ROCKY MOUNTAIN INSTITUTE

INNOVATION CENTER

Located 6,600' above sea level, the Rocky Mountain Institute (RMI) Innovation Center is a 15,600 SF office and convening facility built to support RMI's cutting-edge research around profitable interventions for energy and resource efficiency management. The project needed to advance best-in-class sustainability across building systems with a design aesthetic perfectly suited to RMI's Basalt, Colorado location. The design team was challenged to meet the organization's goal to create the most efficient building possible within a 100-year structure, while crafting a beautiful and high-performance workplace that attracted and enabled the most talented researchers and advocates for a sustainable economy.

Located in one of the coldest U.S. climate zones, with 40° daily temperature swings and limited winter solar capacity due to the average 86" annual snowfall, standard design process was set aside in favor of an entirely new approach that utilized elements of integrated project delivery and Lean Design. The orientation and siting were determined through intensive early analysis, including 19 different envelope studies of orientation, massing and thermal insulation. The building's design and organization evolved directly from this holistic design process, resulting in elimination of mechanical cooling and central heating systems. Even with this passive approach, the building prioritizes occupant experience and holistic comfort, incorporating a range of innovative and low-energy strategies that provide optimal air speed and radiant surfaces, and integrating a high-performance envelope with heat recovery ventilation.

The commitment to unite analysis and design resulted in this LEED Platinum, Passive House and Living Building Challenge Petal certified project that provides substantial evidence of RMI's thesis: environmentally responsible, net zero energy buildings can be beautiful, financially lucrative, and healthy and productive workplaces. The project is exceeding energy projections, generating 71% more energy annually than it used in its first year of operations, and boasts a 99th percentile occupant satisfaction rating in thermal and visual comfort.

COMPLETION
January 2016

OWNER
Rocky Mountain Institute

ARCHITECT
ZGF Architects LLP

MEP ENGINEER
PAE Consulting Engineers

STRUCTURAL ENGINEER
KPFF Consulting Engineers

CONSULTANT TEAM

Architectural Applications
HIGH PERFORMANCE DESIGN

Graybeal Architects LLP
ASSOCIATE ARCHITECT

DHM Design
LANDSCAPE ARCHITECT

Sopris Engineering LLC
CIVIL ENGINEERING

Green Hammer
PASSIVE HOUSE

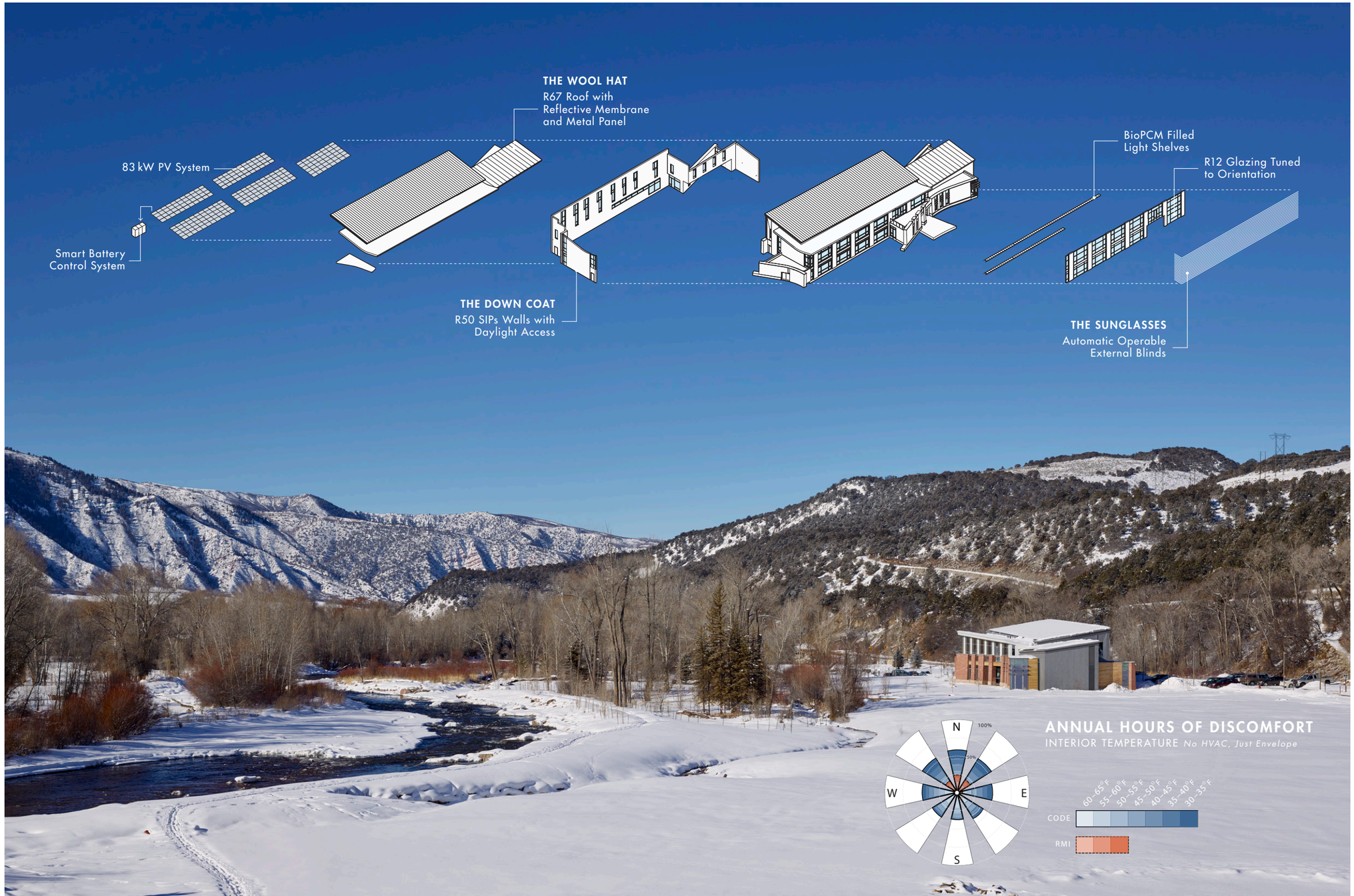
MTEch Mechanical
MECHANICAL CONTRACTOR

E Light Electric
ELECTRICAL CONTRACTOR

Altermatt Associates
ACOUSTICS

David Nelson & Associates
LIGHTING

VISION: INDUSTRY TRANSFORMATION



PROVING THAT NET ZERO IS POSSIBLE ANYWHERE

RMI's vision for this project – like its overall work – is to transform the world. When RMI decided to locate their new headquarters in Basalt, Colorado, the organization posed an unprecedented challenge to the AEC industry: create a 100-year office building in one of the coldest U.S. climate zones that would not only generate more energy than it used on an annual basis, but also serve as a replicable model demonstrating the feasibility and financial benefits of a cutting-edge design approach.

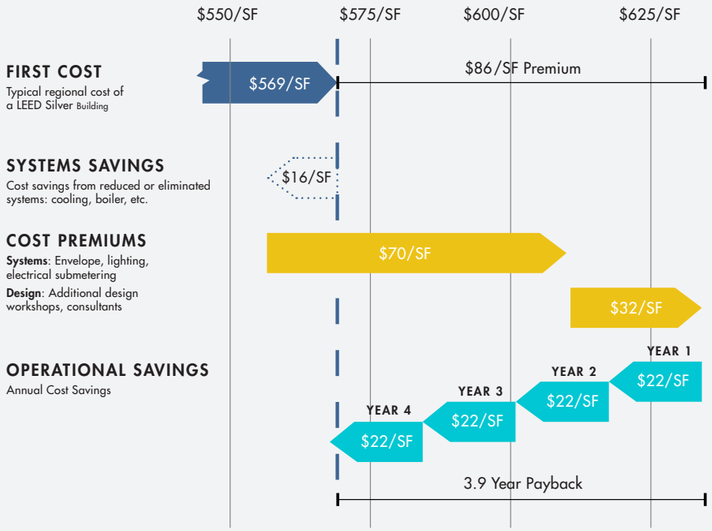
To advance RMI's mission "to drive the efficient and restorative use of resources," the Innovation Center advances the most sustainably integrated building possible. The resulting building operates 74 percent more efficiently than a typical office, even without its onsite photovoltaics, and generates 71 percent more energy annually than it uses.

FOUR-YEAR PAYBACK TO NET ZERO

To maximize innovation and manage costs in one of the most remote and expensive regions in the U.S., the team adopted an integrated project delivery three-party contract, with the owner, contractor, key design team members and subcontractors all sharing in the project's financial performance. This resulted in a six-figure savings on overall project cost, while still exceeding performance goals.

