Introducing TRM w/Hydronic Heating

WATER-SOURCE HEAT PUMPS

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TRM w/Hydronic Heating

- Traditional WSHP systems are designed for applications where there is demand for both heating and cooling throughout much of the year

- Hybrid systems combine mechanical cooling and hydronic heating to maximize system energy efficiency

Installed System

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Benefits of Hybrid Heat Pump Systems

- Provide heating without the use of a compressor
  - Operate as a fan coil in heating mode
- Quieter operation during heating mode (no compressor running)
- Energy efficiency is maximized while operating in hydronic mode (no compressor amp draw)

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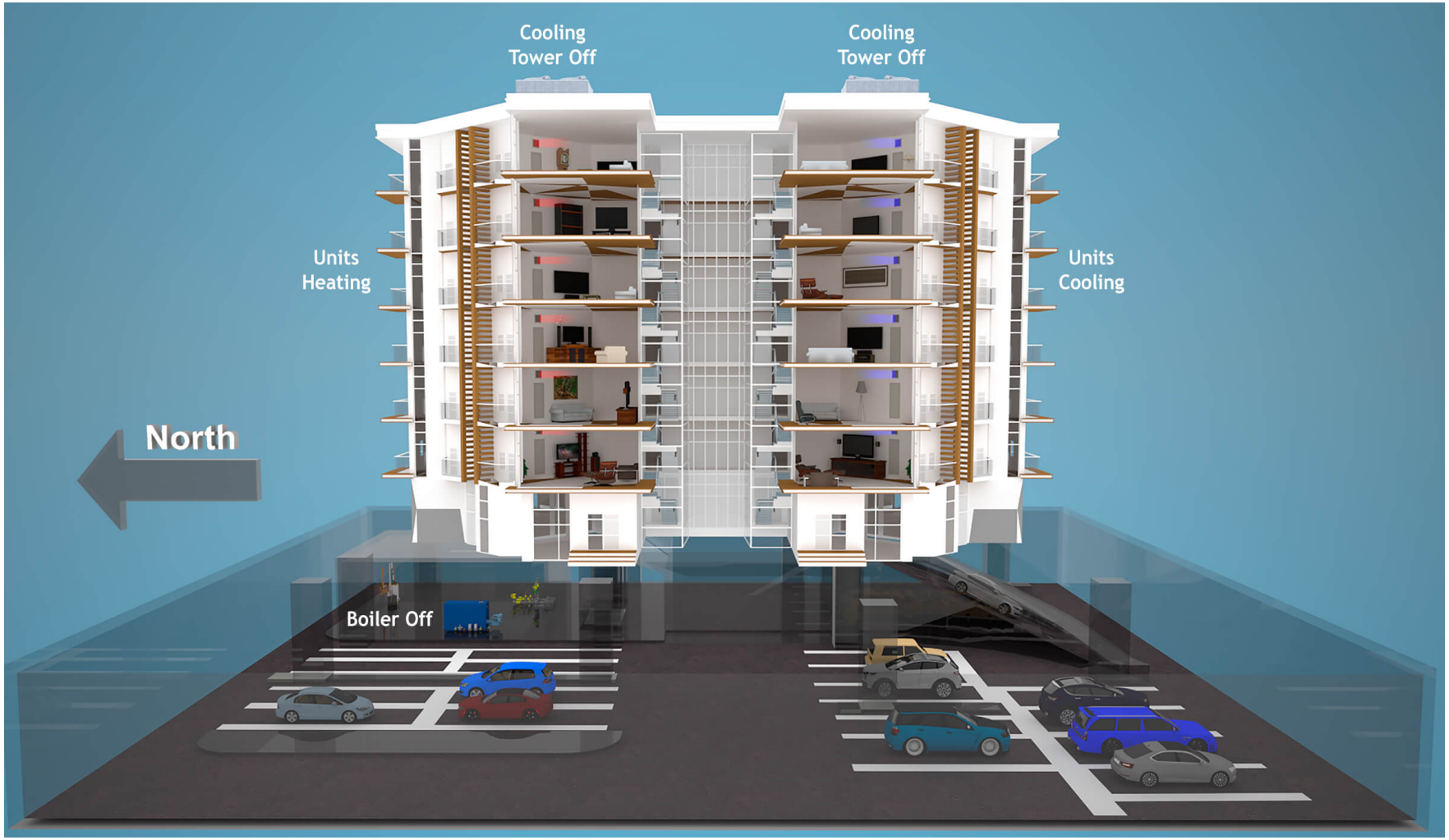
Hybrid Heat Pump Application



