

# Code Compliance Research Report CCRR-0215

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# DIVISION: 09 00 00 - FINISHES Section: 09 24 00 – Portland Cement Plastering

MASTER WALL INC. Post Office Box 397 Fortson, Georgia 31808 www.masterwall.inc

## REPORT SUBJECT: Master Wall Cemplaster Fiberstucco System

# **1.0 SCOPE OF EVALUATION**

**1.1.** This research report addresses compliance with the following Codes:

- 2015, 2012 International Building Code® (IBC)
- 2015, 2012 International Residential Code® (IRC)
- 2017 Florida Building Code (see Section 9) Excluding High Velocity Hurricane Zone

NOTE: This report references 2015 Code sections with [2012] Code sections shown in brackets where they differ.

**1.2.** *Master Wall Cemplaster Fiberstucco System* has been evaluated for the following properties (see Table 1):

- Structural (wind resistance)
- Durability
- Fire-Resistance-Rated Construction
- Weather Protection

**1.3.** *Master Wall Cemplaster Fiberstucco System* has been evaluated for the following uses:

- Alternative to the exterior wall coverings specified in IBC Section 2512 and IRC Section R703.7 [R703.6] on buildings of Type V construction.
- Use in fire-resistance-rated construction as described in Section 4.2.

## 2.0 STATEMENT OF COMPLIANCE

**2.1.** *Master Wall Cemplaster Fiberstucco System* complies with the Codes listed in Section 1.1, for the properties stated in Section 1.2 and uses stated in Section 1.3, when installed as described in this report, including the Conditions of Use stated in section 6.

# **3.0 DESCRIPTION**

**3.1.** *Master Wall Cemplaster Fiberstucco System* is a mixture of portland cement, sand, fibers, and proprietary constituents applied over metal lath. Mixture and lath may be applied over gypsum sheathing, wood panel sheathing, concrete or concrete masonry. Mixture is delivered in 80-pound bags.

**3.2.** Each 80 pound bag is blended at the jobsite with 200 pounds of sand and 5-7 gallons of water to create desired consistency.

**3.3.** Sand must be clean and free from deleterious amounts of loam, clay, silt, salts and organic matter. Sand must be sampled and tested in accordance with ASTM C144 or ASTM C897 and graded within the following limits:

U.S. STANDARD	PERCENT OF AGGREGATE RETAINED WEIGHT ±2 PERCENT	
SIEVE	MINIMUM	MAXIMUM
No. 4		0
No. 8	0	10
No. 16	10	40
No. 30	30	65
No. 50	70	90
No. 100	95	100







**3.4.** Metal lath must comply with ICC-ES Acceptance Criteria for Metal Plaster Bases (Lath) AC 191 and ASTM C847.

**3.5.** Gypsum sheathing must be minimum 1/2 inch thick with a water resistant core complying with ASTM C79 or ASTM C1396.

**3.6.** Wood structural panels must be minimum 15/32 inch plywood complying with Department of Commerce Product Standard PS-1 or 7/16 inch OSB complying with U.S Department of Commerce Product Standard PS-2.

**3.7.** Caulking must be acrylic latex that complies with ASTM C834.

**3.8.** Weather Protection

**3.8.1.** Water-resistive barriers are required over all substrates, except concrete or masonry, in accordance with IBC Section 1404.2 or IRC R703.2 as applicable.

**3.8.2.** Water resistive barriers must be a minimum of two layers of water resistive barrier complying with ASTM E2556 Type 1 or approved alternative. Where installed over wood-based sheathing, shall include a water-resistive vapor-permeable barrier installed in accordance with IBC Section 2510.6 or IRC Section R703.7.3 [R703.6.3]

**3.8.2.1.** Alternative water-resistive barriers must comply with ICC-ES Acceptance Criteria for Water-resistive Barriers (AC 38) and must be recognized in a current Research Report.

**3.8.3.** A vapor retarder must be provided in accordance with IBC Section 1405.3 or IRC Section R702.7 unless its omission is permitted under the applicable code.

**3.8.4.** Flashing complying with IBC Section 1405.3 or IRC Section R703.8.5 [R703.8] is required.

**3.8.5.** All trim, screeds and corner reinforcement must be approved corrosion resistant materials.

# 4.0 PERFORMANCE CHARACTERISTICS

**4.1.** Allowable wind loads for the system are as follows:

WIND LOAD <sup>1</sup> (PSF)	POSITIVE PRESSURE	NEGATIVE PRESSURE
Wood Studs (Minimum sg .50)	42	28
Steel Studs (Minimum gage 20)	36	27

<sup>1</sup> Design pressure is based on nominal wind speed (V<sub>asd</sub>).

**4.1.1.** Support framing must be adequate to resist the wind load and must be designed for a maximum allowable deflection of 1/240 of the wall height.

**4.2.** A fire-resistance-rated limited loadbearing wall assembly has a one-hour fire resistance rating when constructed as described in Section 5.9.

**4.2.1.** Axial loads applied to the assembly must be limited to the least of the following:

4.2.1.1. 1,100 pounds per stud

**4.2.1.2.** The wood stud axial design stress for the wall assembly calculated in accordance with Sections 3.6 and 3.7 of ANSI AF&PA NDS-05 (IBC an IRC) is limited to  $0.51F_c^{\circ}$ .

**4.2.1.3.** The maximum stress must not exceed  $0.51F'_{c}$  at a maximum  $l_{e}/d$  ratio of 33.

#### 5.0 INSTALLATION

**5.1.** *Master Wall Cemplaster Fiberstucco System* must be installed in accordance with the manufacturer's published installation instructions, the applicable Code and this Research Report. A copy of the manufacturer's instructions must be available on the jobsite during installation.









**5.2.** The coating must be applied at ambient air temperatures between 40°F and 120°F. The coating may be applied by machine spraying or hand troweling in one coat to a minimum 3/8 inch thickness. The metal lath must be completely embedded in the coating. Texturing or finishing may be performed when the base coat has cured to the point that it can accept the finish.

**5.3.** The system may be applied over solid substrates of gypsum sheathing, wood structural panel sheathing, concrete or masonry.

**5.4.** Installation on wood framing:

**5.4.1.** Wood structural panels, described in Section 3.6, must be applied to wood studs in accordance with IBC Table 2308.9 or IRC Table R602.3(3).

**5.4.2.** Gypsum sheathing described in Section 3.5 must be installed directly over wood studs spaced a maximum of 24 inches on center. The gypsum board must be fastened in accordance with ASTM C1280 and IBC Table 2508.1 or IRC Table R702.3.5.

**5.4.3.** The lath is attached to the wood studs through the sheathing using No. 11 gage galvanized roofing nails with 3/8 inch diameter heads spaced 6 inches o.c. Penetration depth into wood framing must be at least 1 inch.

5.5. Installation on steel studs:

**5.5.1.** Gypsum sheathing described in Section 3.5 must be installed directly over 20 gage metal studs spaced a maximum of 24 inches on center.

**5.5.2.** The lath must be secured through the sheathing to the steel framing with No.8 by 0.42 inch diameter head self-drilling, tapping pan head screws spaced 6 inches o.c. Screws fastening the sheathing and screws fastening lath must be staggered. Minimum screw penetration into framing is 1/2 inch beyond the stud.

**5.6.** A water-resistive barrier, described in Section 3.8, must be applied between the sheathing and the lath.

**5.7.** Wood and steel stud framed walls must be braced in accordance with applicable code.

**5.8.** Concrete and masonry surface preparation must be in accordance with IBC Section 2510.7 and IRC

Section R606. Surfaces must be free of oil, dust, or other contaminants. High surface absorption and surface roughness is necessary to ensure proper bonding. In the absence of these properties, a bonding agent must be applied. The coating is applied to the prepared surface at a minimum thickness of 3/8 inch in accordance with Section 5.1 and the manufacturer's published installation instructions.

5.9. Fire-resistance-rated wall assembly:

**5.9.1.** Framing: Wall framing must be minimum 2x4 No. 2 Douglas Fir-Larch, dimension lumber. Studs are spaced a maximum of 16 inches o.c. with a single bottom plate, double top plate and horizontal cross-bracing located between studs at mid wall height.

**5.9.2.** Insulation: Stud cavities must be insulated with Kraft paper-faced R-11 fiberglass bats with the paper face oriented toward the interior side of the wall.

**5.9.3.** Interior Face: The interior face of the wall must be clad with 5/8 inch thick Type X gypsum board complying with ASTM C36 or ASTM C1396. The gypsum board must be installed horizontally with end joints staggered a minimum of two stud spaces. Gypsum board must be fastened to the framing with 1-5/8 inch long galvanized steel, cup-head drywall nails spaced 8 inches o.c. along every stud and plate. Joints must be finished with paper tape and drywall compound, and nail heads must be treated with joint compound in accordance with ASTM C840 or GA216.

**5.9.4.** Exterior Face: The exterior face of the wall must be clad with OSB sheathing as specified in Section 3.6. Sheathing must be installed horizontally with end joints staggered a minimum of two stud spaces. The OSB sheathing must be fastened to the framing with 1-7/8 inch long 6d common nails spaced 8 inches o.c. along every stud and plate.

**5.9.5.** Exterior Finish: The OSB sheathing must be covered with two layers of No. 15 asphalt-saturated organic felt, 40 inches wide with 4 inches overlap at horizontal edges and 6 inches at vertical edges. Lath must be minimum 1.75 lb/yd<sup>3</sup> galvanized self-furring metal lath conforming to ASTM C847 as specified in Section 3.4, with a minimum 2 inch overlap and attached with minimum 1 inch wide by 1-1/2 inch long by 0.56 inch dia. galvanized steel stapes spaced 6 inches o.c. along all studs and perimeters and 12 inches o.c. in all fields.







**5.9.6.** Minimum 3/8 inch wide J-Metal must be installed on the outside face of the wall along the perimeter of the wall over the OSB sheathing. J-Metal must be attached with 1-3/4 inch long galvanized steel roofing nails having a 0.4 inch head diameter and 0.125 inch shank diameter, spaced at 8 inches on center.