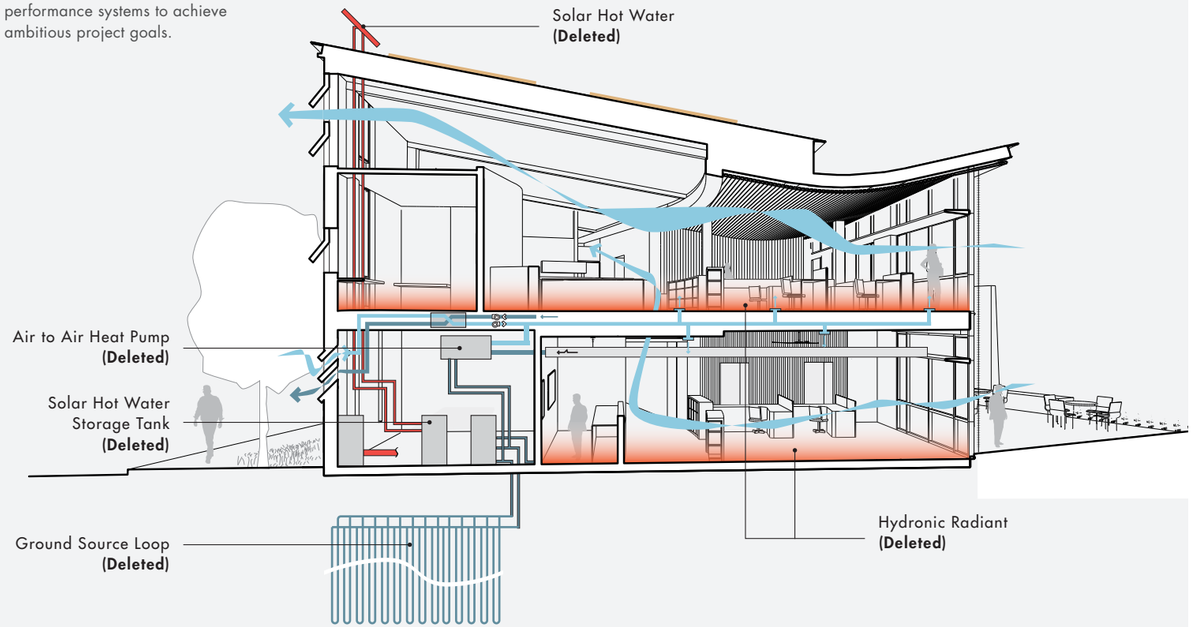
Costs associated with making the 100-year building net zero added 10.8 percent to the budget, delivering payback in just under four years. Increased productivity, reduced energy costs and reduced maintenance costs will contribute more than $2.3 million in savings over a 10-year period. With 90% of U.S. commercial projects similar in scale, the project provides substantial evidence for RMI's thesis: environmentally responsible, net zero energy buildings can be beautiful and financially attractive.

ECONOMIC PAYBACK



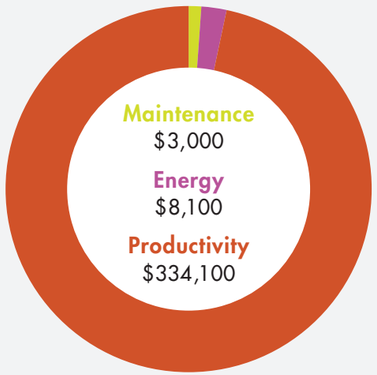
THE BUILDING WE EXPECTED

The design team anticipated the need for a range of high-performance systems to achieve ambitious project goals.



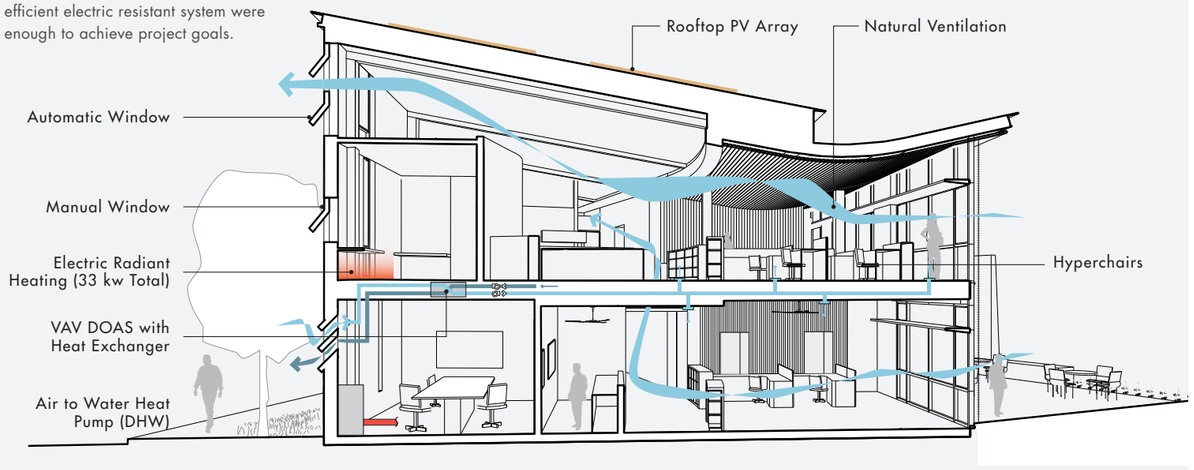
PERFORMANCE BENEFIT

Annual economic benefits are conservative—assumed to be 3% overall—compared to studies from the Carnegie Mellon's Center for Building Performance and Diagnostics that estimate percentage improvements of 3.6%, 8.5% and 9% associated with individual strategies of temperature control, daylighting, and natural ventilation.



THE BUILDING WE BUILT

After careful analysis, it was discovered that a high-performance envelope and efficient electric resistant system were enough to achieve project goals.



BUILDING & SITE

LEFT ABOVE Rather than using standard gutter downspouts, rain chains guide water from the roof.

LEFT BOTTOM The site's existing gravel parking lot was restored to native vegetation with variegated grasses to root the building in the landscape.

RIGHT Ninety-percent of the site landscaping is native and adaptive vegetation, including River Birch, Bearberry and flowering perennials.

THE SITE

The Innovation Center was built soon after a regional effort to reconfigure the banks of the Roaring Fork River to address flooding events that threatened homes and introduced pollution into the ecosystem. The site design enhances this effort, respecting existing Category IV wetlands with a 50-foot buffer and restoring additional wetlands on site. Raising the building out of the 500-year flood plain accommodates spring snowmelt and allows seasonal inundations to continue unimpeded by human impact. The building directs stormwater through natural swales into wetlands, and site pathways use permeable paving.

Placement of the building on the site's northern edge enhances the southern buffer to the passive riparian park, providing habitat for local wildlife and supporting use by Basalt residents for fishing, hiking and enjoyment of the natural setting.

THE BUILDING

The Innovation Center offers unique protected views and access to nature and daylight with the hope of attracting researchers and increasing community outreach.

A highly insulated building envelope—including R-50 walls and R-67 roof—acts as a down-filled jacket. The northern side is more massive, while the southern quad-paned windows admit natural light and afford expansive views. Exposed concrete floors along the windows capture passive solar heat while positioning workstations away from cooler glass surfaces. The walls and light shelves include state-of-the-art phase-change materials that provide solar mass to capture heat.

Exposed glulam beams resting on heavy timber columns establish a visible rhythm in the space. The second floor is supported on Cross Laminated Timber (CLT) panels, which increased the floor-to-ceiling height by 14 inches, reduced floor space requirements, incorporated mechanical systems seamlessly when compared to traditional heavy timber framing, and admits more daylighting. The CLT panels were combined with wood slat panels on the underside to add acoustic absorption.

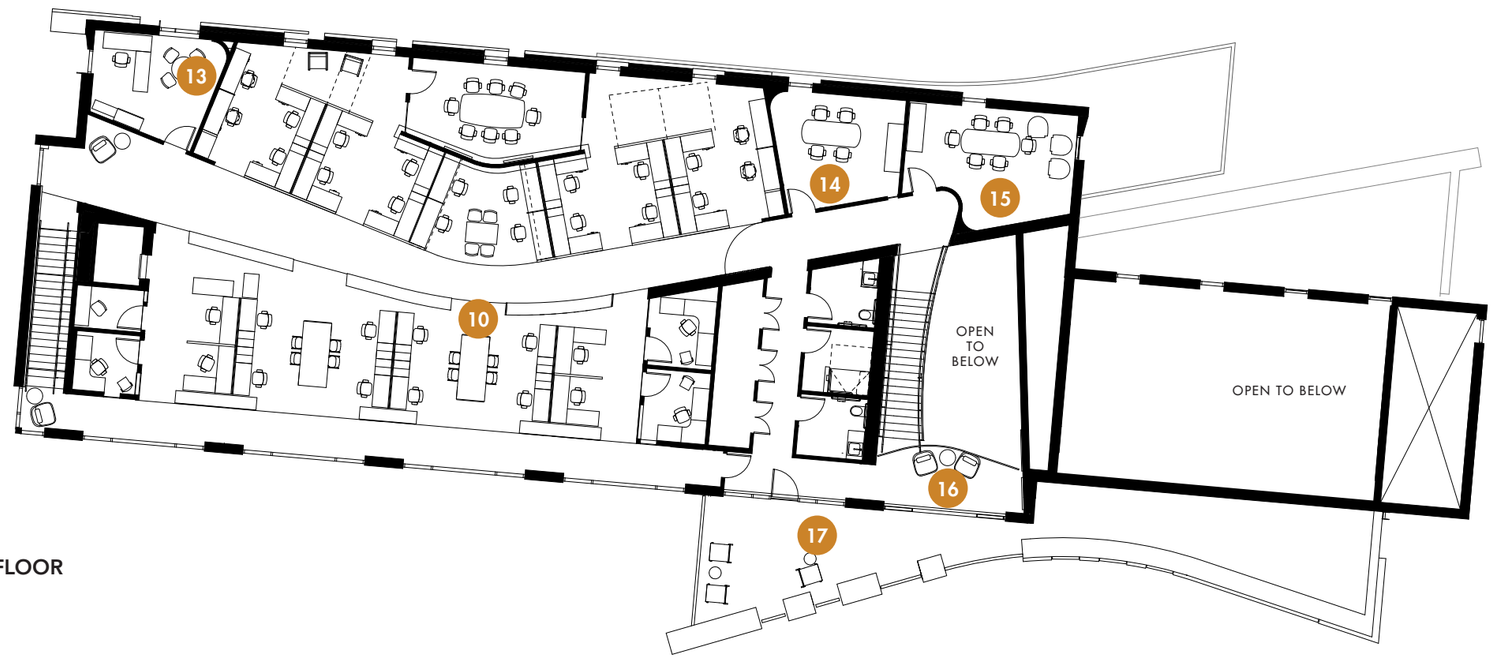
Separate plumbing lines were installed so the Innovation Center can be one of the first commercial buildings in Colorado to use graywater when state regulatory requirements are finalized.

