IBI LEARNING+

IBI GROUP **DEFINING THE CITIES OF TOMORROW**

IBI

It all begins with a spark of curiosity.

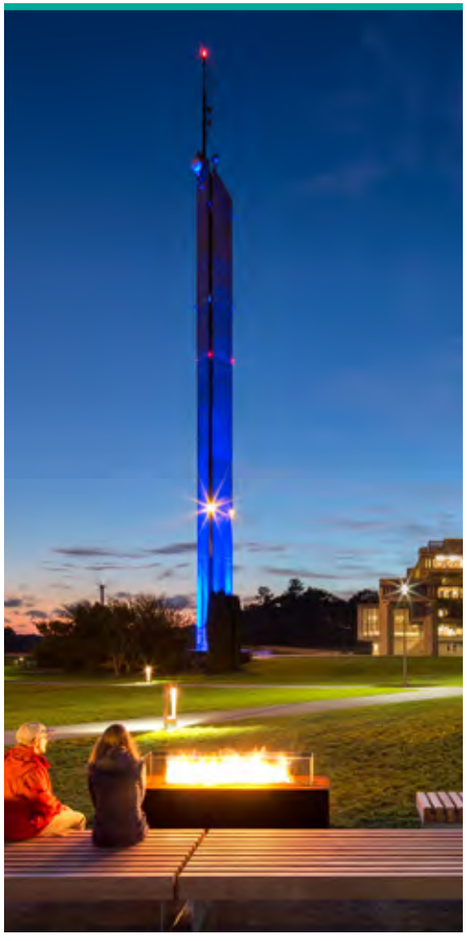
In today's society, nothing is more important than inspiring personal, self-determined learning within an individual. Sparking creative curiosity within learners of all ages is the highest goal for educators and designers alike. IBI Learning+ believes in creating dynamic environments that cultivate transformational teaching and learning.

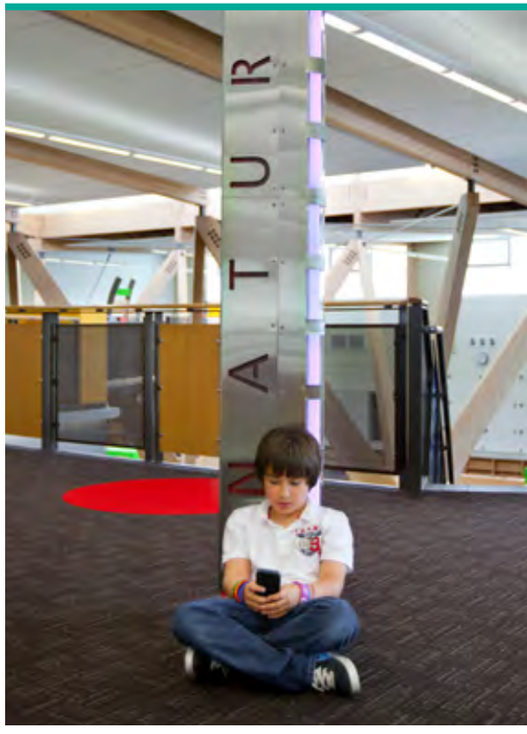
We believe in life-long learning.

Today's maker culture is proving that every year can truly be a wonder year for learning.

From the early years of pre-kinder education, to the years of post-doctoral research, we have become a creative society that thrives when we are constantly and consistently learning. This is why IBI focuses on creating environments, virtual or physical, that foster a commitment to life-long learning.

We connect pedagogy to design.





FOCUSED ON THE LEARNER

The learner is central to the education process. Shifting to personalized learning methods, the education system has been evolving to focus on creating flexible experiences that adapt to individual student needs. We believe space and place can encourage opportunities for individual exploration beyond primary learning spaces.

ENGAGED IN THE COMMUNITY

At the heart of every community is a learning institution. We see our work as an integral part of the greater regions we live in, and we are invested in creating environments that allow learners to thrive. By engaging in a deeply rooted community design process, we focus on bringing every voice to the table when creating new learning spaces.

DRIVING DESIGN INNOVATION

The next generation of learning environments is being formed by challenging the traditional school organization. Bringing systems thinking to every learning project, we believe in creating connections not just within the physical campus, but between both the physical and virtual campus as well.

At IBI, we bridge the gap between design and technology.

Technology is changing how learners engage with the built environment and what they expect from their education.

WHAT'S THE + IN LEARNING+?

We are living in the age of intelligent processes and artificial neural networks. IBI creates connected schools in order to provide equitable and ubiquitous access to data for parents, teachers, and students. With an expert knowledge of predictive analytics, Software as a Service (SaaS), and information exchange, we embed solutions into our design in order to create better learning experiences.

Data is driving learning.

With the evolution of e-learning, and 1:1 technology plans, big data is driving the improvement of educational systems.

The amount of data that lives within an educational building is truly endless. From building energy usage to absenteeism to benchmark assessments, the amount of information that can be tracked in order to help improve the learning experience deserves a purposeful planning process. Part of the educational data revolution centres on knowing what is the right data; however, understanding the right data is not necessarily about the "what," but about the "why" and the "how." We also recognize that data is a public trust and that learning institutions must preserve privacy and security at all times.

Good design is proven to improve educational outcomes for learners.

The experience of learning informs the impact on the individual.

