INTERIOR

THERMA-HEXX



THERMA CEILING®

Comfort Perfected



A proven new way to heat and cool interiors

ThermaCEILING puts fluid across the whole ceiling, behind the drywall. With room by room controls it heats and cools homes, offices and industrial spaces from one silent surface.

Rye, NH. The marsh side of the same room before drywall: ThermaPANEL rows on ThermaTRAK.

Clean, Quiet, Efficient Comfort

- **Healthy Air**

Temperature, humidity and fresh air are each controlled on their own. Less dust and fewer allergens are pushed around the house.

- **Silent Operation**

No fans, no fan coils and no drafts. The ceiling heats and cools by radiant exchange with the room.

- **Made for Heat Pumps**

Fluid across the whole surface lets mild fluid temperatures do the work. High output at low temperatures means high COP for heat pumps.

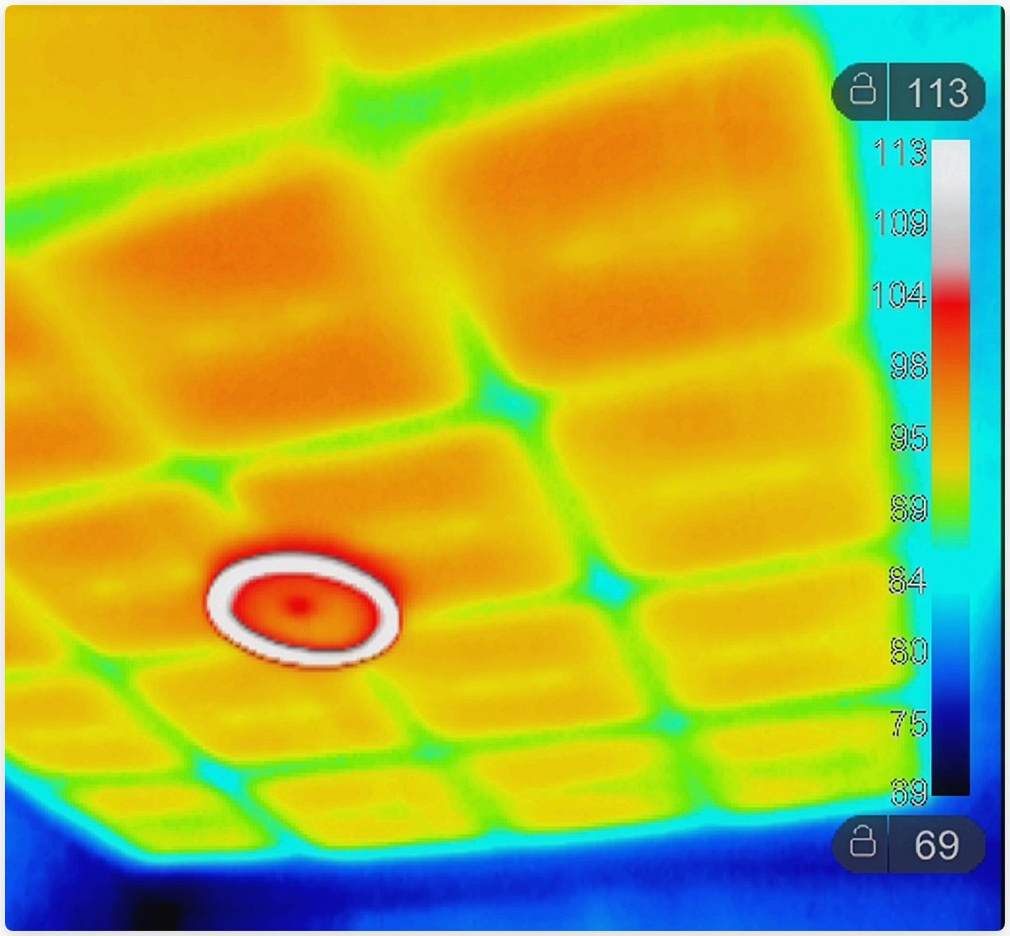
- **Even Comfort, Room by Room**

Each room holds its own temperature. Four pipe systems can heat one room while cooling another.

- **The Most From Overhead Space**

The ceiling is clear of furniture and rugs, so the energy goes to the room. Floors settle at room temperature.

See the Difference



- **What the Thermal Camera Sees**

ThermaCEILING heating through 5/8 in drywall. Every panel warms its whole face evenly. The bright ring is a recessed light.