OFFICE LAYOUT

The building's main entry on the north opens to the large double-height Amory B. Lovins Atrium containing the gallery and lobby. This communal space continues through the building to outdoor seating and gathering spaces in the landscape to the south. It also divides program: offices on the quiet side and the more public convening area and breakout spaces on the side closer to downtown Basalt. The workspace is designed to facilitate collaboration as well as quiet thought—such as the second floor gathering perch in the atrium and the focus provided by a single contemplative chair overlooking the mountains.

FLOOR PLANS

GROUND FLOOR



SECOND FLOOR

1 Lobby
2 Amory Lovins Atrium
3 Break Out Rooms
4 White Steyer Impact Studio
5 Event Lawn
6 Break Room
7 Dining
8 Media Room
9 Support Space
10 Open Office
11 Flexible Workspace
12 Bike Room
13 Office
14 Conference Room
15 Reading Room
16 Perch
17 Terrace

0' 2' 4' 8' 16'

N

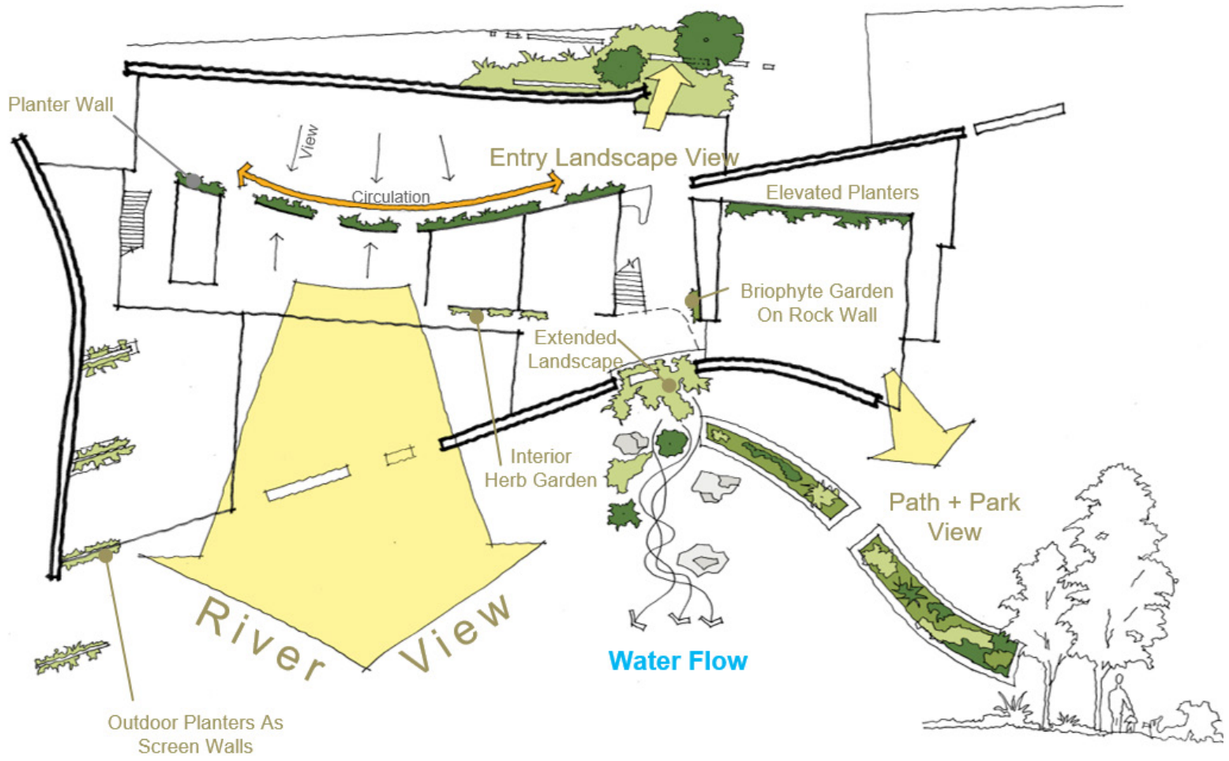
HEALTHY & COMFORTABLE ENVIRONMENT

"THIS BUILDING WILL CREATE DELIGHT WHEN ENTERED, [AND] HEALTH AND PRODUCTIVITY WHEN OCCUPIED."

RMI founder Amory Lovins

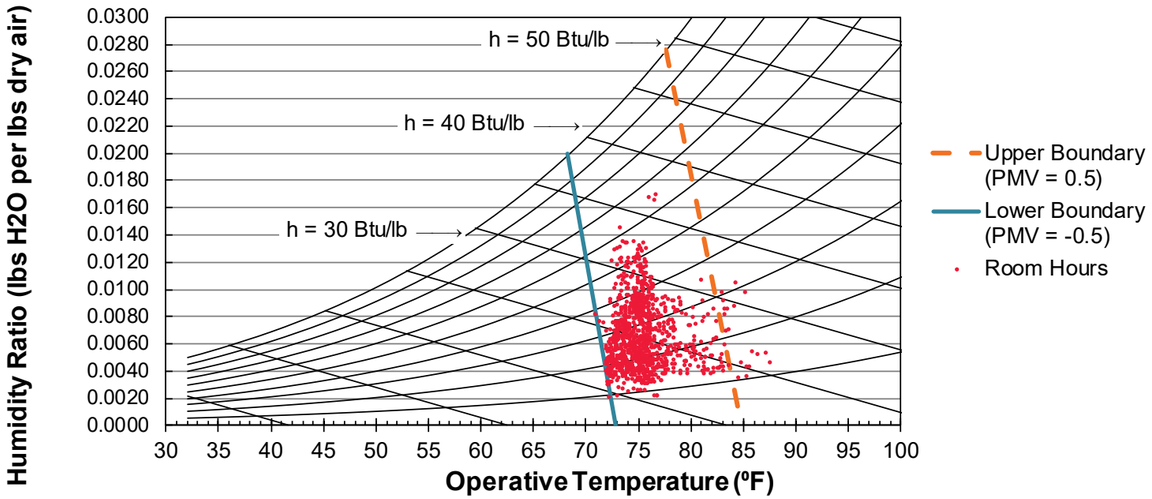
The Innovation Center leverages six factors that affect a person's comfort, and utilizes operable windows, ceiling fans and Hyperchairs, in concert with the traditional passive elements, giving occupants the choice to modifyand improve their comfort. Even the layout of the workstations considered proximity to radiant surfaces to support comfort. These innovations help maintain a comfortable internal environment for an entire year, with 88% of survey respondents reporting a positive level of satisfaction with overall thermal comfort conditions.

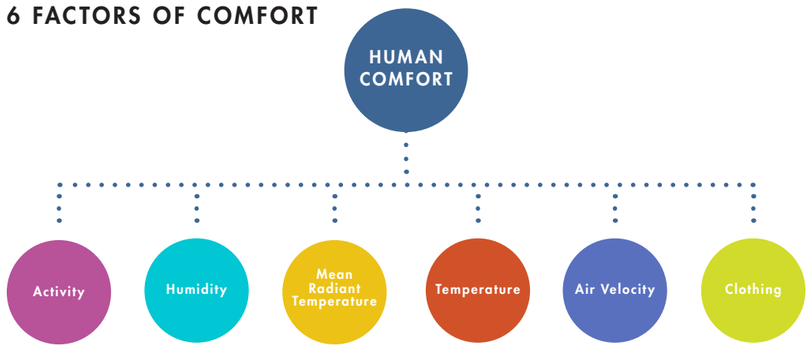
BIOPHILIC DESIGN ELEMENTS

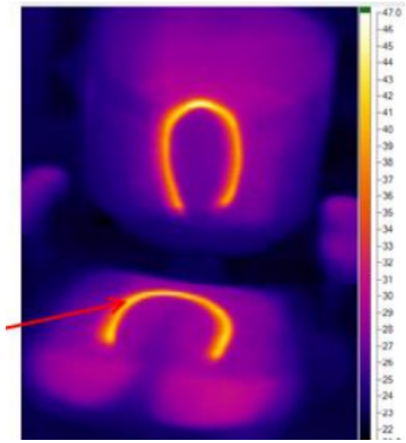


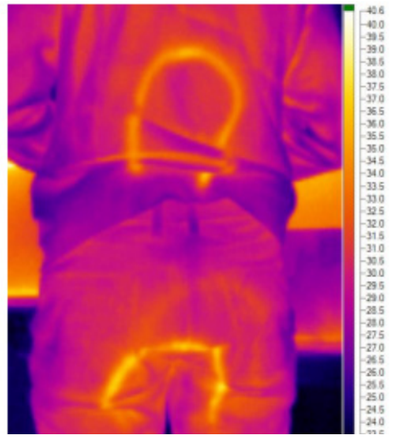
BIOPHILIC DESIGN

Biophilic design principles influenced the project's form and details. The project is sited to offer abundant views of the river and mountains and ample daylight on both sides of the narrow 50' floorplate. Circulation elements add subtle curves to the floor plan while exposed timber strructural elements and a living wall bring occupants in daily contact with nature inside the building.









