



**AGC OF CONNECTICUT (AGCCT)
2018 BUILD CONNECTICUT AWARDS PROGRAM**

**BONE AND JOINT INSTITUTE
HARTFORD HOSPITAL**
HARTFORD, CONNECTICUT

December 15, 2017



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APPLICATION FORM



APPLICATION – 2018 Build CT Awards

Project Name Hartford Hospital Bone and Joint Institute
Address 32 Seymour Street
City Hartford **State** CT **Zip** 06106
Date of Completion December 2016

Project Type (check one): CM/GC New Large Construction (>\$30 m.)
 CM/GC New Mid-Size Construction (\$10 m. to \$30 m.)
 CM/GC New Small Construction (<\$10 m.)
 CM/GC Large Renovation (>\$30 m.)
 CM/GC Mid-Size Renovation (\$10 m. to \$30 m.)
 CM/GC Small Renovation (<\$10 m.)
 Specialty Contracting: Electrical
 Specialty Contracting: Mechanical
 Specialty Contracting: Concrete
 Specialty Contracting: Interiors (Drywall, ceilings, flooring, wall coverings)
 Specialty Contracting: Exteriors (Exterior walls, roofing, building envelopes)
 Specialty Contracting: Sitework/Landscape
 Other Specialty Construction (Other construction not included in above categories)

Applicant

Firm name Gilbane Building Company
Contact name Jodi Brennan
Phone 860-368-5110 **Email** jbrennan@gilbaneco.com

Please List Project Participants (owner, designer, subcontractors, major suppliers etc.) Use additional pages if needed

Owner

Firm name Hartford Hospital
Address 80 Seymour Street
City Hartford **State** CT **Zip** 06102
Contact name Bimal Patel
Phone 860-545-1380 **Email** Bimal.patel@hhchealth.org

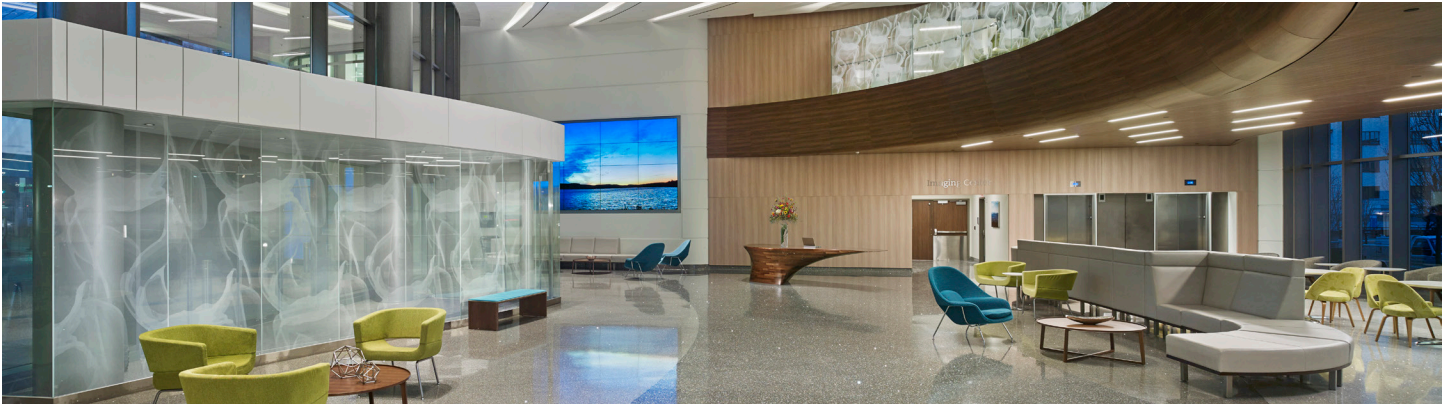
Designer/Architect Interiors Architect/Structural Engineer/Landscape

Firm name HDR, Inc.
Address 1000 Lenox Drive
City Lawrenceville **State** NJ **Zip** 06848
Contact name Christopher Borman
Phone 609-844-1212 **Email** chris.borman@hdrinc.com

Other Designer/Architect - Core and Shell

Firm name Perkins + Will
Address 215 Park Avenue South 4th Floor
City New York **State** NY **Zip** 10003
Contact name Robert Goodwin
Phone 212-251-7000 **Email** robert.goodwin@perkinswill.com

This completed form is the cover sheet of your application package. Application packages must be received no later than 5:00 p.m., Friday, December 15, 2017. Return to: AGC/CT, 912 Silas Deane Hwy, Suite 112, Wethersfield, CT 06109 or to jwillhelm@ctconstruction.org (Up to 5 mg file).



