow TRI Installation Manual.
- I. Flashing at Plumbing Stacks, Pipes, Turbines, Vents, Etc.:
 - 1. Follow manufacturer's installation recommendations.
 - 2. Follow TRI Installation Manual.
 - 3. Apply color coordinated paint to all exposed metal flashings.
- J. Coatings: Apply color coordinated paint to all exposed metal flashings.

3.6 BATTEN INSTALLATION

- A. Install battens in accordance with the manufacturer's installation recommendations and TRI

3.7 TILE INSTALLATION

- A. Layout:
 - 1. Follow manufacturer's installation recommendations.
 - 2. Follow TRI Installation Manual.
- B. Wind clips:
 - 1. Follow manufacturer's installation recommendations.
 - 2. Follow TRI Installation Manual.
- C. Hips: Use prefabricated hip starter.
 - 1. Follow manufacturer's installation recommendations.
 - 2. Follow TRI Installation Manual.
- D. Hips and Ridges, mechanically fastened:
 - 1. Follow manufacturer's installation recommendations.
 - 2. Follow TRI Installation Manual.
- E. Rakes and Gables:
 - 1. Follow manufacturer's installation recommendations.
 - 2. Follow TRI Installation Manual.

3.8 CLEANING

- A. Remove all broken tile, debris and excess tile from roof.
- B. Sweep cut tiles clean.

3.9 REPAIR AND REPLACEMENT

- A. Damaged Tile:
 - 1. Follow manufacturer's installation recommendations.
 - 2. Follow TRI Installation Manual.

- B. Damaged Small Valley and Hip Cuts:
 - 1. Follow manufacturer's installation recommendations.
 - 2. Follow TRI Installation Manual.

3.10 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION