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TECHNICAL BULLETIN

MW# 103-231001

TOPIC: NFPA 285 Assemblies

Multi-story fire testing, more commonly referenced as NFPA 285, mimics a fire starting in one room and that tries to burn up the exterior of the building. Systems and components must resist this form of fire and flame spread. Building codes require compliance to this test for building heights over 40 feet in height.

EIFS has had to comply with this requirement for several years and now other cladding materials and insulated assemblies are now required to pass these requirements as well. Initially testing was performed over specific assemblies and lately building officials have been recognizing other forms of compliance, such as a review by a fire engineer.

Individual Component Results

Master Wall® offers several individual products that are resistive to fire or tested as the only combustible product used in the assembly:

Product	Test	Results
Surface Burning Characteristics—Base Coat, Mesh and Finish	ASTM E84	Flame Spread = 0 Smoke Developed = 0
Surface Burning Characteristics—Rollershield	ASTM E84	Flame Spread = 5 Smoke Developed = 5
Combustibility	ASTM E136 Standard Test Method for Assessing Combustibility of Materials in a Vertical Tube Furnace at 750°C, Option A	Pass
Heat and Smoke Release Rates for Rollershield Air/Water Barrier	ASTM E1354, IBC Section 1403.5, Exception 2 Requirements, Peak Heat Release Rate <150 kWm2, Total Heat Release Rate <20 MJ/m2, Effective Heat of Combustion <18 MJ/kg	RS: Peak Heat Release Rate = 32 kWm2, Total Heat Release Rate = 3.6 MJ/m2, Effective Heat of Combustion = 2.5 MJ/kg, VB: Peak Heat Release Rate = 336 kWm2, Total Heat Release Rate = 8.8 MJ/m2, Effective Heat of Combustion = 9.3 MJ/kg

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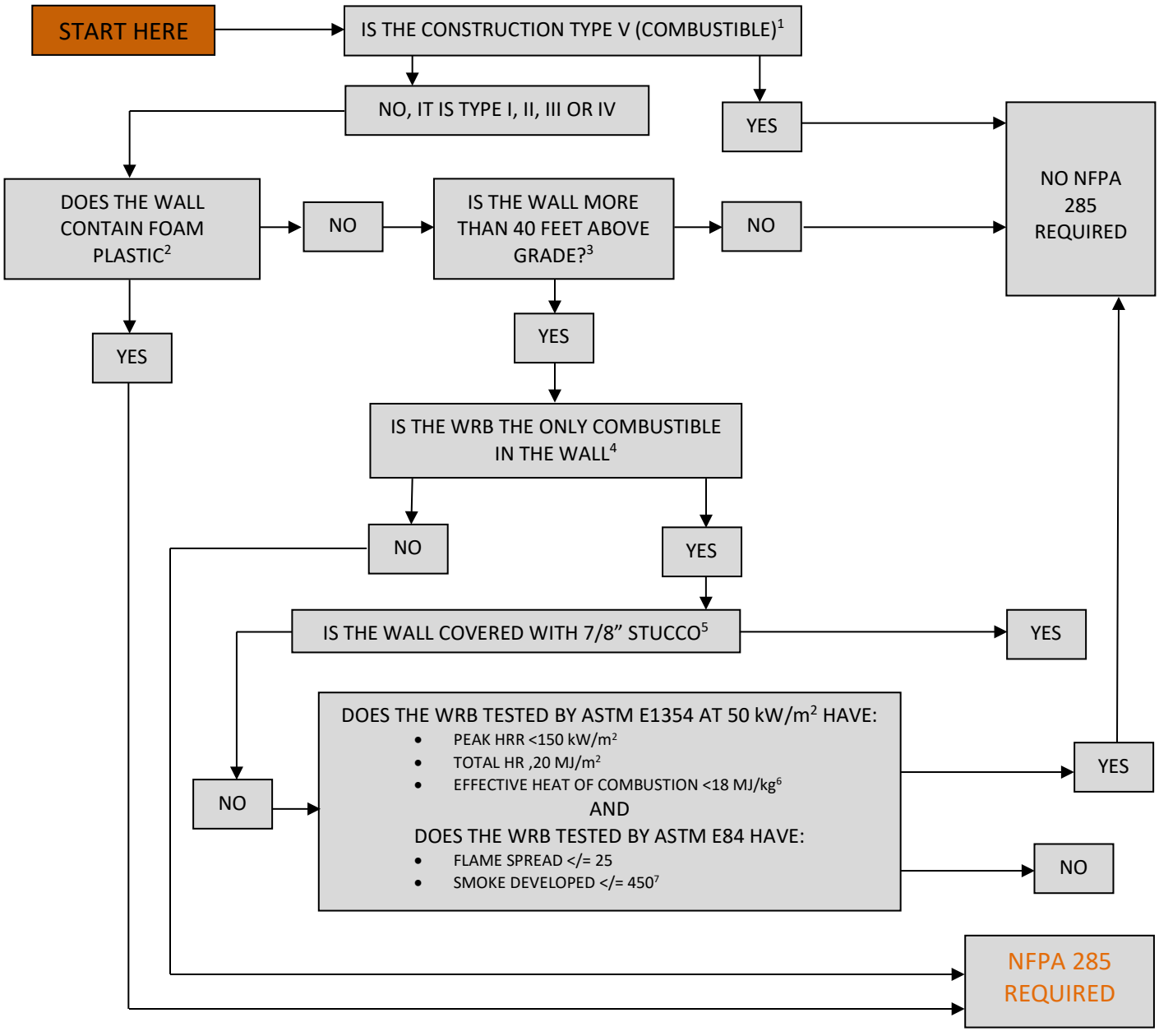
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TECHNICAL BULLETIN

NFPA 285 FLOW CHART FOR CIFS®, EIFS AND STUCCO (IBC 2021)



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NFPA 285 FLOW CHART FOR CIFS®, EIFS AND STUCCO (IBC 2021)

NOTES FOR FLOW CHART

[1]**IBC 602.5**: TYPE V CONSTRUCTION IS THAT TYPE OF CONSTRUCTION IN WHICH THE STRUCTURAL ELEMENTS, EXTERIOR WALLS AND INTERIOR WALLS ARE OF ANY MATERIALS PERMITTED BY THIS CODE.

COMMENT: BECAUSE THE IBC PERMITS COMBUSTIBLE MATERIALS SUCH AS WOOD IN TYPE V CONSTRUCTION, IT IS REFERRED TO AS "COMBUSTIBLE CONSTRUCTION". CONSTRUCTION UNDER THE IRC IS ALSO TYPE V.

[2]**IBC SECTION 1405**
COMBUSTIBLE MATERIALS ON THE EXTERIOR SIDE OF EXTERIOR WALLS
1405.1 COMBUSTIBLE EXTERIOR WALL COVERINGS. COMBUSTIBLE EXTERIOR WALL COVERINGS SHALL COMPLY WITH THIS SECTION.

COMMENT: EIFS TYPICALLY QUALIFY FOR USE ON TYPES I, II, III, IV, CONSTRUCTION BY COMPLYING WITH CHAPTER 26 -PLASTIC.

2603.5 EXTERIOR WALLS OF BUILDINGS OF ANY HEIGHT. EXTERIOR WALLS OF BUILDINGS OF TYPE I, II, ILL OR IV CONSTRUCTION OF ANY HEIGHT SHALL COMPLY WITH SECTIONS 2603.5.1 THROUGH 2603.5.7.

COMMENT: TYPES I-IV CONSTRUCTION IS REFERRED TO AS NONCOMBUSTIBLE CONSTRUCTION ALTHOUGH THERE ARE MANY PROVISIONS FOR THE LIMITED USE OF COMBUSTIBLE MATERIALS IN THEM.

2603.5.5 VERTICAL AND LATERAL FIRE PROPAGATION. THE EXTERIOR WALL ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND COMPLY WITH THE ACCEPTANCE CRITERIA OF NFPA 285.

IBC 1405.1.1 TYPES I, II, ILL AND IV CONSTRUCTION.
ON BUILDINGS OF TYPES I, 11, III AND IV CONSTRUCTION, EXTERIOR WALL COVERINGS SHALL BE PERMITTED TO BE CONSTRUCTED OF COMBUSTIBLE MATERIALS, COMPLYING WITH THE FOLLOWING LIMITATIONS:

1. COMBUSTIBLE EXTERIOR WALL COVERINGS SHALL NOT EXCEED 10 PERCENT OF AN EXTERIOR WALL SURFACE AREA WHERE THE FIRE SEPARATION DISTANCE IS 5 FEET (1524 mm) OR LESS.
[3]2. COMBUSTIBLE EXTERIOR WALL COVERINGS SHALL BE LIMITED TO 40 FEET (12,192 mm) IN HEIGHT ABOVE GRADE PLANE.

1405.1.1.1.1 FIRE SEPARATION 5 FEET OR LESS. WHERE INSTALLED ON EXTERIOR WALLS HAVING A FIRE SEPARATION DISTANCE OF 5 FEET (1524 mm) OR LESS, COMBUSTIBLE EXTERIOR WALL COVERINGS SHALL NOT EXHIBIT SUSTAINED FLAMING AS DEFINED IN NFPA 268*.

**NFPA 268 IS THE TEST FOR RADIANT IGNITION RESISTANCE.*

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IBC1402.5 WATER-RESISTIVE BARRIERS. EXTERIOR WALLS ON BUILDINGS OF TYPE I, II, ILL OR IV CONSTRUCTION THAT ARE GREATER THAN 40 FEET IN HEIGHT (12,192 mm) IN HEIGHT ABOVE GRADE PLANE AND CONTAIN A COMBUSTIBLE WATER-RESISTIVE BARRIER SHALL BE TESTED IN ACCORDANCE WITH AND COMPLY WITH THE ACCEPTANCE CRITERIA OF NFPA 285.

EXCEPTIONS:

[4]1. WALLS IN WHICH THE WATER-RESISTIVE BARRIER IS THE ONLY COMBUSTIBLE COMPONENT AND THE EXTERIOR WALL COVERING OF BRICK, CONCRETE, STONE, TERRA COTTA, STUCCO OR STEEL WITH MINIMUM THICKNESSES IN ACCORDANCE WITH TABLE 1404.2.

[5]**IBC TABLE 1404.2**: STUCCO OR EXTERIOR CEMENT PLASTER: THREE-COAT WORK OVER METAL PLASTER BASE, 0.875" *(7/8")* (EXCLUSIVE OF TEXTURE).

[6]2. WALLS IN WHICH THE WATER-RESISTIVE BARRIER IS THE ONLY COMBUSTIBLE COMPONENT AND THE WATER-RESISTIVE BARRIER COMPLIES WITH THE FOLLOWING:

2.1. A PEAK HEAT RELEASE RATE OF LESS THAN 150 Kw/m^2, A TOTAL HEAT RELEASE OF LESS THAN 20 MJ/m^2 AND AN EFFECTIVE HEAT OF COMBUSTION OF LESS THAN 18 MJ/kg WHEN TESTED ON SPECIMENS AT THE THICKNESS INTENDED FOR USE, IN ACCORDANCE WITH ASTM E1354, IN THE HORIZONTAL ORIENTATION AND AT AN INCIDENT RADIANT HEAT FLUX OF 50 kWm^2.

[7]2.2. A FLAME SPREAD INDEX OF 25 OR LESS AND A SMOKE-DEVELOPED INDEX OF 450 OR LESS AS DETERMINED IN ACCORDANCE WITH ASTM E84 OR UL 723, WITH TEST SPECIMEN PREPARATION AND MOUNTING IN ACCORDANCE WITH ASTM E2404.

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TECHNICAL BULLETIN

MW# 103-231001

Topic: NFPA 285 Assemblies

Attached are some common assemblies of our standard systems and those with various forms of insulation. These can vary depending upon individual components and review of the local building official. If you have any specific assemblies, please contact us at 800-755-0825 or tech@masterwall.com.

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MW# 103 Popular NFPA 285 Assemblies

Rollershield Drainage CIFS®

System	Interior	Framing	Insulation	Ext. Sheathing	Water Barrier	Insulation	Base Coat/Mesh	Finish	Source
Rollershield Drainage CIFS®	5/8" Type X	Metal	FR Fiberglass, Mineral Wool, None	1/2" ASTM C1177	Rollershield	4" EPS	Standard	All	Code Report ER-0433
Rollershield Drainage CIFS®	5/8" Type X	FRT Wood	FR Fiberglass, Mineral Wool, None	FRT Wood	Rollershield	4" EPS	Standard	All	Engineering Review
Rollershield Drainage CIFS®				Concrete, CMU, Masonry	Rollershield	4" EPS	Standard	All	Code Report/NC substrate

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MW# 103 Popular NFPA 285 Assemblies

Cemplaster Fiberstucco

System	Interior	Framing	Insulation	Ext. Sheathing	Water Barrier	Insulation	Drainage Mat	Stucco	Thickness	Finish	Source
Cemplaster Fiberstucco	5/8" Type X	Metal	FR Fiberglass, Mineral Wool, None	1/2" ASTM C1177	All Approved	None	None	Cemplaster Fiberstucco	7/8"	All	IBC Chapter 14
Cemplaster Fiberstucco	5/8" Type X	FRT Wood	FR Fiberglass, Mineral Wool, None	FRT Wood	All Approved	None	None	Cemplaster Fiberstucco	7/8"	All	IBC Chapter 14
Cemplaster Fiberstucco	5/8" Type X	Concrete, CMU, Metal, FRT Wood	None, Fiberglass, Mineral Wool	Glass Mat Sheathing, DensElement™	All Approved	2" DuPont® Styrofoam®	None	Cemplaster Fiberstucco	3/4"	All	DuPont® Review
Cemplaster Fiberstucco	5/8" Type X	Concrete, CMU, Metal, FRT Wood	None, Fiberglass, Mineral Wool	Glass Mat Sheathing, DensElement™	All Approved	2" Owens Corning Foamular®	None	Cemplaster Fiberstucco	7/8"	All	OC Review
Cemplaster Fiberstucco	5/8" Type X	Concrete, CMU, Metal, FRT Wood	None, Fiberglass, Mineral Wool	Glass Mat, FRT Wood	All Approved	Varies, up to 2"	Keene® 020-1	Cemplaster Fiberstucco	3/8"	All	Keene® Engineering Analysis
Cemplaster Fiberstucco	5/8" Type X	Metal/FRT Wood	None, Fiberglass, Mineral Wool	Glass Mat, FRT Wood	All Approved	Varies, up to 2"	Keene® 020-1 (optional)	Quikrete Fiber Stucco Cobrand	1/2"	All	Code Report ER-0455
Cemplaster Fiberstucco	5/8" Type X	Metal/FRT Wood	None, Fiberglass, Mineral Wool	Glass Mat, FRT Wood	All Approved	None	Keene® 020-1	Quikrete Fiber Stucco Cobrand	1/2"	All	Code Report ER-0455
Cemplaster Fiberstucco	5/8" Type X	Metal	None, Fiberglass, Mineral Wool	Glass Mat	All Approved	None	None	Spec Mix Cobrand	3/8"	All	Code Report CCRR-0231
Cemplaster Fiberstucco	5/8" Type X	Metal	None, Fiberglass, Mineral Wool	Glass Mat	All Approved	None	Keene® 020-1 (optional)	Western 1-Kote Cobrand	3/8"	All	Code Report ER-0382
Cemplaster Fiberstucco	5/8" Type X	Metal	None, Fiberglass, Mineral Wool	Glass Mat	All Approved	1" Mineral Wool	Keene® 020-1 (optional)	Western 1-Kote Cobrand	3/8"	All	Code Report ER-0382

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MW# 103 Popular NFPA 285 Assemblies

LiMa i410

System	Interior	Framing	Insulation	Ext. Sheathing	Water Barrier	Insulation	Base Coat/Mesh	Finish	Source
LiMa i410	5/8" Type X	Metal	FR Fiberglass, Mineral Wool, None	1/2" ASTM C1177	Rollershield	4" EPS	Standard	All	Code Report ER-0433
LiMa i410	5/8" Type X	FRT Wood	FR Fiberglass, Mineral Wool, None	FRT Wood	Rollershield	4" EPS	Standard	All	Code Report ER-0433

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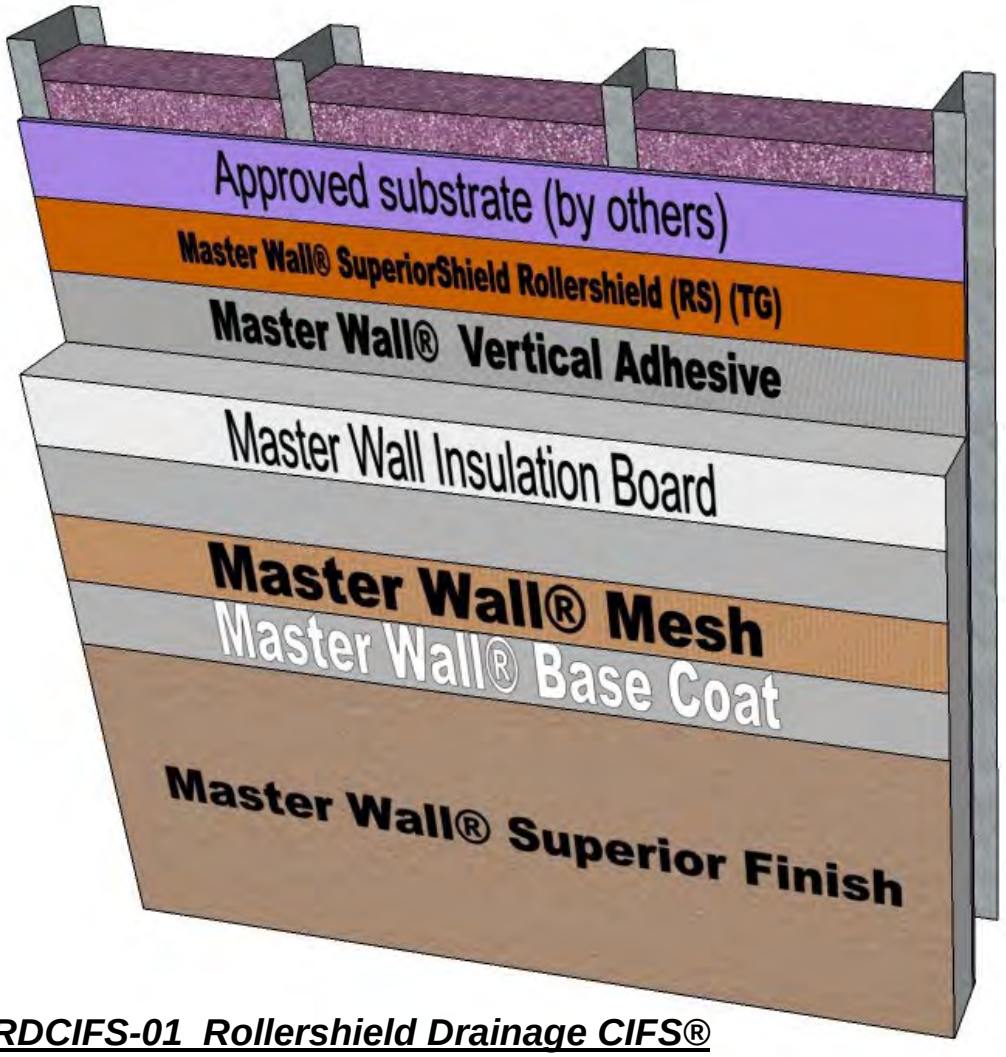
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System Detail

Wall Assembly Components

- Interior Drywall, 5/8” Type X
- Metal Framing, 18ga C-studs max. 24” o.c.
- Insulation (optional), Fiberglass Batt (faced/unfaced) or any other noncombustible such as mineral wool
- ASTM C1177 Exterior Sheathing, 5/8” thick
- **Rollershield Air/Water Barrier**
- **Master Wall® Adhesive**
- **Master Wall® Insulation Board, max 4” thick**
- **Master Wall Base Coat**
- **Master Wall Reinforcing Mesh**
- **Superior Finish**



