TEXAS DEPARTMENT OF INSURANCE

Engineering Services / MC 103-3A 333 Guadalupe Street P.O. Box 149104 Austin, Texas 78714-9104
Phone No. (512) 322-2212 Fax No. (512) 463-6693

PRODUCT EVALUATION Effective April 1, 2008
EC-23

The following product has been evaluated for compliance with the wind loads specified in International Residential Code (IRC) and the International Building Code (IBC). This product shall be subject to reevaluation 3 years after the effective date.

This product evaluation is not an endorsement of this product or a recommendation that this product be used. The Texas Department of Insurance has not authorized the use of any information contained in the product evaluation for advertising, or other commercial or promotional purpose.

This product evaluation is intended for use by those individuals who are following the design wind load criteria in Chapter 3 of the IRC and Section 1609 of the IBC. The design loads determined for the building or structure shall not exceed the design load rating specified for the products shown in the limitations section of this product evaluation. This product evaluation does not relieve a Texas licensed engineer of his responsibilities as outlined in the Texas Insurance Code, the Texas Administrative Code, and the Texas Engineering Practice Act.

Hardiepanel™, Cempanel®, **Hardieplank™, Cemplank®**, **Sentry™**, and **Hardieshingle™**, fiber-reinforced cement exterior siding, and **Hardishingle™**, fiber-reinforced cement exterior cladding, manufactured by

James Hardie Building Products, Inc.
10901 Elm Avenue
Fontana, California 92337
Telepone: 800-426-4051

will be acceptable for use in designated catastrophe areas along the Texas Gulf Coast when installed in accordance with the manufacturer's installation instructions and this product evaluation.

PRODUCT DESCRIPTION

The following James Hardie Building Products have been accepted:

Hardiepanel™ and Cempanel® panel siding is nominal $\frac{5}{16}$" thick. The siding is 4 feet wide and comes in lengths of 8, 9, and 10 feet.

Hardieplank™, Cemplank®, **Sentry™,** and **Hardieshingle™** lap siding is nominal $\frac{5}{16}$" thick. The siding comes in 12 foot lengths. The siding is available in widths up to 12 inches. The siding is available in smooth and woodgrain finishes.

Hardieshingle™ cladding shingles are nominal $\frac{1}{4}$" thick. The siding comes in dimensions of 6", 8", and 12" wide x 18" long. When installed, the cladding has the appearance of wood shingles. The cladding has an 8" exposure.

Hardieshingle™ panel cladding is nominal $\frac{1}{4}$" thick. The siding has dimensions of 48" wide x 19" or 16" long. When installed, the cladding has an appearance of wood shingles. The cladding has a 7" exposure. The cladding is available in half round, staggered edge and straight edge panels.

INSTALLATION REQUIREMENTS

General Installation Requirements:
All fasteners shall be corrosion resistant.

HardiePlank™, Cemplank®, **HardiePanel™,** and **Cempanel®** siding**:** The siding may be installed over structural sheathing if it is nailed through the sheathing and into the framing members. If the siding is installed over non-structural sheathing (foam, gypsum board, fiberboard), then the length of the fastener used to secure the siding to the wall framing shall be increased by the thickness of the non-structural sheathing.

HardiePlank™ and **Cemplank®** siding**:** Vertical splices shall be made between framing members using an off-stud metal joiner or over a framing member. If the vertical splice occurs over a framing member, then the fastener shall be between ⅜ inch and ½ inch from the vertical splice and between ¾ inch and 1 inch from the edge of the siding. When using an off-stud metal joiner, splices shall be located at least two stud cavities from the wall corner and one stud cavity away from door or window openings. In addition, successive splices in the same plank shall be at least 48 inches apart and splices within the same stud cavity shall be at least 24 inches apart.

HardieShingle™ cladding shingles**:** The cladding shingles shall be installed directly to wood structural panels.

HardiePlank™, Cemplank®, **Sentry™**, and **HardieShingle™** lap siding, **HardieShingle™** cladding shingles, and **HardieShingle™** panels: These products shall not be used as wall bracing.

Wind Resistant Assemblies:

WOOD FRAMING APPLICATIONS

Assembly No. 1

HardiePlank™, Cemplank®, Sentry™, and **HardieShingle™ Lap Siding (Exposed Nailing Method)**

The following products are applicable: Lap siding 12 inches in width or less.