Embracing change begins with understanding the core concepts of learning across multiple phases in life.

Children focus on social-emotional learning and foundational core principles in primary school. By learning how to interact with others, and fundamental concepts in core subject matters, students develop an established base for life-long learning.

In secondary learning environments, students will begin to crave autonomy and pathways to building brighter futures. Engaging this group requires a focus on solving big problems in creative ways utilizing multiple tools, if available.

Between those two stages of life is what is considered across the education system as the intermediate years. By engaging intermediate-aged children in technology, and starting a journey of fun, interactive, and immersive learning, teachers can bridge the lost gap between primary and secondary education.

When an education system focuses on these principles of primary and secondary learning, the transition to post-secondary and life-long learning is quite simple for students. It becomes natural for a learner to want to engage in next-level research in order to build upon curiosity that was sparked throughout an entire childhood of learning experiences.

Social-Emotional Learning

The cornerstone to creating a strong foundation for learning begins with an investment in social-emotional learning skills.

When pedagogy is approached in a holistic manner, students are given voice, choice, and control; thereby producing an authentic learning environment. Beyond teaching methodologies and curriculum, space and place play a unique role in fostering social and emotional learning skills for young learners. Helping augment an educator's lesson plans, a primary learning space can foster good stewardship and actually embed good behavior into every student. Social-emotional learning within a well-designed environment sparks the conscious. It allows for critical reflection. It is socio-culturally relevant and sensitive. A blend of indoor and outdoor learning is emphasized with specific attention to how a student can flow through both types of spaces in order to recognize their own significance within the ecosystem. Transformative learning emphasizes the journey of the individual learner, and allows them to take ownership of their own learning experience.

TRILLIUM CREEK PRIMARY SCHOOL WEST LINN, OR, USA AWARD WINNER GREEN PROJECT

COLUMBIA GRAMMAR & PREPARATORY SCHOOL – LOWER SCHOOL NEW YORK, NY, USA ✺ AWARD WINNER

GRACE ENGLAND EARLY CHILDHOOD/PRE-KINDERGARTEN CENTER HOUSTON, TX, USA

MABEL MATTOS ELEMENTARY SCHOOL MILPITAS, CA, USA

PRIMARY SCHOOL/INTERMEDIATE SCHOOL 314Q QUEENS, NY, USA

WOODBURN ELEMENTARY SCHOOL CAMAS, WA, USA

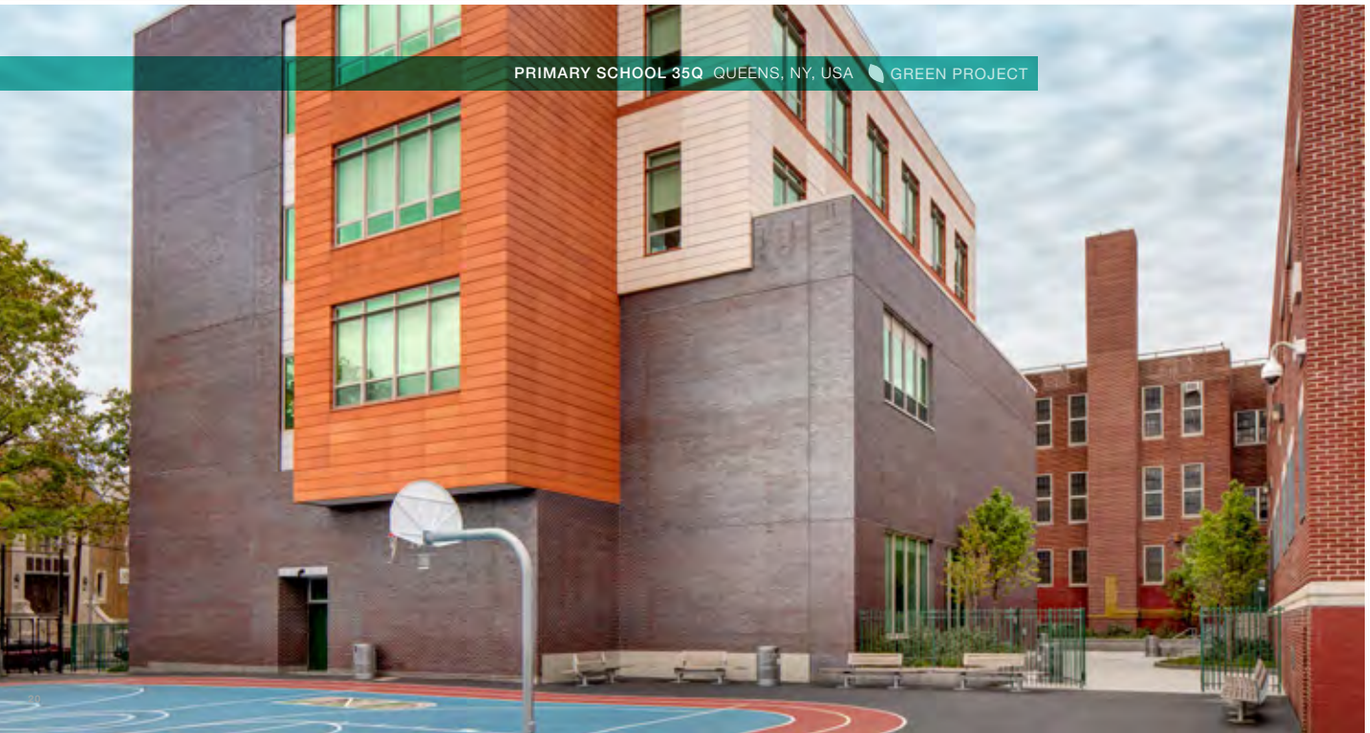
JIM & PAM WELLS ELEMENTARY SCHOOL CYPRESS, TX, USA