Wall System Reference

- IAPMO UES ER-0433

NFPA-RDCIFS-01 Rollershield Drainage CIFS®

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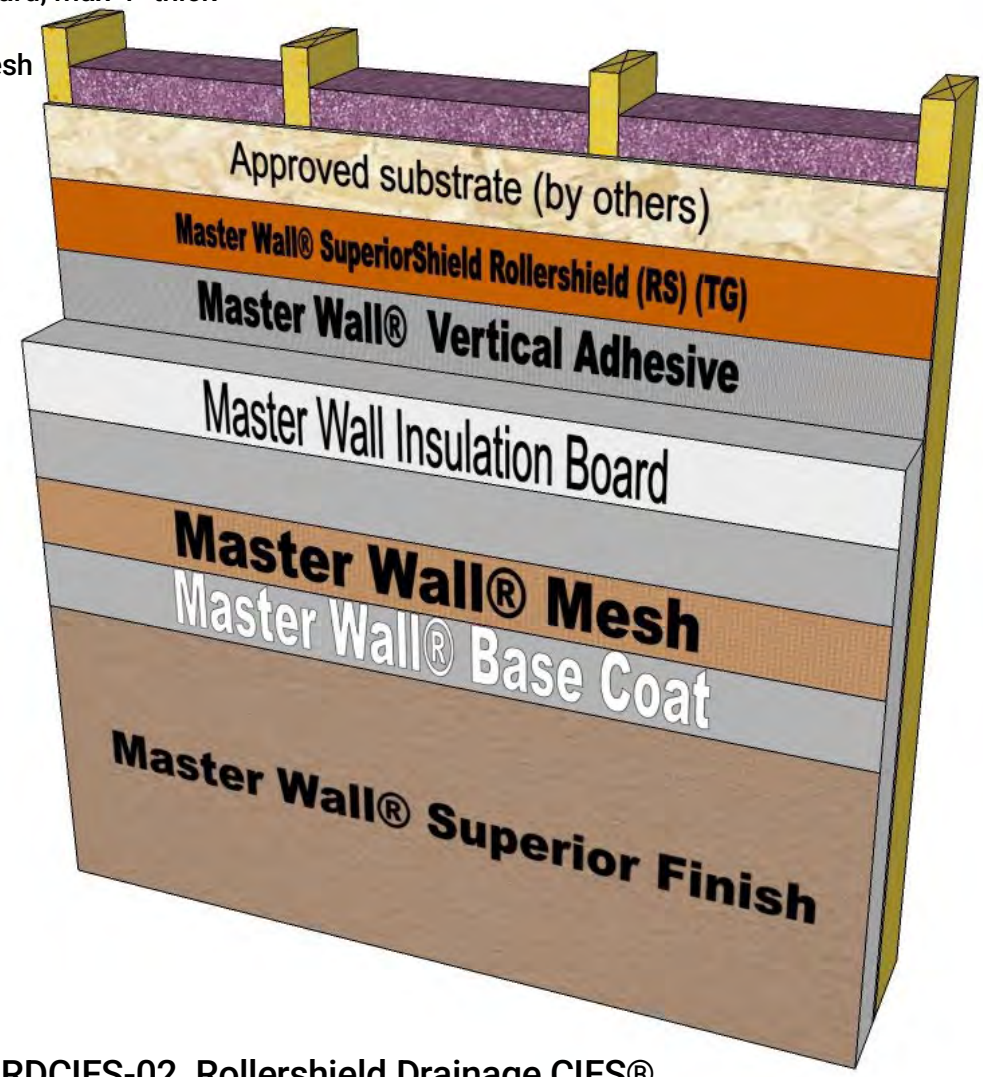
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System Detail

Wall Assembly Components

- **Interior Drywall, 5/8" Type X**
- **FRT Wood Framing, max. 24" o.c.**
- **Insulation (optional), Fiberglass Batt (faced/unfaced) or any other noncombustible such as mineral wool**
- **FRT Wood Exterior Sheathing**
- **Rollershield Air/Water Barrier**
- **Master Wall® Adhesive**
- **Master Wall® Insulation Board, max 4" thick**
- **Master Wall Base Coat**
- **Master Wall Reinforcing Mesh**
- **Superior Finish**



