

James Hardie® fiber cement in compliant NFPA 285 tested wall assemblies

Technical
Brief

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The National Fire Protection Agency (NFPA) 285 standard fire test governs the use of foam plastic insulation and water-resistive barriers (WRB) used in exterior walls of construction type I through IV per the International Building Code (IBC).

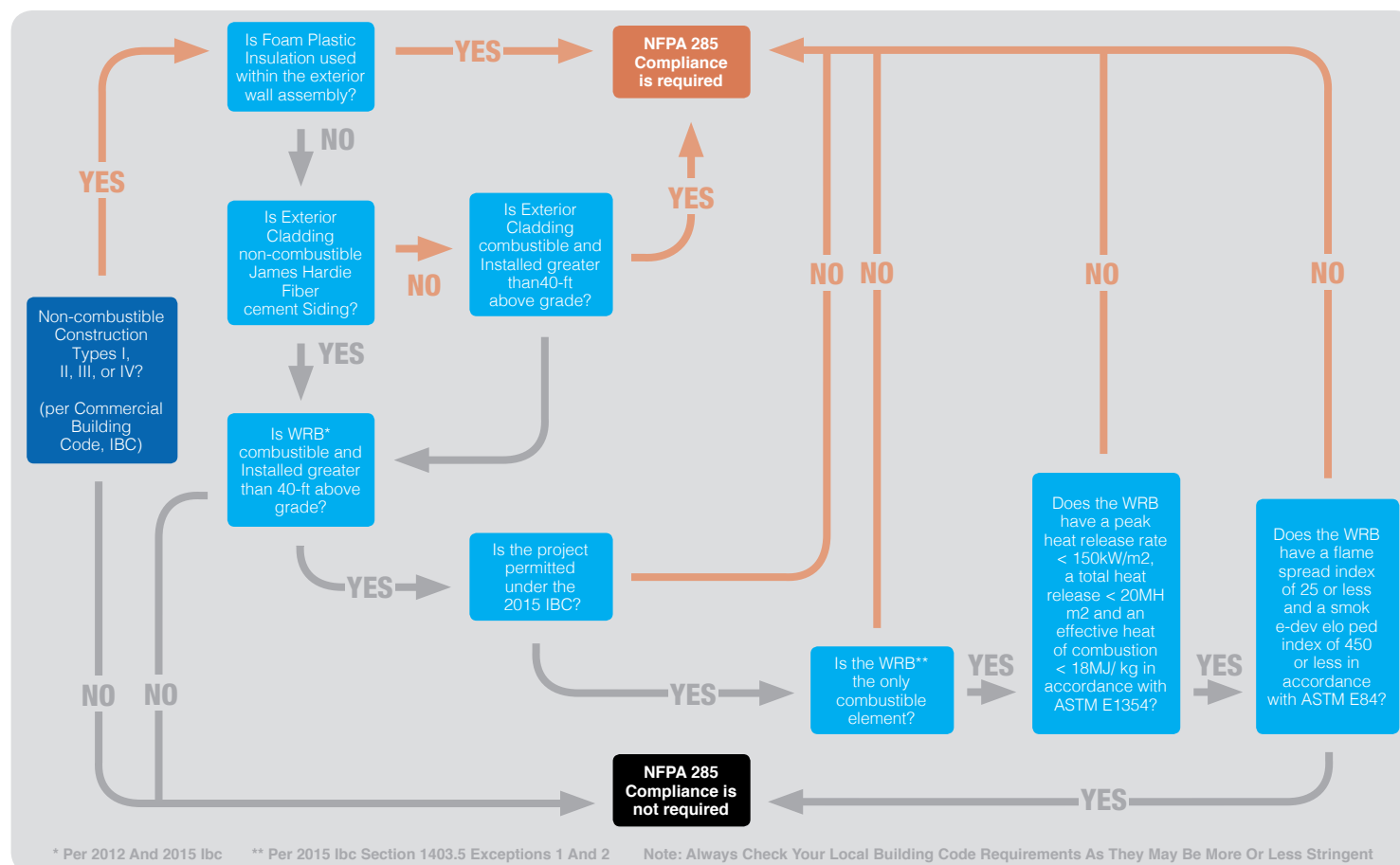
The NFPA 285 standard fire test determines the pass/fail performance of a specific wall assembly by measuring flame propagation by height, width, and temperature over time. If a given wall assembly passes the NFPA 285 test at an accredited test facility, then that specific assembly is deemed compliant and may be used on a project to demonstrate compliance to the specific section of the building code that requires NFPA 285 performance. Any changes to that assembly would require a new test, or an engineering judgment from a Professional Fire Protection Engineer to determine compliance.

For reference, the flow chart below maps out whether or not a given project is subject to NFPA 285 compliance:

The flow chart identifies foam plastic insulation, combustible exterior cladding and combustible water-resistive barriers as triggers for compliance to NFPA 285.

James Hardie fiber cement siding is non-combustible and therefore, is not a trigger for NFPA 285 compliance on its own. However, James Hardie siding may be specified in an exterior wall assembly that is required to be compliant to the NFPA 285 test method (e.g. with foam plastic insulation, or combustible WRB).

When this is the case, there are several manufacturers of foam plastic insulation with published NFPA 285 compliant wall assemblies tested with fiber cement exterior cladding for use on projects subject to the requirement.