Photo by Bob Matheson

QUEEN MARY ELEMENTARY SCHOOL VANCOUVER, BC, CANADA GREEN PROJECT

MARY LYON ELEMENTARY SCHOOL TACOMA, WA, USA

LORD KITCHENER ELEMENTARY SCHOOL VANCOUVER, BC, CANADA GREEN PROJECT



PRIMARY SCHOOL 35Q QUEENS, NY, USA GREEN PROJECT

BLACKPOOL GATEWAY ACADEMY BLACKPOOL, ENGLAND, UK

Photo by Positive Img

Engaging Students in Tech

The middle years of learning are often considered the make or break years on the education continuum.

While students must be exposed to technology at early ages, the intermediate years are key to sparking inquisitiveness in technological innovation. Gen Z is defined as the touchscreen students of a new era, who have replaced foreign languages with coding languages. While it is easier to build a new school facility than it is to change an old one, technology offers a unique opportunity for designers to shift a learning culture in what is sometimes an older facility. IBI Learning+ reimagines learning environments in a way that is dynamic and flexible. Our goal is to always create a space where the building can operate as a teacher. By introducing exposed, colorful, electrical, and mechanical pipes alongside technology kiosks within hallways, teachers have an opportunity to take their lessons outside of the classroom to engage students in learning about real life matters in real time. By placing flexible furniture in learning spaces, all with technology options for connection, learners can move effortlessly throughout a space without sitting in rows of desks facing a lecturer. Dynamic learning requires that the built environment itself become dynamic, with flexible technology options at every students' fingertips.

COLUMBIA GRAMMAR & PREPARATORY SCHOOL – MIDDLE SCHOOL NEW YORK, NY, USA

THE ABRAHAM JOSHUA HESCHEL SCHOOL NEW YORK, NY, USA ✹ AWARD WINNER ✹ GREEN PROJECT

Photo by Paul Warchol

BLOCKER MIDDLE SCHOOL TEXAS CITY, TX, USA

DAVID ANTHONY MIDDLE SCHOOL CYPRESS, TX, USA

Teaching Autonomy

We believe in learning opportunities that do not provide students with a *one size fits all* path, but rather provide them with options to discover their own path.

The key word in "college- and career-ready" is *"and."* The current generation of students demands a new learning paradigm. The new paradigm must offer opportunities for work and real-life experience in the K-12 learning years; it must provide project-based learning to put theory into practice; and it must foster connections with the community at large. Highly motivated, fiercely talented, and sincerely engaged with the world around them, these students are forever re-shaping how educators and designers operate. To reinvent opportunity for these students, our job as educators and designers begins at recognizing the impact that three elements – space, pedagogy, and curriculum – each offer in cultivating creative curiosity for students. When holistically examined, these three elements cannot be separated from each other.

FRANKLIN HIGH SCHOOL PORTLAND, OR, USA

ULYSSES S. GRANT HIGH SCHOOL LOS ANGELES, CA, USA

SERVITE HIGH SCHOOL – FR. KEVIN FITZPATRICK AQUATIC CENTER ANAHEIM, CA, USA

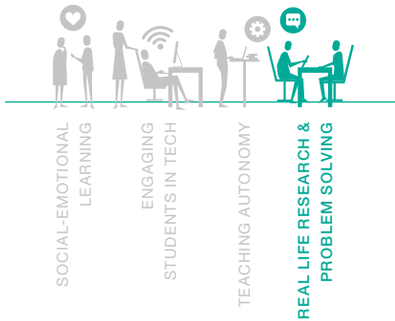
BRIDGELAND HIGH SCHOOL CYPRESS, TX, USA

DR. KIRK LEWIS CAREER & TECHNICAL HIGH SCHOOL HOUSTON, TX, USA AWARD WINNER GREEN PROJECT

JHF POLYTECHNIC HIGH SCHOOL – FRESHMAN CENTER SUN VALLEY, CA, USA

Real Life Research and Problem Solving

The transformative discoveries of the future will be found in different ways than in the past.



A challenge for universities today is how to innovate, rather than just invent. In the past, the glory of research was an individualized effort that rarely led to collaboration and team involvement. However today, there is a greater focus on teamwork and collaboration in research. Universities, in turn, are focusing on inter-disciplinary, project-based research and are in desperate need of new facilities to support this change. Learners are now consumers who bring funding with them when they attend university. Students want more than just value for money in terms of courses; they want opportunities for volunteering and social good as well as developing skills in critical thinking. In the context of this, the role of space and place is seen as more important than ever. The places in which people meet is where they collaborate in order to solve real life problems. From the campus level to each individual building on a campus, the key is to design spaces for inter-disciplinary collaboration located in cities where the population and policy-makers are actively engaged with the university community. Through the incorporation of hack spaces, incubators, foundries, cafés, and places for students and researchers to interact and collaborate, IBI Learning+ is creating a connected campus that fosters real life research and problem solving for learners.

