How to Buy a Net-zero Office Building

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ABSTRACT

The owner/developer of a recently completed, on time and under budget, net-zero office building describes a unique management approach and lessons learned in the process. First, aggressive overall goals were ordered in a clear prioritized decision framework, and combined with a clear calendar structure. Three specific elements then drove the process:

- A risk sharing integrated project delivery contract combined with targeted rewards to enable deep teamwork and problem solving without typical risk avoidance behaviors;
- Significant priority invested in research and innovative product sourcing to overcome the challenges of a passive strategy, remote location and extreme cold climate;
- A more sophisticated set of criteria about human comfort and office management that enables a broader range of temperatures in the office, and reasonably cost effective net zero performance.

Net-zero building costs and the business logic for investing in a net-zero building are reviewed in the paper as well.

Introduction and Project Goals

The owner/developer, Rocky Mountain Institute (RMI), is a medium-sized ($25M/year and growing), independent and nonpartisan nonprofit organization that has been a leader in transforming global energy use since 1982. RMI focuses on advancing market-based solutions to problems in the built environment, mobility, electricity and industrial sectors, currently emphasizing the US and China marketplaces. In recent years, RMI has focused on large scale, tough, long-term challenges. Finding ways to cost effectively deliver far better, far lower carbon footprint buildings than today's average is one such problem.

RMI has a long history of helping others design and build highly efficient and net-zero buildings and communities, and therefore brings special and unusual owner skills to the project, among them the ability to attract strong designers and builders. The success of the project is partly due to the quality of RMI's partners, particularly ZGF Architects (ZGF), PAE Engineers (PAE), and JE Dunn Construction (JED). Finally, RMI also has an institutional mindset, requiring investment in a long building lifetime with significant future-proofing.

RMI's new Innovation Center (RMI IC) had audacious goals – on-site net-zero energy, a passive, envelope-centric approach, a world class convening space able to welcome planned and unplanned visitors, and a growth-friendly, beyond-the-state-of-the-art office that, as RMI founder Amory Lovins wrote the team, "will create delight when entered, health and productivity when occupied, and regret when departed" (RMI Innovation Center 2016). Importantly, these goals were rapidly translated into a more detailed summary 'transformation dashboard' and finally into the Owner's Project Requirements (OPR) that set the project acceptance criteria. The results are rooted in integrative design, leveraging not only new technologies but also recent insights about how engaged occupants can help a building be far more efficient than previously thought possible. It is also located in one of the continent's harsher climates – the high Rockies, equivalent to Northern Minnesota or parts of Alaska, the coldest climate zone in the US, with a significant cost and materials sustainability penalty also due to its relatively remote location.

RMI's desire to encourage others to build similar custom, high efficiency offices is important to detail also. Roughly 88% of commercial office buildings are small, under 25,000 square feet like the RMI IC (15,610 SF), and about 60% of those are owner occupied (CBECS 2012). There are potentially a lot of owners and developers, especially in the "high end" of the segment, where high quality offerings like the IC can take root and work their way into everyday practice. The overall building is optimized for mountain Colorado's sunny, but cold, dry climate so direct design replication is not recommended, but many specific features can be borrowed. As this paper details, the key learning for owners and developers lies in three ingredients: the contracting and project management process, integrating specific high performance technologies and new occupant engagement and thermal comfort approaches. Making the business case for deep levels of efficiency and net zero energy may also have useful lessons for others. Many details of this building that are not included here are available on the building's dedicated web site (RMI Innovation Center 2016).

Overall Approach and Logic

The structure of the overall execution calendar (Figure 1) is a fundamentally important but often overlooked aspect of ensuring project delivery. In this effort, RMI took a "go slow to

