



Knight Cancer Research Building

Integrated project delivery model & design principles

Integrated project delivery

The Knight Cancer Research Building team utilized a process called integrated project delivery, or IPD, that optimized budget, timeline and resource efficiencies during the design and construction process. The IPD core team comprised members from OHSU working in close collaboration with representatives from the architecture firm [SRG Partnership, Inc.](#) and the construction joint venture team of [McCarthy Building Companies, Inc.](#) and [Andersen Construction](#). The utilization of the IPD process ensured the building was delivered on time, and on budget.

Design principles

The building's design principles of team science and collaboration are evident in its features, which include intellectual and social hubs to foster discussion, as well as centralized, shared equipment and research core facilities. The research labs are a balanced mix of wet labs — referring to the use of liquids, chemicals or drugs to conduct experiments — and dry labs — referring to the use of computers or computer-generated models in analyzing biological data.

Functional, flexible spaces and unique vertical connections encourage face-to-face interactions among researchers. All occupants will have access to daylight in a high-performance, environmentally sustainable workplace that includes such amenities as balconies and a rooftop terrace.

Team science

Team science and team results are the guiding themes for the project. These principles represent a shift towards a more collaborative culture, facilitated by the fact that many of the OHSU Knight Cancer Institute's scientists will for the first time work together under one roof.

Safe materials

Throughout the KCRB core team's visioning work, which included sessions with scientists to learn more about their specific needs, it became clear that the incorporation of healthier materials — particularly carcinogen-free materials — was a top priority. The group wanted this cancer research building to uphold health and wellness in every way. One example is flooring materials. For durability, lab buildings often incorporate vinyl or linoleum flooring. The KCRB core team chose to minimize the use of flooring requiring adhesives or flooring resins containing toxic substances, selecting instead a concrete polishing product free of red-listed toxics where finishes were not needed. While some portions of the building still require epoxy products, the end selections were put through a rigorous evaluation of their chemical make-up and their safety for construction workers during the epoxy flooring installation process.

KCRB workforce percentages and statistics

From beginning to end, the KCRB project team gave priority to hiring Oregon vendors when possible. In addition to hiring a general contractor and architectural firms based in Oregon, as of August 2018, 34 of the 55 contracts for subcontractors and vendor firms went to Oregon-based companies. The Oregon-based contracts represent \$95 million of the \$123 million contracted.



Minority or women-owned firms and emerging small business (MWESB) account for 16.5 percent of the subcontracted business, exceeding the initial 15 percent target for MWESB firm participation of total subcontracted value.

The project team also ensured construction workers received prevailing wages, or the hourly wage, usual benefits and overtime paid to the majority of workers, laborers, and mechanics within a particular area.

The project team is exceeding its apprenticeship target of 20 percent of total construction craft labor hours, with a current percentage of 28.58 percent. State of Oregon registered apprentices learn a craft skill through planned, supervised work on the job, in addition to receiving related classroom instruction.

Minority participation in building construction is 26.92 percent. Although 12.11 percent of total construction hours have gone to female employees, this is short of the initial goal of 15 percent, a result of an overall shortage of women in the construction labor force. To combat this shortage, contractors and organized labor are working with Oregon Tradeswomen, Inc., a pre-apprenticeship program, to strengthen the apprenticeship pipeline. To date, 27.10 percent of apprentice hours were logged by women, demonstrating an increase in diversity for the incoming workforce.

LEED Certification

The building is on track to receive LEED Platinum status. When the construction phase credits are finalized, the project anticipates achieving 84 LEED points.

IPD Core Team

In the IPD model, the project is run by a core team, which consists of a representative of OHSU, the Knight Cancer Institute, an architect, and a contractor. These four project representatives managed and led all of the critical decisions throughout the process:

1. Laurie Canup, A.I.A., with SRG Partnership spearheaded the design effort with the team working closely with the scientists to generate and inform design decisions in support of the Knight Cancer Institute's guiding principles. Canup worked with the core team to establish a solutions-based culture which inspired contractors, owners and designers to innovate. As core team member, she and her colleagues developed a framework for decisions which enabled the team to deliver best value.
2. Tiffani Howard, Ph.D., served as project liaison for the Knight Cancer Institute, providing critical input as a primary member of the core team. Howard led workshops with the building occupants and gathered data to support or challenge design decisions while keeping Knight Leadership informed and engaged. Working side-by-side with the design team provided valuable insight into how the scientists work, which had a huge design impact on the project. Furthermore, the liaison's constant eye on the project throughout construction prevented changes that would be a disadvantage to the scientists' work. Keeping the occupants informed and engaged in the process provided a forum for change management discussions that will ultimately smooth the transition to the new building and work environment.
3. Ed Trotter, senior project manager for OHSU Design and Construction, and his team facilitated input from the facilities and maintenance team to assure the building is maintainable with



minimal disruption to the users. The Design and Construction team brought a breadth of experience and knowledge to help the core team design and construct a facility that meets the needs of the Knight Cancer Institute and OHSU.

4. Richard Brecke, project director for McCarthy Building Companies, Inc., and Brian Price, regional operations manager for Andersen Construction Company, served as leadership for the general contractors team as well as providing overall project team leadership as members of the core team. Brecke and Price worked to keep the construction team oriented to the project's guiding principles, focusing the team on the greater goal of changing cancer research by building the best research facility possible. Working with OHSU, SRG and the Knight Cancer Institute, Brecke and Price helped create an environment for construction that is highly collaborative, continuously improving, and one of the best places for tradespeople to work in the city.

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