# **6.0 CONDITIONS OF USE**

**6.1.** Installation must comply with this Research Report, the manufacturer's published installation instructions and the applicable Code. In the event of a conflict, this report governs.

**6.2.** Materials and methods of installation must be accordance with this report, the applicable code and the manufacturer's installation instructions. Where differences occur between this report and the manufacturer's installation instructions, this report governs.

**6.3.** Installation must be by report holder approved contractors.

**6.4.** Installation cards such as shown in Figure 2 must be left at the jobsite for the owner, and a copy must be filed with the building department.

**6.5.** The coating system is limited to Type V (IBC) and construction permitted by the IRC.

**6.6.** The *Master Wall Cemplaster Fiberstucco* is manufactured in accordance with the manufacturer's approved quality control system with inspections by Intertek-ATI. (AA-676).

# 7.0 SUPPORTING EVIDENCE

**7.1.** Manufacturer's drawings and installation instructions.

**7.2.** Reports of testing and engineering analyses demonstrating compliance with the ICC-ES Acceptance Criteria for Cementitious Exterior Wall Coatings (AC11), revised December 2015.

**7.3.** Reports of tests in accordance with ASTM E119, Fire Tests of Building Construction and Materials.

**7.4.** Documentation of an Intertek approved quality control system for the manufacturing of products recognized in this report.

#### 8.0 IDENTIFICATION

The Mater Wall is/are identified with:

8.1. Manufacturer's name (Master Wall Inc.)

8.2. Address and telephone number;

**8.3.** Product name (*Master Wall Cemplaster Fiberstucco*)

8.4. Identification of the components;

8.5. Weight of the packaged mix

**8.6.** Storage Instructions

**8.7.** Maximum amount of water and other components that may be added and conditions that must be considered in actual amount;

8.8. Curing Instructions

**8.9.** Intertek Mark as shown below, and the Code Compliance Research Report number (CCRR-0215).



## 9.0 OTHER CODES

#### 9.1. Scope of Evaluation

The *Master Wall Cemplaster Fiberstucco System* were evaluated for compliance with the 2017 Florida Building Code.

# 9.2. Conclusion

The Master Wall Cemplaster Fiberstucco System, described in Sections 2.0 through 7.0 of this Research Report, comply with the 2017 Florida Building Code – Building, Florida Building Code – Residential and Florida Building Code – Energy, subject to the following conditions:







- Use of the *Master Wall Cemplaster Fiberstucco* for compliance with the High-Velocity Hurricane Zone provisions of the 2017 *Florida Building Code Building* and the *Florida Building Code Residential* has not been evaluated, and is outside the scope of this Research Report.
- Intertek is a quality assurance entity approved by the Florida Building Commission.

# 10.0 CODE COMPLIANCE RESEARCH REPORT USE

**10.1.** Approval of building products and/or materials can only be granted by a building official having legal

authority in the specific jurisdiction where approval is sought.

**10.2.** Code Compliance Research Reports shall not be used in any manner that implies an endorsement of the product by Intertek.

**10.3.** Reference to the Intertek website address: <u>whdirectory.intertek.com</u> is recommended to ascertain the current version and status of this report.

Properties	International Building Code (IBC)	International Residential Code (IRC)	Florida Building Code (FBC)
Wind resistance	1609	R301.2.1	1609
Installation	2512	R703.7 [R706.6]	2512
Fire-resistance-rated construction	703.2	R302	703.2
Weather protection	1403.2 2510	R703.1.1 R703.7.3 [R703.6.3]	1403.2 2510

# TABLE 1: CODE REFERENCES

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FIGURE 1: TYPICAL INSTALLATION DETAILS (CONTINUED)







INSTALLATION CARD		
Master Wall Inc.		
PO Box 397 Fortson Georgia 31808		
(800)755-0825		

	Date of Job Completion:
lastering Contractor	_
Name:	
Address:	
Phone:	
Approved Contractor Number as Issued by the Coating	ng Manufacturer:

Signature of authorized representative of plastering contractor:

Date: \_\_\_\_\_

This installation card must be presented to the building inspector after completion of work and before final inspection.

# FIGURE 2: INSTALLATION CARD







# DECLARATION

Master Wall Inc. PO Box 397 Fortson Georgia 31808 (800)755-0825

Project Address:	Date:
The field batching and mixing of all components of the continuously inspected. The field batching and mixing 0215. Authorized Inspector's Signature:	exterior wall coating at the noted address have been complies with current code compliance research report CCRR-
Authorized Inspectors Name:	
Employer's Name:	
Employer's Address:	
*This is to certify that the above noted inspector, appro and was trained to properly perform inspection.	oved by Master Wall Inc., is authorized to inspect the project
Master Wall Inc. Officer Signature:	
Signer's Name:	
*Signature required only if inspector is not an employe	e of Master Wall, Inc.

# FIGURE 3: DECLARATION