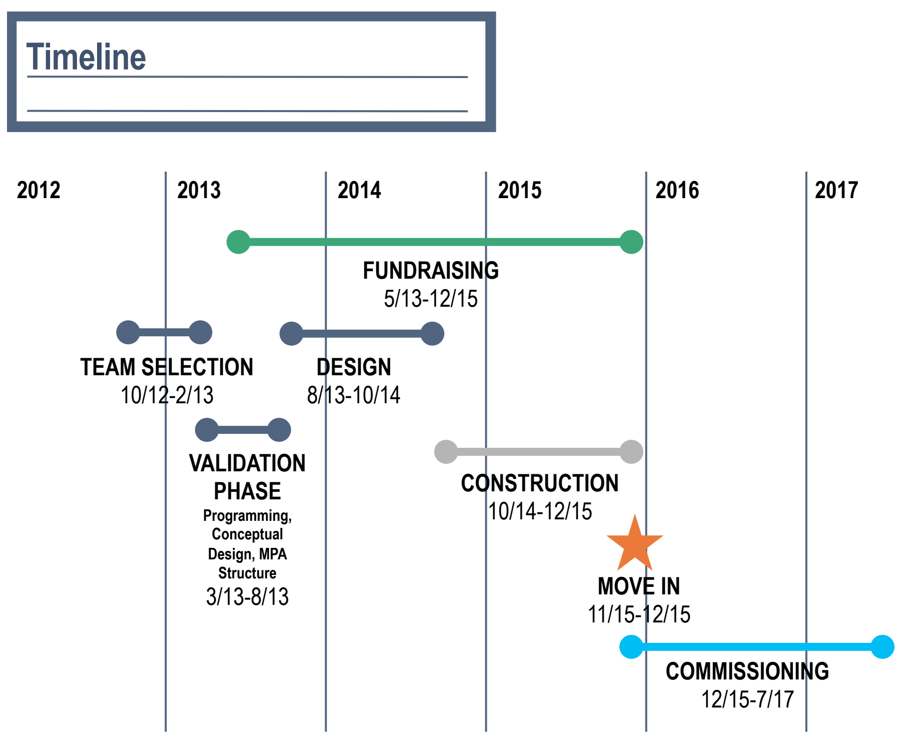

Figure 1. Project timeline as planned and executed. *Source* RMI.

go fast" approach, where ample time was taken in the first two stages of team selection (getting most of the design and construction team on board from the very beginning), project concept development/validation, and beginning a number of research and investigation tasks. This served several purposes: effective team building and buy-in to goals; creation of a significant knowledge platform including a sophisticated building information management (BIM) information sharing system and calibrated, quantitative energy simulation tools, and investigations into key product sourcing challenges. Then, beginning in early 2014, the team switched to intensive, full immersion design and construction – the "go fast" stage.

There were two additional keys to knitting this timing together. First was ensuring that team governance and Board approvals were timely and linked to a clearly understood and explicitly managed set of project risk factors. Second was identifying and creating clarity on key design tradeoffs, including acceptance and selection criteria. These tradeoffs included:

1. Cost – Working within an upper bound target cost that was informed by early programming and cost modeling, and agreed to as part of the Multi Party Agreement (MPA) contract with our key partners, ZGF and JED.
2. Functional needs – size and adjacencies of convening space and office space mix
3. Passive versus active heating and cooling strategies – always planned for passive, but second options were carried well into the design phase and into a Plan B during occupancy. Priority was given to reduce building peak electricity demand (it uses no gas) and system capacity, at times in lieu of energy savings.
4. Rooftop solar generation –funded separately through a Power Purchase Agreement (PPA), to leverage tax credits. While outside the design team's scope, the system size was dependent on the level of efficiency achieved.
5. Grid and electric vehicle integration – 40 kWh/30 kW batteries and 5 electric vehicle charging stations were included, but due to local utility interconnection limitations and technology availability issues, bidirectional EV charging stations and the ability to fully island the building were planned for rather than fully executed.
6. Certification strategy - water and materials took secondary roles in remote Colorado.

Next, as noted earlier, the team realized that, with multiple goals, sometimes their relative importance was vital in decision-making. It is essential in such circumstances for the client to consistently emphasize which dimension drives the key choices – although all goals should be met in the end. In this case, the obvious choice was maximum energy efficiency, in tandem with minimizing active mechanical approaches to heating, ventilation and air conditioning (HVAC). In essence, this was where all team members consistently applied extra attention, and a number of additional experts (for instance, in building tightness) were added to the team. The results appear to justify the effort. The simulated site annual energy use intensity (EUI) at current controls setpoints is 18.5 kBTU/SF/yr. Normal in this climate might be 100 kBTU/SF/yr or more. It also makes the solar panel requirement smaller, the comfort greater, and brings other benefits around choosing and sizing other building systems. That is why it was clearly first among equals.

Finally, the budget is always a crucial element of the project approach. The specific cost logic and building economics will be discussed later. RMI formulated a business value approach to the cost, which helped determine the maximum amount it made sense to budget, given the various sources of value, both cost savings and business enhancements, that the building was expected to provide. The lessons learned from this, and advice for other owners, are detailed later in this paper.