Wall System Reference

- IAPMO UES ER-0433
- Priest & Associates Engineering Review

NFPA-RDCIFS-02 Rollershield Drainage CIFS®

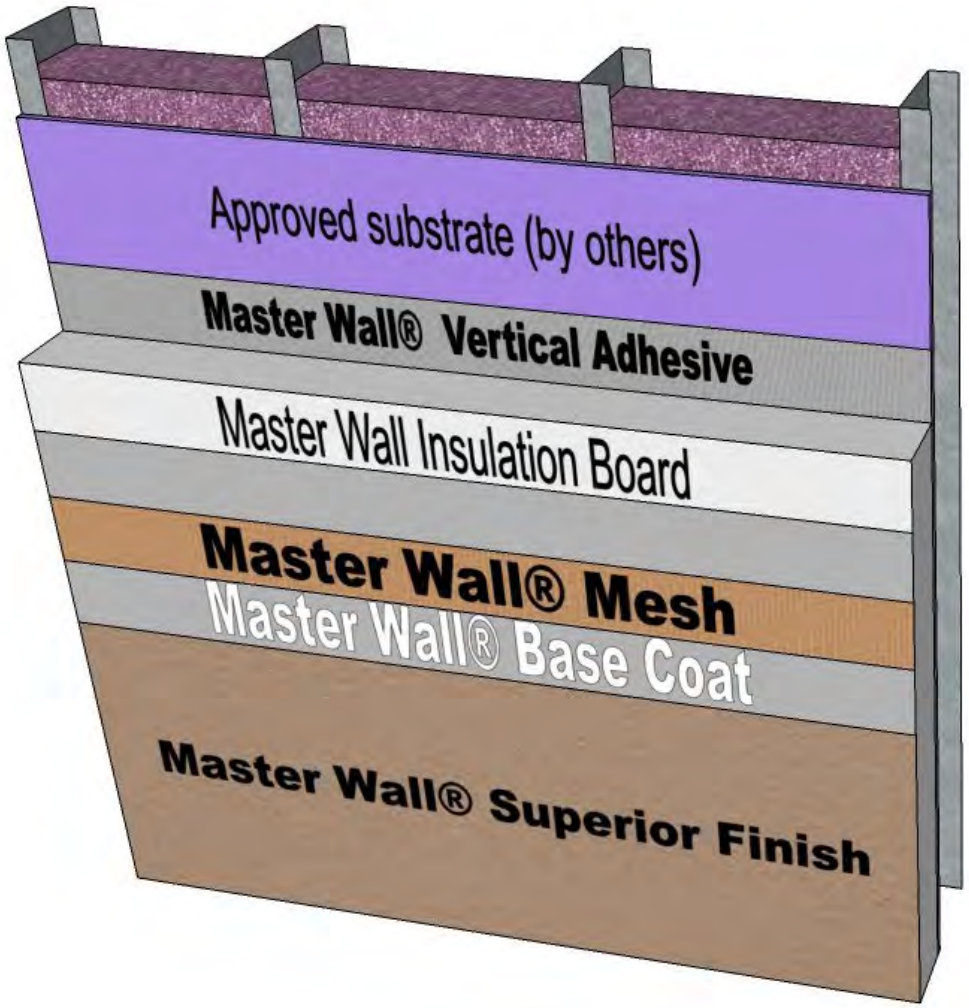
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System Detail

Wall Assembly Components

- Interior Drywall, 5/8” Type X
- Metal Framing, 18ga C-studs max. 24” o.c.
- Insulation (optional), Fiberglass Batt (faced/unfaced) or any other noncombustible such as mineral wool
- Type X Exterior Sheathing, 1/2” thick
- **Rollershield Air/Water Barrier**
- **Master Wall® Adhesive**
- **Master Wall® Insulation Board, max 4” thick**
- **Master Wall Base Coat**
- **Master Wall Reinforcing Mesh**
- **Superior Finish**



Wall System Reference

- IAPMO UES ER-0433

NFPA-AFEIFS-01 Aggre-flex EIFS

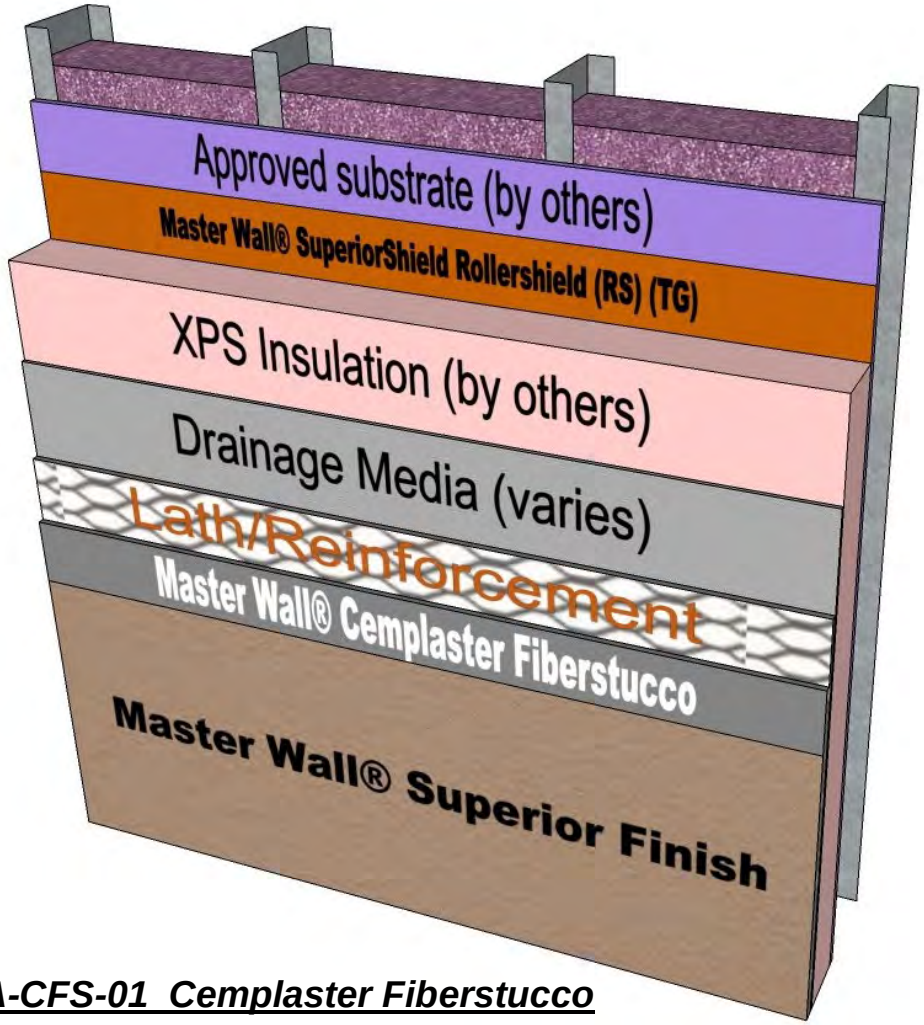
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System Detail