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Markets and Influencers

- West Coast
  - Demand starts in San Francisco and continues north
  - Energy modeling,(California) heat pumps are modeled as electric heat but hybrid heat pumps are model as gas heat
- Southern Canada
  - Vancouver, district heating (municipal incentivized)
- When more glass is used, more energy is needed to satisfy building demand
  - Developers are required to use more efficient systems (ex. title 24)
  - Hybrid WSHP systems are a cost effective solution (less glazing on windows) to meet energy compliance regulations

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TRM Hybrid Features

- Refrigeration circuit cooling and hydronic heating
  - Reduced compressor cycling in heating mode
- Hydronic coil factory assembled to unit
  - Only two water connections
- Major components are
  1. Hydronic water coil
  2. Motorized 3 way water valve

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TRM Hybrid Features – cont.

- Motorized 3 way valve diverts entering water in heating operation allowing water to flow through the hydronic heat exchanger
- Heating capacities vary based upon EWTs
  - Match up to 100% of cooling capacity
  - Building loop temperatures can be designed up 120 degrees
    - Risers have to be insulated above 105 degrees (AHRI 90.1)
- No reversing valve

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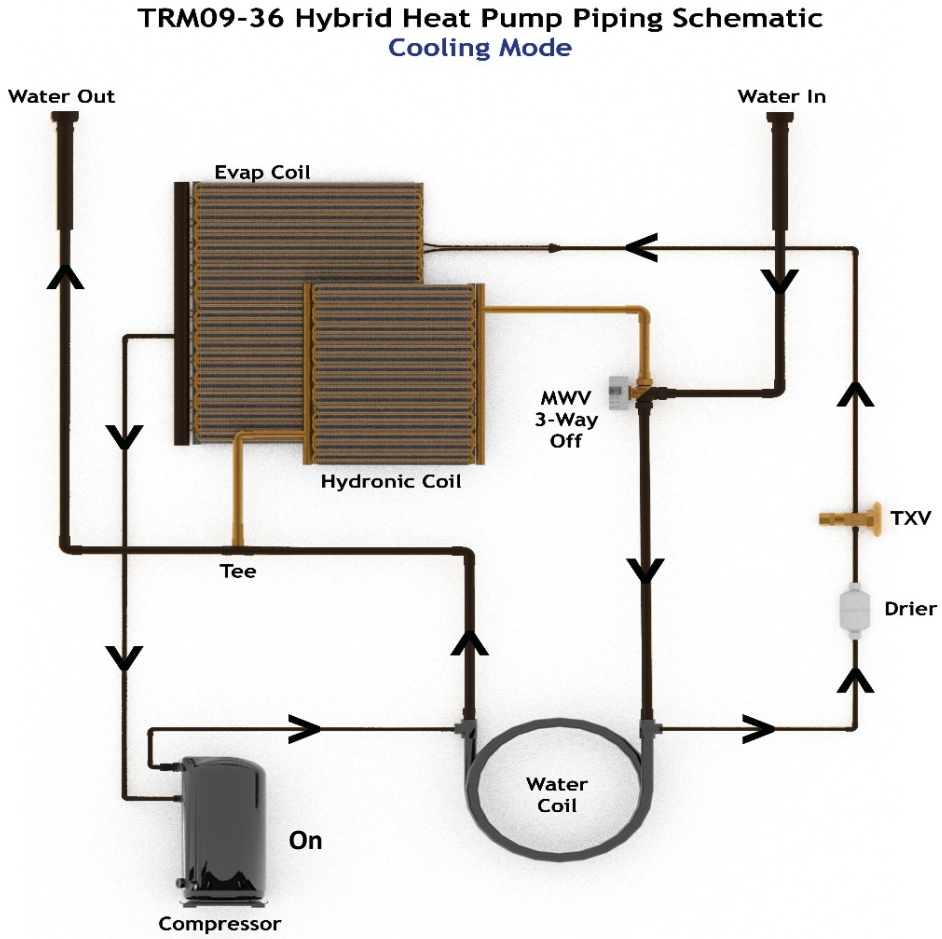