Risk Sharing Integrated Project Delivery (IPD)

IPD is a relatively new building delivery process pioneered in hospital projects, largely in the West, which has at its core a risk and reward sharing contract with specific project cost targets, and a shared profit pool used to cover cost overruns or accumulate additional savings, which is signed by all major participants in the project. This approach, being relatively new, is seldom applied to smaller buildings, and to our knowledge hasn't been applied to a net-zero building as technologically cutting edge as the RMI IC. It has well described in the literature, and has been proven effective at driving down delivery cost, and in many cases helping ensure on time delivery and/or healthy cost savings (McGraw Hill Construction 2014). But for the RMI IC, it was important for additional reasons.

RMI selected this approach in the very beginning, and willingness to use IPD was a central criterion for selecting design and construction candidates. The overall reason is simple – given the desire to "push the envelope" with the building and thus a need for integrative behavior, information and idea sharing, and problem solving on a level that is seldom seen, we needed to have a contract structure that did everything possible to reward such behavior. Unpacking the logic for why we chose IPD is also instructive, because in practice there are many specific benefits for a complex project. We wanted, of course, to test whether IPD was in fact helpful. Other specific benefits sought included:

1. Inspire innovation through team culture and collaboration
2. Avoid siloed decisions that stifle design integration and cost-avoidance
3. Prevent defensive, risk-shifting or confrontational design and construction behavior
4. Ensure team accountability for achieving aggressive goals and strict budget
5. Reduce budget risk on owner

We did not, however, realize that getting the IPD structure set up would be so difficult. This was because IPD is new, and due to the lack of cost clarity for this unique building. Fortunately, we involved skilled legal counsel who had designed and executed a significant number of IPD projects. We highly recommend working with an advisor of this sort.

The greatest outcome of our IPD methodology as compared to a traditional design/bid/build or design/build approach is that it actually did create a highly collaborative and non-confrontational team structure, which inspired innovation when stressed by the challenging project goals and vision and clear budget goals. Secondly, it limited the cost risk to RMI as the owner and put the management of that risk where it can most responsibly be controlled – in the hands of the design and construction team. RMI was on the hook for actual costs – labor, materials, and verified overheads - if things went wrong. All significant project participants worked open book so those costs could be reviewed in detail, and RMI was involved in every important decision. At the same time it limited the risk to the project delivery players – because their costs were guaranteed to be paid, even if the project went very wrong. This ensured that the entire team's best efforts would remain focused on project success, even under duress. A waiver of liability typically helps all players avoid blaming each other or other less-than-useful responses when there are issues. Focusing the team on finding better answers regardless of what happens is the key to success for a difficult project like a net-zero design.

One limitation of the IPD construct is that it governs budget and schedule, not necessarily building operating performance, which was one of RMI's key objectives. Thus, RMI added a cash bonus to the payout plan: a simple operational performance reward pool to inspire the team to focus on and hopefully meet or exceed our aggressive energy targets.

Figure 2 is a simple graphical representation of our deal structure. The Base Target Cost (BTC) is the total estimated project cost that the team designs to and it was set at the time the Multi-Party Agreement (MPA) (the risk sharing contract for our IPD approach) was signed. The BTC includes all project costs that the team can influence:

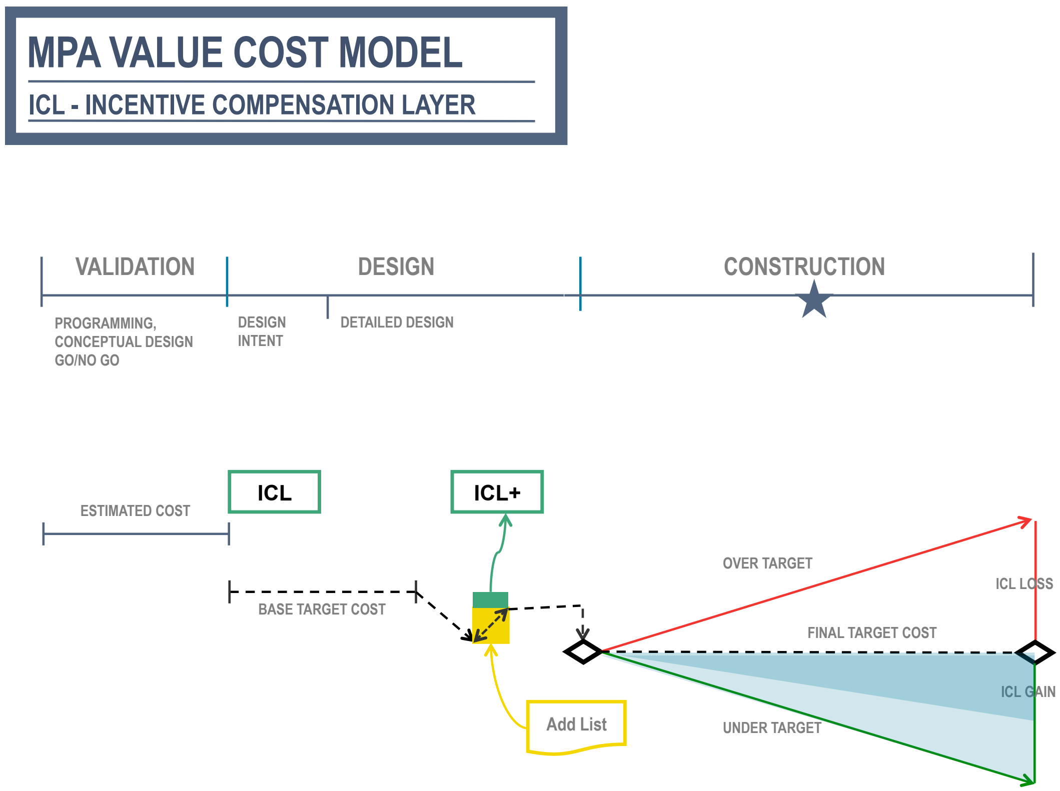

Figure 2 shows the Architecture of the IC budget and payment scheme. *Source* RMI.

design and preconstruction fees (including design sub consultant fees and construction trade partner design fees), hard construction costs, contingency and escalation. The BTC did not include land costs, permitting or certification fees, owner driven soft costs (such as the commissioning agent, owner's representative, land planner and legal costs) and Furniture, Fixtures and Equipment (FFE). It also included significant uncertainty – far more than most IPD projects – because of the unique, first ever nature of this building and unusual, remote location. RMI was able to set this number based on a business value calculation, detailed later. It was supported by a triangulation between 1) bottom-up preliminary budgets from JE Dunn 2) benchmarks from a handful of high quality small office and public buildings built in Colorado Mountain towns in recent years 3) an approach which built up the cost adders (from a variety of research sources) to standard high end low-rise office benchmarks from the nearest major metropolitan area, Denver.

The IPD shared risk/reward framework has as a key ingredient an incentive compensation layer (ICL). This ICL motivates the design, construction and owner team to provide innovative strategies early during the design phase (planning) and drive cost and schedule efficiencies during construction as all parties are financially rewarded for success. In practical terms the ICL is a bucket of money that consists of the profit from the design, sub-consultants, preconstruction and trade partner fees. The amount was set at the time the MPA is signed and gets added to as additional trade partners are brought on and design phase savings accrue. During the planning/design phase, any innovative measures providing cost savings against the BTC are split, 25% to be added to the ICL and the remaining 75% added back into the project in the form of other program additions from the owners add list. The add list was a list of additional items desired by the owner but not included in the base design or BTC.

Once the design was essentially complete, and after permits were in hand, the Final Target Cost (FTC) was set. The owner, architect and contractor actively and jointly manage the project as the project management team (PMT). They jointly manage the budget within the FTC. There is a sharp limit on change orders (i.e. basically limited to owner driven change in scope or unforeseen site conditions). At the end of construction, the ICL is distributed on a pro-rata share to team members included in the ICL (architect, contractor, sub consultants and trade partners). There is no cap on the amount of savings during construction that can go back into the ICL. Should the actual project costs exceed FTC, the owner pays labor and materials costs and will get reimbursed dollar for dollar from the ICL. When the ICL is exhausted, the owner will pay the remaining overages. Any cost disputes that may arise would go through the PMT, but can be overridden by the owner, which would then become a change order and the owner would be responsible for incurred materials and labor costs as a result of the change order. The owner guarantees to pay variable costs without a cap.

IPD Results

To the extent that using IPD was an experiment, it was a success. The project was completed on time, under budget, is performing well thus far (readers can see updated details and tracking data in (RMI Innovation Center 2016)) and it looks fabulous. The process was carried out with goodwill, collaboration and trust by all team members, which was supported by significant upfront training and teambuilding around RMI's expectations for behavior and how that behavior would drive the success of the IPD process. At the end we collected an extensive set of anecdotes about how special the experience was. A key ingredient of that "special" was how intensely everyone was able to focus on the work – with few distractions or administrative renegotiations. Everyone also loved being encouraged to innovate.

There are, however, some important lessons and opportunities. Some consist of executing the IPD processes better. This list includes better education on IPD for members of operational teams (trade subs), and more specific planning for their preconstruction roles and costs. Also on the list is better identification of responsibility gaps among subcontractors which could (and did) cause significant problems. This challenge is not limited to projects using IPD but is present under most contractual arrangements. Most likely several additional subs should have been part of the risk sharing agreement, if they had been willing. The whole IPD contracting process could have been done faster – it was new to everyone, but our legal counsel could have been added earlier and with more scope.

