

THE HIVE

GOALS

FLEXIBLE

To accommodate to a variety of different students' needs within a space

SUSTAINABLE

To gain and maintain responsibility of the environment

DIGITAL

To get involved with or relate to the use of computer technology

UNIVERSAL

To require a space accessible to everyone

COLLABORATION

To stimulate the growth of knowledge among students in order to trigger intriguing and innovative ideas

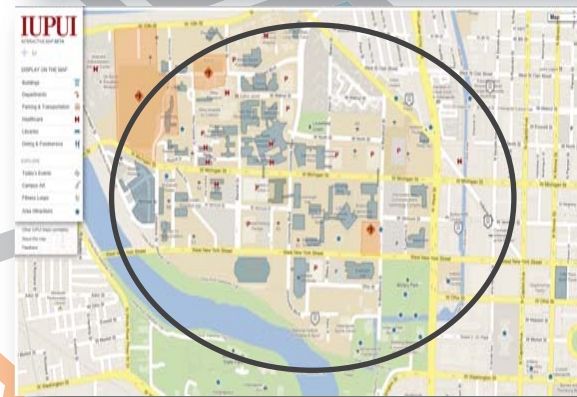


FIGURE 1.1



CONCEPT

Inspired by a beehive, the new design of the learning space is structurally strong, functional, and promotes connection and collaboration. The sophisticated complexity of the design portrays the beehive's organization and unity by including its elements within the layout, floor, walls, and ceiling. Each section within the learning space has its own functions and characteristics, but as a whole it can be transformed into one unified, functional space. The furniture, lighting, and materials selected comply with LEED, GREENGUARD, and SMaRT standards, which optimize material efficiency, reduce the amount of energy, and minimize waste. The overall design of the space gives the students an informal learning experience focused on flexibility, innovation, and interaction.

RESEARCH

Indiana University-Purdue University Indianapolis (IUPUI), located in the metropolitan city of Indianapolis, Indiana, is known for their innovative research. The university has over 100 research centers and receives over \$400 in grants and awards for research funding. There are 22,100 undergraduate students and 8,200 graduate and professional students enrolled at IUPUI. The University offers housing for only 1,107 students and has more than 250 degrees from 21 schools (IUPUI, 2012). Because there are so many different majors and such a large commuting student population, IUPUI is a prime candidate for an innovative, flexible, and functional space. Figure 1.1 shows the site plan of IUPUI's main campus (IUPUI, 2012).

There is a growing trend in higher education to revitalize the learning environment. An article, Paradigm Shift: How Higher Education is Improving Learning, states that the structure of a college must undergo a paradigm shift from being an institution that provided instruction to students to an institution that provided learning to students. The formal structure of a traditional classroom needs to be challenged and the teacher-student relationship needs to change (Education Unit, 2010). Terry O'Banion, a contributor to the literature of change, explains educational institutions' four main limitations. Firstly, there are too many restrictive codes, procedures, state master plans, and budgets that dictate the outcome of the institutions. Secondly, professors spend too much time isolated within one classroom, lecturing their students. Thirdly, universities and institutions are time-bound, set on strict 50 minute class rotations, with professors trying to cram as much into the allotted time slot as possible. Lastly, universities and institutions are place-bound, where students spend a majority of their time learning in facilities that are not flexible, comfortable, or accommodating (Education Unit, 2010). It is believed that the formal education; listening, reading, taking notes, and taking exams; is not effective. Informal education; collaboration, peer interaction, mentoring, reflection, and coaching; moving away from the traditional structure of a classroom, will lead to academic success (Education Unit, 2010).