JUDGING CRITERIA

A. STATE OF THE ART ADVANCEMENT

Hartford Hospital's Bone and Joint Institute is a genuinely special project, bringing the first dedicated orthopedic specialty hospital to New England, and one of only a few like facilities nationwide. The Institute was also Hartford Hospital's first large-scale project since 1999.

The new, 150,000 SF Bone and Joint Institute facility provides state-of-the-art coordinated care that integrates all elements of orthopedics and musculoskeletal treatment, including primary and specialty care, diagnostics, rehabilitation, rheumatology, neurology, and pain management. Connected via a skywalk is an outpatient surgery center and medical facility with three outpatient surgery rooms; offices for orthopedics, rheumatology and musculoskeletal specialty care; and an auditorium for conferences that can double as a classroom with live surgical procedures and learning opportunities for staff.

OUTPATIENT AMBULATORY FACILITY

Center for Musculoskeletal Health

The Center for Musculoskeletal Health combines state-of-the-art rehabilitation and research on improving treatment options and preventive education. It includes a 75,000 SF outpatient surgery center and medical facility with three outpatient surgery rooms for hand, foot or ankle surgery, as well as minimally invasive (arthroscopic) knee surgery procedures; offices for orthopedics, rheumatology and musculoskeletal specialty care. Additionally, it houses a sophisticated motion analysis lab to allow specialists to detect even the smallest of irregularities with movement. The lab also uses computer-guided analytics to provide balance assessment; and, for athletes, analysis of golf swings, running gait and efficiency, basketball jumping ability or baseball pitching mechanics. A series of cameras and other devices are used within the floor to measure force and other dynamics.

Outpatient Services

The Outpatient Services area includes private patient rooms, operating rooms, outpatient rehabilitation and wellness areas, along with easy access to diagnostic and other services. The facility provides procedures including total joint replacement, spine surgery and fracture repair.

Anti-gravity Treadmill

With a reduction of 70% of gravity force on the lower body, patients can begin non-weight bearing rehabilitation exercise following hip or knee surgery using the Alter G treadmill which includes a flexible plastic enclosure that reaches waist high where air is pumped in.

Office | Conference Space

The facility also includes meeting and training spaces to accommodate a wide range of support groups and community education offerings aimed at helping keep people healthy before, during and after surgery. Some of these include a healthy eating demonstration kitchen and an auditorium for conferences that also serves as a classroom for live surgical procedures and learning opportunities.

Skybridge

The two buildings are connected via an elevated connector bridge in a design that mimics a ligament connecting the bones (two buildings) of a joint.

B. EXCELLENCE IN PROJECT MANAGEMENT

Budget/Cost Leadership

Gilbane's core value of "tough-mindedness" was evident during the development of the budget and ultimately the final GMP. The building incorporates numerous high-end, one-of-a-kind, finishes that come at great cost, and neither the architect nor owner wanted to remove these finishes from the facility. Gilbane consistently presented a cost model that included design contingencies and project escalation an effort to ensure the client was prepared financially at each stage of the development of design. In the end, Gilbane provided a clear and honest assessment of the construction budget. During buyout and the construction of the final GMP, Gilbane used strategic trade contractor allowances to fill the gaps and

protect the client from unnecessary change orders. The trade allowance provided a means to quickly and economically overcome scope gaps. The inclusion of the trade allowance also provided an avenue for negotiation during the finalization of the GMP. Negotiating trade allowances with the client reduced the tensions that are often part of agreeing on a final cost.

Schedule Leadership

As part of the project, relocation of an existing high-pressure steam main from the new building footprint required an aggressive build-out schedule. Focused scheduling sessions and multiple principals meetings were employed to ensure a positive result. Concrete and Structural Steel bid packages included specific durations for the superstructure activities. The team was tough-minded about pursuing additional time when the sitework production was stymied by the late arrival of easement agreements and major structural revisions impacted the fabrication of structural steel.