- **Tube and Plate Systems**

Tubes heat thin aluminum in stripes. The metal between them runs cooler, so the fluid has to run hotter or colder to make up the difference.

- **A Surface That Radiates**

Bare aluminum has an emissivity near 0.05. The carbon black panel surface is about 0.96, on a scale of 0 to 1.

- **2 to 3 Times the Output**

Fluid under the whole surface delivers 2 to 3 times the output of other hydronic radiant systems.

ThermaCEILING Innovation

- **ThermaPANEL at the Core**

Each 23.375 in panel spreads one quart of fluid through 24 turbulent flow channels across its whole face. No tubes and no aluminum plates.

- **Radiant Cooling Without Condensation**

The controls hold the fluid above the room dew point, so the ceiling cools without sweating.

- **Fast Response**

Radiant energy reaches every surface in the room at once. No slab to charge, no overshoot and no floor temperature limit.

- **Factory Assembled Rows up to 14 Panels**

Interior panels are tested twice at 50 psi in an oven at 150 F, fusion welded into rows, then tested to 50 psi again.

- **Durable and Made in the USA**

Dow HYPERTHERM 2399 NT PE-RT, formed in Portsmouth, NH and recyclable. Listed under ICC-ES PMG-1788, with a 25 year limited warranty.



ThermaPANEL rows clipped into ThermaTRAK, ready for drywall.

Two Jobs, Two Systems

- **Temperature Is One Job**

Sensible heating and cooling change the temperature you read on a thermostat. ThermaCEILING does all of it, in silence.

- **Moisture Is Another**

Latent load is the humidity in the air. Comfort sits near 40 to 60 percent relative humidity at 68 to 77 F.

- **Why One Machine Struggles**

Ducted systems do both at once. They overcool the air to dry it in summer and deliver dry, overheated air in winter.

- **The Therma-HEXX Approach**

An ERV such as the Build Equinox CERV2 brings in fresh air and dries it. A dedicated dehumidifier handles the rest, through small ducts. A humidifier can be added for the heating season.

- **Each Does Its Job**

With the two separated, temperature and humidity both stay where you set them. Therma-HEXX can recommend an ERV and latent system engineer.



Rye, NH. Oceanfront home. ThermaCEILING on a vaulted ceiling before drywall.

Intelligent Controls

- **Room by Room**

Temperature, humidity and air quality are measured in each room, and each room is adjusted on its own.

- **Dew Point Protection**

In cooling, the program keeps the fluid a safe margin above the room dew point at all times.

- **Tuned for Efficiency**

The system runs the mildest fluid temperature that meets the load, which is where a heat pump is most efficient.

- **Loxone, Specified by Therma-HEXX**

Therma-HEXX developed the base program with Loxone. Trained Loxone integrators build and install the controls for each project. Other controls that meet the requirements can be used.

- **Whole Home Ready**

The same controls can run lighting, audio and window shades.



Before: ThermaTRAK on the framing

Rye, NH. The same ceiling after drywall. No registers, no grilles, no fan coils.

Dependable Components

- **Mechanical Component Partners**

Therma-HEXX is an OEM partner of the leading makers of hydronic components.

- **Chiltrix Air to Water Heat Pumps**

AHRI certified performance and Modbus communication. They switch between heating and cooling on their own.

- **Taco and Grundfos Circulators**

Sized for each section of the system.

- **Caleffi, Spirotherm, Axiom, Amtrol, Belimo and Sioux Chief**

Manifolds, air and dirt separation, glycol feeders, expansion tanks, valves and fittings.

- **Fresh Air and Humidity**

Build Equinox CERV2 and Santa Fe dehumidifiers are specified by Therma-HEXX and supplied by independent contractors.

Why Not Ducts, Mini Splits or Tubes

- **Ducted HVAC**

One system handles temperature and humidity, so it does neither well. Noise, drafts and dust in the ducts, with a large share of the building given over to ductwork.

- **Mini Splits**

The same blowing air in every room, wall mounted units, and refrigerant piped to each room. New units use mildly flammable refrigerant.

- **Boilers and Furnaces**

Heat only, with a COP of 0.9 to 0.98 against 2.5 to 4.5 for an air to water heat pump. Cooling becomes a second system, and many cities now restrict fossil fuel equipment.