Some lessons may be unique to this project. The add list, as RMI used it, was not helpful and may not be a useful concept for a truly integrative design, where there are few optional items. In the end RMI chose to add almost everything that was on the list, regardless of the savings budget. A different structure for managing and incentivizing design stage cost savings ideas might have worked better. Secondly, one sub not in the joint agreement had such a significant role that they could potentially have spoiled the cost and schedule performance for everyone, with little recourse. Such situations should be avoided.

Even more important, perhaps, are some still unresolved questions of how the IPD system and project delivery in general might be further adapted for highly integrated, high performance projects like net-zero and beyond. There are four major categories of questions we have developed, which every owner will have to answer for themselves until enough design experience has been gained to standardize some of the answers:

1. We chose to ensure that energy performance had top priority while still meeting ASHRAE design standards. As such, we invested more in the design work and unique, non-standard physical elements, like those detailed in the next section, that were necessary to produce it. If the goal was net zero alone (devoid of the bleeding edge utilization of passive technology), could that have reduced our costs? How should more typical buildings manage this tradeoff? Or, will the lower costs of solar (as an example) make pushing this hard unnecessary in more and more climates?
2. For a new kind of project – as net-zero buildings will be for a while – is more contingency needed, or does it reduce the creativity and problem solving? We basically executed the project without contingency – an intended 5% contingency was used up by some higher than expected sub bids before work started. Fortunately the construction project management team was equal to the task of bringing the project home nicely.
3. Is the experimental mindset required by this project really what IPD as normally executed is best at? Even if it may be better than other delivery methods, the long history of focus on costs and “lean” means experiments are tough to take on, and the tripartite project governance model tempts the execution partners (architect and builder) to line up against a striving owner when time and finances are constrained.
4. In an integrative project, it is best to have many players in the risk sharing agreement – but handling a large number of players – and their worries - is a cost. In some ways small and complex is a worst case, so how should deals be structured for net-zero?
5. Smaller projects have another challenge – even great cost savings ideas do not save that many dollars on a small project. Is cost reduction really the key benefit of IPD, as executed for net-zero in the early stages of learning? Or is it more practically a highly effective control mechanism, when a lot of learning and iteration is going to take place – which is of course a good definition of highly integrative work.

In summary – IPD was the right choice for RMI for this project, despite having core mechanisms that focused more on capital cost reduction rather than lifecycle cost reduction and energy performance. As net-zero projects mature, it may become an even better choice – because key cost uncertainties will be removed, but it also may not be as vital to execution because the teams may have fewer integrative challenges to address.

Research and Innovation

Because this building was not based on a traditional standard specification model, a very detailed understanding of how it would work and what it would deliver was needed. Due to RMI's work experience in the building industry, we were able to fully understand and frame this issue internally, when most owners would need to get help in ensuring everything was right. What became obvious was that some of the approaches that would work best for the building, were not something that anyone else had tried before (e.g. battery-equipped chairs that heat and cool). Or they required components that did not exist (the R-12 windows, which were sourced from a set of suppliers that had never worked together before), or were very rarely used and hard to get (e.g. the phase change thermal mass materials). Research was vital to finding a way forward. Figure 3 below outlines the fundamental problem graphically: how to minimize space heating energy in a very cold climate and a relatively small building, and how to still keep it cool enough on the inevitable hot summer days when RMI is busiest.