A table of tested assemblies is provided for reference below, along with a link to the research report DRR No.1404-01 from DrJ Engineering:

Table 1: NFPA 285 Tested Assemblies Using Foam Plastic Insulating Sheathing Products- DRR No. 1404-01

FOAM PLASTIC INSULATING SHEATHING		
Report Number	Manufacturer	Product(s)
TER No. 1306-03	Atlas Roofing Corporation	RBoard® Pro, EnergyShield® Pro & EnergyShield® Pro2
ICC-ES 1659	Dow Chemical Company	THERMAX™ Insulating Sheathing THERMAX™ Total Wall System
TER No. 1402-01	Hunter Panels	Xci Class A, Xci 286
TER No. 1402-02	Hunter Panels	Xci Foil, Xci CG, Xci Ply
TER No. 1212-03	Rmax® Operating, LLC	ECOMAXci™ Wall Solution
TER No. 1309-03	Rmax® Operating, LLC	Thermasheath®-XP TSX-8500, TSX-8510, TSX-8520
TER No. 1504-04	Rmax® Operating, LLC	ECOBASEci™

The table is not an exhaustive list of manufacturers or plastic foam insulation types with tested, compliant assemblies. It is meant to serve as starting point for further research into the best solution for a given assembly.

For a list of weather barriers deemed non-combustible, see Dow Tech Solutions 514.0

James Hardie fiber cement in NFPA 285 compliant wall assemblies with a rainscreen air gap.

In some cases, a wall assembly specified with James Hardie fiber cement cladding will have to comply with NFPA 285 in addition to incorporating an air gap behind the fiber cement cladding formed by furring to achieve a rainscreen design.

Currently, only Dow Thermax™ Rigid Insulation includes the option of up to a 1-1/2 inch air gap behind the cladding, with a maximum 3 inches thick Thermax, in an approved assembly, as shown in Figures 1 and 2.

Figure 1: James Hardie Cladding in a Steel Cavity Wall

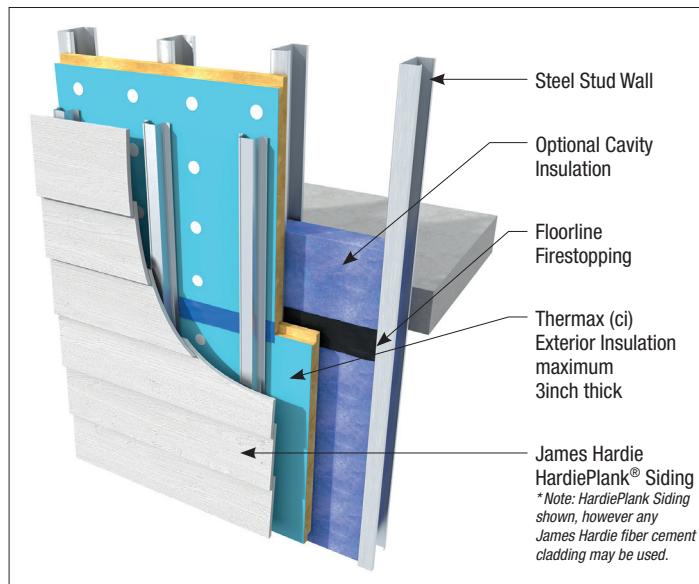
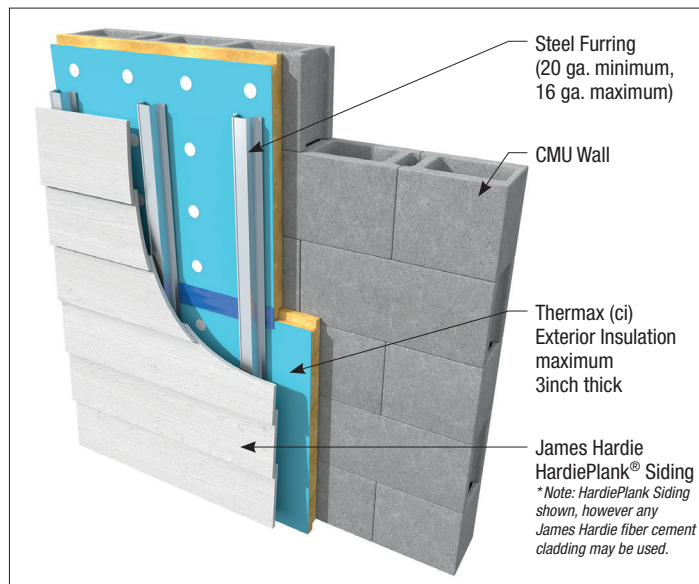


Figure 2: James Hardie Cladding in a CMU Cavity Wall



Dow- 285 Extension Tests Analysis available at 866.583.2583.

Please consult the following links for more information on the NFPA 285 test standard:

http://www.seabec.org/assets/symposium/nfpa-285-ceu_seabec.pdf

<https://www.airbarrier.org/conference/NFPA%20285%20and%20What%20it%20Means%20for%20Air%20Barriers%20-%20Jess%20Beitel.pdf>

http://www.dupont.com/content/dam/assets/products-and-services/construction-materials/assets/Navigating_Wall_Assembly_Fire_Testing.pdf

<http://www.constructionspecifier.com/specifying-nfpa-285-testing/>



JamesHardie

Additional installation information and warranties are available at JamesHardie.com

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IMPORTANT: Failure to install and finish this product in accordance with applicable building codes and James Hardie written application instructions may affect system performance, violate local building codes, void the product-only warranty and lead to personal injury.

DESIGN ADVICE: Any information or assistance provided by James Hardie in relation to specific projects must be approved by the relevant specialists engaged for the project e.g. builder, architect or engineer. James Hardie will not be responsible in connection with any such information or assistance.

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