



BARCOL-AIR RADIANT WAVE (BRW)
Your Wave for Radiant Cooling or Heating

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BARCOL-AIR
RADIANT WAVE

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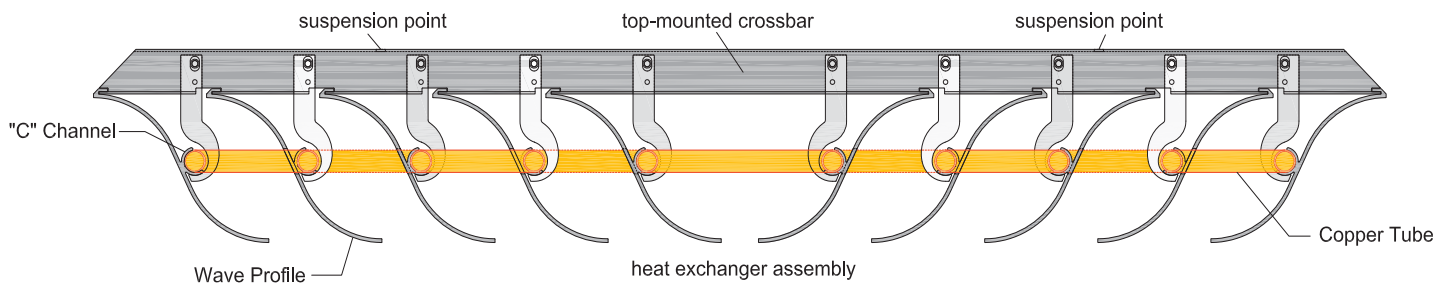
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General Description

The BRW is a unique system that is energy efficient, but also effective in tempering its surrounding. It has an innovative, distinctive and visually appealing design, like no other in the market. It provides thermal comfort by radiation and acts as a heat exchanger.

The assembly consists of two components; an aluminum profile shaped as a “wave” and a seamless precision drawn copper tube. The aluminum profile also has a “C” channel embedded in the center, which holds the copper tubing. The copper tubing does not reach beyond the vertical edges of the sail, thereby, remaining concealed. Hot or cold water runs in the copper tubes, by which, heat is transferred via conduction to or from the sails, and via radiation to the surrounding area. The connections to the water mains are located on the top of the sail.

The profiles are fixated with top-mounted crossbars, which also serve as suspension points, typically from the ceiling. The heat exchanger assembly can be custom manufactured to accommodate various sizes. Sail lengths range from 6 feet to 12 feet, in increments of one foot. The sail width is defined by the number of extrusions mounted in parallel, ranging from 8 to 14 profiles, in increments of 2 (refer to page 4 for more detail). There are no restrictions in length and/or width combinations, provided the water-side pressure drop does not exceed 15 feet (recommendation Barcol-Air), or another threshold specified by the engineer. The sails are available in slotted and non-slotted versions. The BRW heat exchanger is manufactured and assembled at a certified location, as approved by Barcol Air Ltd. The sail is then powder coated in a color selected by the architect or client.



Materials

The embedded “C” channel in the “wave” profile comes in contact with at least 55% of the outer diameter of the copper tube. Thereby, a consistent thermal contact is achieved between the profile and the copper, without the use of any heat transfer pastes.

The tolerances of the “C” channel together with the tolerances of the copper tube result in the ability to clamp or snap the tube in the profile when it is pressed together. This enables an optimal heat transfer area and heat transfer rate.