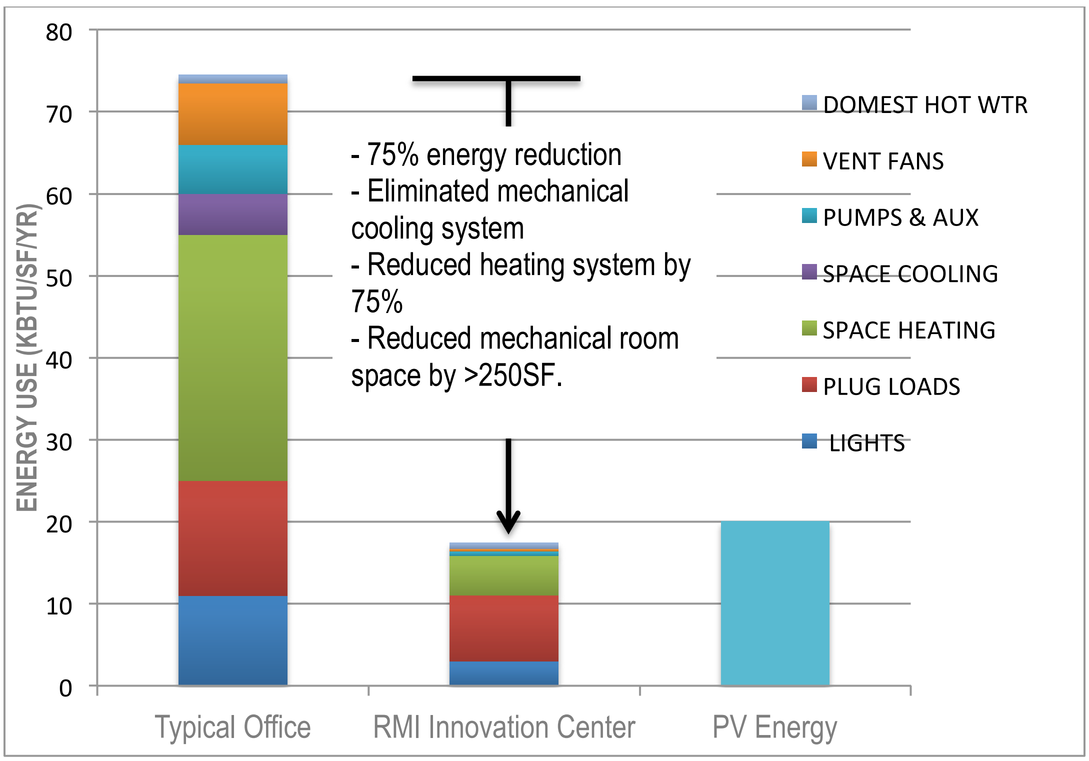

Figure 3 RMI IC energy profile (simulated). *Source* RMI.

In the end, the design included a number of key features, many graphically summarized in Figure 4 below. What the graphic cannot illustrate is how very far many of these dimensions had to be pushed, and the amount of R&D needed. The shading in summer had to be almost complete – so a full active shading system was conceptualized, and after exhaustive computer analysis, designed to cover the entire south face of the building, where most of the windows are. The windows themselves had to be extraordinarily good thermal performers – in fact a custom design had to be created and a supply chain of best in class players from Europe and

North America teamed together to deliver them. At R-12 and R-14, quad pane, compass tuned, yet still (for many) still automatically or manually operable to admit breezes or vent hot air when needed, they are among the best in the world in commercial use.