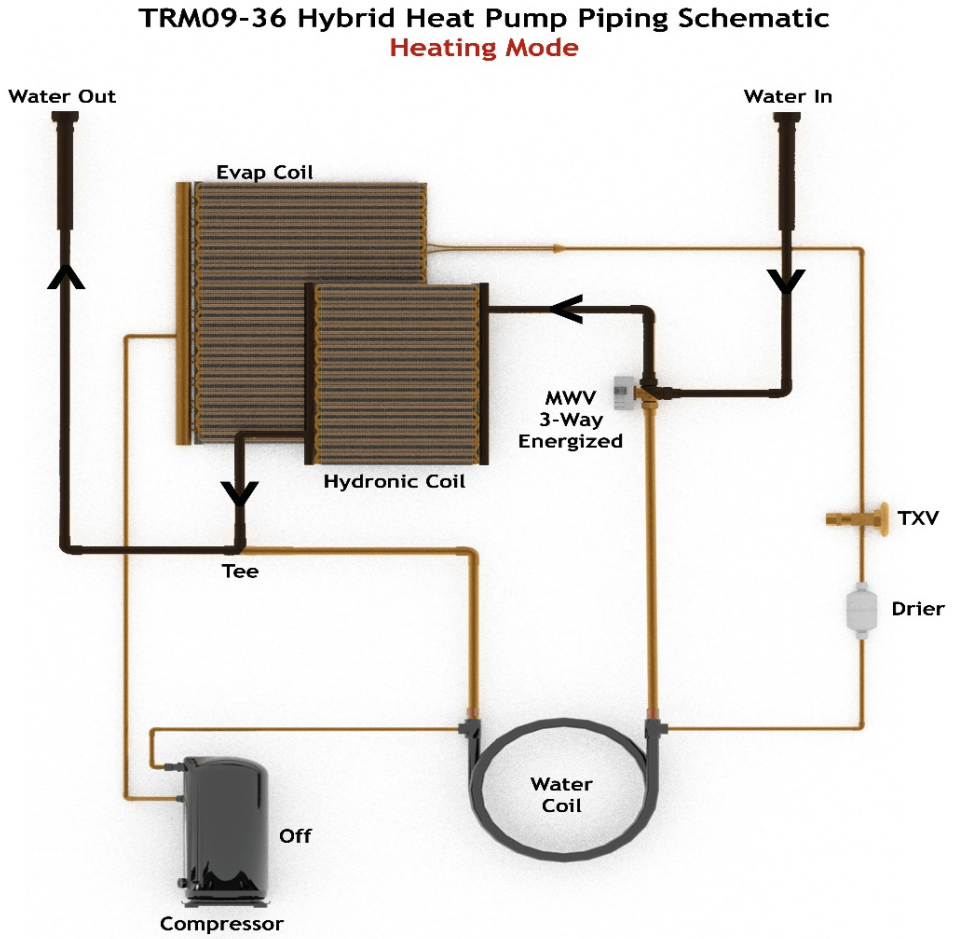
TRM Hybrid Piping Schematic





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TRM Features

- Sizes 09-36
- ECM fan motor option
  - Sizes 09 & 12 use DXM2 control board (constant volume ECM)
  - Sizes 15-36 use DXM control board (constant torque ECM)
- Up to 14.1 EER
  - At AHRI rated conditions, ECM fan motor, WLHP operation
  - Exceed ASHRAE 90.1 efficiencies

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TRM Features – cont.

- Compact footprint
  - 09-12 17”x17”
  - 15-18 20”x20”
  - 24-36 24”x24”
- Double isolation compressor mounting for quiet operation
- Optional DDC controls (MPC & LON)
- Wide variety of options
  - Multiple supply discharge options

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Field Notes

- This product is offered as a special and there is no AHRI certification available for heating operation
  - Is AHRI certified in cooling operation
- Installation Notes
  - Air bleeds are located on back of chassis
  - Bleed off air in hydronic coil during commissioning

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Materials

- The TRM with Hydronic Heating literature and marketing material can be downloaded from the link below
  - http://www.climatemaster.com/commercial/products/tranquility-vertical-stack-trm-series/
- Please contact you Regional Account Manager for pricing
  - A special EZ- Order tool has been created for quoting/ordering

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