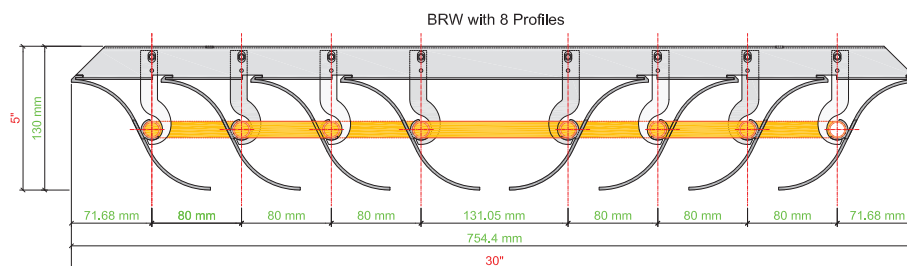
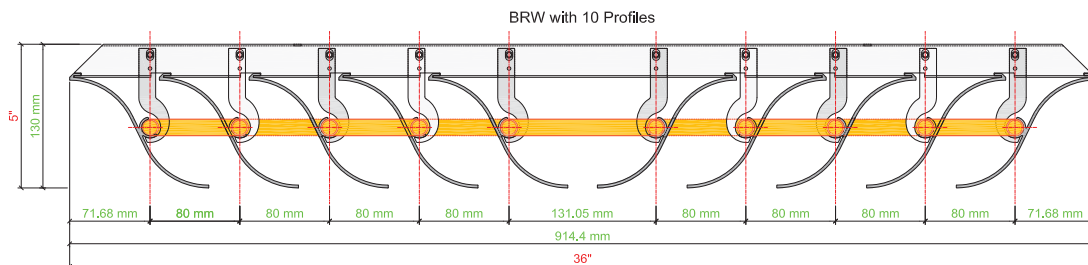
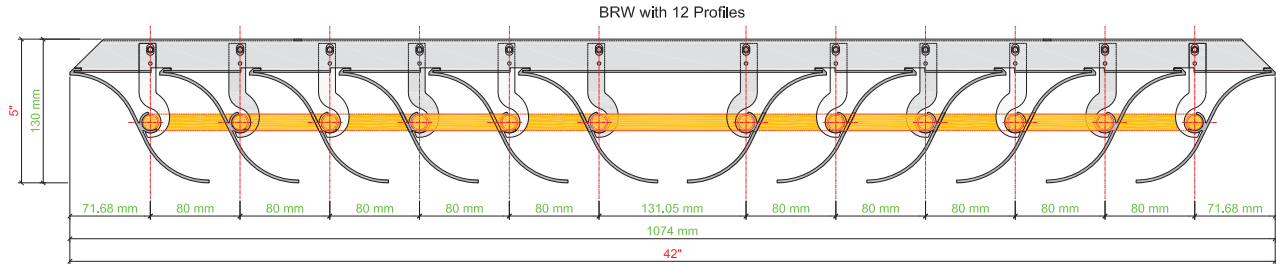
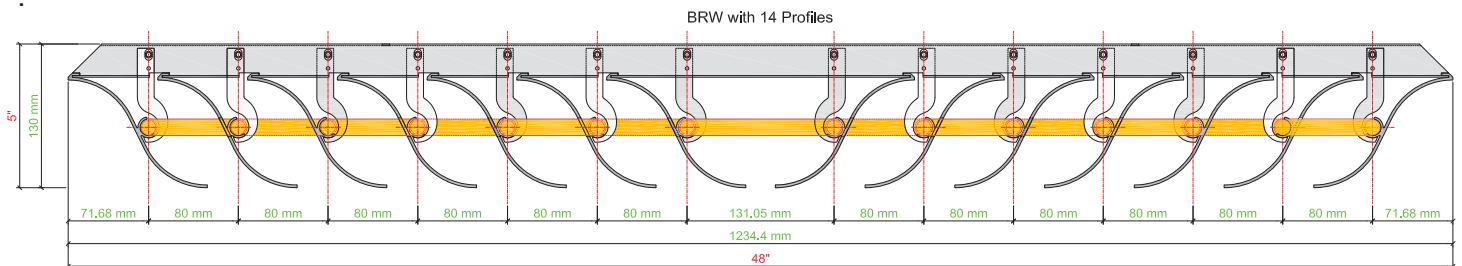
The copper tube is a precision drawn 15.0 mm (0.591”) OD, seamless and semi-hard drawn copper tube. To ensure a high precision fit in the “C” channel, the copper is calibrated and hardened. The tolerances of the OD are within ± 0.02 mm. The copper tubing is tested with the “Eddy Current Method” and proofed for any hairline cracks.

