



## Evaluation Report CCMC 12678-R

# HardiePanel® HZ5™ Vertical Siding, HardiePlank® HZ5™ Lap Siding, HardieShingle® HZ5™ Notched Panels and HardieShingle® HZ5™ Individual Shingle

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## 1. Opinion

It is the opinion of the Canadian Construction Materials Centre (CCMC) that “HardiePanel® HZ5™ Vertical Siding, HardiePlank® HZ5™ Lap Siding, HardieShingle® HZ5™ Notched Panels and HardieShingle® HZ5™ Individual Shingle,” when used as exterior cladding applied to vertical walls of masonry or concrete, as well as cementitious and wood sheathing boards that are attached to wood or steel framing, in new and retrofit construction in accordance with the conditions and limitations stated in Section 3 of this Report, complies with the National Building Code (NBC) of Canada 2015:

- Clause 1.2.1.1.(1)(a), Division A, as an acceptable solution from Division B:
  - Sentence 5.6.1.1.(1), Required Protection from Precipitation
  - Sentence 9.27.1.1.(1), General (Cladding)
  - Sentence 9.27.1.1.(6), General (Cladding)
  - Clause 9.27.2.2.(1)(a), Minimum Protection from Precipitation Ingress (when installed in coastal areas)
  - Sentence 9.27.2.2.(2), Minimum Protection from Precipitation Ingress
  - Sentence 9.27.2.2.(5), Minimum Protection from Precipitation Ingress
  - Article 9.27.2.3., First and Second Planes of Protection
  - Article 9.27.3.1., Elements of the Second Plane of Protection
  - Appendix Note D-4.1.1., Determination of Noncombustibility
- Clause 1.2.1.1.(1)(b), Division A, as an alternative solution that achieves at least the minimum level of performance required by Division B in the areas defined by the objectives and functional statements attributed to the following applicable acceptable solutions:
  - Sentence 9.27.2.1.(1), Minimizing and Preventing Ingress and Damage

This opinion is based on the CCMC evaluation of the technical evidence in Section 4 provided by the Report Holder.

Ruling No. 95-17-36 (12678-R) authorizing the use of this product in Ontario, subject to the terms and conditions contained in the Ruling, was made by the Minister of Municipal Affairs and Housing on 1995-11-29 (revised on 2012-06-13) pursuant to s.29 of the *Building Code Act*, 1992 (see Ruling for terms and conditions). This Ruling is subject to periodic revisions and updates.

## 2. Description

The products are fibre cement boards made primarily of hydraulic cement, silica, and other additives and reinforced integrally with cellulose fibres. The products are manufactured using the Hatschek process and steam autoclaved. They are intended for use as an exterior cladding applied to vertical walls of masonry or concrete, as well as cementitious and wood sheathing boards that are attached to wood or steel framing, in new and retrofit construction subject to the conditions and limitations stated in Section 3 of this Report. See also the manufacturer’s installation instructions, dated September 2013, for details and restrictions.

In addition to the sizes for each of the products listed below, additional lengths and widths may be available from the manufacturer by special order.

### “HardiePanel® HZ5™ Vertical Siding”

“HardiePanel® HZ5™ Vertical Siding” is available in panels that are 2 440 mm to 3 050 mm long, 1 220 mm wide and 7.5 mm thick. The panels are available in a smooth, stucco pattern or a wood grain face texture.

The panels are installed with a drained and vented air space not less than 10 mm deep behind the cladding. Vertical joints of the panels must butt over the framing members (studs).

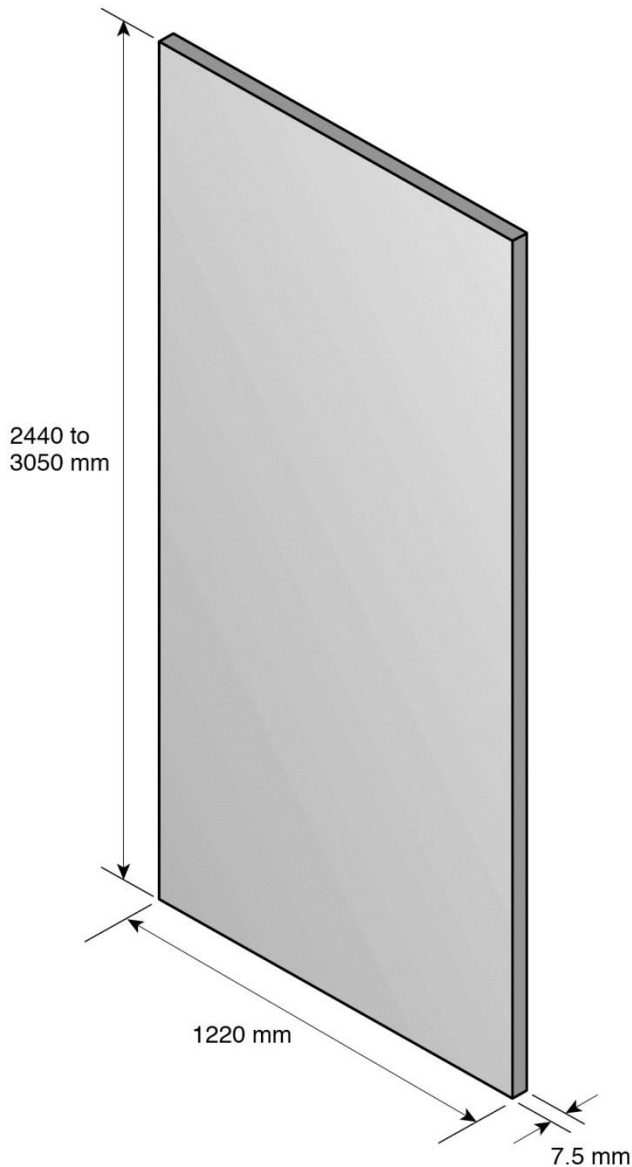


Figure 1. “HardiePanel® HZ5™ Vertical Siding”

### “HardiePlank® HZ5™ Lap Siding”

“HardiePlank® HZ5™ Lap Siding” is available in planks that are 3 660 mm long, 133 mm to 305 mm high and 7.5 mm thick. The planks are available in a smooth or wood grain face texture.

The planks are installed beginning from the bottom of the wall with a minimum overlap of 32 mm. Vertical joints of the planks must butt over the framing members (studs). The lap siding is fastened either through the overlapping planks (face nailed) with corrosion resistant nails or screws or through the top edge of the planks (blind nailed).

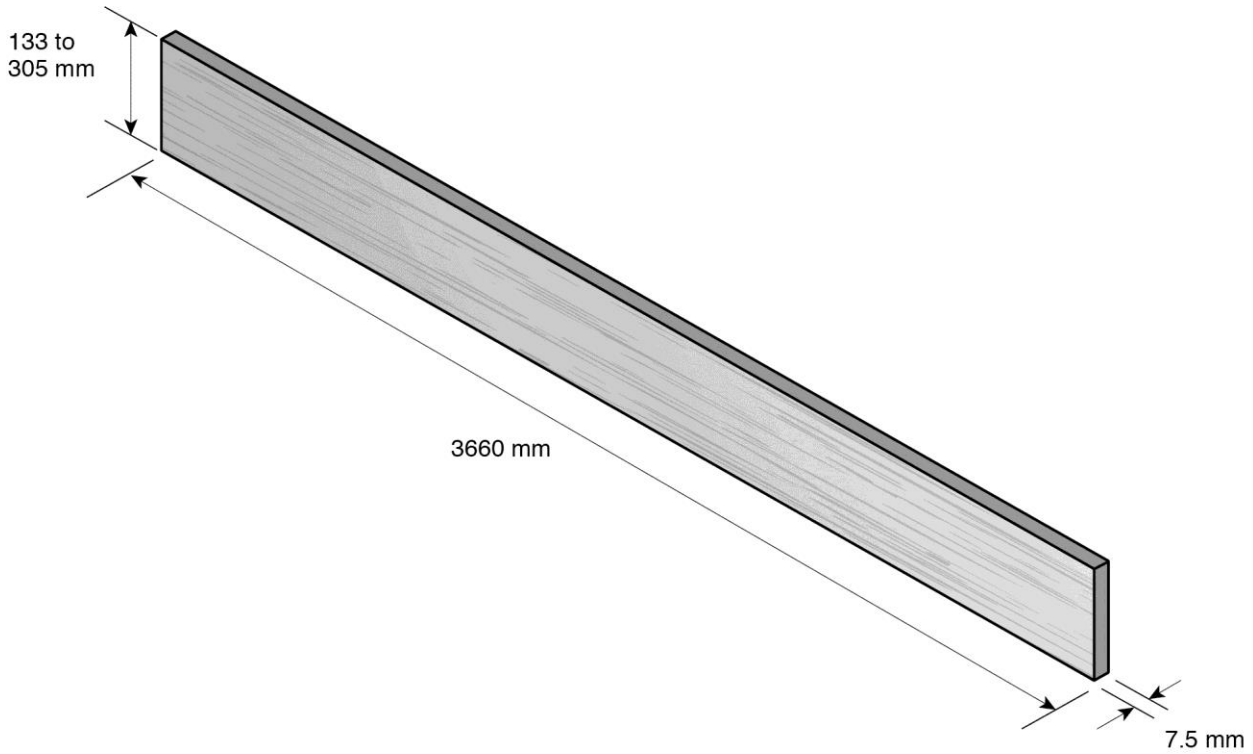


Figure 2. “HardiePlank® HZ5™ Lap Siding”

**“HardieShingle® HZ5™ Notched Panels”**

“HardieShingle® HZ5™ Notched Panels” are available in three variations: straight edge panel, staggered edge panel and half-round panel. The panels are 404 mm high, 1 220 mm long and 6 mm thick. The panels are available in a wood grain texture.

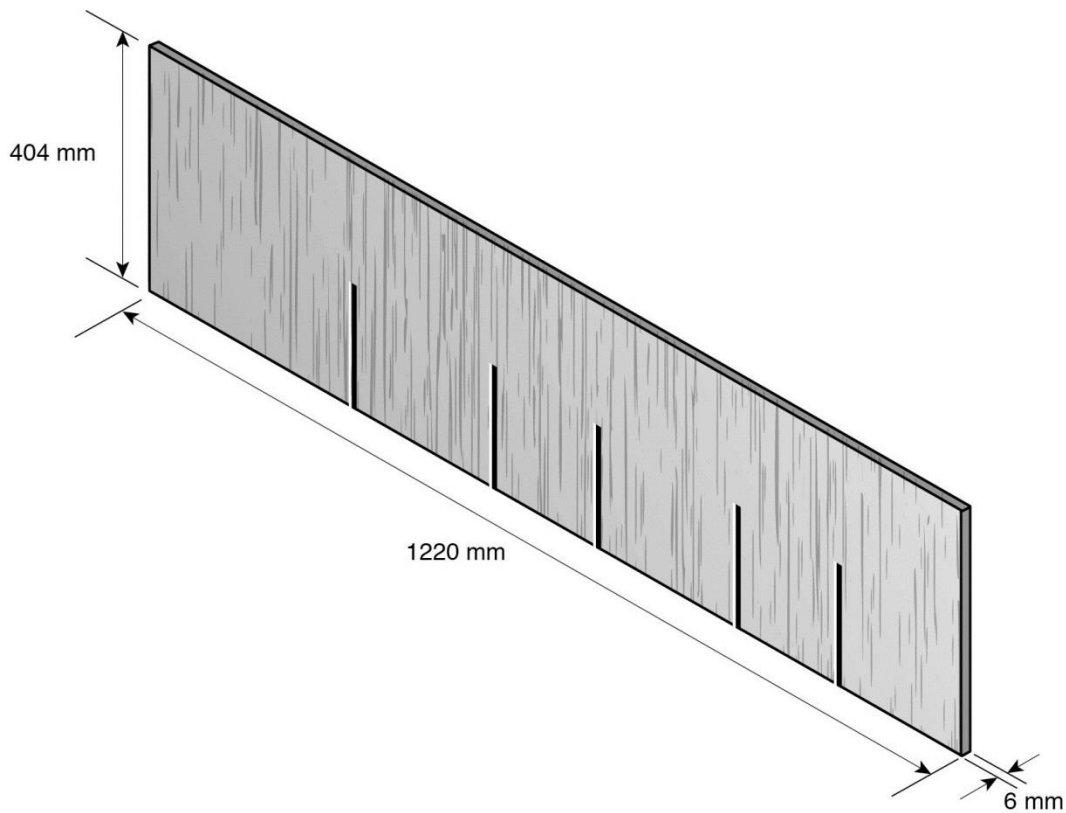


Figure 3. “HardieShingle® HZ5™ Notched Panels” – straight edge

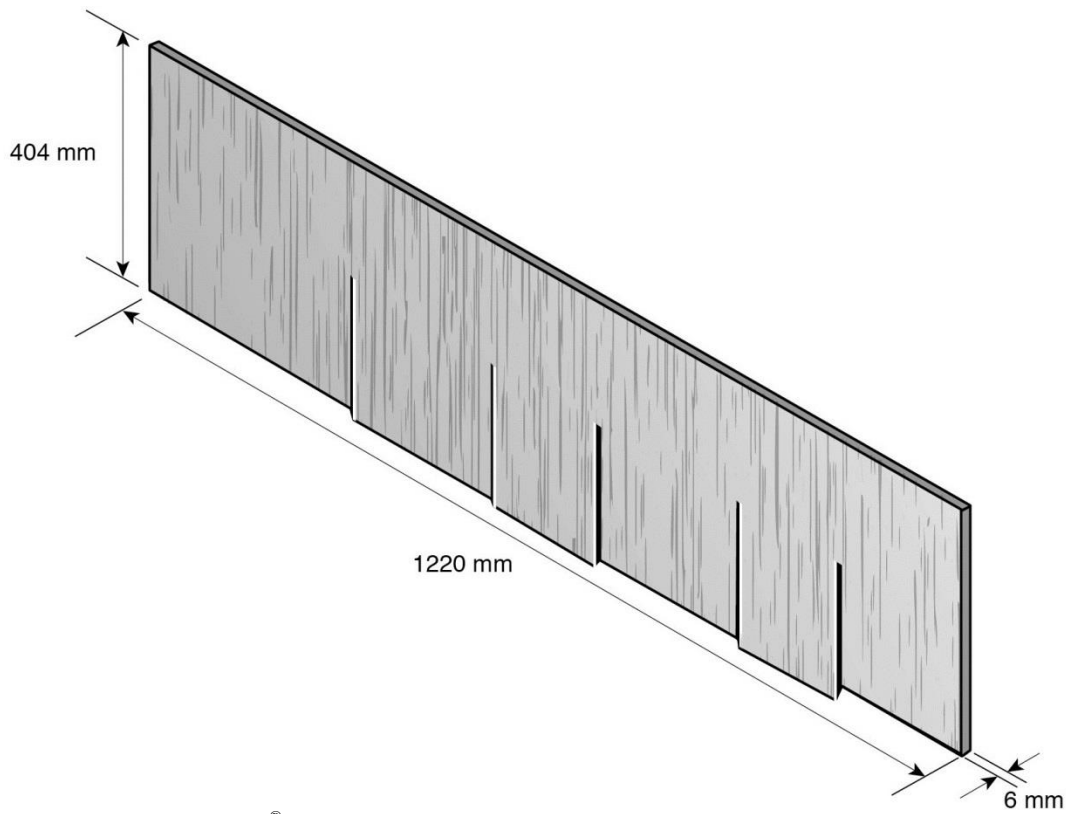


Figure 4. “HardieShingle® HZ5™ Notched Panels” – staggered edge

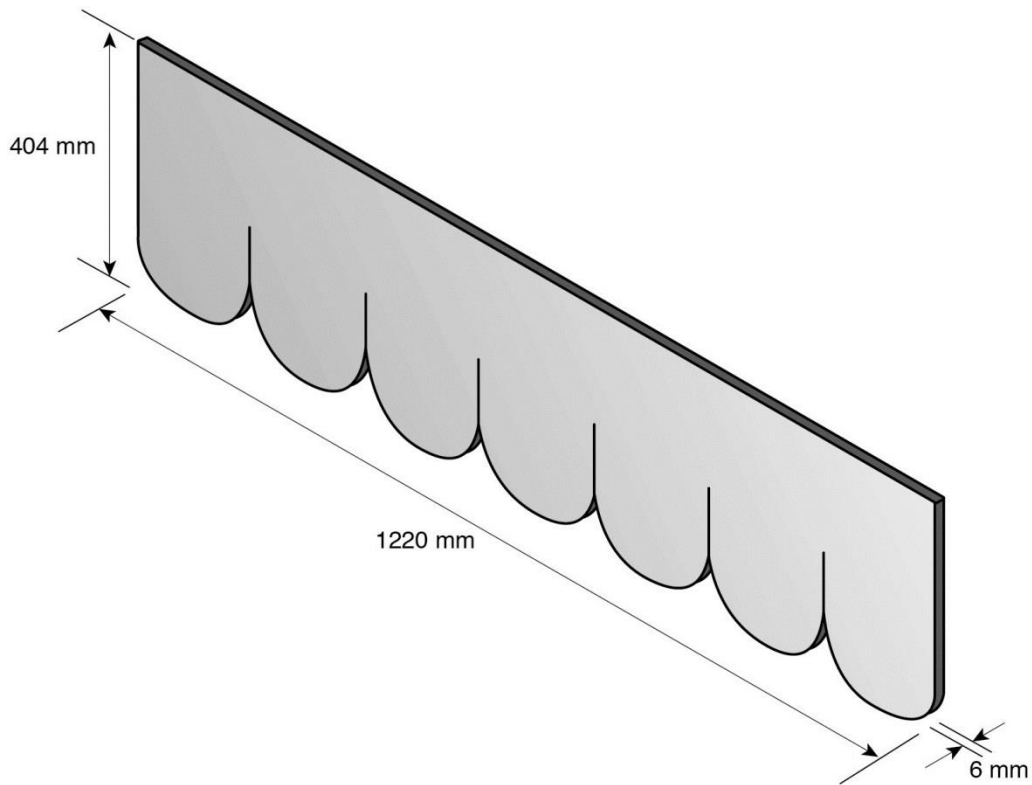


Figure 5. “HardieShingle® HZ5 Notched Panels” – half-round

**“HardieShingle® HZ5™ Individual Shingle”**

“HardieShingle® HZ5™ Individual Shingle” is available in cladding shingles that are 381 mm high, 105 mm to 250 mm wide and 6 mm thick. The shingles are available in a wood grain texture.

