Ray Magic® CL submittal

US patent #10113678

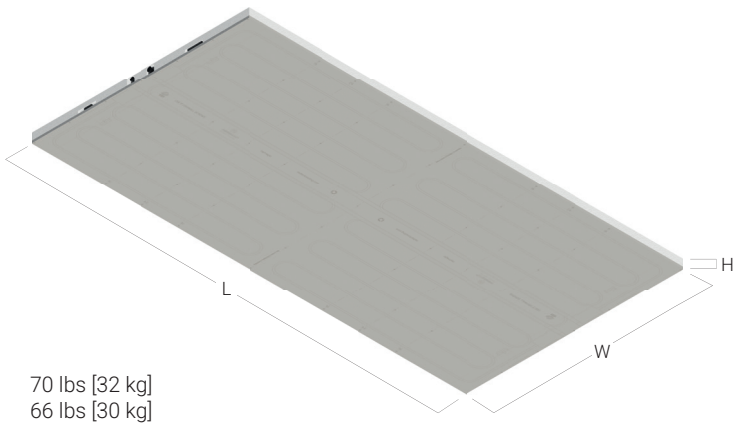
Job_____ Designer_____ Contact_____

Ray Magic® CL (Classic) is a high performance hydronic radiant gypsum panel. It comes finished with CertainTeed 1/2" gypsum board with AirRenew® and it installs on the ceiling, to create an unobstructed radiant surface.
Ray Magic CL is 4'x8' in size and it can be cut down into two 4'x4' panels to fit smaller spaces.

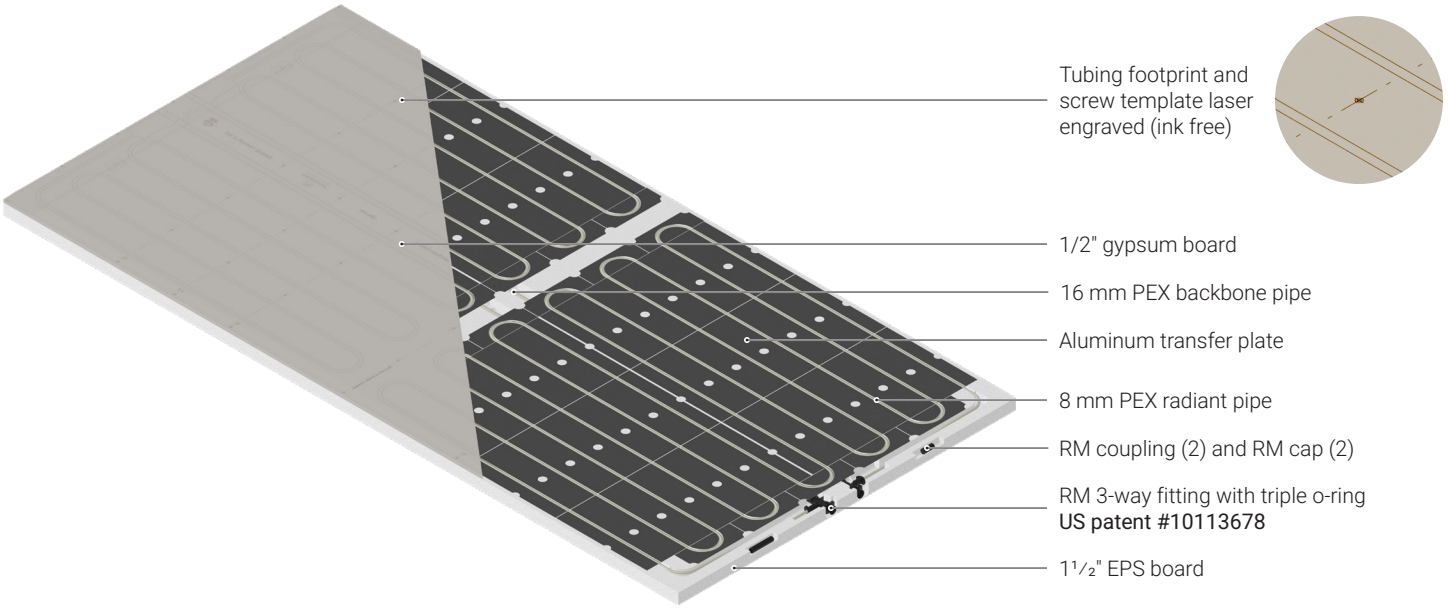
The panel consists of a 1½" thick EPS board with laid down aluminum heat transfer plates with propriety omega shaped channels. Pressed into these channels are two symmetrical 8 mm PEX radiant tubing circuits laid out in a serpentine pattern. Each tubing circuit is connected in parallel to 16 mm PEX return and supply lines that run along the length of the panel. Panels are connected together using slide-in patented fitting technology that allows for internal PEX piping expansion and contraction.