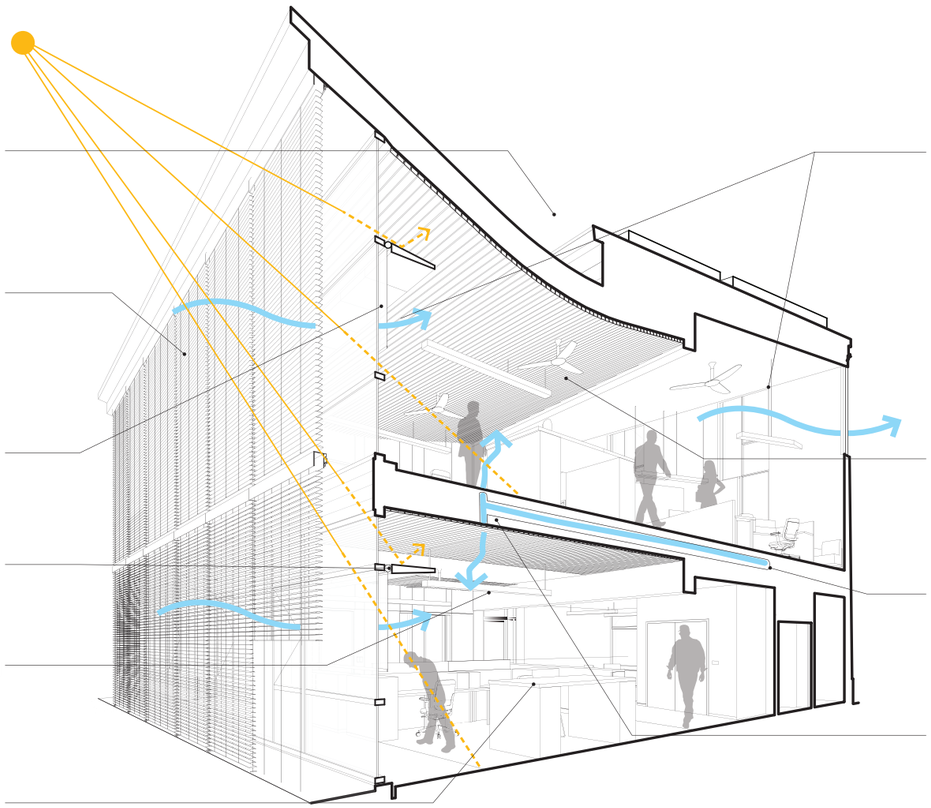
RIGHT The Innovation Center is one of the first commercial projects to utilize the Hyperchair. Developed by the Center for the Built Environment, the user-controlled office chair provides radiative heating and convective cooling.

ABOVE To establish holistic thermal comfort criteria for all occupied spaces in the building, the mechanical engineers utilized psychrometric charts generated through CBE's thermal comfort tool to define the boundaries of thermal comfort when accounting for the six major drivers of thermal comfort. The project's energy model was later used to analyze operative temperature and thermal comfort for all occupied hours.

THERMAL COMFORT

The project is designed to consider thermal comfort differently. From the outset, the team did not equate thermal comfort to an air temperature range, but considered the six factors that all must come together to achieve thermal comfort: radiant temperature, air speed, humidity, clothing levels, activity level and air temperature. The team used a detailed energy model to predict indoor conditions over all hours and designed the spaces to meet thermal comfort based on a predicted mean vote (PMV) calculation. The data was visualized on a psychrometric chart as a scatter plot of comfort conditions bounded by the upper and lower PMV thresholds.

In spaces where occupants have fixed seating, further departure from typical air temperature ranges was allowed by the addition of heated and cooled seating via Hyperchairs. In these spaces, an additional few degrees of air temperature depression was allowed as studies had shown the heated chairs would still maintain thermal comfort of the occupants. Decreasing the air temperature setpoint decreased both the annual heating energy requirements and maximum capacity of the heating system. Heating is provided with 33kW of electric floor heating; the electric mats are typically placed under the carpet.



Accordingly, the office environment was designed to give occupants ample alternative spaces for meetings, telephone calls or a quiet heads down work. In addition to conference spaces, telephone rooms and breakout rooms are distributed throughout the building. Second floor perches over both stairways provide a sense of privacy to occupants, while connecting them visually to the interior as well as the exterior.

In open areas, acoustic conditions were mitigated through the placement of absorptive surfaces. Carpet is placed on work areas, balancing the need for acoustic control with the need for thermal mass: exposed concrete absorbs solar gain in the circulation zone adjacent to the south façade. Wood-slatted ceilings permit acoustic absorption (and the exposure of phase change material in this cavity).

AIR QUALITY

The Innovation Center is fully naturally ventilated. During the temperate portions of the year, operable windows provide required cooling as well as the fresh air for by occupants. The narrow 50′ floor plate and actuated windows on both the south façade and the second floor north clerestory, induce airflow through cross as well as stack ventilation. Local wind dynamics were studied to inform the design and direction of casement windows, which project out to direct in supply air as well as to induce negative pressure on exhaust openings.

When the windows are closed, a dedicated outside air system (DOAS) delivers fresh air to the building. The DOAS includes a 90% effective heat recovery device; the heat recovery is so effective that the ventilation air system is not outfitted with a heating coil. Even on the coldest days of the year, the heat recovery is sufficient to passively temper the outside air.

LIGHTING

To provide the most efficient and highest quality illumination, the Innovation Center was designed for daylight as the primary lighting source. A narrow 50′ building width provides daylight from both sides, with north and south orientations providing the greatest amount of controlled indirect illumination. Exterior venetian blinds on the south façade provide solar control and modulate dynamically according to interior and exterior conditions, permitting beneficial winter heating while eliminating excessive solar gain. Light shelves—containing a dynamic phase change material tuned to desirable interior temperatures—provide solar control on the south side during months when passive solar gain is desirable, while interior fabric blinds allow occupants to tune the façade for their need for privacy or additional glare control.

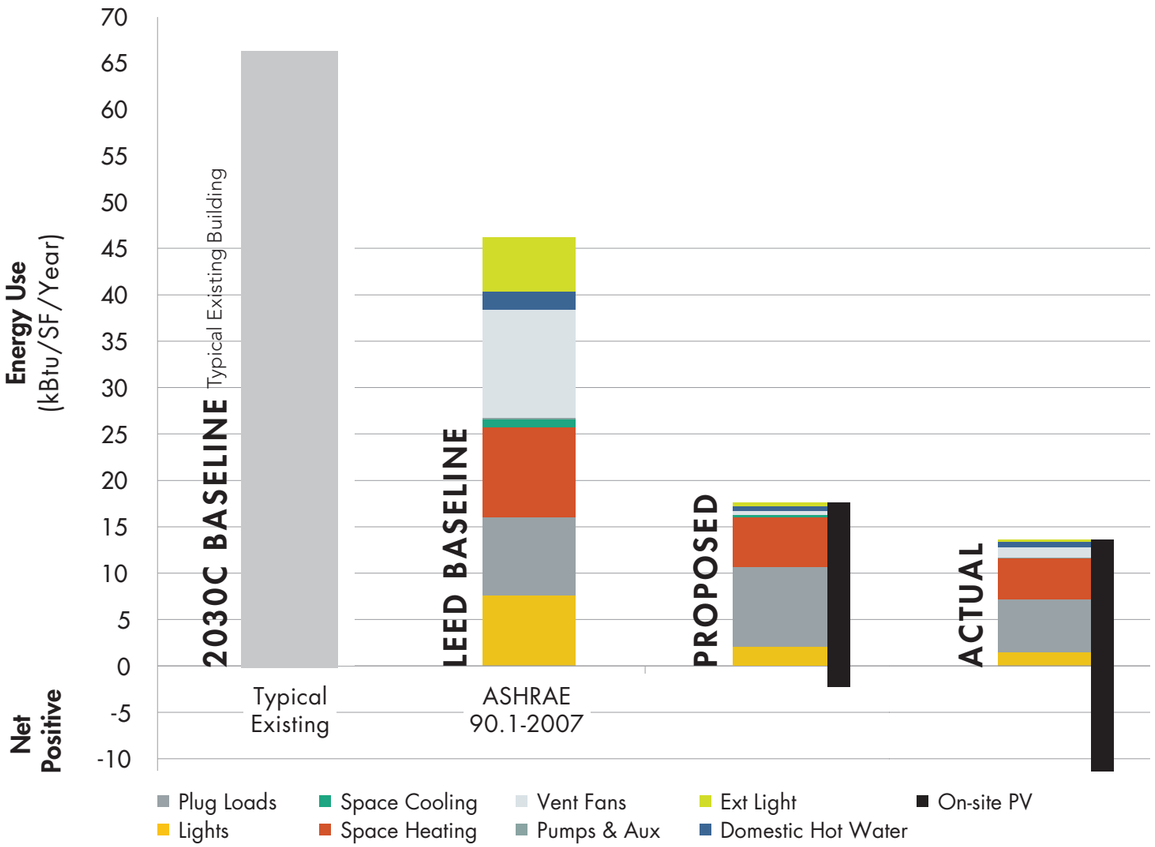
LED ambient lights, installed at 0.49 w/SF, respond to occupancy and daylight conditions and ensure adequate illumination during the darkest hours. First year measurement and verification activities showed these fixtures operating at less than 0.2 w/SF with occupany and daylight controls. Occupants are afforded additional control and illumination from LED task lights at every workstation.

