

# Technical Attributes

## HardieShingle™ Panel

Effective 12/2007

James Hardie Building Products, Inc.

HardieShingle™ Panel has been comprehensively tested and displays the following typical physical properties.

	General Property	Test Method	Unit or Characteristic	Requirement	Result
PHYSICAL ATTRIBUTES	Dimensional Tolerances	ASTM C1185	Length	± 0.5%	Pass
		ASTM C1185	Width	± 0.5%	Pass
		ASTM C1185	Thickness	± 0.04 in.	Pass
		ASTM C1185	Squareness	< 1/32 in./ft of length	Pass
		ASTM C1185	Edge Straightness	< 1/32 in./ft of length	Pass
	Density, lb/ft <sup>3</sup>	ASTM C1185		As reported	< 83
	Water Absorption, % by mass	ASTM C1185		As reported	< 36
	Water Tightness	ASTM C1185	Physical Observations	No drop formation	Pass
	Moisture Content, %	ASTM C1185		As reported	~ 5
	Moisture Movement, % Linear Change	ASTM C1185	30 – 90% Relative Humidity	As reported	≤ 0.05
Flexural Strength	ASTM C1185	Wet conditioned, psi	> 1015 psi	Pass	
	ASTM C1185	Equilibrium conditioned, psi	> 1450 psi	Pass	

	Property	Test Method	Unit or Characteristic	Requirement	Result
THERMAL	Thermal Conductivity	ASTM C177	$K_{eff} = \text{BTU/hr-ft}^2 \cdot ^\circ \text{F}$	As reported	1.95
	Actual Thermal Conductivity	ASTM C177	( $K_{eff}$ )	As reported	7.8
	Thermal Resistance	ASTM C177	$R = 1/K_{eff}$	As reported	0.51
	Actual Thermal Resistance	ASTM C177	( R )	As reported	0.13

	Property	Test Method	Unit or Characteristic	Requirement	Result
DURABILITY	Warm Water Resistance	ASTM C1185	Physical Observations	No visible cracks or structural alteration	Pass
		ASTM C1185	Warm Water, % wet retention	≥ 85%	Pass
	Heat/Rain Resistance	ASTM C1185	Physical Observations	No visible cracks or structural alteration	Pass
		ASTM C1185	Physical Observations	No visible cracks or structural alteration	Pass
	Freeze/Thaw Resistance	ASTM C1185	Mass Loss, %	≤ 3.0	Pass
		ASTM C1185	Freeze/Thaw, % wet retention	≥ 80%	Pass
	UV Accelerated Weathering Test	ASTM G23	Physical Observations	No cracking, checking, or crazing	Pass

	Property	Test Method	Unit or Characteristic	Requirement	Result
FIRE CHARACTERISTICS	Surface Burning Characteristics	ASTM E84	Flames Spread Index (FSI)	0	Pass
		ASTM E84	Smoke Developed Index (SDI)	≤ 5	Pass
		ASTM E84	Fuel Contributed	0	Pass
	Noncombustibility		NFPA Class	As reported	A
			Uniform Building Code™ Class	As reported	1
			International Building Code® Class	As reported	A
	Noncombustibility	ASTM E136	Noncombustible	Pass/fail	Pass
Fire Resistance Rated Construction	ASTM E119	Fire Resistance Rating	1-hour	Nil.	

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Additional installation information, warranties, and warnings are available at [www.jameshardie.com](http://www.jameshardie.com)



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