Photo by Paul Ott

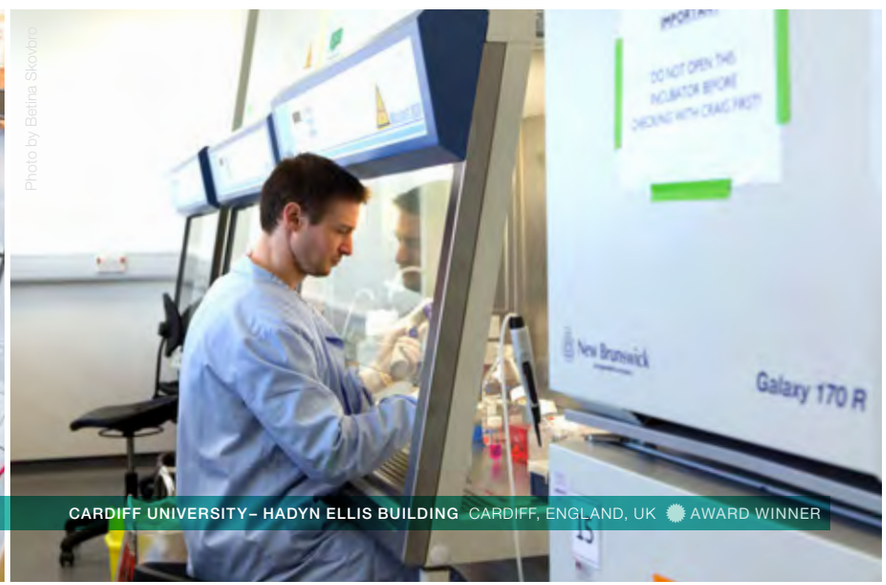
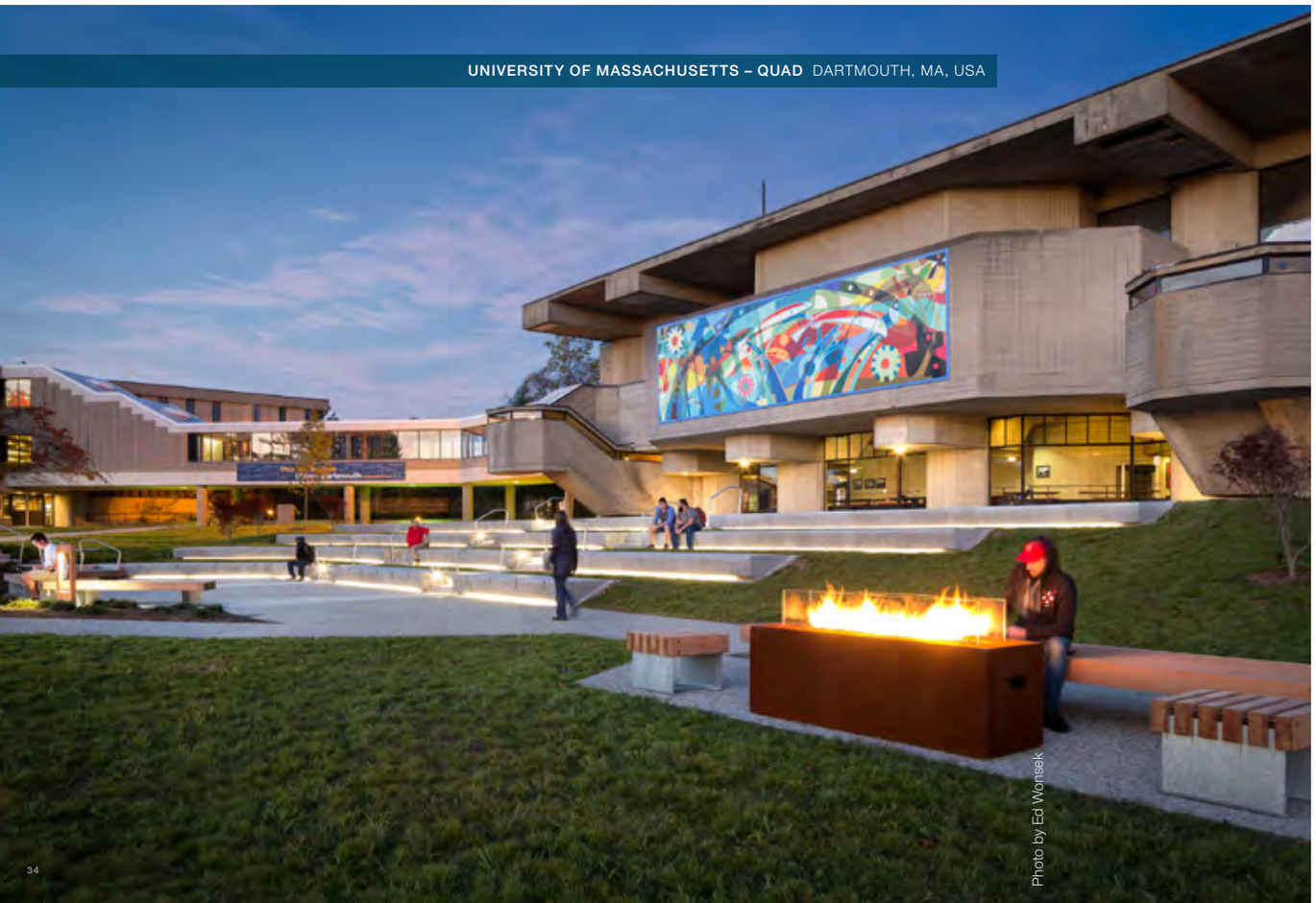