ACOUSTIC QUALITY

Acoustics is often the most challenging occupant comfort issue in modern offices. This is particularly the case for the Innovation Center, as the open workstation arrangement was critical to enable daylight, views and natural ventilation as central strategies for net zero energy performance and occupant comfort and experience. Given that RMI's previous facility utilized shared private offices, the design team was cognizant of the particular challenges of adapting to the different acoustic environment of an open office.

ABOVE The extremely tight and insulated envelope, including the quad pane glazing, enables occupant comfort as well as net zero energy.

SUSTAINABILITY



ENERGY EFFICIENCY

The Innovation Center is one of the most energy efficient structures in the world, achieving net positive energy performance. Orientation and envelope modeling explored the impact on occupant comfort and indicated a southern orientation and best-in-class envelope was possible with no mechanical energy inputs. The building design came directly from these insights, with four types of glazing addressing each orientation's specific needs. Automated blinds respond to the varying climatic needs of the shoulder seasons, and operable, automated windows enable natural ventilation and cooling.

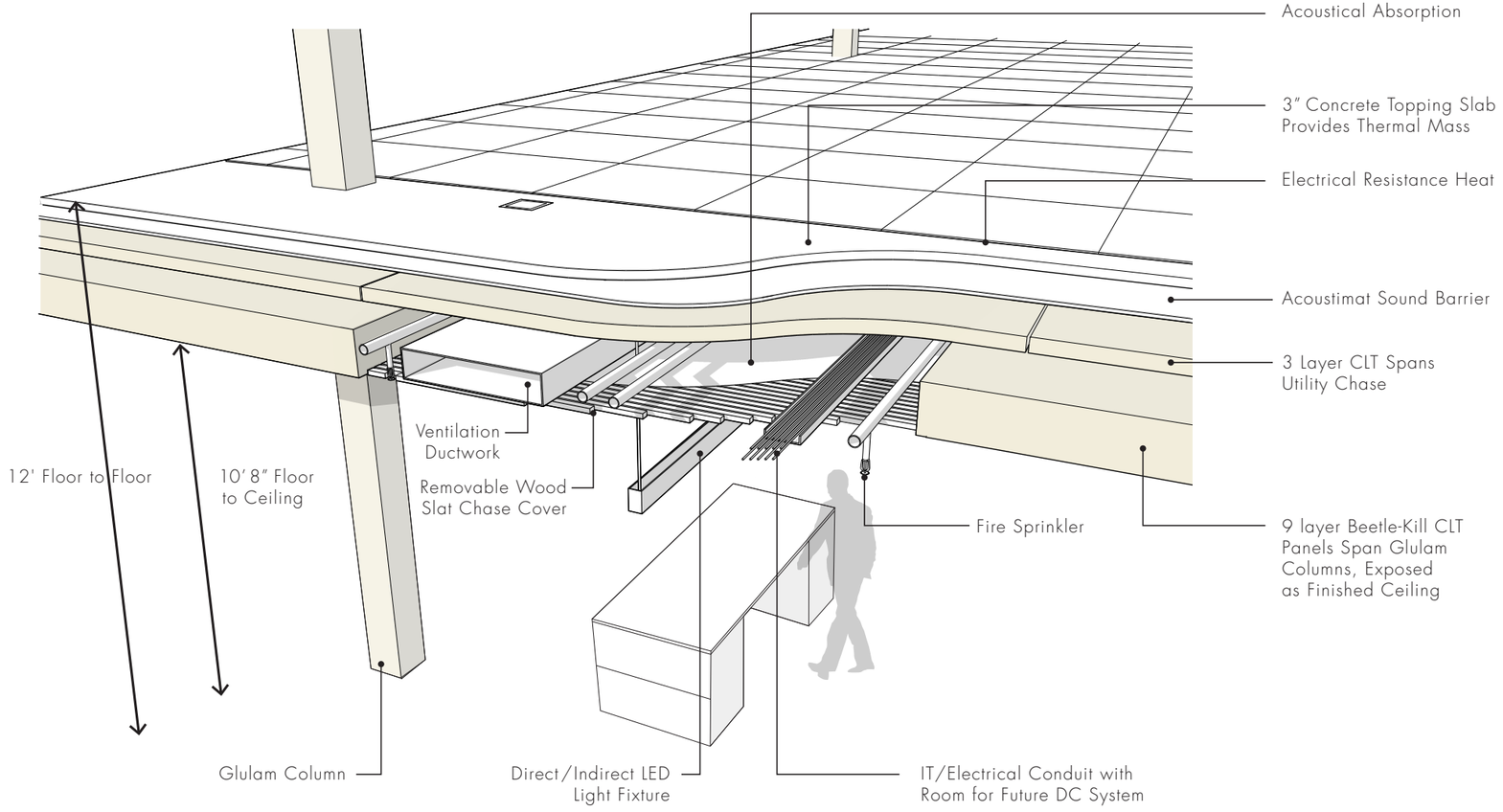
An 83-kW roof-mounted solar photovoltaic system generates more energy than the building is designed to use and contributes to achieving net-zero energy. The roof angle balances optimal PV power generation and creates an interior volume suitable for an open office, while respecting town height limits.

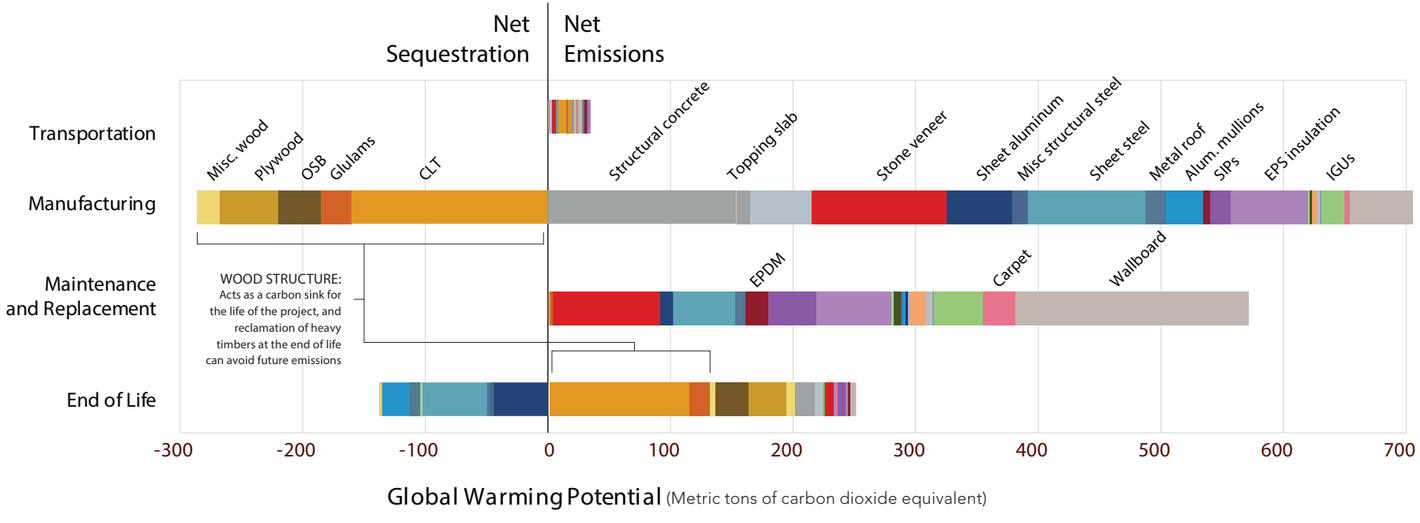
RESOURCE EFFICIENCY

The Innovation Center was conceived to deliver maximum benefit with minimum resources. Early programming right-sized the facility for RMI's immediate 50 employee needs but is designed and entitled for a future 5,000 SF expansion. Life cycle considerations informed material and systems planning, prioritizing structural and envelope elements with the greatest life-span, consequently reducing those elements like HVAC with shorter life-spans and materials that would soon be technically surpassed.

The glulam and cross-laminated timber (CLT) structure, selected from FSC certified sources decimated by the pine beetle, is an example of what RMI calls "Factor Ten Engineering," solving multiple problems simultaneously and providing a 100-year building that reduces embodied carbon impacts. The system permitted a cavity between spanning CLT panels, allowing integration of DOAS ventilation, electrical and IT, and reducing the height of the building by 14 inches—and cost of the associated envelope—while maintaining superior daylight penetration. Concrete was limited to footing and topping slabs, while also providing acoustic separation and thermal mass.