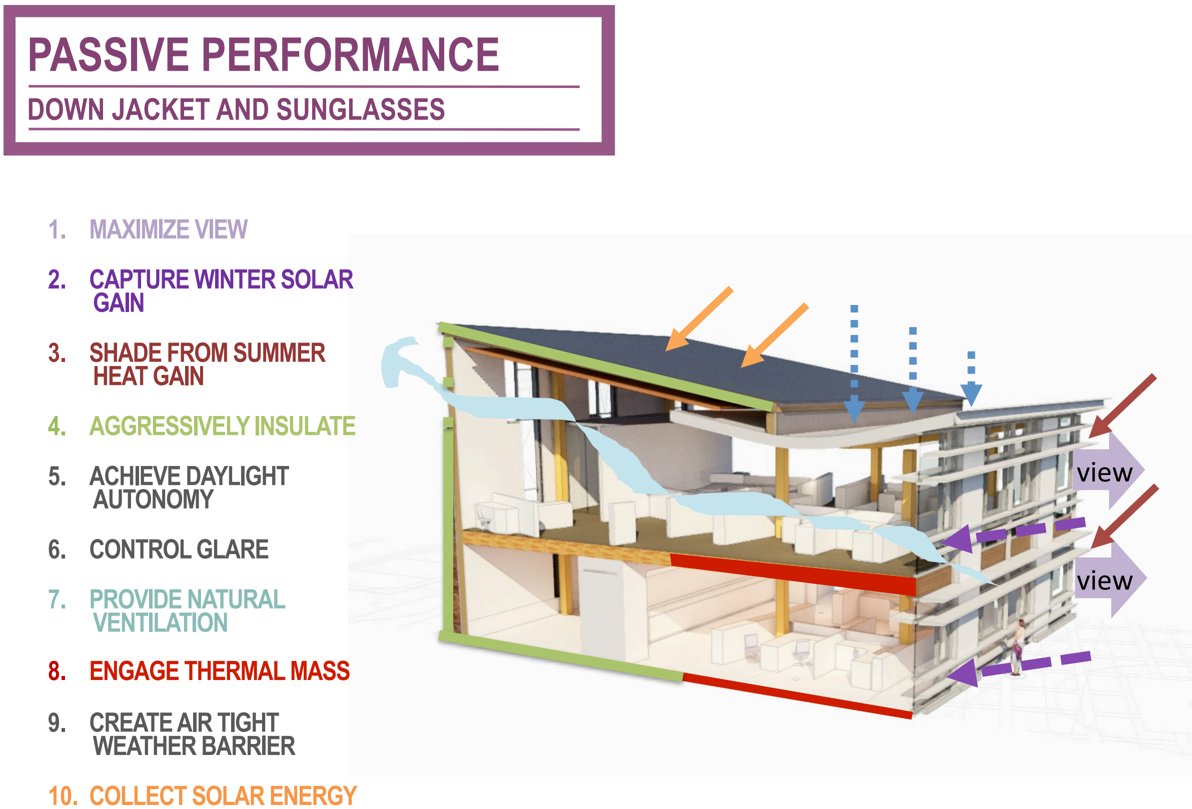

Figure 4. Graphical summary of RMI IC design strategies. *Source* RMI.

Several other features were also particularly research intensive. First, a special low profile, ducting integrated cross laminated timber (CLT) system was developed – a fascinating, small scale integrative design challenge on its own – that saved valuable inches of headroom for daylight penetration, and solved many problems at once. Second, in such a cold climate, thermal mass was vital to ensure that a minimal heating system could suffice. But there was not enough sunlit space for the mass needed – so phase change materials were selected and secreted in the walls and ceilings. Perhaps the most important feature of all, the team had to learn how to make the building extraordinarily tight – and fortunately, researchers found experts who could help with exactly that, creating a strict construction protocol that was executed on a building where all the details were already designed to be tight.

What really enabled net-zero with confidence, however, was the role of whole building simulation (including natural ventilation effects) in shaping the design. Over time, roughly 100 different design variants were run, to select the final configuration of mechanicals (there are almost none, just ventilation and a small number of resistance heaters) and to ensure that the building, when run properly, would meet spec. The models were also used to develop a simple set of steps to take if, for any reason, the building did not work. This reliance on models to ensure that a building design is pushed hard, but can deliver, is extremely unusual, yet vital for difficult net-zero projects. The models – detailing the passive processes of daytime solar heat gain and night-time cooling (in summer), are what enabled the design to be more than a hopeful experiment. Any owner seeking a net-zero building, at least until some standard approaches are clear in the desired geography, should ensure that the relevant physics-based models are used, by qualified practitioners, to deliver concrete numbers and strategies for success, as well as plans for what to do, without fuss, if things do not quite work perfectly.

Comfort and Controls Framework

Another way in which the simulations were important was RMI's use of an expanded (12 °F) and multivariate comfort range. There are at least six measureable factors controlling human comfort (Hoyt 2013): air temperature, air speed, surrounding surface temperatures, humidity, clothing level, and activity level. Modern offices like the RMI IC – with open plans, standing workstations, and frequent interaction and movement – are ideal places to put this broader view of comfort to work. In addition, the old Japanese insight, that it's the people that count, not the building, is a key part of the comfort design. This led to highly localized comfort strategies – individual fans, a mix of manual and automated control of the blinds, and local separately controllable heating and cooling devices including chairs and task lights. Since temperatures will vary during the day, and seasonally, and across the space, staff are encouraged to be more mobile than the norm in traditional space. Staff sensitive to cold temperatures can gravitate to the warmer spaces, and vice versa. The RMI facilities team will be collecting data on this human comfort experiment, including a pre and post occupancy survey from UC Berkeley's Center for the Built Environment (Zagreus 2004). In theory, such variations are good for people's health and productivity, as they mimic natural cycles.

The RMI IC control system is complex, and as expected its settings and logic are evolving as we learn how the building truly needs to be operated through the seasons. We do have one important "trick" – weather prediction. Instead of letting the building overheat – or get excessively cool – overnight or over a weekend, or whenever the building is unoccupied, we are able to automatically use weather forecasts to choose to precool and preheat the space. This is quite straightforward, in principle.

The challenge for net-zero owners that take the minimalist, passive strategy RMI chose is that there is very little equipment to control, if comfort is not what it should be. Suppliers – who warranty results – are generally very uncomfortable with such strategies, and try to avoid them. It is important for interested high efficiency building owners to understand this. RMI has contracted for an 18 month measurement and verification period to teach staff and to learn and optimize our protocols to 'sail the building'. Staff participation is part and parcel of any passive strategy – the living beings have to help the inanimate physics of the building along.