Photo by Betina Skovbro

CARDIFF UNIVERSITY– HADYN ELLIS BUILDING CARDIFF, ENGLAND, UK AWARD WINNER

BINGHAMTON UNIVERSITY – O'CONNOR & JOHNSON HALLS BINGHAMTON, NY, USA

SENSOR CITY LIVERPOOL, ENGLAND, UK

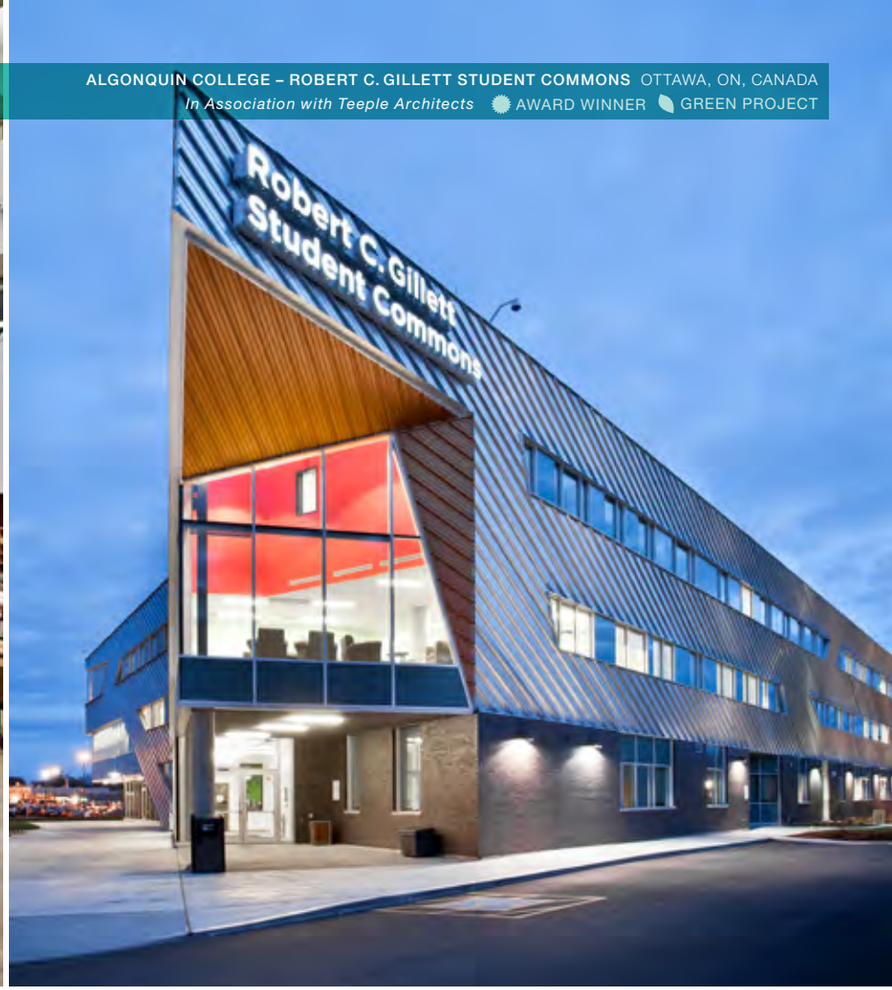


UNIVERSITY OF MASSACHUSETTS – QUAD DARTMOUTH, MA, USA

Photo by Ed Wonsek

UNIVERSITY OF OXFORD – OLD ROAD CAMPUS RESEARCH BUILDING
OXFORD, ENGLAND, UK *In Association with Make Architects* AWARD WINNER

ALGONQUIN COLLEGE – ROBERT C. GILLETT STUDENT COMMONS OTTAWA, ON, CANADA
In Association with Teeple Architects AWARD WINNER GREEN PROJECT



YALE UNIVERSITY – SCHOOL OF MANAGEMENT BUILDING NEW HAVEN, CT, USA GREEN PROJECT
In Association with Foster + Partners