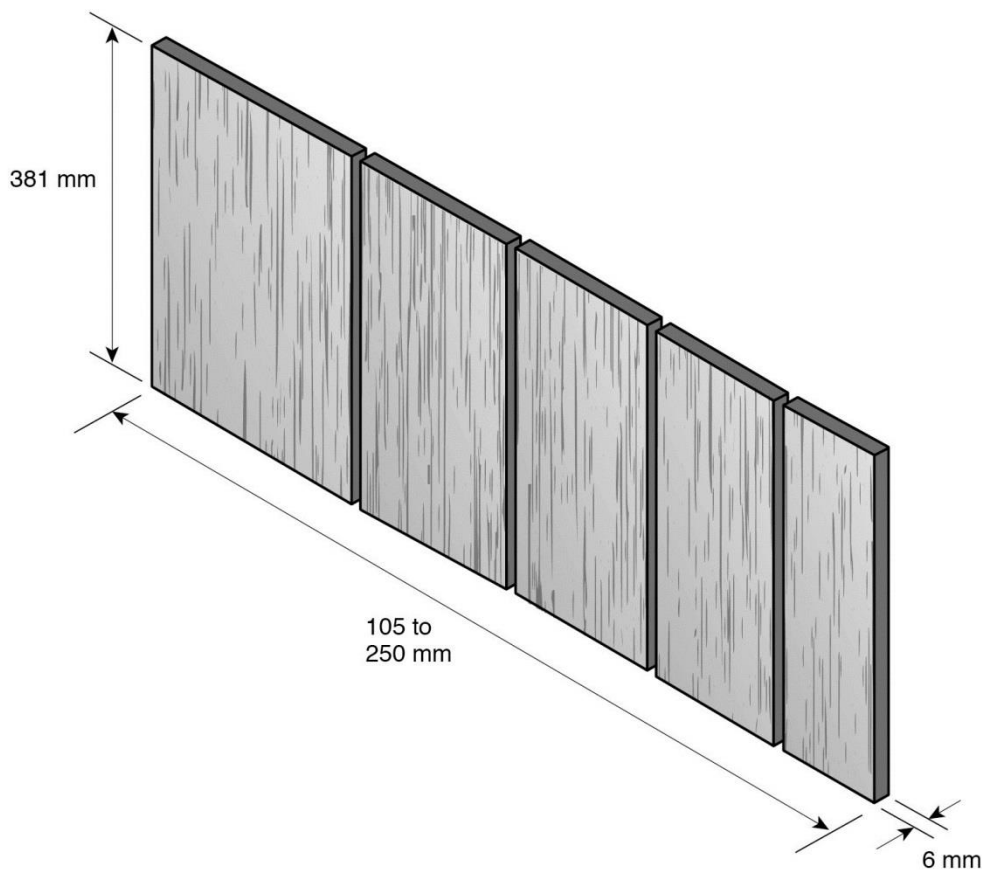


Figure 6. “HardieShingle® HZ5™ Individual Shingle”

### 3. Conditions and Limitations

The CCMC compliance opinion in Section 1 is bound by the “HardiePanel® HZ5™ Vertical Siding, HardiePlank® HZ5™ Lap Siding, HardieShingle® HZ5™ Notched Panels and HardieShingle® HZ5™ Individual Shingle” being used in accordance with the conditions and limitations set out below.