Using Lean scheduling techniques called Advanced Planning & Scheduling (AP&S) provided the vehicle for a successful collaborative effort at the field level. The process was introduced during bidding and heavily discussed during scope reviews and ensured that the trade contractors were fully committed to the process from inception. The team held multiple large format pull planning sessions for superstructure, interiors by floor and area, exterior envelope and site finishes/landscaping. Smaller, more focused, pull plans were used for critical walls/MEP Rough and the three stair tower activities. Our superintendents held daily huddles with the trade foremen and superintendents. These sessions dramatically improved logistics and helped to maintain dialogue between the trades. Our regular trade meetings included the normal logistics and safety discussions with a focus on our constraint log and the weekly work plans. The meeting was disciplined and efficient.

C. PROJECT TEAM EFFECTIVENESS

The success of the Bone and Joint Institute could not have been realized without the collaborative effort between Gilbane, HDR, Perkins+Will, and Hartford Hospital

representatives throughout the design and construction process. Through our experience, we have learned that large healthcare projects require input from another essential group: the end user. For this project, the end users included: doctors, nurses, information technology, facilities and engineering, bio-medical staff, imaging technicians, etc. In an effort to foster collaboration and input from all levels, Gilbane suggested and built a full scale mock-up of both an operating room and patient room. The mock-up of the operating room offered the surgeons and clinical staff an opportunity to review how they would work within the new, larger space. It also provided support services with an opportunity to critique the arrangements and offer suggestions on improvements based on their workflow. The patient room mock-up was taken to another level, with the creation of a fully fit-out and furnished space for the client and end users to “live” in prior to construction. This space allowed for furniture and equipment selections to be made with confidence, created the standard for in-place finishes and offered an opportunity for problem solving among the trades and consultants.

Another important aspect to this project was building solid relationships with the trade contractors. Early in the project, Safety Director Dennis Mullen, Superintendent Bryan Chervenak, and Project Manager Chris Enders facilitated the Supervising Incident & Injury Free (IIF) in Action workshop. This workshop set the tone for the entire project. The all-day session included a segment where Bryan and Chris left the room to give the trades the opportunity to speak candidly and provide feedback on what they felt would make the project better for them. A list of 15 items were presented to Gilbane leadership. While some of the items on the list were impossible to meet, the others were both reasonable and insightful. Over the course of 60 days, following the session, the items on the list were addressed and reviewed for satisfactory results at the trade meeting. This cemented the trust between Gilbane leadership and the trades in the field. Safety incentives, raffles and t-shirts were distributed weekly. In addition to the Safety Week celebrations, the team provided a BBQ lunch for 125 trades staff on a Saturday in appreciation for their efforts.

D. INNOVATION IN CONSTRUCTION TECHNIQUES, MATERIALS OR DESIGN

The implementation of BIM was crucial in the successful construction of the Institute. This complex building, with its many radiuses and curvatures, was efficiently and effectively laid out prior to the start of MEPFP construction, offering an opportunity to review and resolve issues in the virtual environment.

Upon completion of coordination, the model was uploaded to BIM 360 Field so the model could be viewed in the field on iPads and tablets. Because the model incorporated architectural, structural, and MEPS data, the field staff was able to view comprehensive portions of the building quickly without flipping through stacks of contract and shop drawings for the various disciplines.

E. EXCELLENCE IN CLIENT SERVICES

The Bone and Joint team was committed to ensuring that the client made the perfect decision in hiring Gilbane to build a remarkable facility. The team went far beyond the contracted scope of work to provide support to the owner's representative in coordinating the equipment purchases and procurement of commissioning services. The team spent copious amounts of time coordinating incomplete documents without reimbursement or recognition. They also quietly overcame a myriad of changes (many last minute) and held the substantial completion date so that the client could celebrate prior to the Thanksgiving holiday. Our collaborative attitude and dedication to working as a team defined the success of this project.

The Bone and Joint Institute serves as a strong advocate for Hartford Hospital's vision "to build a better system that provides well-coordinated and consistently great care to more people" according to Jeffrey Flaks, Hartford HealthCare president and chief operating officer.

F. CONTRIBUTION TO THE COMMUNITY


As the only specialty orthopedic hospital in New England, the Bone and Joint Institute will have tremendous social and economic impacts on Hartford and all of Connecticut.

