

Roof Ice Melt System (RIM)

Case Studies





Solaris Resort (Vail, CO)

BACKGROUND

- Award-winning upscale resort
- Heavy snow load area with demanding performance and aesthetic requirements

DESIGN CHALLENGES

- Complex roof design
- Two-tone zinc shingle
- Minimize energy consumption

SOLUTION

- NVent RAYCHEM RIM Roof Ice Melt panels
 - more efficient heat transfer
 - more reliable attachment method
- HECS High Efficiency control system
- integral ground fault and branch circuit breakers
- Detailed design drawings / field support

- 74 total circuits
- > 3,500' RIM System panels
- 12 HECS control panels







Four Seasons (Vail, CO)

BACKGROUND

- Award-winning luxury hotel property
- Heavy snow load area with demanding performance and aesthetic requirements

DESIGN CHALLENGES

- Preserve aesthetics of building
- Multiple heating system applications

SOLUTION

- RAYCHEM RIM Panel System for de-icing
- RAYCHEM snow-melting for patios
- RAYCHEM floor heating for bathrooms
- Customized heating system for HVAC intake
- HECS High Efficiency control system
- integral ground fault and branch circuit breakers
- Detailed design drawings / field support

- 52 total circuits
- > 4,530' RIM System panels
- 4 HECS control panels





Four Seasons (Jackson Hole, WY)

BACKGROUND

- Award-winning luxury hotel property
- Heavy snow load area with demanding performance and aesthetic requirements
- Preference for RIM Systems

DESIGN CHALLENGES

- Preserve aesthetics of building, no visible cables
- Minimize energy consumption

SOLUTION

- RAYCHEM RIM Roof Ice Melt panels
 - more efficient heat transfer
 - more reliable attachment method
- HECS High Efficiency control system
- integral ground fault and branch circuit breakers
- Detailed design drawings / field support

- 94 total circuits
- 8,050' RIM System panels
- 6 HECS control panels







Four Seasons (Whistler, BC)

BACKGROUND

- Luxury hotel property
- Heavy snow load area with demanding performance and aesthetic requirements
- Preference for RIM Systems

DESIGN CHALLENGES

- Preserve aesthetics of building, no visible cables
- Minimize energy consumption

SOLUTION

- RAYCHEM RIM Roof Ice Melt panels
 - more efficient heat transfer
 - more reliable attachment method
- HECS High Efficiency control system
- integral ground fault and branch circuit breakers
- Detailed design drawings / field support

- 15 total circuits
- > 1,000' RIM System panels
- Extensive site help thru construction





Four Seasons (Roslyn, WA)

BACKGROUND

- Award-winning upscale luxury resort
- Heavy snow load and high wind area with demanding performance and aesthetic requirements

DESIGN CHALLENGES

- Preserve aesthetics of building, no visible cables, complex roof design
- Minimize energy consumption

SOLUTION

- RAYCHEM RIM Roof Ice Melt panels
 - more efficient heat transfer
- HECS High Efficiency control system Snow-melting front entry, ramp and all walkways
- Floor heating system for athletic building
- > Detailed design drawings / field support

- 54 total circuits
- > 7,100' RIM System panels
- 18,864' snow-melting cable





Village Center (Jackson Hole, WY)

BACKGROUND

- New multi-story building located in heavy snow load area
- North facing entrance and higher anticipated icicle/ ice dam formation
- High foot traffic areas

DESIGN CHALLENGES

- Complex roof design requiring custom panel configuration
- High energy costs (no natural gas)
- Minimize energy consumption

SOLUTION

- RAYCHEM RIM Roof Ice Melt panels
- HECS High Efficiency control system
- Snow-melting ramp, patio and decks
- Floor heating system for bathrooms
- Detailed design drawings / field support

- 17 total circuits
- 1,600' RIM System panels
- 4350' Snow-melting cable
- 16 circuit HECS control system







Ritz Carlton (South Lake Tahoe, CA)

BACKGROUND

- Luxury hotel property located in heavy snow load area.
- Original owner chose to remove RIM System, new owner retrofitted RIM

DESIGN CHALLENGES

- Complex roofline
- Retrofit design had to match existing without visible differences
- Electrical capacity limited, energy efficient design requirement

SOLUTION

- RAYCHEM RIM Roof Ice Melt panels
 - more efficient heat transfer HECS
- HECS High Efficiency control system
 - integral ground fault and branch circuit breakers
- Detailed design drawings / field support

- 40 total circuits
- > 3,100' RIM System panels
- 8 HECS control panels





Lake Tahoe Vacation Resort (South Lake Tahoe, CA)

BACKGROUND

- Resort originally built in 1997 with RIM specified for critical areas only
- Other areas produced massive icicles and ice dams
- Owner insisted on fully covered retrofit

DESIGN CHALLENGES

 Complex roofline with several dormers

SOLUTION

- RAYCHEM RIM Roof Ice Melt panels
 - more efficient heat transfer HECS
- HECS High Efficiency control system
- integral ground fault and branch circuit breakers
- Detailed design drawings / field support

