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MCA CLAY ROOF TILES

CSI Section:
07 32 13 Clay Roof Tiles

1.0 RECOGNITION

MCA Clay Roof Tiles recognized in this report have been evaluated for use as a roof covering. The durability, weather resistance, wind uplift resistance, and roof fire classification properties of the MCA Clay Roof Tiles were evaluated for compliance with the following codes:

- 2021, 2018, and 2015 International Building Code® (IBC)
- 2021, 2018, and 2015 International Residential Code® (IRC)
- 2022 California Building Code (CBC) - attached Supplement
- 2022 California Residential Code (CRC) - attached Supplement
- 2023 Florida Building Code, Building (FBC, Building) - attached Supplement
- 2023 Florida Building Code, Residential (FBC, Residential) - attached Supplement

2.0 LIMITATIONS

Use of the MCA clay roof tiles described in this evaluation report is subject to the following limitations:

2.1 The roof tiles shall be manufactured, identified, and installed in accordance with this report, the applicable code, and the Roof Tile Installation Manual. Where conflicts between this report and the installation instructions occur, the more restrictive shall govern.

2.2 Roof sheathing and roof framing shall be designed for the design loads determined in accordance with the applicable code.

2.3 MCA clay roof tiles are manufactured in Corona, California, and Handa, Aichi, Japan.

3.0 PRODUCT USE

3.1 General: MCA clay roof tiles described in this report are used as roof covering materials complying with Chapter 15 of the IBC and Chapter 9 of the IRC, and may be used where Class A, B, or C roof assemblies are required.

3.2 Installation

3.2.1 Installation When the 2015 IBC or IRC is Applicable:

3.2.1.1 General: Clay roof tiles shall be installed under the 2015 IBC or IRC, as applicable, and the Concrete and Clay Roof Tile Installation Manual, dated July 2015, published by the Tile Roofing Institute. The TRI manual is available for download attached to ER-2015 from the UES website at www.uniform-es.org.

3.2.1.2 Installation When Installed in Accordance with the Requirements of the 2015 IBC or IRC: Attachments shall be in accordance with Section 1507.3.7 of the IBC and Section R905.3.7 of the IRC, as applicable, and the Roof Tile Installation Manual.

For installations beyond the provisions of IBC Table 1507.3.7 and IRC Section R905.3.7, as applicable, the fastening systems shall be determined to withstand the required aerodynamic uplift moment in accordance with the Design Considerations for High Wind Applications, in Appendix B of the Roof Tile Installation Manual.

3.2.2 Installation When Installed in Accordance with the Requirements of the 2021 or 2018 IBC or IRC: MCA Clay Roof Tiles shall be installed in accordance with IBC Sections 1507.3.7 and 1609.5 or IRC Section R905.3, as applicable. Underlayment shall conform to IBC Sections 1507.1.1 and 1507.3 or 2018 IRC Sections R905.1.1 and R905.3.3, as applicable.

3.2.3 Adhesively Attached Systems: The MCA clay roof tiles may be installed with roof tile adhesives that are recognized in an approved evaluation report for use in clay roof tile applications. Installations, including underlayment, shall be in accordance with the adhesive manufacturer's approved evaluation report.

3.2.4 Fire Classification: MCA clay roof tiles, installed on a minimum 0.5-inch nominal plywood deck, one ply underlayment as required by the applicable code, then MCA clay roof tile which is fastened as required in Sections 3.2.1.2 or 3.2.2 as applicable, of this report are Class A roof

The product described in this Uniform Evaluation Service (UES) Report has been evaluated as an alternative material, design or method of construction in order to satisfy and comply with the intent of the provision of the code, as noted in this report, and for at least equivalence to that prescribed in the code in quality, strength, effectiveness, fire resistance, durability and safety, as applicable, in accordance with IBC Section 104.11. This document shall only be reproduced in its entirety.

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coverings in accordance with Section 1505.2 of the IBC and Section R902.1 of the IRC, as applicable. Roof classifications for adhesively attached systems shall be in accordance with the adhesive manufacturer's approved evaluation report.

3.2.5 Roof Slope Limitations: MCA clay roof tiles shall be installed at a minimum roof slope of 2½:12 (21 percent) except for the MIF108 Interlocking Flat, Improved-S, and Oriental tiles which shall be installed at a minimum roof slope of 4:12 (33 percent).