The Institute will attract patients from outside Connecticut and will also increase the Hospital's ability to recruit top physicians. Paired with other revitalization efforts within Hartford, including apartment construction and UConn's downtown campus, these endeavors will stimulate job growth while attracting visitors and new businesses. As Elliot Joseph, Hartford HealthCare's chief executive officer, explains, "We are proud to be a major contributor to the economic growth of the City of Hartford and the State of Connecticut. We are creating jobs and bringing people to Connecticut for their healthcare through this investment."

G. MEETING THE CHALLENGE OF A DIFFICULT JOB

The most unique feature of the Bone and Joint Institute is the exterior design of the building featuring curvy walls and rounded edges, as well as a skywalk linking two buildings together, simulating how a ligament connects two joints. This distinctively striking feature was one of the most challenging aspect of the job.

The design team created a sweeping, curved structure clad with 1/8" thick aluminum plate. The team was challenged during pre-construction to provide a cost-effective and schedule-friendly means to enclose the structure and meet stringent energy efficiency standards while allowing for a prolonged period of exposure while the exterior elevations were field measured for the final product. To accomplish this, Gilbane recommended entering into design-assist contracts with both the curtain wall and metal panel/plate trade contractors. This collaborative contracting method yielded mutually beneficial results. We leveraged the expertise of the trade contractors to provide innovative solutions to issues that are inherent to such a unique structure. The exterior design assist partners developed (a soon-to-be-patented) metal panel back-up system that quickly provided a weather tight envelope that would not be affected by UV rays or exposure to foul weather. This system produced a significant savings for Hartford Hospital. The partnership also produced simple



solutions to complex flashing details required where the structure is curving in multiple directions. Most remarkably, the design-assist relationship resulted in ZERO change orders after the 100% documents were complete.

The curvilinear design of the building presented a myriad of challenges. In effect, there exists a certain level of exposure. Specifically, every joint - from the ribbon window to the metal panel on the sheetrock in the lobby and including the stucco ceiling - uncovers each materials' interface in some way. The design team's rigid 1/8" alignment tolerance added to the challenge. These joints were discussed in EVERY design and coordination discussion that was held. To ensure the team could achieve the desired result, a full size mock-up of the most complex exterior elevation was complete prior to the fabrication of the finished metal cladding. The mock-up was a 60' long x 30' high curving structure that incorporated every element of the exterior construction. The metal panel back-up, flashing and window were tested for water and air infiltration to ensure our design/construction was without flaw. Each step was documented by a third party exterior envelope consultant and the architect. This was a tremendous undertaking that resulted in a superior finished product.

H. SENSITIVITY TO THE ENVIRONMENT AND THE SURROUNDINGS

The Bone and Joint Institute incorporated sustainability and energy efficiency construction techniques. Linoleum and bio-based tiles were utilized, rather than VCT. The selected flooring reduced, or in some cases eliminated, fossil fuels used in the materials. The chemical composition of both linoleum and the bio-based tiles are non-toxic. The use of BMS controls and VFD on mechanical equipment, as well as daylight and occupancy sensors, reduced the building energy consumption by 20% and yielded a significant savings rebate from the local energy provider.



SUMMARY

SUMMARY AND PHOTOGRAPHS

TOWN OF ENFIELD | Enfield Consolidated High School

Hartford Hospital's Bone and Joint Institute is a revolutionary project, as it is the first and only dedicated orthopedic specialty hospital in New England. To deliver this groundbreaking project, Gilbane worked cohesively with architects Perkins+Will and HDR, along with more than 40 trade vendors and contractors. Perkins+Will was responsible for the design of the building exteriors, while HDR designed the interiors and clinical and medical spaces. Both, HDR and Perkins+Will designed the lobby in unison.

Gilbane provided construction management at-risk services for the new Bone and Joint Institute facility. The Institute integrates all elements of orthopedics and musculoskeletal treatment, including primary and specialty care, diagnostics, rehabilitation, rheumatology, neurology, and pain management. The project was developed in collaboration with the Orthopedic Associates of Hartford whose 30 orthopedic surgeons were instrumental in the creation of the project. The goal of the Institute is not only to provide innovative orthopedic treatments, but to make care more efficient and drive down cost through an integrated approach.