Wall Assembly Components

- Interior Drywall, 5/8" Type X
- Metal Framing, 18ga C-studs max. 24" o.c.
- Insulation (optional), Fiberglass Batt (faced/unfaced) or any other noncombustible such as mineral wool
- Type X Exterior Sheathing, 1/2" thick
- Noncombustible substrates such as FRT wood, masonry, or concrete (see individual reports)
- **Rollershield Air/Water Barrier** or other water barrier
- ASTM D226 water barrier or slip sheet as needed
- Insulation Board, XPS or Polyisocyanurate, up to 2" thick (optional)
- **Drainage Media, Keene® 020-1**
- **Cemplaster Fiberstucco, minimum ½" thick**
- **Superior Finish**



Wall System Reference

- Hunter Panels NFPA 285 Assembly Brochures
- Keene® Drainage Mat NFPA 285 Assemblies

NFPA-CFS-01 Cemplaster Fiberstucco

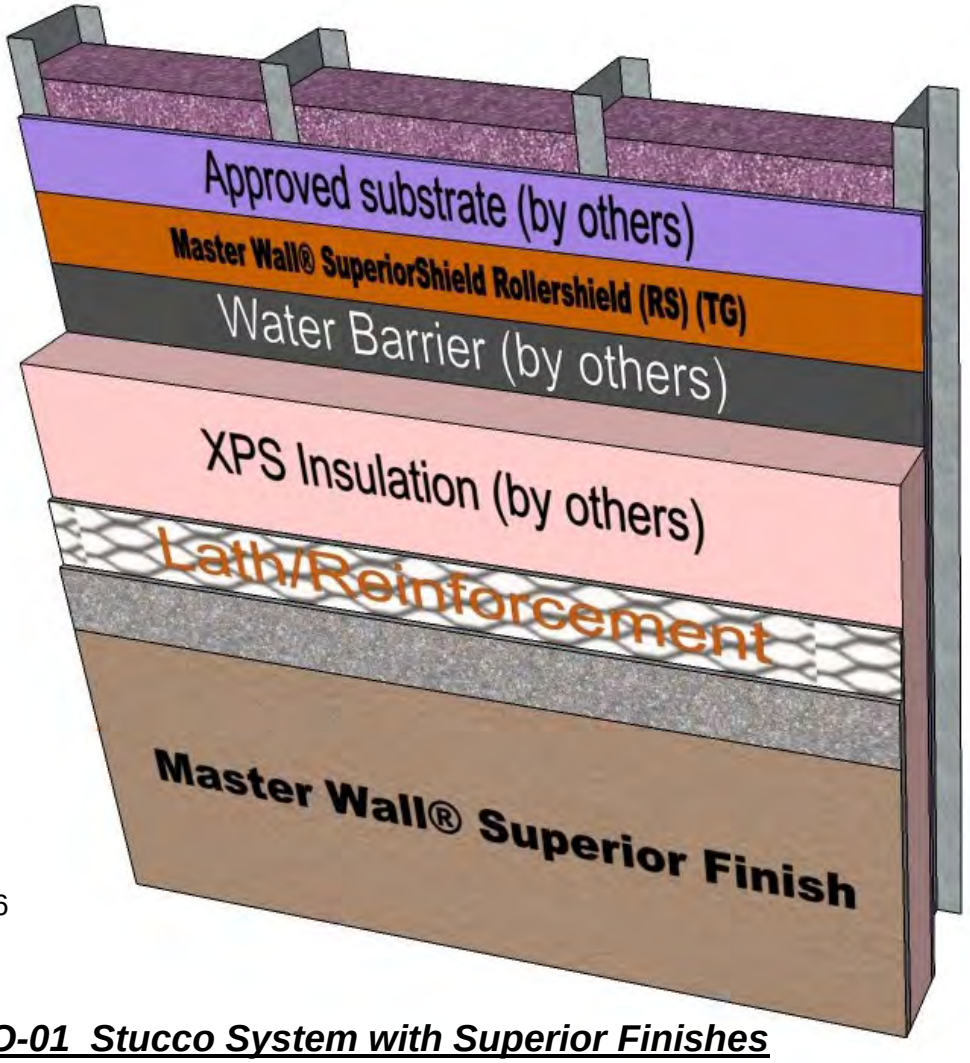
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System Detail