Western juniper, considered a native "waste" wood, provides wood accents and transitions between envelope systems. The product's natural rot resistance eliminates the need for additional treatments and reduces the long-term maintenance of the exterior wood.



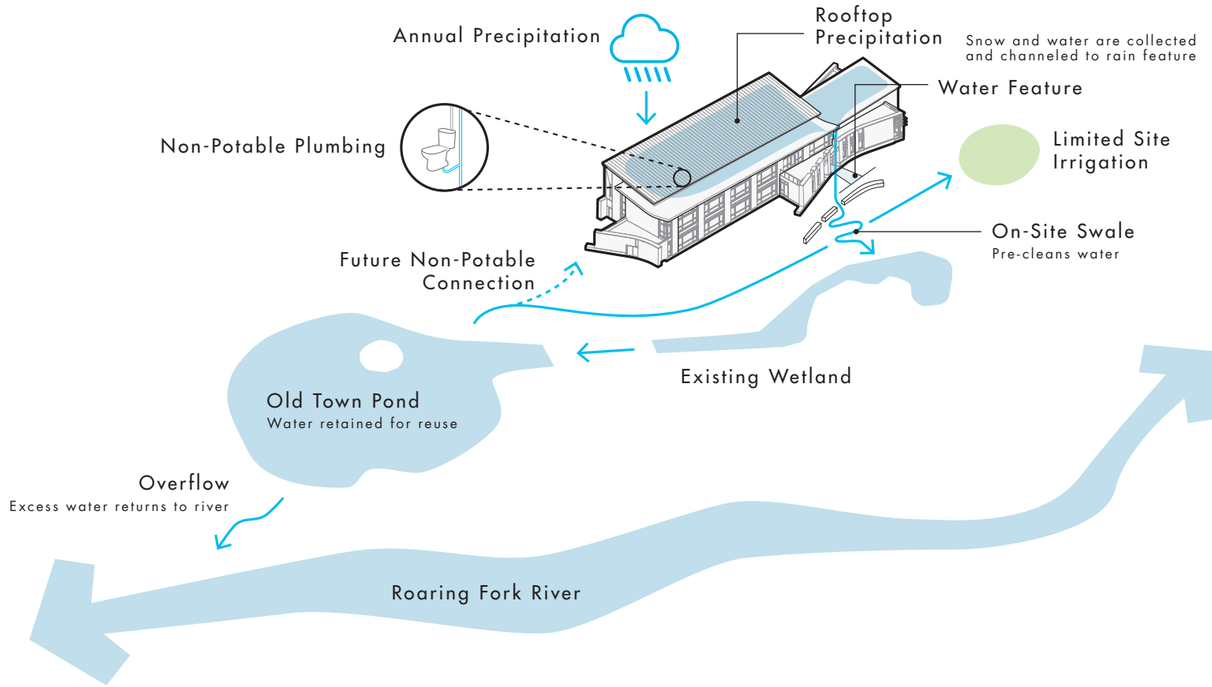


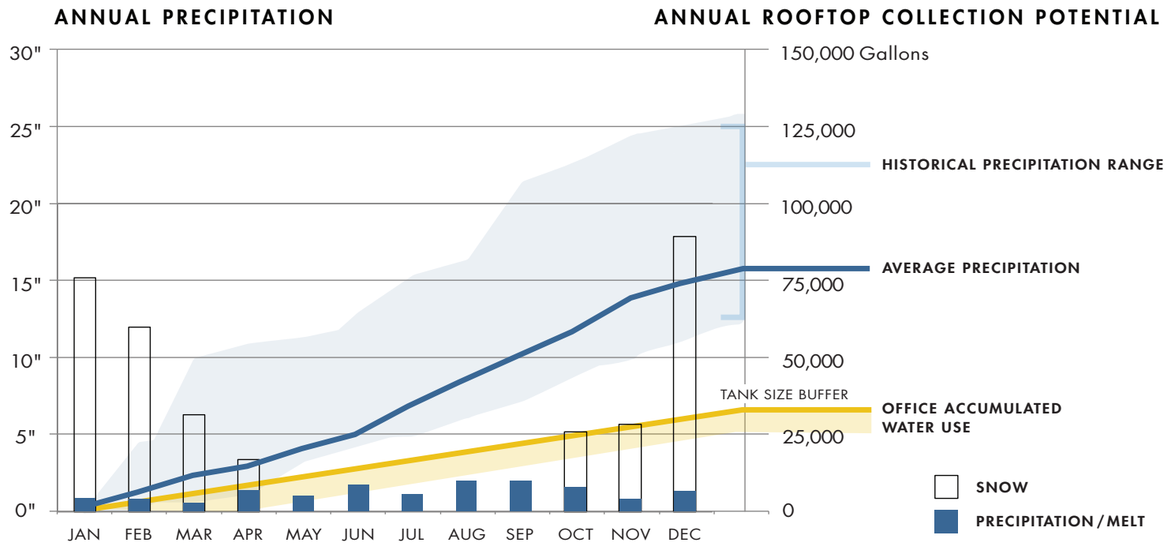
WATER

The Innovation Center was designed to use less water than the precipitation that falls on the site, and captures water and channels it to a single outflow. Roof stormwater is channeled by the building's subtle butterfly roofs into a water feature on the southern edge of the building atrium, filtered by a series of swales and carried to Old Pond, just west of the project site where water rights are owned by the town of Basalt.

From Old Pond, the water is used to irrigate the convening/events lawn and on-site native grasses as necessary; and can be connected to the building's non-potable plumbing and future filters when permitted. Efficient fixtures ensured responsible use from day one, delivering a 42% reduction in potable water use. Separate plumbing lines were installed so the building can be one of the first commercial buildings in Colorado to use graywater when state regulatory requirements are finalized.

RIGHT During rain and snowmelt, the 7,700 SF roof captures, collects and directs water to a vertical water structure for future reuse.





LIVING BUILDING CHALLENGE PETAL CERTIFICATION

PETAL	IMPERATIVE	DESIGN REQUIREMENTS	FINAL REVEW
	01 LIMITS TO GROWTH	Site is NOT or adjacent to wetlands, primary, dunes, old-growth forest, virgin praire, prime farmland, 100 year flood plain. Landscape may only have native and/or naturalized species planted to mimick natural ecosystems.	The site is located near wetlands that integrate into the nearby river, Roaring Fork, but the project has applied the wetland buffer sufficiently to demonstrate compliance. The site was a greyfield. The site landscaping includes native/naturalized species that enhance the wetlands buffer and blend with the natural topography.
ENERGY	**07 NET ZERO ENERGY**	One hundred percent of the project's energy needs supplied by on-site renewable energy o a net annual basis.	The project has incorporated the use of photovoltaic panels to achieve net zero energy use. Electricity end-uses have been appropriately metered, and battery back-up is in place. Three electric vehicle charging stations are present. The metering data and energy bills verify that the building is operating at net zero or better.
EQUITY	**16 HUMAN SCALE AND HUMANE PLACES**	The Project must be designed to create human-scaled, rather than automobile-scaled places. For each Transect, there are specific maximum (and sometimes minimum) requirement for paved areas, street and block design, building scale and signage that contribue to livable places.	While the total parking and hardscape areas for the project are within the L4 constraints, the size of the parking spaces slightly exceeds the suggested dimensions for L4. The project team explains that, while the width of the spaces exceeds the requirements, clustering the spaces allowed for a more significant landscape buffer against the public right-of-way rather than adding landscape buffers every two to three parking spaces. Due to the site constraints and the nearby wetland buffer, the auditor believes the project meets the intent for the Transect: Surface Cover. In addition, all other applicable I16 Human Scale + Humane Places design guidelines have been met.
	17 DEMOCRACY + SOCIAL JUSTICE	All primary transporation, roads and non-building infrastructure that are considered externally focused must be equally accessible to all members of the public regardless of background, age and socioeconomic class including the homeless, with reasonable steps taken to ensure that all people can benefit from the project's creation. Street furniture (such as benches) must be provided for and accessbile to all members of society.	The project has provided a thorough narrative explaining the care taken to ensure ADA accessibility for both the building and the surrounding site. Benches have been provided on-site. The building includes elevator access to the second floor. The site, while private property, does not restrict access in any way.
	18 RIGHTS TO NATURE	The project may not block access to fresh air, sunlight and natural waterways for any member of society or adjacent developments. Emissions from project shall not compromise adjacent properties. Sunlight to adjacent properties: max shade height on adjacent properties at winter solctice (10am-2pm) = 6m.	The project does not have any neighboring structures, and therefore, the Winter Solstice maximum shading height (10 meters for L4) requirements are met. Calculations demonstrating the shadow studies have been provided.
BEAUTY	**19 BEAUTY AND SPIRIT**	The project must contain design features intended solely for human delight and the celebration of culture, spirit and place appropriate to its function.	The project has provided a thorough narrative from the Architect. The design elements incorporate unobstructed views of Aspen Valley, large amounts of daylight, and a mixture of textures that evoke the natural surroundings. The design of the exterior façade was meant to evoke the titled bedrock and mimic the bends of the nearby river. While many of the design elements are intended for human delight, the narrative also indicates that the design took into consideration the changing seasons and the local climate in order to maximize the efficiency of the building and to enhance the ability to collect and direct water discharge from the site. The survey results indicated that many occupants found beauty in the design, while items like additional plant life and artwork or outdoor elements were suggested in order to enhance the beauty of the project.
	20 INSPIRATION + EDUCATION	Educational materials about the performance and operation of the project must be provided to the public to share successful solutions and to motivate others to make change. Non-sensitive areas of the Building, Landscape & Infrastructure and Neighborhood projects must be open to the public at least on day per year to facilitate direct contact with the Living Building Challenge.	The project has incorporated interactive signage in one main display at the front entrance to the building. There are multiple brochures about the Rocky Mountain Institute (RMI), the building, and other programs available for visitors. RMI operates based on a mission "to drive the efficient and restorative use of resources," and the development of the new space for the Innovation Center provides a unique opportunity for the occupant to provide additional education and outreach that exemplifies RMI's mission and program.