The Bone and Joint Institute consists of five floors and features:

- Eight operating rooms with room to expand to ten
- 48 inpatient beds with the capability of expanding to 60 beds
- A post-anesthesia care unit (PACU) featuring 27 beds
- Complete imaging center including radiology, MRI, and CT scans
- Rehabilitation facilities
- Motion Laboratory Study Center
- Center for Sports and Fitness
- After-hours orthopedic urgent care services.

The Institute is fully integrated with the Center for Education, Simulation and Innovation and is committed to education and research to cultivate the development of new technology at a national level, giving medical practitioners and students access to state-of-the-art training and providing patients with greater access to the most innovative care. The Bone and Joint Institute connects to an adjacent medical office building with a pedestrian bridge over Seymour Street to allow for collaboration with clinical staff.

Bimal Patel, President of East Region HHC, Backus & Windham Hospitals, SVP Hartford Healthcare, noted, "The completion of this project marks history in the delivery of world class healthcare right here in Connecticut. It has been a privilege to be a part of this project and collaborate with Gilbane as our Construction Manager. Thank you to the full project team, local trade contractors and every individual who participated in this project and shared our vision of building a center of excellence in caring for our patients and community."













OPTIONAL SUBMISSIONS

Hartford Hospital's New Bone And Joint Institute Aims To Capture National Market

The logo for Hartford Courant Multimedia, featuring the words "Hartford Courant" in a white, stylized serif font and "MULTIMEDIA" in a red, sans-serif font below it, all centered on a black background.

Hartford HealthCare's new Bone & Joint Institute at Hartford Hospital is a \$150 million orthopedic center which will focus on both wellness and surgery. It aims to develop a reputation that will draw patients from all over New England and would compete with hospitals in New York and Boston.



By **Kenneth R. Gosselin**
Property Line

NOVEMBER 13, 2016, 7:31 AM | HARTFORD

A new Bone and Joint Institute is the first major construction on **Hartford Hospital's** campus in decades, boldly aspiring to turn the hospital — and the city — into a nationally known center for orthopedic surgery and research.

The \$150 million institute, which is opening Tuesday with its first surgeries coming a month later, will help Hartford Hospital build a reputation for competing with recognized leaders in bone-and-joint surgery in New York and Boston, the hospital says.

ADVERTISING

The hospital sees a growing market in aging, affluent baby boomers with failing knees and hips who want to keep active and can afford to pay for surgery to stay active as they enter old age.

The project's stature will allow health care to take a prominent place among other revitalization efforts in the city — apartment construction, Front Street and the University of Connecticut's downtown campus — attracting new companies seeking to collaborate with the institute, creating jobs and drawing visitors to the city, the hospital says.

Jeffrey Flaks, president and chief operating officer of Hartford HealthCare, the new hospital's parent company, said its institute aims for a market beyond Connecticut. "There's only a handful in the country so we really, we had a vision to transform the way we can provide care. And we really do have a national ambition for what we've created."

Hundreds of workers have been on the job six days a week to meet Tuesday's construction deadline for the 200,000-square-foot building, which straddles Seymour Street. The building's two halves are joined by a skywalk, much the same as a ligament connects the bones of a joint.

Hartford Hospital embarked on the ambitious expansion amid a surge in joint replacement patients. According to the American Academy of Orthopaedic Surgery, the fastest growing group of patients are those aged 46 to 64, who are wearing out their joints.

Osteoarthritis also is striking at a younger age, and chronic weight gain also is taking a toll on hips and knees.

The hospital partnered in 2013 with Orthopedic Associates of Hartford to develop the institute. Orthopedic Associates has 30 surgeons and will manage the institute on a day-to-day basis.

Construction got underway in late 2014 on the institute, which will combine surgery, rehabilitation and research. The hospital's bone-and-joint specialty now occupies its own space but within the main hospital building.

On the east side of Seymour Street is the institute's hospital, with eight operating rooms and space for two more, plus 48 private patient rooms, with room for as many as 60. Flaks said there is land nearby should further expansion be needed in the future.

Across the street, the outpatient ambulatory center will have office space for surgeons and an auditorium for industry conferences. The auditorium can double as a classroom receiving broadcasts of live operations with real-time instruction from surgeons.