Students want a space that allows them to engage and collaborate with one another, which in turn will improve the overall learning environment. What were once afterthoughts in the design process: layout, functionality, flexibility, technology, lighting, acoustics, comfort, and adaptability, now need to be the focus when designing a space. (Education Unit, 2010). Studies show that signage, landscaping, architecture, and the physical environment influence students' feelings within the classroom. We can address these overlooked issues by including design characteristics such as glass walls, virtual environments, and reconfigurable tables and chairs (Barseghian, 2010). There is also an emphasis on color in the classroom. Color has an effect on students and their behavior. Research suggests that blues and greens tend to foster relaxation, while shades of red or orange tend to induce activity (Hathaway, 1982). Classrooms should incorporate a variety of colors; based on age, gender, subject, and activity to reduce monotony and visually refresh perception. Visual stimulation actually rewires the brain, making stronger connections, promoting visual thinking, problem solving, and creativity (Daggett, 2008). A renovation project, in the College of Estrella Mountain, transformed traditional classrooms into "learning studios," featuring ergonomic furniture, wireless technology, mobile teaching stations, wall writing areas, and informal learning spaces. With the ability to reconfigure the spaces so easily, this movement from classrooms to studios has begun to grow throughout other universities (Education Unit, 2010). The overall goal is to introduce a new, universal classroom design that will emphasize a flexible, mobile space that highlights virtual environments, collaborative learning, functionality, accessibility, and sustainability.

References (APA)

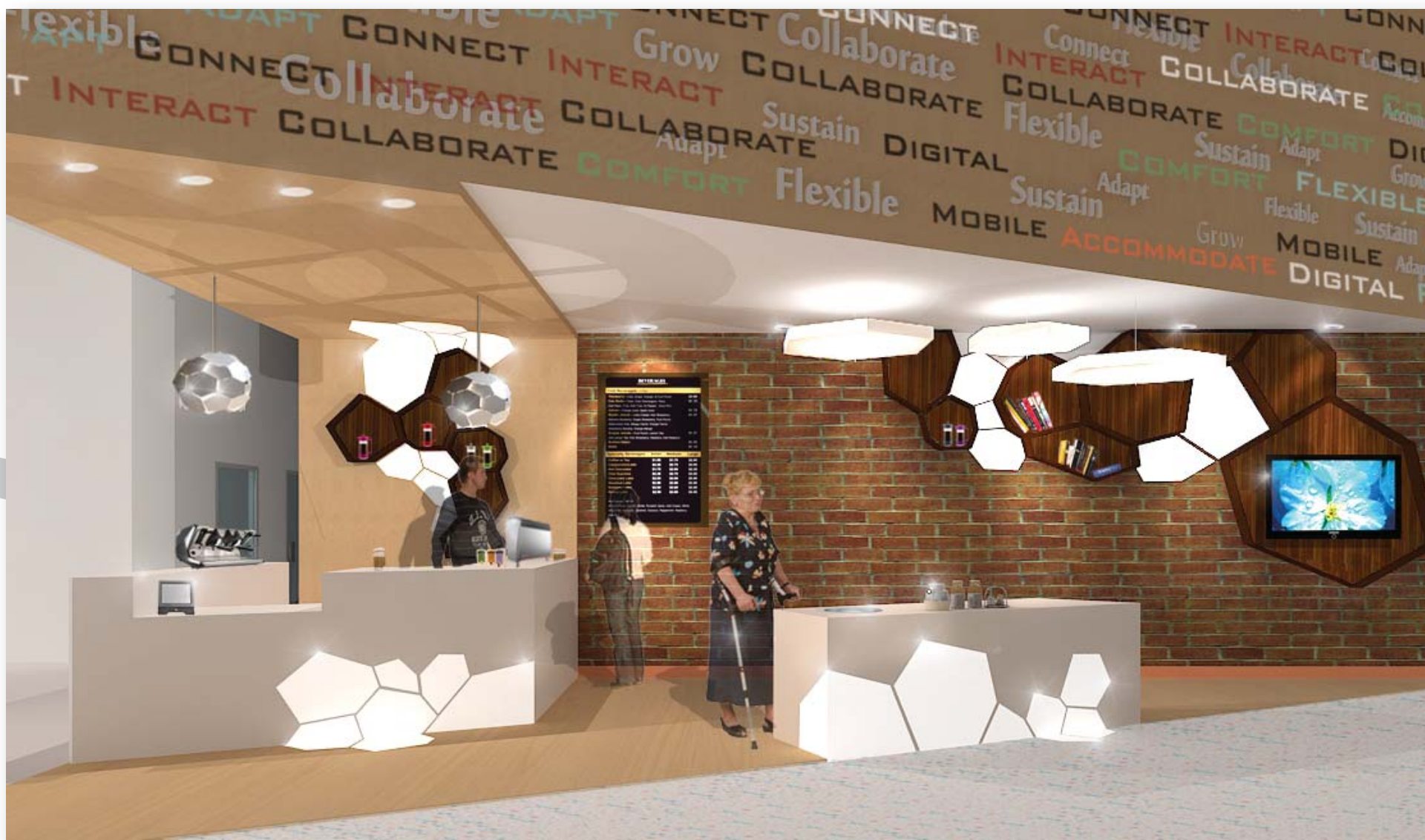
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CLASSROOM PERSPECTIVE