Fastener: 0.092 inch shank, 2 ½ inch long, 0.222 inch head
Design pressure: -37 psf

Installation: Wall studs shall be minimum Spruce-Pine-Fir (SPF) dimension lumber spaced a maximum of 16 inches on center. Wall bracing shall be installed as required. A building paper shall be applied to the wall studs before installing the siding. The siding shall be fastened to the wall studs with minimum 0.092 inch shank, 2 ½ inch long, 0.222 inch head corrosion resistant nails using the exposed nailing method. The first HardiePlank™ or Cemplank® should be installed horizontally over a 1 ¼ inch wide weather resistant lath starter strip. Fasteners should be located approximately ⅝ inch from the bottom of the plank. The remaining courses are then installed with minimum 1 ¼ inch wide overlaps. Flashing, trim, and corners should be installed according to the manufacturer's specifications.

WOOD FRAMING APPLICATIONS (cont.)

Assembly No. 2

HardiePlank™, Cemplank®, Sentry™, and **HardieShingle™ Lap Siding (Concealed Nailing Method)**

The following products are applicable: Lap siding 5 1/4 inches in width or less.

Fastener: 11 gauge roofing nail, 1 3/4 inch long, 3/8 inch head
Design pressure: -85.8 psf

Installation: Wall studs shall be minimum 2x4 Douglas Fir-Larch dimension lumber spaced a maximum of 16 inches on center. Wall bracing shall be installed as required. A building paper shall be applied to the wall studs before installing the siding. The siding shall be fastened to the wall studs using the concealed nailing method. The fasteners shall be driven through the top of the plank and into the framing member. The fastener should be between 3/4 inch and 1 inch from the top edge of the plank and covered by the next succeeding course of planks. The first HardiePlank™ or Cemplank® should be installed horizontally over a 1 1/4 inch wide weather resistant lath starter strip. The remaining courses are then installed with minimum 1 1/4 inch wide overlaps. Flashing, trim, and corners should be installed according to the manufacturer's specifications.

Assembly No. 3

HardiePlank™, Cemplank®, Sentry™, and **HardieShingle™ Lap Siding (Concealed Nailing Method)**

The following products are applicable: Lap siding 6 1/4 inches in width or less.

Fastener: 11 gauge roofing nail, 1 3/4 inch long, 3/8 inch head
Design pressure: -68.0 psf

Installation: Wall studs shall be minimum 2x4 Douglas Fir-Larch dimension lumber spaced a maximum of 16 inches on center. Wall bracing shall be installed as required. A building paper shall be applied to the wall studs before installing the siding. The siding shall be fastened to the wall studs using the concealed nailing method. The fasteners shall be driven through the top of the plank and into the framing member. The fastener should be between 3/4 inch and 1 inch from the top edge of the plank and covered by the next succeeding course of planks. The first HardiePlank™ or Cemplank® should be installed horizontally over a 1 1/4 inch wide weather resistant lath starter strip. The remaining courses are then installed with minimum 1 1/4 inch wide overlaps. Flashing, trim, and corners should be installed according to the manufacturer's specifications.

Assembly No. 4

HardiePlank™, Cemplank®, Sentry™, and **HardieShingle™ Lap Siding (Concealed Nailing Method)**

The following products are applicable: Lap siding 7 1/4 inches in width or less.
Fastener: 11 gauge roofing nail, 1 3/4 inch long, 3/8 inch head
Design pressure: -51.0 psf

WOOD FRAMING APPLICATIONS (cont.)

Installation: Wall studs shall be minimum 2x4 Douglas Fir-Larch dimension lumber spaced a maximum of 16 inches on center. Wall bracing shall be installed as required. A building paper shall be applied to the wall studs before installing the siding. The siding shall be fastened to the wall studs using the concealed nailing method. The fasteners shall be driven through the top of the plank and into the framing member. The fastener should be between ¾ inch and 1 inch from the top edge of the plank and covered by the next succeeding course of planks. The first HardiePlank™ or Cemplank® should be installed horizontally over a 1 ¼ inch wide weather resistant lath starter strip. The remaining courses are then installed with minimum 1 ¼ inch wide overlaps. Flashing, trim, and corners should be installed according to the manufacturer's specifications.

Assembly No. 5

HardiePlank™, Cemplank®, Sentry™, and **HardieShingle™ Lap Siding (Concealed Nailing Method)**

The following products are applicable: Lap siding 8 ¼ inches in width or less.