- **Radiant Floors**

Slow thermal mass overshoots and undershoots, and wood floors are limited to 86 F. Floors cannot cool effectively, because warm air rises to the ceiling. A high mass floor can also condense, because it is slow to change temperature when humidity jumps, as when a door opens.

- **Tube and Plate Radiant**

Uneven surfaces need hotter and colder fluid, which costs heat pump efficiency. Most need fan coils to meet the cooling load, which brings back forced air.

Engineered, Start to Finish

- **Engineered to Fit**

We work from your complete plans, a reflected ceiling plan with lighting and ERV locations, and a Manual J load report.

- **Detailed Plans**

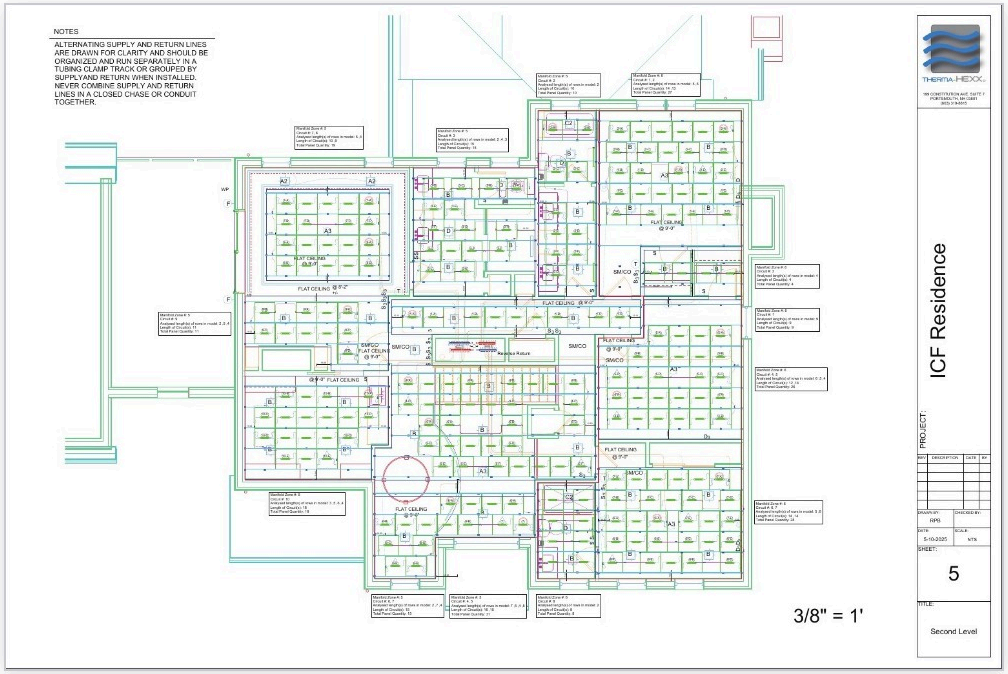
Every panel, tube, fitting, ThermaTRAK and clip is drawn, with manifold layouts, mains piping and mechanical details.

- **Every Detail Considered**

Drywall layout and butt joints, and whether ThermaTRAK and drywall lengths fit the freight elevator or the stairwell.

- **Labeled for the Job**

Each panel carries its section, zone and row. Each carton is labeled on four sides.



Panel layout from a residential submittal set.

Packaged Mechanicals

- **Engineered for Each System**

Therma-HEXX selects and includes the mechanical components the design calls for.