Net-zero Building Cost and Value Considerations

Although the RMI IC is not a typical building in terms of the purposes it serves, nor its approach to net-zero, it demonstrates the value new, high quality net-zero office buildings can deliver to their owners and communities. The cost of our building is on par with other national, leading edge, net-zero energy, Living Building Challenge buildings (Packard Foundation, Brock Environmental Center) for core & shell and tenant fit-out, despite being located in the coldest climate zone in the country. But these buildings are unique and still relatively expensive. One key question is how the RMI IC adds value versus more conventional approaches, considering the lifecycle cost of operating the building and paying the people within that building. Another key is learning - will net-zero follow the same experience curve as LEED certified buildings, and end up really not costing much extra at all?

Adjusting for the extra costs of our world class convening center – not a typical office feature - for the RMI IC there was roughly a 10.8% construction cost premium over a hypothetical baseline custom LEED Silver office building built in this specific location that RMI costed, as part of our value assessment program. In the Western US, LEED Silver is now the de facto standard for a quality office project. There are two reasons for the cost premium:

1. To achieve net zero energy performance we spent more on insulation, thermal comfort, air tightness, electrical specialties and passive measures. The 10.8% figure nets out savings of $9/SF on HVAC equipment since we have no mechanical cooling and a tiny distributed heating system, plus an additional $7/SF savings from the increased functional square footage that resulted from the reduced size of our mechanical room.
2. Setup costs driven by our use of a new contract structure in a remote location, and working at a time in the cycle when the construction subcontractors (the trades) were extremely busy, limited our ability to get competitive pricing for a number of key building elements. The project was delivered on time and under budget, however.

On the design side (including architects, consultants and preconstruction fees) costs were also higher – a 19% premium over the baseline LEED Silver building - due to our course being uncharted. The technology research was expensive, as was the amount of whole building simulation to evaluate choices. As noted earlier the IPD approach required time to socialize internally and with our design and build partners. We anticipate this design premium quickly dropping to negligible levels as technologies and processes become more commonplace.

Our resulting net-zero energy building has extremely low operating costs and is expected to deliver significantly more long-term value than a typical building. Simulated annual energy use is 75% less than a typical building in this climate zone, and the remaining energy use is offset entirely with onsite PV, which is funded through a PPA. Increased staff productivity, reduced energy costs and reduced maintenance costs are expected to contribute >$2.3 M (on a net present value basis) over just a 10 year period. This inclusion of non-energy costs and other value drivers is very important to overall evaluation of what a net-zero building offers. This is because energy benefits can often be gained through measures with other, very significant, quantifiable side effects, like lower maintenance costs, and important productivity benefits from daylighting and air freshness and operable windows, and even business benefits like market access and recruiting and employee retention. Other RMI reports detail and offer tools for doing such quantified evaluations (Bendewald 2014). We also used these tools in setting the initial project budget.

The bottom line: with a well-executed project, to bring a LEED silver baseline up to net-zero energy required a cost premium of 10.8%, not including solar equipment which is generally financed separately. In our case, this premium paid will be recovered within 4 years through increased productivity and a reduction in energy and maintenance costs.

Summary of Lessons for Owners

A clear set of goals, an effective contracting structure and a strong team, combined with an analysis, research and innovation-heavy strategy and a broad comfort envelope, produced a superb net-zero building in the coldest continental US climate. These strategies can enable others to push their buildings' energy performance. But what can a more "normal" owner do?

1) Set clear goals and goal hierarchies – ensure the team has the clear, prioritized goals it needs. If net-zero at reasonable cost is a goal, and on-building generation is not cheap and plentiful, energy efficiency must be a very firm, high level goal
2) Ensure high owner engagement in the design and ongoing decision making – for instance use a IPD risk and reward sharing contract to set up highly effective, problem-focused teamwork including a highly engaged and well-informed owner. This is essential to getting a truly effective result with the lowest risk possible.
3) Insist on quantified and integrated energy analysis being used during the design, to shape the options and remove excess cost items that everyone wants only for insurance, while doing sufficient contingency planning to be able to adjust in future years.
4) Push hard for any specific breakthrough technologies needed – if an owner weighs in saying, for example, we really need R-12 windows, there are suppliers that want to help make it happen. If no one asks - firmly - for something better, nothing will ever change.
5) Do not underestimate the power of the "return to what we always do" force on all the firms working on the project, and as owner, do not remove the steady pressure (or forget to ensure alignment on the benefits) of fully delivering on all the goals.

In summary, as owner you must do a few special things if you want to buy a net-zero office building. But it is a worthwhile challenge, and one that that many can readily handle.

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