The institute was privately funded through \$125 million in tax-exempt bonds, plus a \$10 million equity investment from Hartford HealthCare and \$18 million from philanthropy, including corporate donations from The Hartford, Travelers Cos. and Stanley Black & Decker. The construction comes as the state has reduced federal reimbursement on the tax paid by hospitals, which many are fighting.

Economists say health care has been a potent catalyst for economic growth elsewhere in Connecticut, especially in New Haven in the area around Yale University.

Fred V. Carstensen, an economist at the University of Connecticut, said the institute should benefit from Hartford's geographic locations in a bio-medical corridor that runs from Princeton, N.J. to Boston. That should make the institute attractive to companies that may want to move near the hospital to collaborate on orthopedic development projects, he said.

But Carstensen said the state's stance on the hospital tax could hamper future investments by the hospital.

"Obviously, Hartford Hospital is going to make every effort to build on this and bring on clustering activity," he said. "The challenge is to what extent the state is pursuing policies to support what Hartford Hospital is doing."

More Than Surgery

Nearly 50 years after the hospital performed its first hip replacement, the institute will open what the hospital considers a key attraction of the institute: the Center for Musculoskeletal Health. The center

will combine state-of-the-art rehabilitation plus research on improving treatment options and education on how to avoid orthopedic troubles all together.

An anti-gravity treadmill, for instance, will make it possible for rehab to start earlier even when the patients still cannot bear weight on the affected joint. A motion lab is outfitted with a series of cameras and other devices in the floor to measure force and other dynamics.

"You can do a motion analysis for a golf swing, if you wanted to, or another athletic undertaking, or if your balance is off, which then can be used to develop a centralized program," Courtland Lewis, an orthopedic surgeon and the institute's physician-in-chief, said. "So part of the whole idea is taking care of challenging problems with new tools that we haven't had before."

Lewis said a patient might not travel to the institute for an ankle sprain. But if a patient suffers from balance problems, repetitive falls or mobility troubles, "or you're an elite athlete or you're young and your mother thinks you're going to be an elite athlete, or whatever, that's what happens here," he said.

The center's research will play a key role in the institute's goal of not only developing innovative treatments for the orthopedic health care industry but making care more efficient and driving down medical costs.

Lewis said connecting the hospital with the outpatient operations across the street was deliberate, as orthopedic surgery nationally is increasingly performed on an outpatient basis — nearly 75 percent of all bone-and-joint surgeries.

"So the question is: How do you do things safely and try to drive down some of these medical costs, and so what this allows us to do is take more complex surgeries and get folks home on the same day, which people like," Lewis said.

But if there are complications after outpatient surgery, the hospital is essentially part of the same building.

"So, from a patient's standpoint, it allows us to innovate around surgeries," Lewis said. "But at the same time, we're creating a safety net so you don't have to call the ambulance and have them drive 10 miles and scoop you up and take you some place. That's part of what the connection is all about."

A Unified Hospital Campus

The opening of the Bone and Joint Institute will free up space elsewhere in Hartford Hospital, allowing the creation of more private rooms and easing the squeeze on operating spaces.

If the institute is financially successful — and the hospital believes it will be, given growth projections for orthopedic care, the institute will help fund future redevelopment on the 165-year-old campus, Flaks said.

In the future, the hospital wants to create a campus bringing together all its major components, including the main hospital, the Bone and Joint Institute and the [Institute of Living](#), which focuses on behavioral health, and the hospital's academic corridor along Jefferson Street.

One plan calls for closing the portion of Retreat Avenue that now separates the majority of the 70-acre campus from the Institute of Living.

"So we're really creating an integrated campus that would rival any in the country, like the Texas Medical Center, major cities that have involved all their specialty capabilities like we are doing here in Hartford," Flaks said.

The progress of the Bone and Joint Institute is being watched closely across town. [St. Francis Hospital and Medical Center](#)'s Connecticut Joint Replacement Institute recently stepped up marketing of the 9-year-old institution, and it, too, says its competition is in New York and Boston.

"Competition in health care is good," Steve Schutzer, CJRI's medical director, said. "This is not about buildings, it's about programs and networks."

Schutzer said CJRI has served 27,000 patients since opening in August, 2007, 3,400 so far this year. St. Francis also has special focuses on sports medicine and spinal care.

Hartford Hospital's Flaks says both hospitals can co-exist and serve the community.