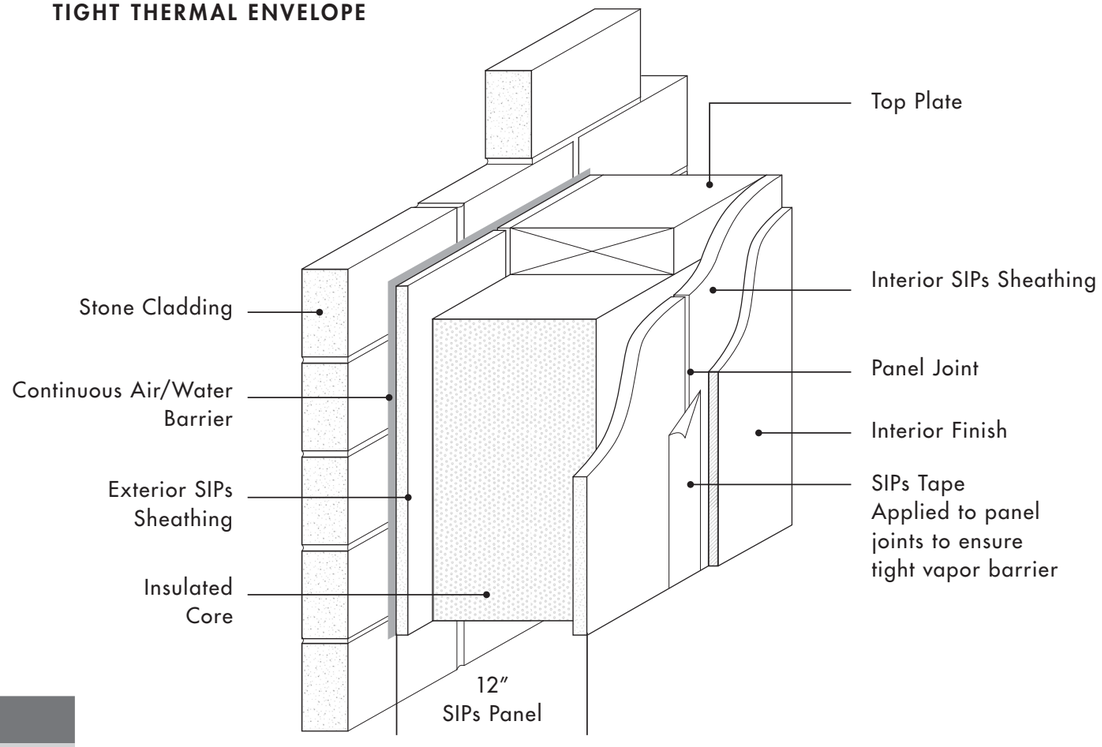
LIVING BUILDING DIAGRAM

The Innovation Center's integrated team utilized the ethic, structure and detailed requirements of the Living Building Challenge v2.1 to inform the project's design and construction. Ultimately the project achieved Petal Certification, recognizing its beyond-net-zero energy performance in its first year of operation, as well as its efforts to embrace community access and integrate a beautiful and didactive design. Even Petals that were ultimately not pursued influenced the Innovation Center's design. The building was designed to live within its water footprint, using less water than annual rooftop precipitation. Efficient fixtures reduce usage by over 40% and the project is plumbed for non-potable usage for commercial projects. The Red List informed the project's approach to material selection and a healthy interior, by prioritizing compliant products and reducing the overall number of finish materials.

PASSIVE HOUSE

The team pursued Passive House certification, resulting in one of the tightest envelopes recognized by PHIUS (0.36 ACH50, beating the infiltration benchmark by 40%). With that, minimal active systems were necessary, including a DOAS ventilation system with 90% effective heat recovery, no active cooling, and 33 kW of electric radiant mats, required only during prolonged cold stretches. The Innovation Center is also one of the largest PHIUS+ certified office in the U.S. and one of the first ever to receive PHIUS+2015 Certification and PHIUS+ Source Zero Certification.

TIGHT THERMAL ENVELOPE



PHIUS+2015 & PHIUS+ SOURCE ZERO CERTIFIED DECEMBER 22, 2015

	PHIUS Standards (Climate Zone 6)	RMI Measured Values
EXTREMELY LIMITED ENERGY USE FOR THERMAL CONDITIONING		
SPACE CONDITIONING CRITERIA		
Annual heating demand kBtu/SF/yr (max)	**6.6**	**6.2**
Annual cooling demand kBtu/SF/yr (max)	**1**	**0.23**
Peak heating load Btu/SF/hr	**5.1**	**4.96**
Peak cooling load Btu/SF/hr	**3.6**	**0**
ENVELOPE VALUES (RECOMMENDED GUIDELINES)		
Overall window center of glass (R value, min.)	**> 8.3**	**12.8 to 13.3**
Wall insulation (R value, min.)	**39 to 51**	**R50**
Ceiling insulation (R value, min.)	**70 to 90**	**R67**
Foundation/slab (R value, min.)	**20 to 28**	**R20**
EXTREMELY TIGHT ENVELOPE		
AIR-TIGHTNESS REQUIREMENT		
Infiltration (air changes per hour @ 50 pascals, max.)	**0.6**	**0.36**
SOURCE ENERGY EFFICIENT		
SOURCE ENERGY LIMIT		
Specific Primary Energy Demand (kBtu/SF/yr, max.)		**33.4*** ***The Innovation Center was certified source zero due to onsite PVs**

LEED SCORECARD

LEED PLATINUM

The Innovation Center achieved LEED Platinum Certification via holistic and innovative approach to energy, comfort and occupant experience.

RMI Innovation Center

Project ID	1000032625
Rating system & version	LEED-NC v2009
Project registration date	05/10/2013

LEED FOR NEW CONSTRUCTION & MAJOR RENOVATIONS (V2009)

ATTEMPTED: 95, DENIED: 11, PENDING: 1, AWARDED: 83 OF 110 POINTS

leed-nc

SUSTAINABLE SITES — 19 OF 26

SSp1	Construction Activity Pollution Prevention	Y
SSc1	Site Selection	0 / 1
SSc2	Development Density and Community Connectivity	0 / 5
SSc3	Brownfield Redevelopment	0 / 1
SSc4.1	Alternative Transportation-Public Transportation Access	6 / 6
SSc4.2	Alternative Transportation-Bicycle Storage and Changing Room	1 / 1
SSc4.3	Alternative Transportation-Low-Emitting and Fuel-Efficient V	3 / 3
SSc4.4	Alternative Transportation-Parking Capacity	2 / 2
SSc5.1	Site Development-Protect or Restore Habitat	1 / 1
SSc5.2	Site Development-Maximize Open Space	1 / 1
SSc6.1	Stormwater Design-Quantity Control	1 / 1
SSc6.2	Stormwater Design-Quality Control	1 / 1
SSc7.1	Heat Island Effect, Non-Roof	1 / 1
SSc7.2	Heat Island Effect-Roof	1 / 1
SSc8	Light Pollution Reduction	1 / 1

WATER EFFICIENCY — 6 OF 10

WEp1	Water Use Reduction-20% Reduction	Y
WEc1	Water Efficient Landscaping	2 / 4
WEc2	Innovative Wastewater Technologies	0 / 2
WEc3	Water Use Reduction	4 / 4

ENERGY AND ATMOSPHERE — 35 OF 35

EAp1	Fundamental Commissioning of the Building Energy Systems	Y
EAp2	Minimum Energy Performance	Y
EAp3	Fundamental Refrigerant Mgmt	Y
EAc1	Optimize Energy Performance	19 / 19
EAc2	On-Site Renewable Energy	7 / 7
EAc3	Enhanced Commissioning	2 / 2
EAc4	Enhanced Refrigerant Mgmt	2 / 2
EAc5	Measurement and Verification	3 / 3
EAc6	Green Power	2 / 2

MATERIALS AND RESOURCES — 5 OF 14

MRp1	Storage and Collection of Recyclables	Y
MRc1.1	Building Reuse-Maintain Existing Walls, Floors and Roof	0 / 3
MRc1.2	Building Reuse, Maintain 50% of Interior	0 / 1
MRc2	Construction Waste Mgmt	2 / 2
MRc3	Materials Reuse	0 / 2
MRc4	Recycled Content	1 / 2