Fastener: 11 gauge roofing nail, 1 ¾ inch long, ⅜ inch head
Design pressure: -33.7 psf

Installation: Wall studs shall be minimum 2x4 Douglas Fir-Larch dimension lumber spaced a maximum of 16 inches on center. Wall bracing shall be installed as required. A building paper shall be applied to the wall studs before installing the siding. The siding shall be fastened to the wall studs using the concealed nailing method. The fasteners shall be driven through the top of the plank and into the framing member. The fastener should be between ¾ inch and 1 inch from the top edge of the plank and covered by the next succeeding course of planks. The first HardiePlank™ or Cemplank® should be installed horizontally over a 1 ¼ inch wide weather resistant lath starter strip. The remaining courses are then installed with minimum 1 ¼ inch wide overlaps. Flashing, trim, and corners should be installed according to the manufacturer's specifications.

Assemblies No. 6 and No. 7

HardiePlank™, Cemplank®, Sentry™, and **HardieShingle™ Lap Siding (Exposed Nailing Method)**

The following products are applicable: Lap siding 8 ¼ inches in width or less.
Assembly No. 6
Fastener: 8d box (0.113") ring shank, 2 ⅜ " long wire nail, 0.260 inch head
Design pressure: -98.6 psf

Assembly No. 7
Fastener: 0.092 inch shank, 2 ½ inch long, 0.222 inch head
Design pressure: -84.2 psf

WOOD FRAMING APPLICATIONS (cont.)

Installation: Wall studs shall be minimum 2x4 Douglas Fir-Larch dimension lumber spaced a maximum of 16 inches on center. Wall bracing shall be installed as required. A building paper shall be applied to the wall studs before installing the siding. The siding shall be fastened to the wall studs using the exposed nailing method. The fasteners should be located approximately $\frac{5}{8}$ inch from the bottom of the plank. The first HardiePlank™ or Cemplank® should be installed horizontally over a $1\frac{1}{4}$ inch wide weather resistant lath starter strip. The remaining courses are then installed with minimum $1\frac{1}{4}$ inch wide overlaps. Flashing, trim, and corners should be installed according to the manufacturer's specifications.

Assembly No. 8

HardiePlank™, Cemplank®, Sentry™, and **HardieShingle™ Lap Siding (Exposed Nailing Method)**

The following products are applicable: Lap siding $8\frac{1}{4}$ inches in width or less.

Fastener: 0.092 inch shank, $2\frac{1}{2}$ inch long, 0.222 inch head
Design pressure: -56.0 psf

Installation: Wall studs shall be minimum 2x4 SPF dimension lumber spaced a maximum of 16 inches on center. Wall bracing shall be installed as required. A building paper shall be applied to the wall studs before installing the siding. The siding shall be fastened to the wall studs using the exposed nailing method. The fasteners should be located approximately $\frac{5}{8}$ inch from the bottom of the plank. The first HardiePlank™ or Cemplank® should be installed horizontally over a $1\frac{1}{4}$ inch wide weather resistant lath starter strip. The remaining courses are then installed with minimum $1\frac{1}{4}$ inch wide overlaps. Flashing, trim, and corners should be installed according to the manufacturer's specifications.

Assembly No. 9

HardiePlank™, Cemplank®, Sentry™, and **HardieShingle™ Lap Siding (Exposed Nailing Method)**

The following products are applicable: Lap siding $8\frac{1}{4}$ inches in width or less.

Fastener: 8d box (0.113") ring shank, $2\frac{3}{8}$ " long wire nail, 0.260 inch head
Design pressure: -66.3 psf

Installation: Wall studs shall be minimum 2x4 Douglas Fir-Larch dimension lumber spaced a maximum of 24 inches on center. Wall bracing shall be installed as required. A building paper shall be applied to the wall studs before installing the siding. The siding shall be fastened to the wall studs using the exposed nailing method. The fasteners should be located approximately $\frac{5}{8}$ inch from the bottom of the plank. The first HardiePlank™ or Cemplank® should be installed horizontally over a $1\frac{1}{4}$ inch wide weather resistant lath starter strip. The remaining courses are then installed with minimum $1\frac{1}{4}$ inch wide overlaps. Flashing, trim, and corners should be installed according to the manufacturer's specifications.

should be installed according to the manufacturer's specifications.

WOOD FRAMING APPLICATIONS (cont.)