- **What Is Included**

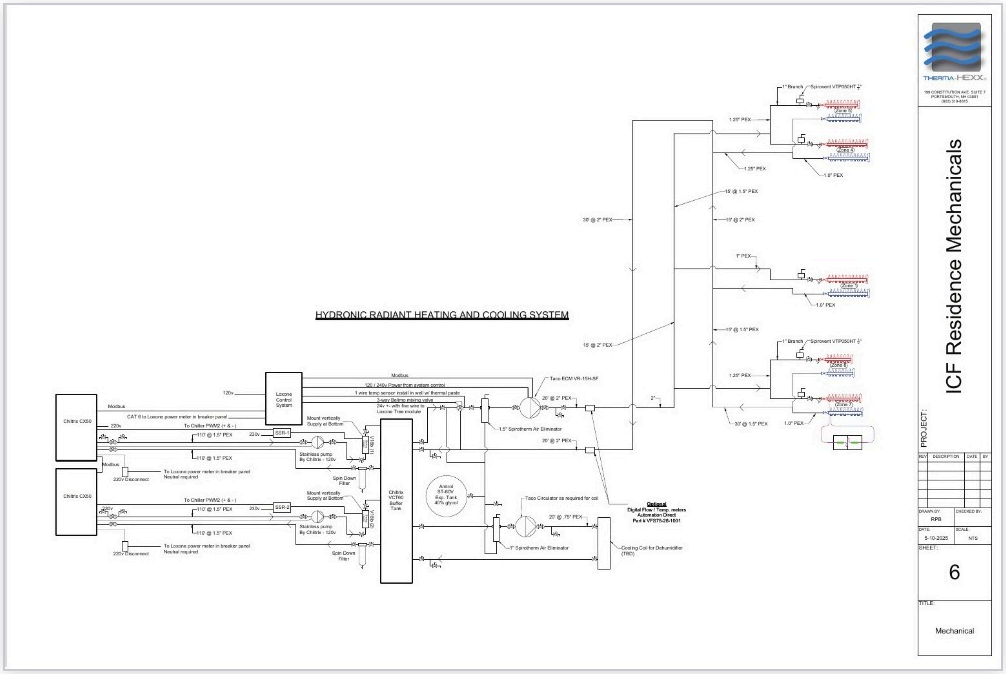
Air to water heat pump, buffer tank, backup heater, expansion tank, air and dirt separator, circulators and manifolds.

- **Backup for Extreme Cold**

An electric backup heater assists in extreme cold, managed by the heat pump.

- **Sourced and Delivered Together**

Components are sourced as production is scheduled and arrive packaged for the job.



Mechanical schematic from the same submittal set.

Delivery and Installation

- **Packed to Unfold**

Rows fold at the S tube and ship in cartons of 85 to 100 lb. Up to six cartons stand on a 40 x 48 in pallet.

- **ThermaTRAK at 24 in on Center**

Aluminum ThermaTRAK clips to the structure every 48 in, or hangs as a dropped ceiling.

- **Lift and Clip**

Rows unfold onto a cradle, go up on a drywall lift and clip into the ThermaTRAK edge guides.