- 110 total circuits
- > 12,500' RIM System panels
- 18 HECS control panels







Starwood Chains (UT, CO, CA)

BACKGROUND

- Luxury resort in heavy snow load area
- Concerns for guest safety and snow/ice related hazards

DESIGN CHALLENGES

- Complete roof design
- Preserve aesthetics of building, no visible cables
- Ensure operation even during harshest winter conditions

SOLUTION

- > RAYCHEM RIM Roof Ice Melt panels
 - more efficient heat transfer HECS
- HECS High Efficiency control system
- integral ground fault and branch circuit breakers
- Detailed design drawings / field support

- RAYCHEM RIM System chosen as preferred solution for all properties
- Installed in several premier properties throughout snow country areas







Tabor Hotel (Leadville, CO)

BACKGROUND

- Historic building restoration
- Severe icicle and ice dam issues
- Preservation of aesthetics was vital

DESIGN CHALLENGES

- Retrofit application with unique dormer features required custom fit panel design
- No drain paths for melt water

SOLUTION

- Customized RAYCHEM RIM Roof Ice Melt panels
- Customized panel design to provide melt water run-off
- Detailed design drawings / field support

- 15 total circuits
- 1,300' RIM System panels







U of T Daniels Building (Toronto, ON)

BACKGROUND

- School of Architecture building at University of Toronto
- Modern design that feature a potential pinch point for snow accumulation

DESIGN CHALLENGES

- Provide effective snow melting at pint point with proper drainage for melt water
- Custom dimensioned heating panel system

SOLUTION

- Customized RAYCHEM RIM Roof Ice Melt panels
- ACS-30 control system
 - integral ground fault protection
 - BMS communication integration
- Complete turnkey project

- 6 total circuits
- 800' RIM System panels
- 1 controller







National Music Center (Calgary, AB)

BACKGROUND

- Award-winning modern architecture with performance and aesthetic rqmts.
- Identified potential for significant snow falling onto street below

KEY DESIGN CHALLENGE

- High volume gutters requiring complete snow-melting
- High wattage design requirement to melt any possible snow accumulation

SOLUTION

- RAYCHEM RIM Roof Ice Melt panels
 - more efficient heat transfer
 - more reliable attachment method
- ACS-30 Control System
 - integral ground fault protection
 - BMS communication integration
- Detailed design drawings / field support

- > 1,300' RIM System panels
- 10 electrical circuits, fed from two ACS-PCM panels







Oklahoma Gas and Electric (OK City, OK)

BACKGROUND

 Heavy snow accumulation caused significant building damage. Existing system did not provide enough performance

DESIGN CHALLENGES

- Provide effective snow melting over wide surface area for drain pathway
- Compatible with existing controls and electrical distribution
- Very tight timeline

SOLUTION

- Custom RAYCHEM RIM Roof Ice Melt panels
- ACS-30 control system
 - integral ground fault protection
 - BMS communication integration
- Complete turnkey installation

- 20 total circuits
- 2300' RIM System panels





Grant House (Ottawa, ON)

BACKGROUND

- Historic building restoration
- Severe icicle and ice dam issues
- Preservation of aesthetics was vital

DESIGN CHALLENGES

- Cedar shake color match
- Retrofit application
- Limited installer knowledge

SOLUTION

- > RAYCHEM RIM Roof Ice Melt panels
- > Detailed design drawings / field support

- 7 total circuits
- > 210' RIM System panels
- Field support services







Audain Art Museum (Whistler, BC)

BACKGROUND

- Modern, complex architect with metal roof
- Heavy snow load area with high foot traffic in areas below

DESIGN CHALLENGES

- Sliding snow would damage conventional exposed cable option
- Attractive and complex roof design

SOLUTION

- RAYCHEM RIM Roof Ice Melt panels installed in critical areas
- RAYCHEM ElectroMelt snow melting cables
- Custom built ACS-30 control system
- Detailed design drawings / field support

- 40 total circuits
- > 350' RIM System panels
- 3,800' snow melting cable







Skyhouse (Various)

BACKGROUND

 Upscale apartment tower where owner had concerns about potential for falling icicles

DESIGN CHALLENGES

- Standing seam roof design required a custom panel design
- Energy efficient design due to intermittent on-time requirement

SOLUTION

- RAYCHEM RIM Roof Ice Melt panels
 - more efficient heat transfer
 - more visually appealing
- HECS High Efficiency control system
- integral ground fault and branch circuit breakers
- Detailed design drawings / field support

- 4 total circuits per building
- > 500' RIM System panels per building
- Apartments located in Dallas, TX Raleigh, NC and Atlanta, GA







Northwest Mutual Campus (Milwaukee, WI)

BACKGROUND

- New headquarters building located in a heavy snow load area
- Building consisted of wide gutters
- Corridor has significant foot traffic

DESIGN CHALLENGES

- Provide effective snow melting at pint point w/proper drainage for melt water
- High volume of snow/ice accumulation in gutters required more robust design than conventional exposed cable

SOLUTION

- RIM System panels designed for both sides of concealed gutter system
- Custom built ACS-30 control system
- Detailed design drawings / field support