Assembly No. 10

HardieShingle™ cladding shingle (Concealed Nailing Method)

Fastener: 0.091" shank diameter, 2.473" long, and 0.221" diameter head
Design pressure: -30 psf

Installation: Wall studs shall be minimum 2x4 SPF dimension lumber spaced a maximum of 16 inches on center. Wall bracing shall be installed as required. The walls shall be fully sheathed with minimum 7/16" wood structural panels. A building paper shall be applied to the walls before installing the cladding. The fasteners shall be installed nominally 1" from each edge and at the midpoint of the shingle. The fasteners shall be located approximately 9" from the exposed edge. The first course of cladding should be installed as the starter course consisting of shingles inverted and laid horizontal. Flashing, trim, and corners should be installed according to the manufacturer's specifications.

Assembly No. 11

HardieShingle™ cladding shingle (Concealed Nailing Method)

Fastener: 0.120" shank diameter, 1 1/4" long, and 3/8" diameter head
Design pressure: -33 psf

Installation: Wall studs shall be minimum 2x4 SPF dimension lumber spaced a maximum of 16 inches on center. Wall bracing shall be installed as required. The walls shall be fully sheathed with minimum 7/16" wood structural panels. A building paper shall be applied to the walls before installing the siding. The cladding shall be fastened to the wall sheathing using the concealed nailing method. The fasteners shall be installed nominally 1" from each edge and located approximately 9" from the exposed edge. The first course of cladding should be installed as the starter course consisting of shingles inverted and laid horizontal. Flashing, trim, and corners should be installed according to the manufacturer's specifications.

Assembly No. 12

HardieShingle™ panel cladding

Fastener: 0.083" shank diameter, 1 1/2" long, and 0.187" diameter head
Design pressure: -64 psf

Installation: Wall studs shall be minimum 2x4 SPF dimension lumber spaced a maximum of 16 inches on center. A building paper shall be applied to the walls before installing the siding. The cladding shall be fastened to the wall studs spaced 16" on center. The fasteners shall be installed nominally 1/2" from each edge and located approximately 8" from the exposed edge, 3/4" above the 1/4" wide keyway. Flashing, trim, and corners should be installed according to the manufacturer's specifications.

WOOD FRAMING APPLICATIONS (cont.)

Assembly No. 13

HardieShingle™ panel cladding

Fastener: 0.083" shank diameter, 1 ½ " long, and 0.187" diameter head ring shank
Design pressure: -33 psf

Installation: Wall studs shall be minimum 2x4 SPF dimension lumber spaced a maximum of 24 inches on center. A building paper shall be applied to the walls before installing the siding. The cladding shall be fastened to the wall studs spaced 24" on center. The fasteners shall be installed nominally ½" from each edge and located approximately 8" from the exposed edge, ¾" above the ¼" wide keyway. Flashing, trim, and corners should be installed according to the manufacturer's specifications.

Assemblies No. 14, No. 15, No. 16, and No. 17

HardiePanel™, Cempanel® Panel Siding

Assembly No. 14 (wall studs 16 inches on center)
Fasteners: 6d common wire; 4" on center along panel edges and along intermediate framing
Design pressure: -79 psf
Racking load resistance of siding: 233 plf

Assembly No. 15 (wall studs 16 inches on center)
Fasteners: 6d common wire; 6" on center along panel edges and along intermediate framing
Design pressure: -49.7 psf
Racking load resistance of siding: 201 plf

Assembly No. 16 (wall studs 24 inches on center)
Fasteners: 6d common wire; 4" on center along panel edges and along intermediate framing
Design pressure: -47.7 psf
Racking load resistance of siding: 212 plf

Assembly No. 17 (wall studs 24 inches on center)
Fasteners: 6d common wire; 6" on center along panel edges and along intermediate framing
Design pressure: -31 psf
Racking load resistance of siding: 153 plf

Installation (general): Wall studs shall be minimum Hem-Fir dimension lumber. Wall bracing shall be installed as required. A building paper shall be applied to the wall studs before installing the siding. The panel siding shall be installed vertically with all joints occurring over framing members. The fasteners shall be spaced no closer than ⅜ inch from the edge and no closer than 2 inches from the corner.

Installation (when used as wall bracing): Wall studs shall be minimum Stud or No. 3 grade Hem-Fir dimension lumber. The panels shall be installed with the long dimension in the vertical direction. Each siding panel used as wall bracing shall be a minimum of 48 inches in width. The fasteners shall penetrate the wall studs a minimum of 1 ½ inches. The siding shall be fastened to the upper member of the double top plate and to the sole plate. All panel edges shall be nailed to wall framing.