3.2.6 Underlayment: Underlayment shall be in accordance with the IBC or IRC, as applicable.

3.2.7 Reroofing Applications: MCA clay roof tiles may be installed over existing roofs provided the requirements of Section 1512 of the 2021 IBC, Section 1511 of the 2018 and 2015 IBC and Section R908 of the 2021, 2018, and 2015 IRC, as applicable, are met. Roof classifications are as noted in Section 3.2.4 of this report.

4.0 PRODUCT DESCRIPTION

4.1 Product Information: MCA clay roof tiles are machine-formed from natural clay and kiln-fired to obtain the required strength and performance. Glazed tiles have an acrylic glaze surface. Ridge, gable, hip, bird stop, and turret accessory tiles are also available. Figure 1 of this report shows the roof tile profiles.

4.2 One-Piece Mission Tile: One-Piece "S" Mission tiles are S-shaped approximately 19 inches long (483 mm), 14½ inches (368 mm) wide, and an average of ½-inch thick (12.7 mm). The installed tile with a 3-inch (76.2 mm) head lap and 2¾-inch (69.9 mm) side lap weigh 7.8 pounds per square foot (38.1 kg/m^2). Tiles have two nail holes in the pan and one nail hole in the cover side. The tiles are Grade 1, Type I in accordance with ASTM C1167.

4.3 Classic "S" Mission Tile: Classic "S" Mission tiles are S-shaped approximately 19 inches (483 mm) long, 12 inches (305 m) wide and an average of ½ inch (12.7 mm) thick. The installed tiles with a 3-inch (76.2 mm) head lap and 2¾-inch (69.9 mm) side lap weigh 7.9 pounds per square foot (38.6 kg/m^2). Tiles have two nail holes in the pan tile and one nail hole in the cover tile. The tiles are Grade 1, Type I in accordance with ASTM C1167.

4.4 Size 88 "S" Tile: Size 88 "S" tiles are high-profile S-shaped approximately 18 inches (457 mm) long, 12.5 inches (317 mm) wide, and an average of ½ inch (12.7 mm) thick. The installed tiles with a 3-inch (76.2 mm) head lap and 1.4-inch (35.6 mm) side lap weigh 7.8 pounds per square foot (38.1 kg/m^2). Tiles have two nail holes in the pan tile and one nail hole in the cover tile. The tiles are Grade I, Type I in accordance with ASTM C1167.

4.5 Corona Tapered Mission Tile: Corona Tapered Mission tiles consist of rounded pan and cover units approximately 19 inches (483 mm) long, 8.7 inches (221 mm) wide at the nose and 5.6 inches (142 mm) wide at the head and approximately ½ inch (12.7 mm) thick. The installed tiles with a 3-inch (76.2 mm) head lap and 12-inch (305 mm) center-to-center spacing weigh 10.7 pounds per square foot (52.2 kg/m^2). Cover tiles are provided with one nail hole at the top. The tiles are Grade 1, Type I in accordance with ASTM C1167.

4.6 Classic Tapered Mission Tile: Classic Tapered Mission tiles consist of rounded pan and cover units approximately 19 inches (483 mm) long, 7¼ inches (184 mm) wide at the nose and 6¼ inches (159 mm) wide at the head, and approximately ½ inch (12.7 mm) thick. The installed tiles with a 3-inch (76.2 mm) head lap and 10-inch (254 mm) center-to-center spacing weigh 10.4 pounds per square foot (50.8 kg/m^2). One nail hole is provided at the top of each cover tile. The tiles are Grade 1, Type I in accordance with ASTM C1167.

4.7 Roman Pan Tile: Roman Pan tiles consist of a flat pan tile and rounded Classic or Corona cover unit. Pan tiles are approximately 19 inches (483 mm) long, 10 inches (254 mm) wide, and ½ inch (12.7 mm) thick. The pan tiles are Grade 1 Type III, in accordance with ASTM C1167. When used with Classic Tapered Mission tile cover units installed with a 3-inch (76.2 mm) head lap and 12-inch (305 mm) center-to-center side spacing, the installed weight is 10.4 pounds per square foot (50.8 kg/m^2). When used with Corona Tapered Mission tile cover units installed with a 3-inch (76.2 mm) head-lap and 13-inch (330 mm) center-to-center side spacing, the installed weight is 10.4 pounds per square foot (50.8 kg/m^2).