Areas of Application

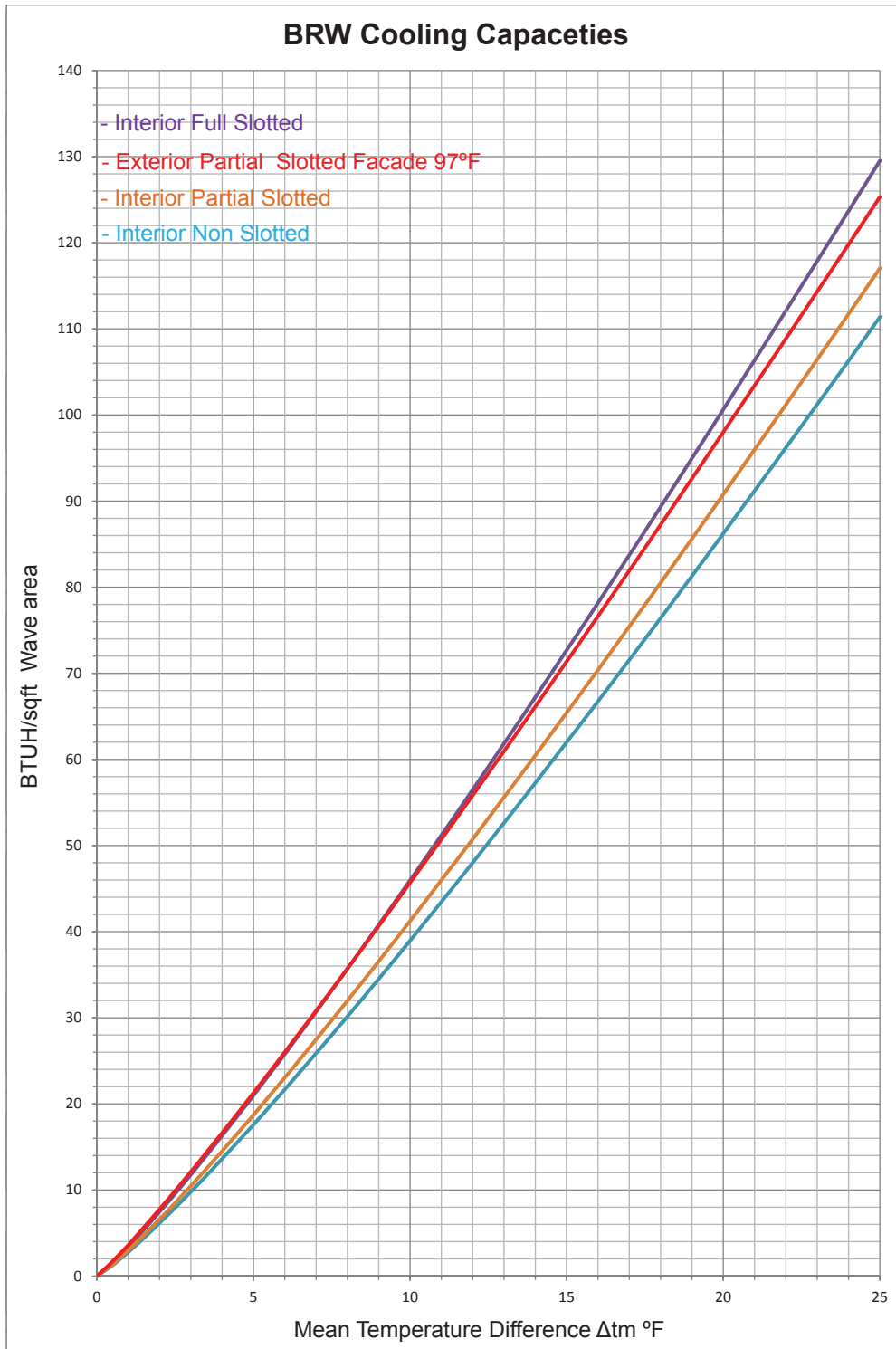
1. Commercial or residential buildings
2. Office buildings
3. Schools
4. Manufacturing facilities
5. Other

Dimensions

The sail lengths range from 6 feet to 12 feet, in increments of one foot. The sail width is defined by the number of profiles mounted in parallel, ranging from 8 to 14 pieces, in increments of 2 extrusions. This results in a combined width of 30" for 8 profiles, 36" for 10 profiles, 42" for 12 profiles and 48" for 14 profiles. Please note drawings below.



