

CHILLED BEAMS & RADIANT COOLING

Chilled beams are types of radiant ceiling systems and include both passive (cooling only) and active (heating and cooling) systems. Radiant ceiling systems have faster response times than radiant floors and are thus more suitable for offices, conference rooms and other similar spaces.

Compared to more traditional HVAC systems, radiant ceiling systems may have a first-cost premium in the range of \$4-10/sf, but this varies widely depending on the system design and type of radiant panel or chilled beam selected. Energy savings also vary widely and are highly dependent on climate, building type and system design. The economics of a radiant ceiling system should be evaluated on a project-by-project basis in coordination with detailed energy modeling.



PASSIVE CHILLED BEAMS

Passive chilled beams promote convection and radiation with air gaps between sections for cool air to circulate around the beam and then fall to the occupied space. Compared to chilled sails, chilled beams minimize radiation, but increase overall capacity. Chilled beams are typically long and slender, measuring about one-two feet wide by two-ten feet long. Their cooling capacity ranges from 120-160 Btuh/sf.

Passive chilled beams are not suitable for heating applications, since convection will result in hot air rising, lower capacity, and unnecessary heat wasted.

ACTIVE BEAMS

Active beams are similar to passive beams, with the addition of a duct connection for supply air from a central unit. The supply air is introduced into the beam through high velocity nozzles that induce warm air to flow up into the beam and entrain it back into the room via slot diffusers. Their increased capacity, ranging from 250-500 Btuh/sf, is due to increased convection. Active beams can also be used for heating.

PROJECTS UTILIZING CHILLED BEAMS

- ConocoPhillips Campus, Louisville, CO*
- Diablo Valley College, Student Services Center and Culinary Arts School, Pleasant Hill, CA*
- Edith Green Wendell Wyatt Federal Building, commissioning, Portland, OR
- The Gerding Theater, design and commissioning, Portland, OR
- Glumac office TI at the Standard Insurance Building, design and commissioning, Portland, OR
- Harvey Mudd College, design, Claremont, CA
- King Abdullah University of Science and Technology, Saudi Arabia*
- Las Positas College Student Services Center, Livermore, CA*
- Madera County Courthouse, Madera, CA
- Menlo/Atherton High School, Digital and Media Arts Building, Atherton, CA*
- One Embarcadero Center, San Francisco, CA
- Sand Hill Road Office Building, Menlo Park, CA*
- Twelve West Building, including the apartments Indigo @ Twelve West, design and commissioning, Portland, OR
- University of California, Davis, Campus Bookstore, Davis, CA*
- University of Washington School of Medicine, Seattle, WA*

PROJECTS UTILIZING RADIANT COOLING

- Harbor College Student Union, Los Angeles, California
- Independence Station, Mixed-Use/Residential Net Zero building, Independence, OR*
- Port of Long Beach New Administration Building, Long Beach, CA
- Salt Lake City Creek Center, Salt Lake City, UT
- Wayne L. Morse U.S. Federal Courthouse, design and Commissioning, Eugene, OR

*projects completed by current Glumac employees prior to joining Glumac