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This 'attr(data-c-typename)' is related to: [Hospitals and Clinics](#), [Medical Procedures](#), [Hartford Hospital](#), [The Institute of Living](#), [Saint Francis Care](#)

Hartford Hospital Opens Bone And Joint Institute



"Like I'm running on the softest sand I've ever been on," says Terry Quinn as he demonstrates the Alter G, an anti-gravity treadmill, in the Center for Musculoskeletal Health at Hartford HealthCare's new Bone & Joint Institute at Hartford Hospital. The treadmill reduces the amount of gravity force on the lower body - in this case 70% - which allows patients to begin exercising much more quickly following hip or knee surgery, for example. Quinn is the New England regional manager for Alter G. On Tuesday afternoon, Hartford HealthCare unveiled its new \$150 million orthopedic center which will focus on both wellness and surgery. It aims to develop a reputation that will draw patients from all over New England and would compete with hospitals in New York and Boston. Hartford Hospital partnered with Orthopedic Associates of Hartford in 2013 to develop the institute. Orthopedic Associates has 30 orthopedic surgeons.



By **Kenneth R. Gosselin**
Property Line

NOVEMBER 15, 2016, 8:55 PM | HARTFORD

The curving surfaces of **Hartford Hospital's** \$150 million Bone and Joint Institute are intended to convey, if not a bit abstractly, the movement of the human body.

Those attending the opening of the institute Tuesday were asked to consider the two halves of the building — one side a hospital, the other for outpatient ambulatory surgery — to be like bones connected by a bridge over Seymour Street, which acts as a ligament.

"The idea here is that this evokes the idea of life in motion and also in some way simulates what a joint would do," Courtland Lewis, an orthopedic surgeon and the institute's physician-in-chief, said Tuesday. "So use your imagination."

The institute is the first major construction on Hartford Hospital's campus in decades and aspires to turn the hospital into a nationally known center for orthopedic surgery, rehabilitation and research. Hartford Hospital aims to develop a reputation so it can compete with recognized leaders in New York and Boston.

The hospital sees a growing market in aging, affluent baby boomers with failing hips and knees who want to keep active and can afford to pay for surgery to stay active as they enter old age.

The two-story, main lobby of the institute's in-patient hospital was showcased in a ceremony Tuesday marking the opening. A 16-screen, video wall to the right of the entrance displayed a serene day with trees at the height of fall color, an image that will change to reflect the seasons and the weather. A water wall to the left has water rushing from ceiling to floor.

Visitor attention is quickly drawn upward to an elevated walkway that crosses through the space with a glass wall alongside it decorated with stylized x-rays of joints. The motif is repeated outside in a glassed-in staircase facing Retreat Avenue.

The institute also aims to become known for its Center for Musculoskeletal Health. The center, the hospital says, combines state-of-the-art rehabilitation plus research on improving treatment options and education on how to avoid orthopedic problems all together.

An anti-gravity treadmill, for instance, will make it possible to start rehab earlier even when the patients still cannot bear weight on the affected joint.

Before Tuesday's opening, Terry Quinn, a regional account manager with the treadmill's manufacturer, Alter G, demonstrated how the machine works. Quinn stepped into a flexible plastic enclosure that reaches waist high and air is pumped in, increasing pressure as Quinn starts running.

"I'm 200 pounds, and I'm running as though I'm 40 pounds," Quinn said.

How does it feel?

"Like I'm running in the softest sand I've ever run in," Quinn said.

"With the tightest compression shorts," said Sean Gray, regional director for Hartford Hospital's rehabilitation network, who was observing the demonstration.

Construction got underway in late 2014 on the institute. The hospital's bone-and-joint specialty now occupies its own space but within the main hospital building.

The institute will allow health care to take a prominent place among other revitalization efforts in the city, attracting new companies seeking to collaborate with the institute, creating jobs and drawing visitors to the city, the hospital says.

While more than 300 packed the lobby for Tuesday's ceremony, Lewis said the vision for the space is to be one of calm, especially for the patients entering for surgery.

Lewis looks at the rate of flow in the water wall and indicates at least one tweak that must be made to achieve that vision.

"We have to slow the water down about 32 percent because its going a little fast," Lewis said. "We're going to calm it down a bit."

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This article is related to: [Hospitals and Clinics](#), [Hartford Hospital](#)