**“HardiePlank® HZ5™ Lap Siding, HardieShingle® HZ5™ Notched Panels and HardieShingle® HZ5™ Individual Shingle”  
Conditions and Limitations:**

- The products are intended for use as exterior cladding applied over exterior walls of buildings.
- This Report covers the installation of the products limited to the geographical areas with the hourly wind pressures shown in Table 4.3.1.1 and the respective fastening schedule to a wood frame or a steel frame. The performance level shown in Table 4.3.1.1 is for installations limited to non-post-disaster buildings that are three storeys high (12 m) or less.
- The products are permitted in the construction of buildings required to be of combustible or noncombustible construction in accordance with Section 3.1., General (Fire Protection, Occupant Safety and Accessibility) of Division B of the NBC 2015.
- At least one layer of wall sheathing membrane conforming to Article 9.27.3.2., Sheathing Membrane Material Standard, of Division B of the NBC 2015 must be applied beneath the cladding products.

**Coastal Areas:**

- For applications in coastal areas as defined by Sentence 9.27.2.2.(5) of Division B of the NBC 2015, all listed products must be installed over wood strapping creating a drained and vented air space not less than 10 mm deep behind the cladding in conformance with Clause 9.27.2.2.(1)(a), Sentences 9.27.2.2.(2), and 9.27.5.7.(2), Penetration of Fasteners, and Articles 9.27.5.3., Furring, and 9.27.5.4., Size and Spacing of Fasteners, of Division B of the NBC 2015.
- The drained and vented air space described in Clause 9.27.2.2.(1)(a) of Division B of the NBC 2015 must remain unobstructed.

**Non-coastal Areas:**

- For direct application in non-coastal areas,<sup>1,2</sup> the air space between the substrate and the products that is created as a result of the overlap of the cladding boards must remain unobstructed.
- For direct application of “HardiePlank® HZ5™ Lap Siding” in non-coastal areas, the butt joint must consist of factory-finished ends in conjunction with a joint flashing behind the joint, which consists of a 150-mm-wide Code-prescribed sheathing membrane<sup>2</sup> that overlaps the course below by 25 mm. The butt joint must be lined up and be supported by a stud.

### “HardiePanel® HZ5™ Vertical Siding” Conditions and Limitations:

- In all areas (coastal and non-coastal areas), “HardiePanel® HZ5™ Vertical Siding” must be installed over wood strapping creating a drained and vented air space not less than 10 mm deep behind the cladding in conformance with Clause 9.27.2.2.(1)(a), Sentences 9.27.2.2.(2) and 9.27.5.7.(2), and Articles 9.27.5.3. and 9.27.5.4., of Division B of the NBC 2015.

### Cladding System Installation Details:

- Installation of the products must meet the requirements of Article 9.27.3.8., Flashing Installation, and Subsections 9.27.4., Sealants, and 9.27.5., Attachment of Cladding.
- The attachment of the cladding conforms to Table 4.3.1.1 of this Report.
- The products must be installed in conjunction with materials conforming to Articles 9.27.3.2., Sheathing Membrane Material Standard, and 9.27.3.7., Flashing Materials, and Subsections 9.27.4. and 9.27.5. of Division B of the NBC 2015.
- The requirements of Article 9.10.16.1., Required Fire Blocks in Concealed Spaces, of Division B of the NBC 2015 must be met.
- The product must be installed in accordance with the manufacturer’s current instructions.
- The technical opinion in this Report is limited to uncoated products. The manufacturer may provide primed or prepainted products. Low water vapour permeance coatings may affect the drying potential of the product as well as the substrate on which it is installed. Such a situation could lead to premature deterioration of the substrate and other elements in the wall assembly. The manufacturer’s recommendations for type and characteristics of coatings to be used in conjunction with the cladding must be followed.
- The possibility of moisture accumulation within the wall construction is mainly a function of the level of workmanship related to the elements constituting the second plane of protection as defined in Article 9.27.2.3. of Division B of the NBC 2015, such as wall sheathing membrane, flashing, caulking and attachment of siding. A high level of quality control at all stages of the exterior wall construction is imperative for obtaining an acceptable performance.
- This Evaluation Report is applicable only to products identified with “CCMC 12678-R.”

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1. A moisture management study performed on “HardiePlank® HZ5™ Lap Siding,” “HardieShingle® HZ5™ Notched Panels” and “HardieShingle® HZ5™ Individual Shingle” indicated that these products can be installed with direct application in non-coastal areas.
  2. These direct-applied cementitious claddings were not evaluated when in contact with polymer-based sheathing membranes (see limitations in CCMC Reports of polymer-based sheathing membranes). The NBC-prescribed asphalt impregnated paper-based sheathing membranes shall be used.
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## 4. Technical Evidence

The Report Holder has submitted technical documentation for the CCMC evaluation. Testing was conducted at laboratories recognized by CCMC. The corresponding technical evidence for this product is summarized below.

### 4.1 General

#### 4.1.1 Dimensional Tolerances

**Table 4.1.1.1 Results of Testing the Dimensional Measurements of “HardiePanel® HZ5™ Vertical Siding”**

Property	Unit	Requirement	Result
Length	mm	± 3.0	2
Width	mm	± 3.0	2
Thickness	mm	± 1.6	0.51
Squareness	mm/m	± 4.0	1.33
Edge straightness	mm/m	± 2.6	0.73

## 4.2 Prescriptive Requirements

Table 4.2.1 Results of Testing the Prescriptive Requirements of “HardiePanel® HZ5™ Vertical Siding”

Property		Unit	Requirement	Result	
Water absorption		%	≤ 40	29.8	
Density		kg/m <sup>3</sup>	≥ 950	1 388	
Dimensional change		%	< 0.20	0.1	
Flexural strength	MD <sup>1</sup>	MPa	> 7.0	21.0	
	XD <sup>1</sup>		> 7.0	13.7	
Fastener pull-through resistance		N	≥ 28 × thickness	1 144	
Water vapour transmission (water method)		–	> 60 ng/m <sup>2</sup> ·s·Pa	1 056	
Freeze-thaw resistance	loss of mass		%	≤ 3	1.42
	loss of flexural strength	MD	%	≤ 15	4.1
		XD		≤ 15	12.9
	deleterious effects		–	None	None
Watertightness		–	No drop of water	None	
Warm water resistance	loss of flexural strength	MD	%	≤ 15	–9.4 <sup>2</sup>
		XD		≤ 15	–12.0 <sup>2</sup>
	deleterious effects		–	No visible cracks	None

### Notes to Table 4.2.1:

- 1 MD refers to machine direction; XD refers to cross-machine direction.
- 2 The negative values indicate that they gained strength after the warm water resistance test.