- 20 total circuits
- > 1,700' RIM system panels
- 2x Customized ACS-30 Control Panels
- Redesigned from exposed cable option







Ahwahnee Hotel (Yosemite National Park, CA)

BACKGROUND

- Historic building roof replacement after 76 years.
- Roof has extensive ice/damming issues
- Project initiated after roofing consultant suggested slate roof replacement

DESIGN CHALLENGES

- Electrical system design and capacity limitations due to age of building
- Approval requirements from Department of National Parks

SOLUTION

- RAYCHEM RIM Roof Ice Melt copper panels
- Detailed design drawings / field support

- 23 total circuits
- > 7,700' RIM System panels
- 25,000' IceStop heating cable









University of Illinois (Rockford, IL)

BACKGROUND

- Main entrance designed with sunshades, which formed extensive icicles during winter months
- In the worst times, this entrance had to blocked off

DESIGN CHALLENGES

Design of the system had to ensure the cables were "invisible" and maintain the "look of the shades

SOLUTION

- Customized RAYCHEM RIM Roof Ice Melt panels design integrated into sunshade flashing
- Detailed design drawings / field support

- 23 total circuits
- > 2,200' custom built RIM system panels
- 7,000' RAYCHEM IceStop heating cable





Cornell University (Ithaca, NY)

BACKGROUND

- Historic educational campus that experience ice damming issues in several buildings
- Heavy snow load area

DESIGN CHALLENGES

- Preserve aesthetics of the building and keep heating cables concealed
- Provide an effective de-icing system in this high snow load area

SOLUTION

- RAYCHEM RIM Roof Ice Melt panels
- Detailed design layout drawings
- Detailed design drawings / field support

- 36 total circuits,
- > 8,000' RIM System panels
- Installed at Sibley Hall, Rice Hall, Savaga Hall, AD White House. Sage Chapel, Macdonough Hall, Stocking Hall, Fernow Hall, Klarman Hall







St Charles School District (IL)

BACKGROUND

- St Charles SD experienced problems with mold/mildew on some older schools
- When designing two new schools, the architect specified RIM systems to minimize ice dams and water intrusion

DESIGN CHALLENGES

 New system concept and lack of installer experience required extensive design and field support

SOLUTION

- RAYCHEM RIM2 Roof Ice Melt panels
- MACS control system
 - integral ground fault
- Detailed design drawings / field support

- 9 total circuits
- 750' RIM System panels
- 2,500' snow-melting cable







Holiday Valley (Ellicottville, NY)

BACKGROUND

- New building addition to upscale resort located in a heavy snow load area
- > Aesthetics and performance is vital

DESIGN CHALLENGES

- Building design changes occurred even after RIM parts were designed and shipped
- A Build-Design project instead of the preferred method of Design-Build

SOLUTION

- RAYCHEM RIM-E and Valley panel design to provide heated edges to the roof
- Cable melting in gutters and downspouts
- Detailed design drawings / field support

- 16 total circuits
- 600' RIM System panels
- 2 control panels





Metra Train Station (Schaumburg, IL)

BACKGROUND

- Commuter Train Station with constant public access
- Snow icicle removal needed for personnel protection

DESIGN CHALLENGES

- Provide effective icicle elimination for constant pedestrian traffic
- Installed as part of a re-roofing project

SOLUTION

- RAYCHEM RIM2-Eave and Valley panels
- Detailed design drawings / field support

- 32 total circuits
- > 2,500' RIM System panels
- Installed at the following locations: Oaklawn – Schaumburg; Blue Island – Manhattan; Laraway Road - 99th Street; Gresham – 35th Street; Tinley Park – Dee Road, etc.
- 5 HECS control panels



Illinois Tollway Authority (IL)

BACKGROUND

- Toll collection is done across the lanes at full speed, using electronic sensors
- Trucks driving through the tollbooth were experiencing broken windshields from falling icicle

DESIGN CHALLENGES

- Custom Design RIM 2 L/P Eave Panels to interface with barrel roof
- Installation on Tollway while remaining operational

SOLUTION

- RAYCHEM RIM2-L\P Eave panels
- Panels installed on both sides of barrel roof, 6 locations
- Detailed design drawings / field support

- 20 total circuits
- 1350' RIM System panels
- 5 control panels





New York Presbyterian Hospital

BACKGROUND

 Historic building in a moderate snow load area

DESIGN CHALLENGES

- Slate roof
- No existing electrical

SOLUTION

- RAYCHEM RIM Roof Ice Melt leaded copper panels; eave and valley panels
- HECS High Efficiency control system to minimize energy consumption
- Detailed design drawings / field support

- 9 total circuits
- > 2200' RIM System panels
- 2 HECS control panels







Sanford Medical (Fargo, ND)

BACKGROUND

New multi-story construction in moderate snow load area

DESIGN CHALLENGES

- New construction
- Standing seam roof

SOLUTION

- RAYCHEM RIM Roof Ice Melt panels
 - more efficient heat transfer
 - more reliable attachment method
- ASD control system
- > Detailed design drawings / field support

- 4 total circuits
- > 866' RIM System panels
- ASD control system