Wall Assembly Components

- Interior Drywall, 5/8” Type X
- Metal Framing, 18ga C-studs max. 24” o.c.
- Insulation (optional), Fiberglass Batt (faced/unfaced) or any other noncombustible such as mineral wool
- Type X Exterior Sheathing, 1/2” thick
- Noncombustible substrates such as FRT wood, masonry or concrete (see individual reports)
- **Rollershield Air/Water Barrier** or other water barrier
- ASTM D226 water barrier or slip sheet as needed
- Insulation Board, XPS or Polyisocyanurate, up to 2” thick
- Stucco and Lath, typically 7/8” thick (1/2” with Hunter Panel Polyisocyanurate)
- **Superior Finish**



Wall System Reference

- DOW® NFPA 285 Assembly Brochure
- Hunter Panels NFPA 285 Assembly Brochures
- Owens Corning® NFPA 285 Assembly Brochure
- IBC 2018 Chapters 25 and 26

NFPA-STUCCO-01 Stucco System with Superior Finishes

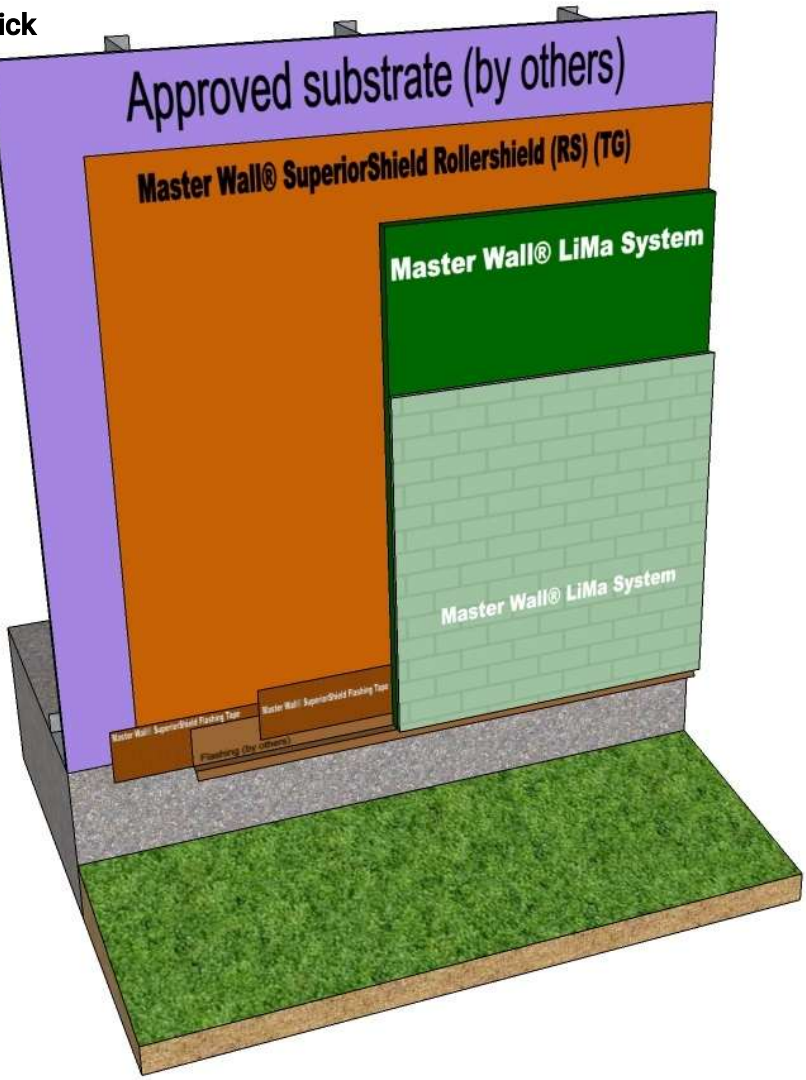
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System Detail

Wall Assembly Components

- Interior Drywall, 5/8" Type X
- Metal Framing, 18ga C-studs max. 24" o.c.
- Insulation (optional), Fiberglass Batt (faced/unfaced) or any other noncombustible such as mineral wool
- Type X Exterior Sheathing, 1/2" thick
- **Rollershield Air/Water Barrier**
- **Master Wall® Adhesive**
- **Master Wall® Insulation Board, max 4" thick**
- **Master Wall Base Coat**
- **Master Wall Reinforcing Mesh**
- **Ultrabond Adhesive**
- **Thin Brick or Stone (by others)**
- **Mortar (by others**



Wall System Reference

- IAPMO UES ER-0433

NFPA-LiMa i410-01 Thin Brick EIFS

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