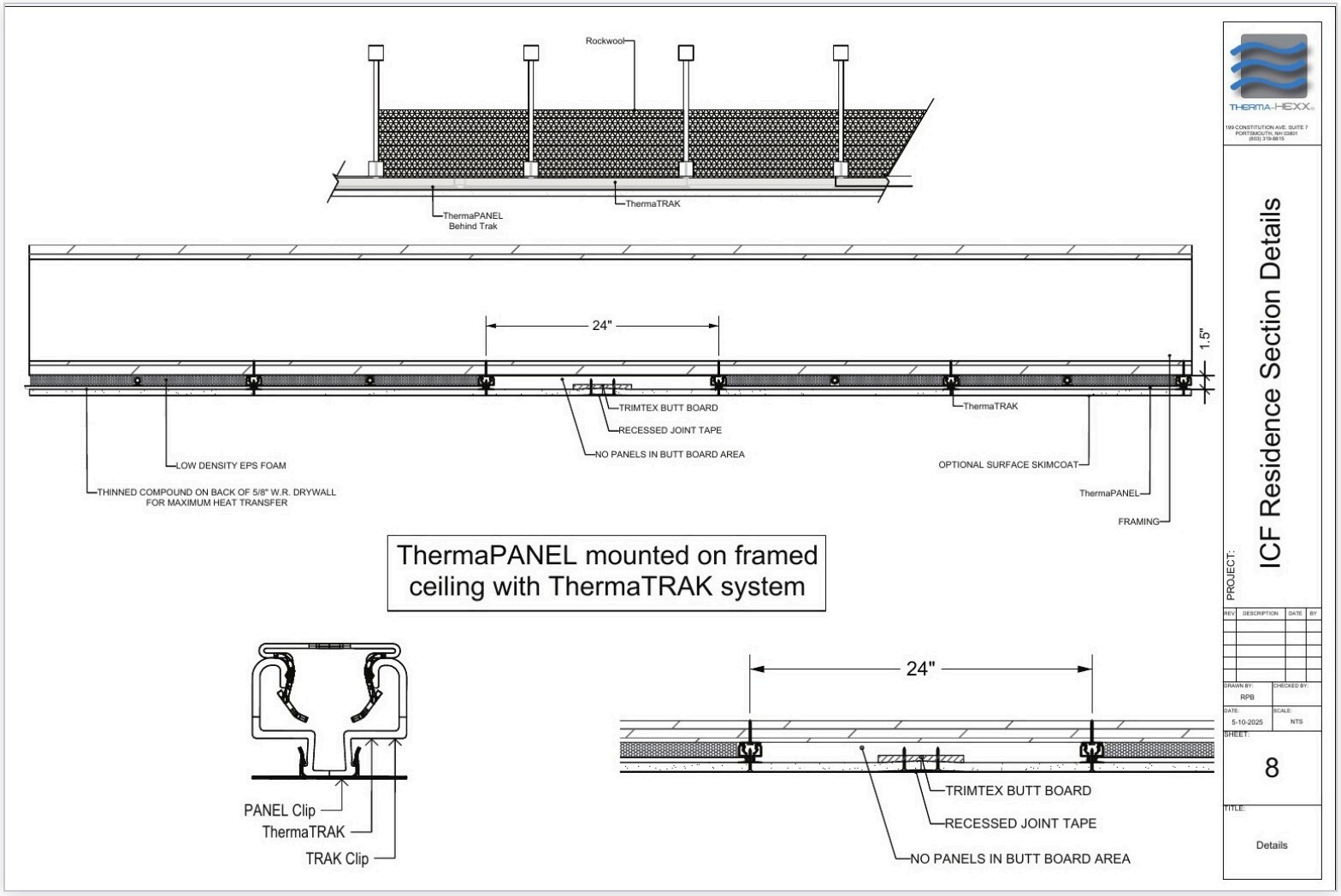
- **Simple Connections**

Rows connect with ASTM F1807 copper crimp fittings to Caleffi brass manifolds. No field fusion.

- **Test, Then Close**

Air test, then fluid test, before the ceiling is closed. Drywall screws to the center of each ThermaTRAK. Onsite training is available.

The Ceiling Assembly



ThermaPANEL on ThermaTRAK at 24 in on center, 1 7/16 in deep, behind 5/8 in drywall. Butt board areas are planned without panels.

Specifications

Panel	23.375 x 23.375 in. Half panel 23.375 x 11.5 in
Assembly depth	1 7/16 in on ThermaTRAK
Row spacing	24 in on center
Material	Dow HYPERTHERM 2399 NT PE-RT, carbon black filled
Channels and fluid	24 channels, 1 quart of fluid per panel
Flow per row	0.25 to 1.5 gpm
Circuit size	Up to 14 panels, 56 sq ft, per circuit
Ceiling coverage	30 to 85 percent of the conditioned area, set by the load

Sensible cooling	About 30 Btu/hr per sq ft of panel at 75 F and 50 percent RH
Dew point control	Fluid held 4 to 5 F above the room dew point
Pressure	37 psi operating, 50 psi maximum test and relief
Temperature	140 F maximum at the panels
Finished surface	5/8 in drywall or blueboard, or wood laminate on MgO board
Field joints	ASTM F1807 copper crimp fittings, stainless crimp rings
Manifolds	1 in Caleffi brass
Listing and warranty	ICC-ES PMG-1788. 25 year limited warranty. Made in the USA

Patents US 8,944,146 and US 9,683,756. Full specifications, CSI section and technical documents at therma-hexx.com/downloads.

Let's Get Started

- **Call or Email Us**

Talk through your project or pre-design questions.
(603) 319-8815 contact@therma-hexx.com
199 Constitution Ave, Suite 7, Portsmouth, NH 03801

- **Send Plans and a Manual J**

Plans as .dwg or .pdf with a reflected ceiling plan, and a Manual J load report. Early design guidance costs nothing.

- **Budgetary Estimate**

A preliminary layout and estimate come first. Final engineering follows a signed agreement and a 15 percent engineering fee, credited to the final price.

- **Production and Delivery**

A 35 percent payment schedules production. The balance is due when production is complete. Shipping and onsite training follow.

ICC-ES listing PMG-1788

Specs and details on ARCAT



Harwinton, CT. The finished ceiling. Nothing to see, nothing to hear.



THERMA CEILING®

Hydronic Radiant Heating and Cooling

Back cover: ThermaCEILING on steel framing, before drywall

www.therma-hexx.com

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