METAL FRAMING APPLICATIONS

Assembly No. 18

HardiePlank™, Cemplank®, Sentry™, and **HardieShingle™ Lap Siding (Exposed Nailing Method)**

The following products are applicable: Lap siding 12 inches in width or less.

Fastener: ET&F or equivalent 0.100 inch, 1½ inch long, and 0.250 inch diameter head knurled shank
Design pressure: -50 psf

Installation: Wall studs shall be minimum number 20 gauge 3⅝ inch metal C-stud spaced a maximum of 16 inches on center. Wall bracing shall be installed as required. A building paper shall be applied to the wall studs before installing the siding. The siding shall be fastened to the wall studs using the exposed nailing method. The fasteners should be located approximately 5/8 inch from the bottom of the plank. The first Hardieplank™ or Cemplank® should be installed horizontally over a 1¼ inch wide weather resistant lath starter strip. The remaining courses are then installed with minimum 1¼ inch wide overlaps. Flashing, trim, and corners

Assemblies No. 19 and No. 20

HardiePlank™, Cemplank®, Sentry™, and **HardieShingle™ Lap Siding (Exposed Nailing Method)**

The following products are applicable: Lap siding 8¼ inches in width or less.

Assembly No. 19 (wall studs 16 inches on center)
Fastener: ET&F or equivalent 0.100 inch, 1½ inch long, and 0.250 inch diameter head knurled shank
Design pressure: -77.7 psf

Assembly No. 20 (wall studs 24 inches on center)
Fastener: ET&F or equivalent 0.100 inch, 1.5 inch long, and 0.250 inch diameter head knurled shank
Design pressure: -42.3 psf

Installation: Wall studs shall be minimum number 20 gauge 3⅝ inch metal C-stud. Wall bracing shall be installed as required. A building paper shall be applied to the wall studs before installing the siding. The siding shall be fastened to the wall studs using the exposed nailing method. The fasteners should be located approximately ⅝ inch from the bottom of the plank. The first Hardieplank™ or Cemplank® should be installed horizontally over a 1¼ inch wide weather resistant lath starter strip. The remaining courses are then installed with minimum 1¼ inch wide overlaps. Flashing, trim, and corners should be installed according to the manufacturer's specifications.

Assembly No. 21

HardieShingle™ panel cladding

Fastener: ET&F or equivalent 0.104 inch, 2 inch long, and 0.313 inch diameter head knurled shank
Design pressure: -56 psf

METAL FRAMING APPLICATIONS (cont.)

Installation: Wall studs shall be minimum number 20 gauge 3 5/8 inch metal C-stud spaced a maximum of 24 inches on center. Metal studs shall be spaced a maximum of 24 inches on center. A building paper shall be applied to the walls before installing the siding. The cladding shall be fastened to the wall studs spaced 24" on center. The fasteners shall be installed nominally ½" from each edge and located approximately 8" from the exposed edge, ¾" above the ¼" wide keyway. Flashing, trim, and corners should be installed according to the manufacturer's specifications.

Assemblies No. 22 and No. 23

HardiePanel™, Cempanel® Panel Siding

Assembly No. 22 (wall studs 16 inches on center)
Fastener: ET&F or equivalent 0.100 inch, 1½ inch long, and 0.250 inch diameter head knurled shank, 4" on center along panel edges and 8" on center along intermediate framing
Design pressure: -57 psf

Assembly No. 23 (wall studs 24 inches on center)
Fastener: ET&F or equivalent 0.100 inch, 1½ inch long, and 0.250 inch diameter head knurled shank, 4" on center along panel edges and 8" on center along intermediate framing
Design pressure: -33 psf

Installation (general): Wall studs shall be minimum number 20 gauge 3 5/8 inch metal C-stud. Wall bracing shall be installed as required. A building paper shall be applied to the wall studs before installing the siding. The panel siding shall be installed vertically with all joints occurring over framing members. The fasteners shall be spaced no closer than ⅜ inch from the edge and no closer than 2 inches from the corner.

Note: The manufacturer's installation instructions shall be on the job site during the installation. All fasteners shall be corrosion resistant as specified in the International Residential Code (IRC) and the International Building Code (IBC).