## 4.3 Performance Requirements

### 4.3.1 Wind Load Resistance

Table 4.3.1.1 Results of Testing the Wind Load Resistance of the Products

Assembly ID	Product	Cladding Dimension	Frame	Sheathing	Stud Spacing <sup>1</sup> (in.)	Vertical Fastener Spacing (in.)	Fasteners	Rating (kPa)	Result
1	“HardiePanel® HZ5™ Vertical Siding”	4 ft. × 8 ft. × 5/16 in.	2 × 4 spruce-pine-fir (S-P-F) wood	None	24	12	6d Common nail	Q <sub>50</sub> < 0.55	Pass
2		4 ft. × 8 ft. × 5/16 in.	2 × 4 S-P-F wood	None	24	8	2-in. Siding nail; 0.092-in. shank; 0.22-in. head	Q <sub>50</sub> < 0.55	Pass
3		4 ft. × 8 ft. × 5/16 in.	2 × 4 S-P-F wood	None	24	6	6d Common nail	Q <sub>50</sub> < 0.75	Pass
4		4 ft. × 8 ft. × 5/16 in.	2 × 4 S-P-F wood	None	24	6	1½-in. Ring shank nail; 0.095-in. shank; 0.219-in. head	Q <sub>50</sub> < 0.55	Pass
5		4 ft. × 8 ft. × 5/16 in.	20-ga steel	None	24	12	#8 Bugle head screw; 1¼-in. long; 0.323-in. head	Q <sub>50</sub> < 0.45	Pass

Assembly ID	Product	Cladding Dimension	Frame	Sheathing	Stud Spacing <sup>1</sup> (in.)	Vertical Fastener Spacing (in.)	Fasteners	Rating (kPa)	Result
6		4 ft. × 8 ft. × 5/16 in.	20-ga steel	None	24	12	1½-in. ET&F pin; 0.10-in. shank; 0.25-in. head	Q <sub>50</sub> < 0.55	Fail <sup>2</sup>
7		4 ft. × 8 ft. × 5/16 in.	20-ga steel	None	24	8	1½-in. ET&F pin; 0.10-in. shank; 0.25-in. head	Q <sub>50</sub> < 0.55	Pass
8		4 ft. × 8 ft. × 5/16 in.	18-ga steel	None	16	6	1½-in. ET&F pin; 0.10-in. shank; 0.25-in. head	Q <sub>50</sub> < 0.75	Pass
9	“HardiePlank® HZ5™ Lap Siding”	9.25 in. × 12 ft. × 5/16 in.	2 × 4 S-P-F wood	None	16	–	(Blind nailing) <sup>3</sup> 6d common nail	Q <sub>50</sub> < 0.75	Pass
10		9.25 in. × 12 ft. × 5/16 in.	2 × 4 S-P-F wood	None	24	–	(Blind nailing) 6d common nail	Q <sub>50</sub> < 0.55	Pass
11		9.25 in. × 12 ft. × 5/16 in.	2 × 4 S-P-F wood	None	16	–	(Blind nailing) 1¼-in. roofing nail; 0.120-in. shank; 0.375-in. head	Q <sub>50</sub> < 0.75	Pass
12		9.25 in. × 12 ft. × 5/16 in.	2 × 4 S-P-F wood	None	24	–	(Blind nailing) 2-in. siding nail; 0.092-in. shank; 0.22-in. head	Q <sub>50</sub> < 0.55	Pass
13		12 in. × 12 ft. × 5/16 in.	2 × 4 S-P-F wood	None	16	–	(Face nailing) <sup>4</sup> 2½-in. siding nail; 0.095-in. shank; 0.235-in. head	Q <sub>50</sub> < 0.65	Pass
14		9.25 in. × 12 ft. × 5/16 in.	2 × 4 S-P-F wood	None	24	–	(Face nailing) 6d common nail	Q <sub>50</sub> < 0.75	Pass
15		9.25 in. × 12 ft. × 5/16 in.	2 × 4 S-P-F wood	7/16-in. oriented strand-board (OSB)	24 8 in. on centre (o.c.) <sup>5</sup>	–	(Blind nailing) 1½-in. ring shank nail; 0.095-in. shank; 0.219-in. head	Q <sub>50</sub> < 0.55	Pass
16		7.25 in. × 12 ft. × 5/16 in.	2 × 4 S-P-F wood	None	16	–	(Blind nailing) 6d common nail	Q <sub>50</sub> < 0.75	Pass
17		9.25 in. × 12 ft. × 5/16 in.	2 × 4 S-P-F wood	None	16	–	(Blind nailing) 1½-in. ring shank nail; 0.095-in. shank; 0.219-in. head	Q <sub>50</sub> < 0.55	Pass
18		9.25 in. × 12 ft. × 5/16 in.	2 × 4 S-P-F wood	None	24	–	(Blind nailing) 1½-in. ring shank nail; 0.095-in. shank; 0.219-in. head	Q <sub>50</sub> < 0.45	Pass
19	8.25 in. × 12 ft. × 5/16 in.	20-ga steel	None	16	–	(Blind nailing) 1½-in. ET&F pin; 0.10-in. shank; 0.25-in. head	Q <sub>50</sub> < 0.55	Pass	
20	“HardieShingle® HZ5™ Notched Panels”	16 in. × 4 ft. × 1/4 in.	2 × 4 S-P-F wood	None	24	–	(Blind nailing) 1½-in. ring shank nail; 0.095-in. shank; 0.219-in. head	Q <sub>50</sub> < 0.55	Pass