Technical specifications[1]

Model	Ray Magic CL 4'x8'
Part number	RGCL4812 (substitute discontinued model RM1051)
Features	Quick and easy to install with panel slide-in **patented** fitting technology
	High heating and cooling performance
	90% net radiant surface
	Tubing footprint and screw template laser engraved (ink free)
	Works with 16mm or 1/2" PEX header lines
	Panel pre-cut opening window to access fittings in case of necessity
Size and weight	nominal size W 4' [1219 mm] L 8' [2438 mm] H 2" [51 mm]



wet weight (with H_2O)	70 lbs [32 kg]
dry weight	66 lbs [30 kg]
Color and finishing	CertainTeed high density 1/2" gypsum board with AirRenew technology



Panel connection

Up to 8 panels per loop (use expansion joint after 4 panels connected in series).	
Panel to panel:	use (2) RM couplings (included in each panel)
Panel capping:	use (2) RM caps (included in each panel)
Panel to headers:	use Messana 16 mm pre-insulated PEX pipe. Tested also with 1/2" PEX pipe

Heat exchanger

Aluminum plates omega-shaped to wrap around the pipe to increase thermal exchange surface.	
Thickness:	0.016 inch [0.4mm], 27 gauge
Thermal conductivity:	0.21 W/mK (1/2" gypsum board)
Radiant pipe:	8 mm [≈ 5/16"] PEX 3-layer pipe with EVOH oxygen barrier
Serpentine pattern:	3 3/8" o.c. [100 mm], 3" max cut-out allowed
Serpentine length:	48 ft per circuit, two circuits per panels (total 96 ft of piping)

Radiant Area

Gross radiant area:	32 sq.ft. (total panel surface)
Net radiant area:	28.8 sq.ft. (total active surface)
Net radiant percentage:	90%

Fluid operating temperature

46 °F to 130 °F

Cooling capacity

23.2 Btu/h/sq.ft @55 °F (Max 36.2 Btu/h/sq.ft @46 °F) with 76 °F room temperature

Heat output

28.0 Btu/h/sq.ft @100 °F (Max 59.2 Btu/h/sq.ft @130 °F) with 70 °F room temperature

Nominal flow rate

0.22 GPM

Pressure drop

1.4 ft of head [0.6 psi] @0.22 gpm / 50 °F

Operating pressure

20 to 40 psi (air pressure test at 100 psi)