Photo by Paul Warchol

CORNELL UNIVERSITY – HUMAN ECOLOGY BUILDING ITHACA, NY, USA AWARD WINNER GREEN PROJECT

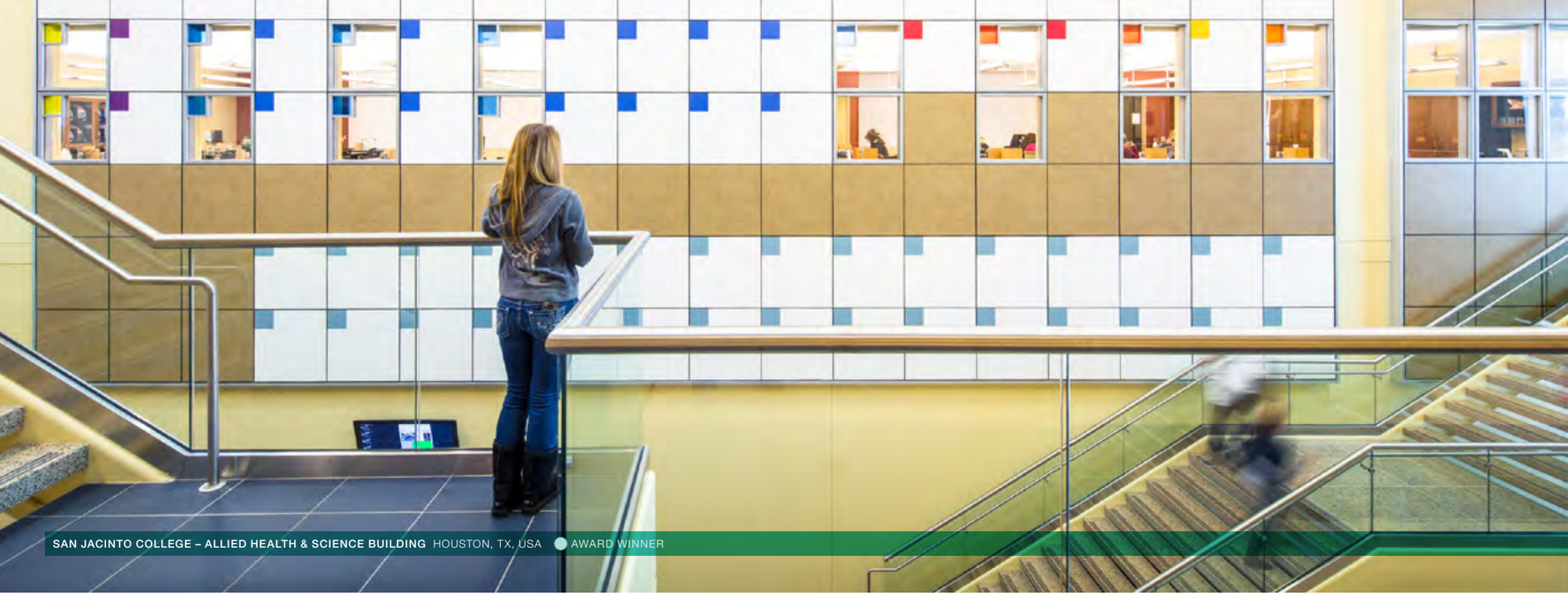
UNIVERSITY OF WATERLOO – APPLIED HEALTH SCIENCES ADDITION WATERLOO, ON, CANADA

COOPER UNION FOR ADVANCEMENT OF SCIENCE & ART – ACADEMIC & LABORATORY BUILDING NEW YORK, NY, USA *In Association with Morphosis*
AWARD WINNER GREEN PROJECT

CARDIFF UNIVERSITY BRAIN RESEARCH IMAGING CENTRE (CUBRIC)
CARDIFF, ENGLAND, UK AWARD WINNER

Photo by Betina Skovbro

UTC MEDIA CITY CREWE, ENGLAND, UK



SAN JACINTO COLLEGE – ALLIED HEALTH & SCIENCE BUILDING HOUSTON, TX, USA AWARD WINNER

SAN JACINTO COLLEGE – MARITIME TECHNOLOGY & TRAINING CENTER LA PORTE, TX, USA
AWARD WINNER GREEN PROJECT

TAMESIDE COLLEGE – ADVANCED LEARNING CENTRE & ADVANCED TECHNOLOGIES CENTRE
MANCHESTER, ENGLAND, UK

Invested in Transformation

IBI TH!NK is responsible for encouraging, capturing, and developing the intellectual capital vested in IBI Group's projects, people, and processes.

Transformation begins when educators come together to create change for the best interests of their communities. We've seen this change manifest in custom solutions such as pre-kindergarten centers, dual enrollment offerings, university online courses, and urban schools located within innovation districts, just to name a few. Being truly invested in transformation, our team brings a depth and breadth of global project experience to our own local communities in order to create unique learning opportunities for students.

Next generation learning is holistic, humanistic, and transformative.

Immersive learning environments have arrived. Infusing technology solutions into our education buildings not only helps shift teaching cultures, but it also impacts learning outcomes for students. Moreover, the need for educational buildings to be resilient in today's world is of the utmost importance; this is especially true for all coastal cities. This is why we are looking beyond the next generation learning environment, and exploring what it means to truly see learning as something that happens everywhere.

TAKING LEARNING ON THE ROAD

Autonomous vehicles have the power to help shift and change educational delivery models. Alongside our Mobility+ team, IBI Learning+ is engaged in research to deepen our understanding of the effects of Connected and Autonomous Vehicles (CAVs) on education. Taking the flipped classroom on the road, how can CAVs integrate augmented reality to provide an enhancement to student engagement and understanding? Our team is working to strategize toward the CAV future, and how this will impact school land usage, equity, and learning in our cities.

HEALTHY LIVING AND LEARNING

Building a knowledge society starts with a holistic understanding of the individual learner and circumstances each person may face throughout a lifetime. Extraordinary circumstances have the power to prevent learning from taking place. However, in the connected world we live in today, this should not be the case. It's no shock that tele-health solutions have begun to revolutionize the healthcare industry, but what could this look like for education? IBI Learning+ is exploring learning in a variety of settings, including our homes and hospitals, in order to create opportunities for every student, no matter what they are facing in life. Working alongside our Living+ and Healthcare+ teams, we are strategizing a resilient, connected future that truly enables learning to happen everywhere.