Assembly ID	Product	Cladding Dimension	Frame	Sheathing	Stud Spacing <sup>1</sup> (in.)	Vertical Fastener Spacing (in.)	Fasteners	Rating (kPa)	Result
21		16 in. × 4 ft. × 1/4 in.	2 × 4 S-P-F wood	None	16	–	(Blind nailing) 1½-in. ring shank nail; 0.095-in. shank; 0.219-in. head	Q <sub>50</sub> < 0.75	Pass
22		16 in. × 4 ft. × 1/4 in.	2 × 4 S-P-F wood	7/16-in. OSB	24 14 in. o.c. <sup>6</sup>	–	(Blind nailing) 1½-in. ring shank nail; 0.095-in. shank; 0.219-in. head	Q <sub>50</sub> < 0.55	Pass
23		16 in. × 4 ft. × 1/4 in.	20-ga steel	None	24	–	(Blind nailing) 1½-in. ET&F pin; 0.10-in. shank; 0.25-in. head	Q <sub>50</sub> < 0.55	Pass
24		16 in. × 4 ft. × 1/4 in.	2 × 4 S-P-F wood	None	16	–	(Blind nailing) 1¼-in. roofing nail; 0.120-in. shank; 0.375-in. head	Q <sub>50</sub> < 0.75	Pass
25	“HardieShingle® HZ5™ Individual Shingle”	6 in., 8 in., 12 in. × 18 in. × 1/4 in.	2 × 4 S-P-F wood	7/16-in. OSB	24 Two end nails per shingle <sup>7</sup>	–	(Blind nailing) 1¼-in. roofing nail; 0.120-in. shank; 0.375-in. head	Q <sub>50</sub> < 0.75	Pass
26		6 in., 8 in., 12 in. × 18 in. × 1/4 in.	2 × 4 S-P-F wood	7/16-in. OSB	24 Two end nails per shingle	–	(Blind nailing) 1½-in. ring shank nail; 0.095-in. shank; 0.219-in. head	Q <sub>50</sub> < 0.75	Pass

**Notes to Table 4.3.1.1:**

- <sup>1</sup> Stud spacing indicates the horizontal fastener spacing when no sheathing was used. When sheathing was used, the horizontal fastener spacing is shown in the Table.
- <sup>2</sup> The testing lab indicated that the test failed due to the poor installation of the panel to the structure.
- <sup>3</sup> Blind nailing is a technique where siding is fastened only at the top by penetrating through one sheet, and fasteners are hidden by the course above.
- <sup>4</sup> Face nailing is a technique where siding is fastened at the top and the bottom by penetrating through two sheets of overlapped siding, and fastener heads are exposed to the elements.
- <sup>5</sup> Siding was fastened at the horizontal spacing of 8 in. instead of fastened onto studs.
- <sup>6</sup> Siding was fastened at the horizontal spacing of 14 in. instead of fastened onto studs.
- <sup>7</sup> A fastener was nailed at the side ends of the siding on the sheathing.

**Table 4.3.1.2 Deflection Measurements from the Wind Load Resistance Test**

Assembly ID	Maximum Wind Pressure for Deflection Measurements (Pa)	Deflection Measurements (mm)			
		Assembly <sup>1</sup>		Component <sup>2</sup>	
		Negative Pressure	Positive Pressure	Negative Pressure	Positive Pressure
1	980	–5.37	5.00	–2.39	2.23
2	1 200	–4.93	4.41	–2.20	1.97
3	1 630	–4.90	4.77	–2.19	2.12
4	980	–3.27	3.18	–1.46	1.35
5	1 200	–4.12	4.04	–2.14	2.05
6	1 200	N/A <sup>3</sup>	N/A <sup>3</sup>	N/A <sup>3</sup>	N/A <sup>3</sup>
7	1 200	–4.89	4.79	–2.54	2.40
8	1 200	–2.13	2.05	–0.57	0.50
9	1 630	–5.02	4.99	–0.72	0.65

Assembly ID	Maximum Wind Pressure for Deflection Measurements (Pa)	Deflection Measurements (mm)			
		Assembly <sup>1</sup>		Component <sup>2</sup>	
		Negative Pressure	Positive Pressure	Negative Pressure	Positive Pressure
10	1 200	-6.19	5.85	-2.30	2.17
11	1 200	-5.49	5.47	-0.78	0.71
12	1 200	-5.99	5.87	-2.22	2.09
13	1 200	-4.05	3.89	-2.96	2.84
14	1 630	-7.17	6.30	-3.47	3.05
15	1 200	-4.76	4.05	-1.55	0.42
16	1 630	-5.61	5.35	-0.80	0.76
17	1 200	-3.99	3.71	-0.57	0.53
18	980	-5.17	4.73	-1.92	1.73
19	1 200	-3.76	3.44	-0.63	0.59
20	1 200	-2.70	2.64	-1.09	1.02
21	1 630	-2.31	2.27	-0.36	0.28
22	1 200	-2.31	2.19	-0.82	0.75
23	1 200	-3.20	2.95	-1.51	1.39
24	1 630	-2.31	2.24	-0.36	0.31
25	1 630	-6.21	6.09	-0.31	0.26
26	1 630	-6.66	5.98	-0.33	0.30

**Notes to Table 4.3.1.2:**

- <sup>1</sup> The deflection was measured at the mid-height of a 3 000-mm stud and determined with the averaged deflections at the bottom and the top of the stud as a baseline.
- <sup>2</sup> The deflection was measured at the centre point between two studs and determined with the averaged deflections at those studs as a baseline.
- <sup>3</sup> N/A = not applicable. The deflection was not measured due to the failure of the specimen.