Water content

0.46 gal [1.75 lt], equivalent to approximately 4 lb [1.8 Kg] of water

Insulation

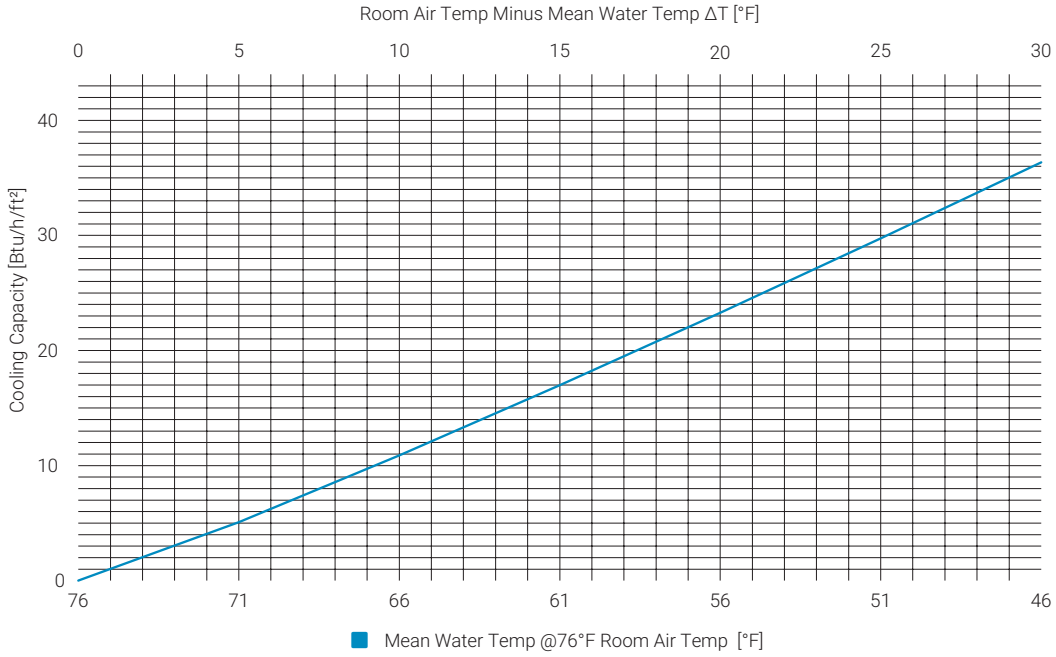
1½" EPS board ASTM E84 (Class A rated)

Notes

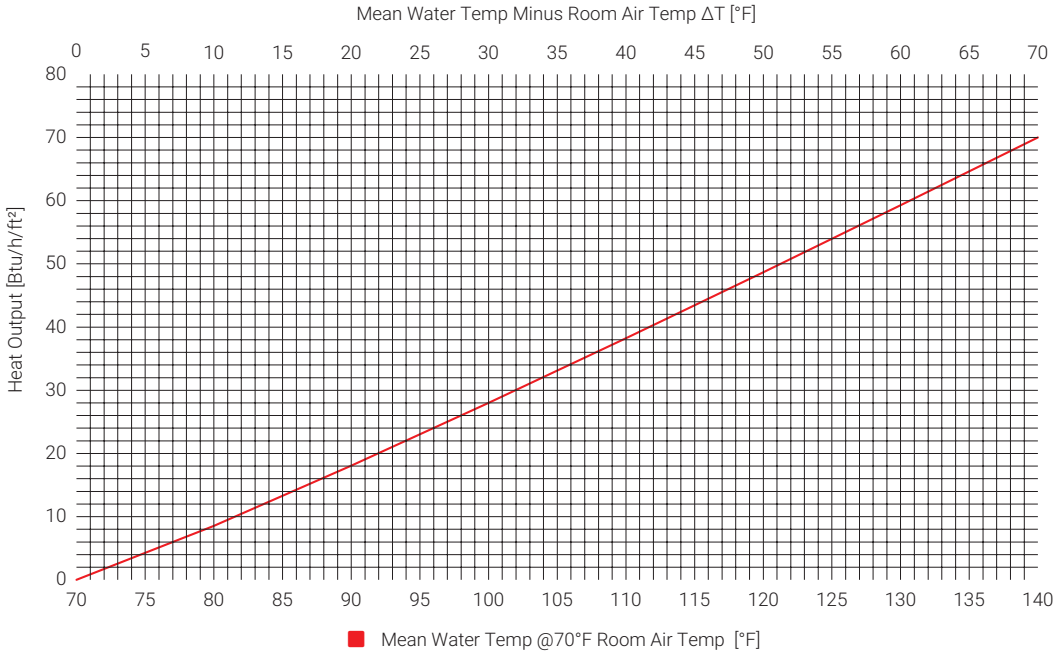
1. Size, weight, technical characteristics and properties may vary without prior notice

Thermal performance[1]

Cooling capacity



Heating output



Notes

These thermal performance charts are based on a correlation between internal testing performed using thermal imaging of the panel surface and the test results, according to the nominatives EN 14240 (cooling) and EN 14037 (heating), performed on the previous version of the Ray Magic panel.

November 2023