Industry Advancements by IBI Learning+

CLEVER CLASSROOMS RESEARCH

In collaboration with Salford University and facilitated by the support of Blackpool Local Authority, our team explored if school building design has demonstrable impacts on the learning rates of students in primary schools. This pilot study extends our understanding of the impact of the built environment on learning.

The study has provided promising results indicating that the classroom environment has a significant impact on academic progress. Initial findings highlighted six of ten key factors which are related to both design and the use of the classroom. Most of these could equally relate to refurbishment projects and new builds, resolving existing problems with limited available budgets.

Interpreting the findings in terms of the design process and the considerations at different stages will help designers and schools alike. This interpretation by IBI THiNK forms the basis of a toolkit to support design decisions throughout a project, as well as help teachers understand how to make the most of the space at their disposal.

4 LABS 4 CITIES

Science facilities are substantial investments for higher education institutions. They are places that support teaching and learning at the highest level as well as enable scientific advancement. Our team developed a comparative study to better understand the impact of the facilities used to support the science faculties, so our design teams, as well as our clients, have an evidence base to refer to before investing large sums of money on development.

4 Labs 4 Cities is a comparative analysis of four high-end research and development laboratory facilities in four different cities. The benefit of an international sample is an opportunity to draw out international similarities and differences. The purpose of this comparison of four contemporary higher education laboratory buildings is to start to remedy this lack of information. The data presented will inform potential clients and allow them to evaluate their future investment decisions.

Fig. 1

The aesthetics of the building are important in the recruitment and retention of staff.

Fig. 2

It is beneficial to be able to alter your work environment to meet changing needs.

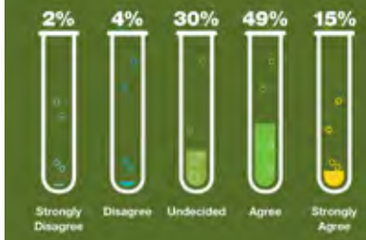
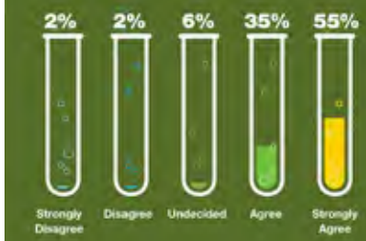


Fig. 3

The spatial arrangement of offices, lab and support space have an impact on your working method.

Fig. 4

A view outside is valuable to you.



STUDENT HEALTH DESIGN ANALYSIS

RESEARCH AND ANALYSIS

- STRESS
- ANXIETY
- COLD/FLU
- SLEEP DIFFICULTIES
- DEPRESSION

INFLUENCING FACTORS

- SOCIAL INTERACTIONS
- PHYSICAL ACTIVITY
- ELEMENTS OF NATURE
- FAMILIAR ENVIRONMENT
- SAFETY
- DIET

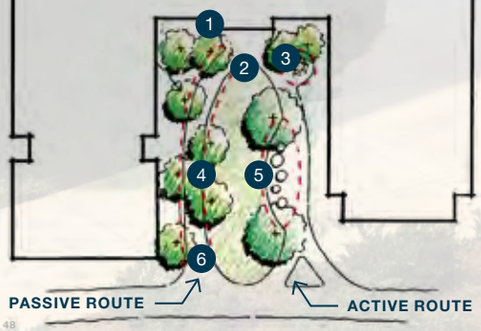
DESIGN RECOMMENDATIONS

- OPEN SPACE
- PLANTING/GARDENS (COLOUR, FRAGRANCE, SHADE)
- COURTYARDS (VARIOUS SIZES)
- STREETSCAPE (SHADE)
- TRAFFIC CALMING
- LIGHTING (DAY AND NIGHT)
- FLOWING WATER (NOISE)
- CONNECTIVITY (WALKING AND BIKING)

OUTCOMES

1. Vegetation and natural elements improve cognitive function, concentration, and reduce depressive mood and aggression.
2. Green space creates pleasant/calming views, a framework for social spaces, and hardscape connections.
3. Small gathering spaces give intimate space for social interactions or meditation, and can reduce stress.
4. Trees provide shade along the path. This encourages walking and protects from harmful UV rays.
5. Medium gathering spaces are for small numbers of students and informal gathering/socialization.
6. An alternate route without gathering spaces can reduce stress.

TYPICAL HEALTHY COURTYARD



Research-led Innovation

THERAPEUTIC LANDSCAPES AND NATURAL BENEFITS

IBI's planning and landscape architecture practice partnered* on a new process called the Health Design Assessment™ (HDA). The HDA is a process that examines both quantitative and qualitative local health data, and then interprets this data to guide planning and design decisions. Using the HDA when planning for built environments has the potential to mitigate negative health issues for people interacting within the space. The HDA has also been utilized to pursue certain health-related grants and funding options for universities.