4.8 8-Inch Straight Mission Tile: 8-inch Straight Barrel Mission tiles consist of semi-cylindrical pan and cover units each approximately 19 inches (483 mm) long, 8 inches (203 mm) wide, and ½ inch (12.7 mm) thick. The installed tiles with a 3-inch (76.2 mm) head lap and 11-inch (279 mm) center-to-center spacing weigh 10.7 pounds per square foot (52.2 kg/m^2). Tiles are provided with one nail hole at the top. The tiles are Grade 1, Type I in accordance with ASTM C1167.

4.9 10-Inch Straight Mission Tile: 10-inch Straight Barrel Mission tiles consist of semi-cylindrical pan and cover units each approximately 19 inches (483 mm) long, and 10 inches (254 mm) wide. The tiles are approximately ½ inch (12.7 mm) thick at the center and taper to $^7/_{16}$ inch (11.1 mm) thick at the sides. The installed tiles with a 3-inch (76.2 mm) head lap and 13½-inch (343 mm) center-to-center spacing weigh 10.2 pounds per square foot (49.8 kg/m^2). Tiles are provided with one nail hole at the top. The tiles are Grade 1, Type I in accordance with ASTM C1167.

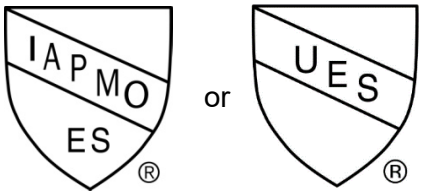
4.10 Oriental Tile: Oriental tiles are interlocking, medium profile, convex-dished tiles approximately 12 inches (305 mm) long, 12 inches (305 mm) wide, and an average of $^5/_8$-inch (15.9 mm) thick. The installed tile with a 2½-inch (63.5 mm) head lap weighs 8.6 pounds per square foot (42.0 kg/m^2). One nail hole is provided in the top of the pan portion and two lugs are provided on the back of each tile. The tiles are Grade 1, Type II in accordance with ASTM C1167.

4.11 MIF108 Interlocking Flat Tile: MIF108 Interlocking Flat tiles are interlocking low-profile tiles approximately 14 inches (356 mm) long, 13$^2/_3$ (347 mm) inches wide, and an average of 1½-inch (38.1 mm) thick. The installed tile with a 2-inch (50.4 mm) head lap and 1$^5/_8$-inch (41.3 mm) side lap weighs 8.2 pounds per square foot (40.0 kg/m^2). Two nail holes are provided at the top of each tile. The tiles are Grade 1, Type III in accordance with ASTM C1167.

4.12 Improved-S Tile: Improved-S tile are medium-profile S-shaped interlocking tiles approximately 12.2 inches (310 mm) long, 12¼ inches (311 mm) wide, and an average of 0.70-inch (17.8 mm) thick. The installed tiles with a 2½-inch (63.5 mm) head lap weigh 10.0 pounds per square foot (48.8 kg/m^2). Two nail holes are provided in the pan portion and two lugs are provided on the back of each tile. The tiles are Grade 1, Type II in accordance with ASTM C1167.

5.0 IDENTIFICATION

Shipping pallets are identified with the report holder's name (MCA Clay Roof Tile), address, product name, installed weight, approved inspection agency (Twining Consulting, Inc.), and the evaluation report number. Tiles manufactured at the Corona, California, facility are marked with "MCA"; Improved-S and Oriental tiles are marked with "KTH" or "MTK"; MF108 tiles are marked with "KTA". Either IAPMO UES Mark of Conformity may also be used as shown below:



IAPMO UES ER-356

6.0 SUBSTANTIATING DATA

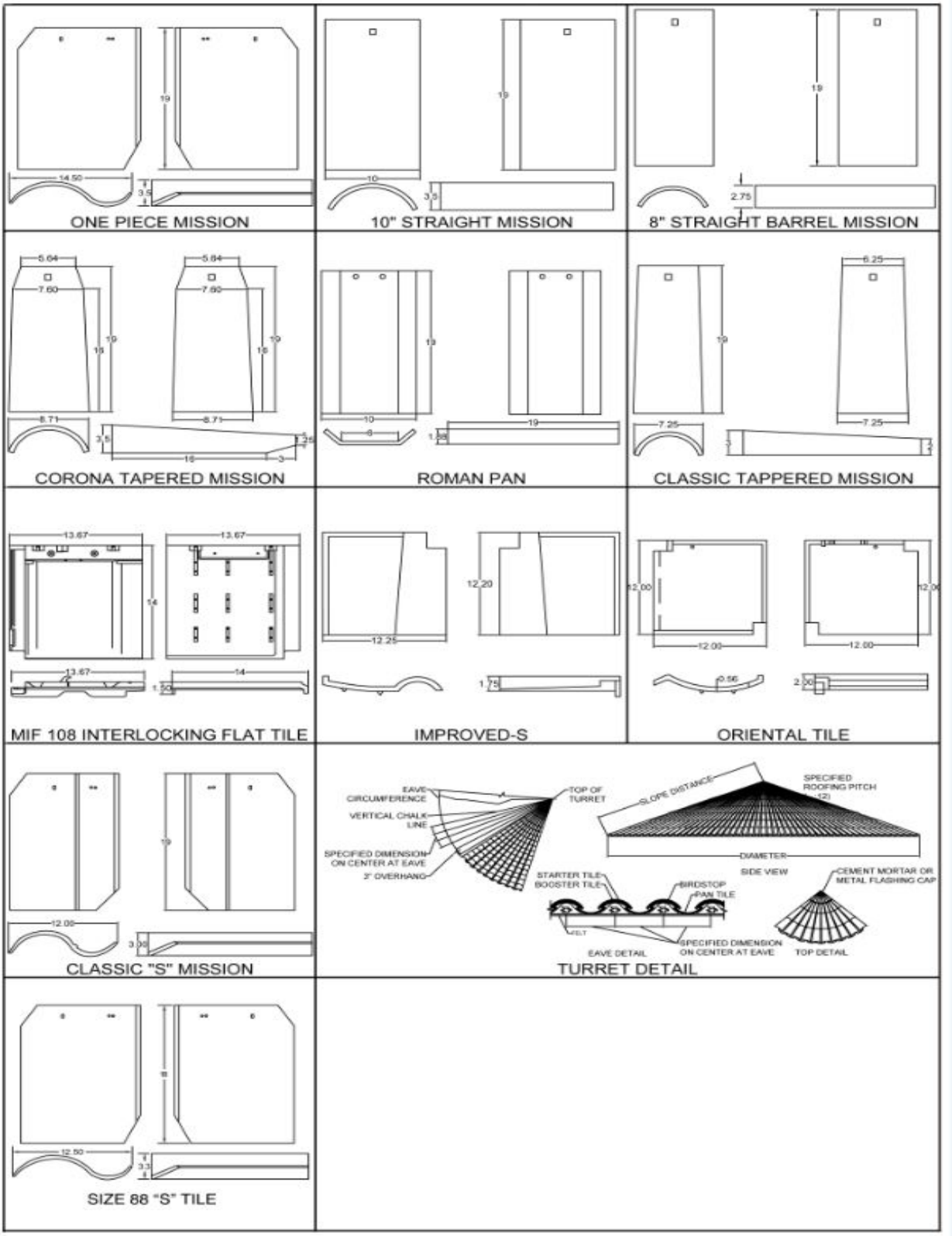
Data in accordance with ICC-ES AC180 Acceptance Criteria For Clay and Concrete Roof Tiles, manufacturer's descriptive literature, and installation instructions. Test reports are from laboratories in compliance with ISO/IEC 17025.

7.0 STATEMENT OF RECOGNITION

This evaluation report describes the results of research completed by IAPMO Uniform Evaluation Service on MCA Clay Roof Tiles to assess conformance to the codes shown in Section 1.0 of this report and serves as documentation of the product certification. MCA Clay Roof Tiles are produced at locations noted in Section 2.3 of this report under a quality control program with periodic inspection under the supervision of IAPMO UES.