**4.3.2 Impact Resistance**

**Table 4.3.2.1 Results of Testing the Impact Resistance<sup>1</sup> of the Products**

Assembly ID	Safety Impact		Retention of Performance				
	Large Soft 100 N·m	Small Hard 10 N·m	Large Soft 34 N·m	Smaller Soft 60 N·m	Smaller Soft 6 N·m	Small Hard 10 N·m	Small Hard 1 N·m
1	Pass	Pass	Pass	Pass	Pass	Pass	Pass
2	Pass	Pass	Pass	Pass	Pass	Pass	Pass
3	Pass	Pass	Pass	Fail <sup>2</sup>	Pass	Pass	Pass
4	Pass	Pass	Pass	Fail <sup>2</sup>	Pass	Pass	Pass
5	Pass	Pass	Pass	Pass	Pass	Pass	Pass
6	N/A <sup>3</sup>	N/A <sup>3</sup>	N/A <sup>3</sup>	N/A <sup>3</sup>	N/A <sup>3</sup>	N/A <sup>3</sup>	N/A <sup>3</sup>
7	Pass	Pass	Pass	Fail <sup>2</sup>	Pass	Pass	Pass
8	Pass	Pass	Pass	Fail <sup>2</sup>	Pass	Pass	Pass
9	Pass	Pass	Pass	Fail <sup>2</sup>	Pass	Pass	Pass
10	Pass	Pass	Pass	Fail <sup>2</sup>	Pass	Pass	Pass
11	Pass	Pass	Pass	Fail <sup>2</sup>	Pass	Pass	Pass
12	Pass	Pass	Pass	Fail <sup>2</sup>	Pass	Pass	Pass
13	Pass	Pass	Pass	Fail <sup>2</sup>	Pass	Pass	Pass

Assembly ID	Safety Impact		Retention of Performance				
	Large Soft 100 N·m	Small Hard 10 N·m	Large Soft 34 N·m	Smaller Soft 60 N·m	Smaller Soft 6 N·m	Small Hard 10 N·m	Small Hard 1 N·m
14	Pass	Pass	Pass	Fail <sup>2</sup>	Pass	Pass	Pass
15	Pass	Pass	Pass	Pass	Pass	Pass	Pass
16	Pass	Pass	Pass	Fail <sup>2</sup>	Pass	Pass	Pass
17	Pass	Pass	Pass	Fail <sup>2</sup>	Pass	Pass	Pass
18	Pass	Pass	Pass	Fail <sup>2</sup>	Pass	Pass	Pass
19	Pass	Pass	Pass	Fail <sup>2</sup>	Pass	Pass	Pass
20	Pass	Pass	Pass	Fail <sup>2</sup>	Pass	Pass	Pass
21	Pass	Pass	Pass	Fail <sup>2</sup>	Pass	Pass	Pass
22	Pass	Pass	Pass	Fail <sup>2</sup>	Pass	Pass	Pass
23	Pass	Pass	Pass	Fail <sup>2</sup>	Pass	Pass	Pass
24	Pass	Pass	Pass	Fail <sup>2</sup>	Pass	Pass	Pass
25	Pass	Pass	Pass	Fail <sup>2</sup>	Pass	Fail <sup>2</sup>	Pass
26	Pass	Pass	Pass	Fail <sup>2</sup>	Pass	Fail <sup>2</sup>	Pass

**Notes to Table 4.3.2.1:**

- 1 Large soft bodies are designed to transfer a significant amount of energy to the cladding and to the wall assembly. Small hard bodies are capable of causing localized impact damage without any appreciable transmission of energy to the wall assembly.  
Smaller soft bodies are smaller and harder than the large soft bodies, and larger and softer than small hard bodies. They are designed to induce localized damage, as well as transmit energy to the rest of the assembly.
- 2 The product did not demonstrate capacity to retain the performance of the cladding under impact loads that induce localized damage as well as transmit energy to the rest of the assembly. The product will be limited to applications where such performance is not required or where the cladding system can be repaired or replaced easily. The CCMC Technical Guide specifies that for cladding systems that can be repaired or replaced easily, lower impact resistance values may be accepted down to 6 N·m for small soft impact and 1 N·m for small hard impact.
- 3 N/A = not applicable. Assembly 6 was not tested for impact resistance because it previously failed the wind resistance test.

**4.4 Fire Performance**

**Table 4.4.1 Results of Testing the Fire Performance<sup>1</sup>**

Property	Requirement	Result
Noncombustibility	CAN/ULC-S114	Noncombustible
Flame-spread rating	CAN/ULC-S102	0
Smoke-developed classification		5

**Note to Table 4.4.1:**

- 1 Based on the Intertek listing information (SPEC ID: 29928) of “HardiePanel<sup>®</sup> HZ5<sup>™</sup> Vertical Siding.”

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## Plant(s)

Plant City, FL, USA  
Peru, IL, USA  
Cleburne, TX, USA  
Waxahachie, TX, USA  
Pulaski, VA, USA  
Tacoma, WA, USA  
Sparks, NV, USA  
Fontana, CA, USA

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