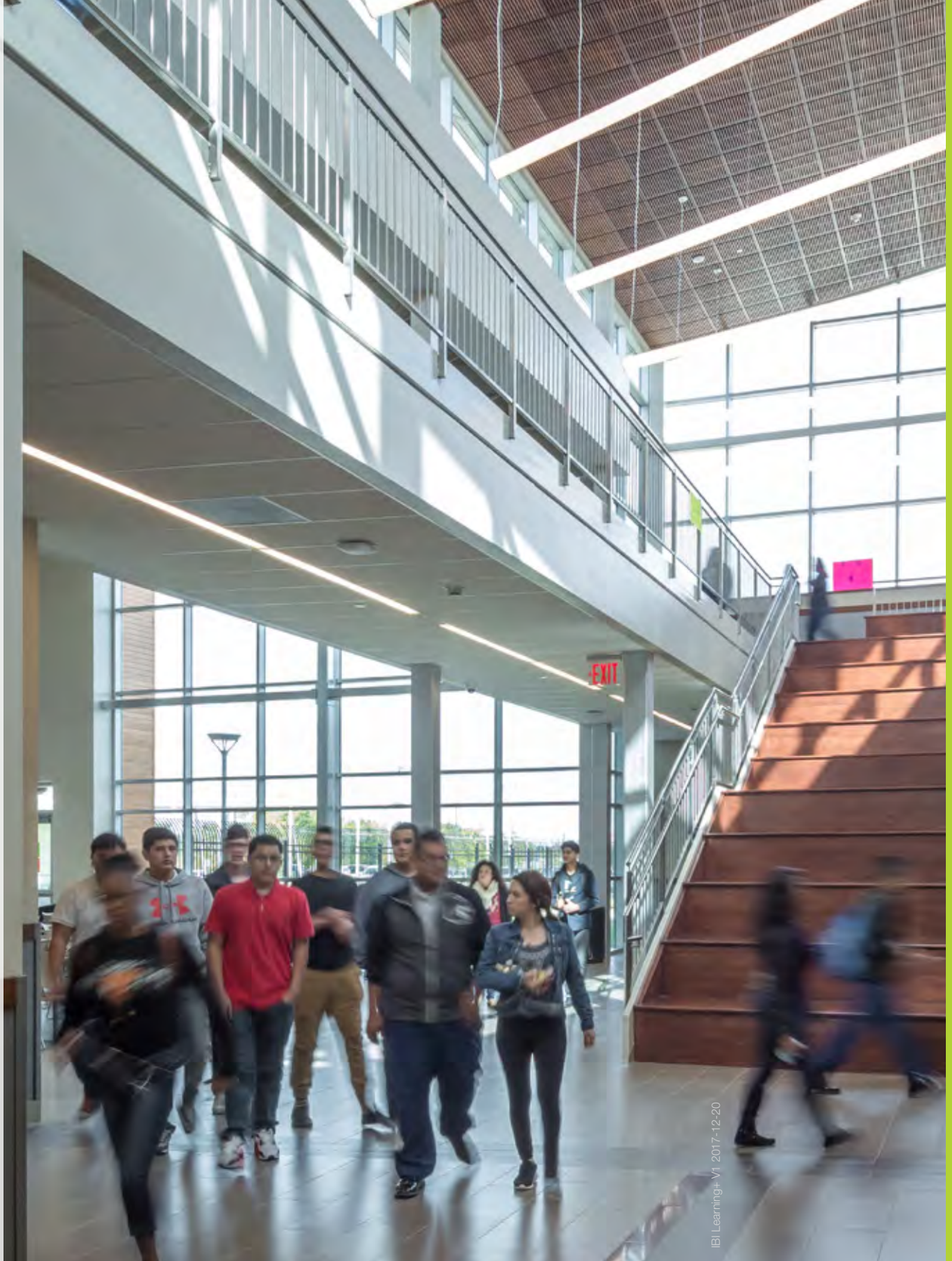
*with Planning4Health Solutions

‘Smart’ is no longer a buzzword, but a requirement.

IBI creates smart cities. As part of the broader IBI expertise, we use our multi-disciplinary subject matter experts to design Smart Schools and Smart Campuses that share data and information with public safety, transportation, and utilities, as well as the students, parents, and community at large.

Security and sustainability are key elements to creating a Smart Campus. These connected campuses can take CCTV and Building Access Control Systems to the next level by allowing educators the opportunity to discretely indicate security concerns and provide video and audio of problems to security and public safety as needed. In a Smart Campus, video from anywhere on the grounds can be sent directly in real-time to police, fire, and emergency personnel. Further, for school systems trying to reduce operating costs, remote management and monitoring is used for the utilization of electricity, water, gas, and other utilities.

IBI is working to provide efficient, effective, safe, and sustainable learning environments that are smart and connected to the wider community.



IBI Learning+ is a centre of excellence within IBI Group focused on shaping next generation learning environments that inspire life-long learning.

IBI Group is a global team of dedicated and experienced architects, engineers, planners, designers, and technology professionals who share a common desire – to help our clients create livable, sustainable, and advanced urban environments.

IBI has over 60 offices located in major urban centres across North America, the Caribbean, Europe, Middle East, and Asia.

SECTORS

INTELLIGENCE
SOFTWARE
SYSTEMS DESIGN
SYSTEMS INTEGRATION

BUILDINGS
ARCHITECTURE
INTERIOR DESIGN
MECHANICAL, STRUCTURAL, AND ELECTRICAL ENGINEERING

INFRASTRUCTURE
CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
PLANNING
TRANSPORTATION
URBAN DESIGN

IBI LEARNING+

GLOBAL LEAD

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