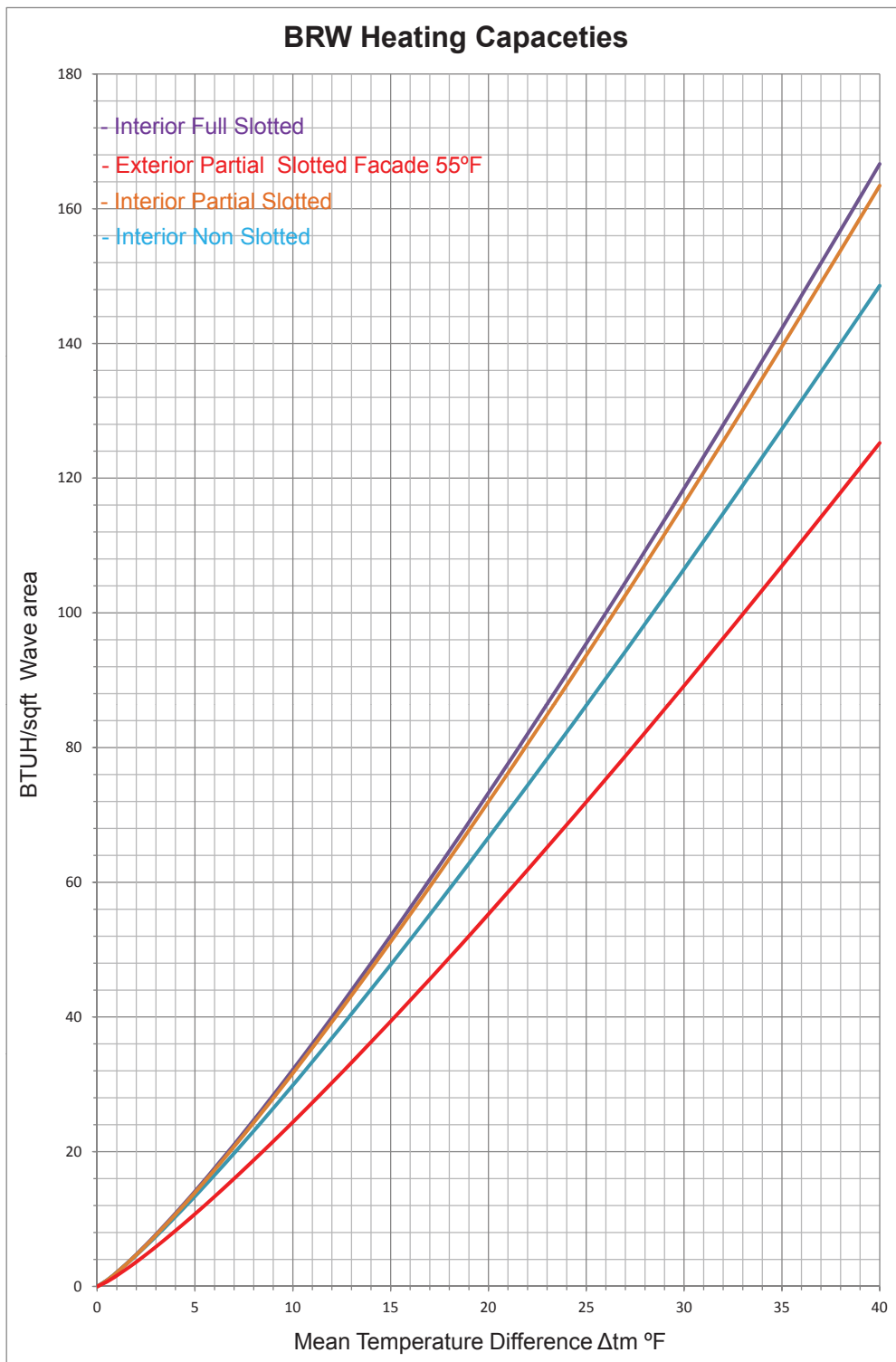
Cooling Capacities



The mean temperature difference (Δtm °F) for cooling is calculated as follows:

$$\Delta t_m (\text{°F}) = \text{Room Temp. (°F)} - [(\text{Supply Water Temp. (°F)} + \text{Return Water Temp. (°F)})/2]$$

Heating Capacities



The mean temperature difference (Δt_m °F) for heating is calculated as follows:

$$\Delta t_m (\text{°F}) = [(\text{Supply Water Temp. (°F)} + \text{Return Water Temp. (°F)})/2] - \text{Room Temp. (°F)}$$

BRW with Standard Slots

The BRW comes in three standard slot patterns:

1. None slotted,
2. Partial slotted
3. Fully slotted.

Note: The partially slotted wave will have partially slotted profiles in the interior part of the wave and fully slotted profiles at the perimeter of the wave.



Standard No Slots



Standard Partial Slots



Standard Full Slots



Standard Partial Slots, perimeter profiles are fully slotted and interior profiles are partly slotted

BRW Alternate Slot Patterns (possible on request)



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