MATERIALS AND RESOURCES — CONTINUED

MRc5	Regional Materials	1 / 2
MRc6	Rapidly Renewable Materials	0 / 1
MRc7	Certified Wood	1 / 1

INDOOR ENVIRONMENTAL QUALITY — 9 OF 15

IEQp1	Minimum IAQ Performance	Y
IEQp2	Environmental Tobacco Smoke (ETS) Control	Y
IEQc1	Outdoor Air Delivery Monitoring	1 / 1
IEQc2	Increased Ventilation	0 / 1
IEQc3.1	Construction IAQ Mgmt Plan-During Construction	1 / 1
IEQc3.2	Construction IAQ Mgmt Plan-Before Occupancy	0 / 1
IEQc4.1	Low-Emitting Materials-Adhesives and Sealants	1 / 1
IEQc4.2	Low-Emitting Materials-Paints and Coatings	1 / 1
IEQc4.3	Low-Emitting Materials-Flooring Systems	0 / 1
IEQc4.4	Low-Emitting Materials-Composite Wood and Agrifiber Products	0 / 1
IEQc5	Indoor Chemical and Pollutant Source Control	0 / 1
IEQc6.1	Controllability of Systems-Lighting	1 / 1
IEQc6.2	Controllability of Systems-Thermal Comfort	1 / 1
IEQc7.1	Thermal Comfort-Design	1 / 1
IEQc7.2	Thermal Comfort-Verification	1 / 1
IEQc8.1	Daylight and Views-Daylight	0 / 1
IEQc8.2	Daylight and Views-Views	1 / 1

INNOVATION IN DESIGN — 6 OF 6

IDc1.1	Innovation in Design	0 / 1
IDc1.1	Innovation in Design: Environmental performance education	1 / 1
IDc1.2	Integrative Process	1 / 1
IDc1.2	Innovation in Design	0 / 1
IDc1.3	Innovation in Design	0 / 1
IDc1.3	Innovation in Design	1 / 1
IDc1.4	Innovation in Design	1 / 1
IDc1.4	Innovation in Design	0 / 1
IDc1.5	Innovation in Design	1 / 1
IDc1.5	Innovation in Design	0 / 1
IDc2	LEED® Accredited Professional	1 / 1

REGIONAL PRIORITY CREDITS — 3 OF 4

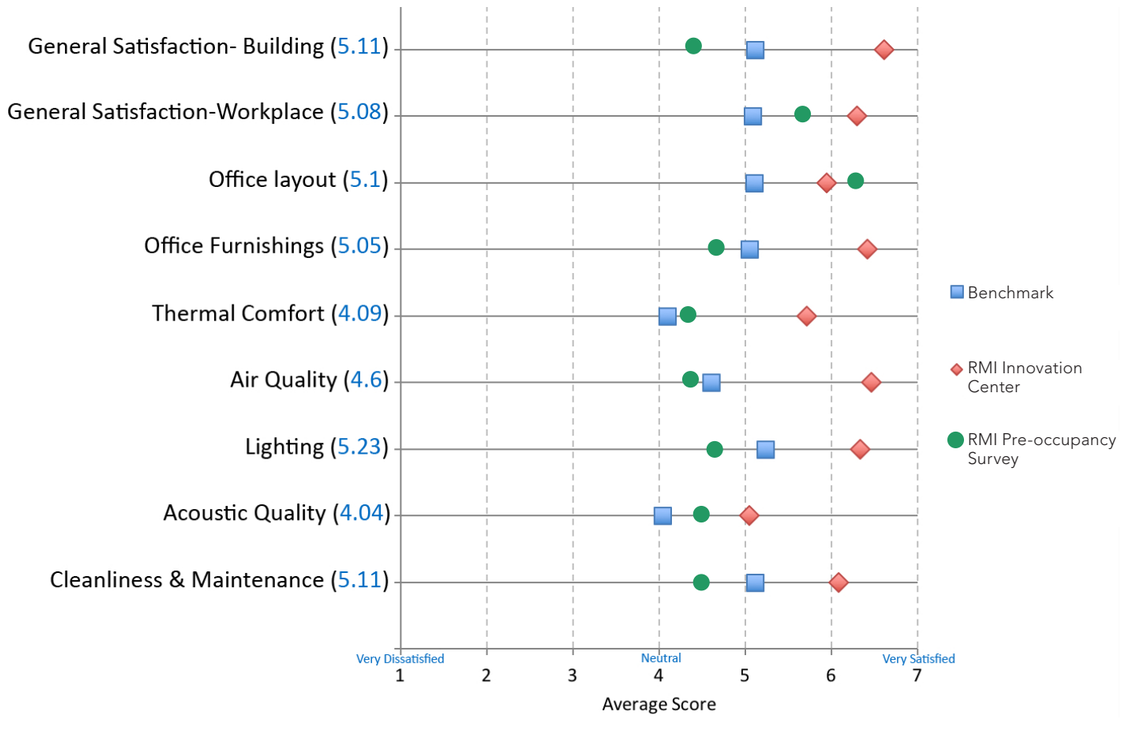
SSc1	Site Selection	0 / 1
SSc2	Development Density and Community Connectivity	0 / 1
SSc5.1	Site Development-Protect or Restore Habitat	1 / 1
WEc1	Water Efficient Landscaping	0 / 1
WEc3	Water Use Reduction	1 / 1
EAc1	Optimize Energy Performance	1 / 1

OCCUPANT SATISFACTION

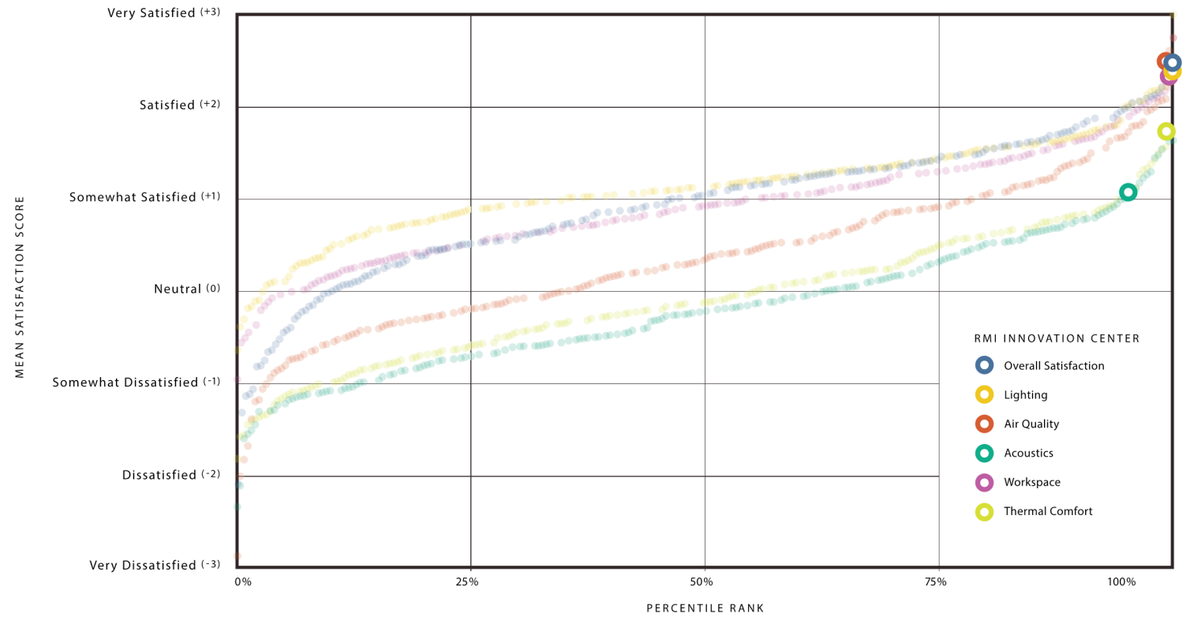
"I LOVE THE ACCESS TO DAYLIGHT AND VIEWS. THE OFFICE DESIGN IS ENERGIZING AND HELPS ME MAINTAIN FOCUS."

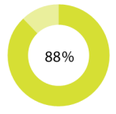
Survey Respondent

The Innovation Center utilized the Center for the Built Environment occupany survey, supplemented by additional questionaires to inform pre-occupany programming and design direction as well as to measure project success at completion.



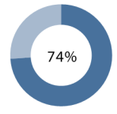
INNOVATION CENTER OCCUPANT SURVEY SCORES BENCHMARKED AGAINST CBE DATABASE



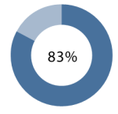


88% are "Very Satisfied," "Satisfied" or "Somewhat Satisfied" with space temperature

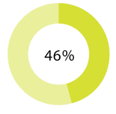
100% of staff are "Very Satisfied" or "Satisfied" with the daylighting and electric lighting



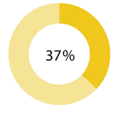
74% feel the building increases productivity



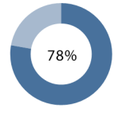
83% agree the Innovation Center assists them in articulating the RMI brand



46% feel their thermal comfort "Significantly Enhances," "Enhances" or "Somewhat Enhances" their ability to get their job done



37% feel the lighting quality "Significantly Enhanced" their ability to get their job done



78% spend more time at the office because they like the space in which they work