For additional information about this evaluation report please visit www.uniform-es.org or email us at info@uniform-es.org

FIGURE 1 – MCA Clay Roof Tile Profiles



CALIFORNIA SUPPLEMENT

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07 32 13 Clay Roof Tiles

1.0 RECOGNITION

The MCA Clay Roof Tiles recognized in this report are evaluated in IAPMO UES Evaluation Report ER-356 and with changes as noted in this supplement, are satisfactory alternatives for use in buildings built under the following codes (and regulations):

- 2022 California Building Code (CBC)
- 2022 California Residential Code (CRC)

2.0 LIMITATIONS

Use of the Clay Roof Tiles recognized in this report supplement are subject to the following limitations:

2.1 The MCA Clay Roof Tiles described in IAPMO UES ER-356 shall comply with the 2021 IBC or IRC for use under the CBC or CRC. The design and installation of the MCA Clay Roof Tiles shall be in accordance with Sections 1507.3 and 1513 of the CBC or Section R905.3 of the CRC, as applicable, and ER-356

2.2 Roof Tiles shall be installed in accordance with Section 3 of ER-356 except, where the jurisdiction requires conformance to the CBC or CRC, the following shall apply:

2.2.1 Underlayment shall conform with CBC Section 1507.1.1 or CRC Section 905.1.1.

2.2.2 Attachment of the clay roof tiles shall be designed to resist wind loads according to CBC Sections 1507.3.7 and 1609.5 or CRC Section 905.3, as applicable.

MCA Clay Roof Tiles may be used as a Class A roof assembly complying with Section 1505.2 of the CBC or Section R902.1 of the CRC.

MCA Clay Roof Tiles may be used in the construction of new buildings located in a Fire Hazard Severity Zone within State Responsibility Areas or a Wildland-Urban Interface Fire Area, provided installation is also in accordance with the IBC as presented in ER-356 and the requirements of Sections 701A.3, 705A , 1505.1.1, 1505.1.2, and 1505.1.3 of the CBC or Sections 337.1.3.1 and 337.5 of the CRC, as applicable.

2.3 This supplement expires concurrently with IAPMO UES ER-356.

FLORIDA SUPPLEMENT

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1.0 RECOGNITION

MCA Clay Roof Tiles recognized in IAPMO UES Evaluation Report ER-356 have been evaluated for use as a roof covering. The durability, weather resistance, wind uplift resistance, and roof fire classification properties of the MCA Clay Roof Tiles were evaluated for compliance with the following codes:

- 2023 Florida Building Code, Building (FBC, Building)
- 2023 Florida Building Code, Residential (FBC, Residential)

2.0 LIMITATIONS

Use of the MCA Clay Roof Tiles recognized in this report is subject to the following limitations:

2.1 The MCA clay roof tiles described in IAPMO UES ER-356 complies with the 2023 FBC, Building and the 2023 FBC, Residential. The design and installation of the MCA clay roof tiles shall be in accordance with the 2021 International Building Code and the 2021 International Residential Code as noted in ER-356. The MCA clay roof tiles shall be installed in accordance with the requirements of the FRSA/TRI *Florida High Wind Concrete and Clay Roof Tile Installation Manual,* Seventh Edition (December 23, 2023) where the V_{asd} is determined in accordance with FBC, Building Section 1609.3.1; FBC, Residential Section R301.2.1; or the recommendations of RAS 118, 119, or 120.

2.2 Nails, screws, and clips used to install the clay roof tiles shall be corrosion resistant in accordance with FBC, Building Sections 1506.5, 1506.6, and 1506.7, as applicable.

2.3 Design requirements shall be determined in accordance with the FBC, Building or FBC, Residential, as applicable.

2.4 Requirements for High Velocity Hurricane Zones (HVHZ): Fire Classification for roofs in Florida HVHZ shall comply with Section 1516 of the FBC, Building. Fasteners for use in Florida's HVHZ areas shall be in accordance with FBC, Building Section 1517.5. Installation in HVHZ areas shall comply with FBC, Building Section 1518.8 when appropriate. Underlayment for use in Florida's HVHZ areas shall be in accordance with FBC, Building Section 1518.2.

Permits shall be applied for and notifications shall be given in accordance with Sections 1524 and 1525 of the FBC, Building for HVHZ installations.

2.5 For products falling under Florida Rule 61G20-2.008 verification that the report holder's quality assurance program is audited by a quality assurance entity approved by the Florida Building Commission (or the building official when the report holder does not possess an approval by the Commission), to provide oversight and determine that the products are being manufactured as described in this evaluation report to establish continual product performance is required.

2.6 This supplement expires concurrently with IAPMO UES ER-356.