THE HIVE FLOOR PLAN

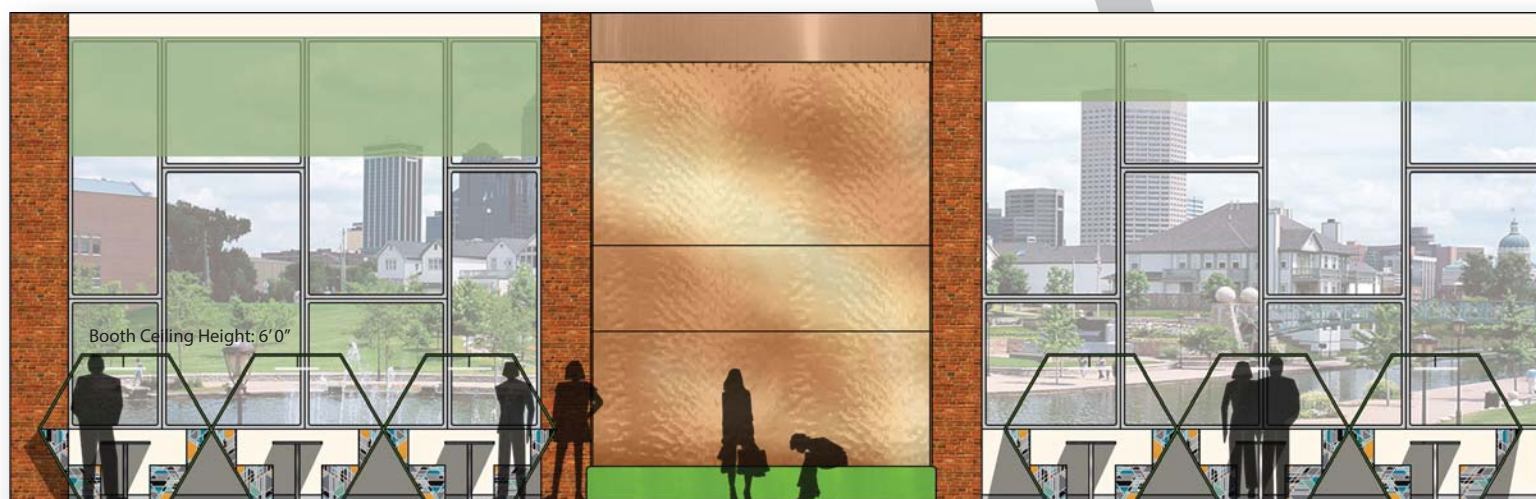
SCALE: 1/16" = 1'-0"



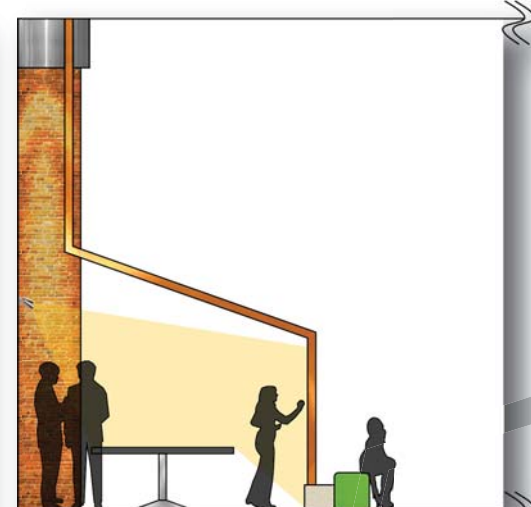
CAFE PERSPECTIVE



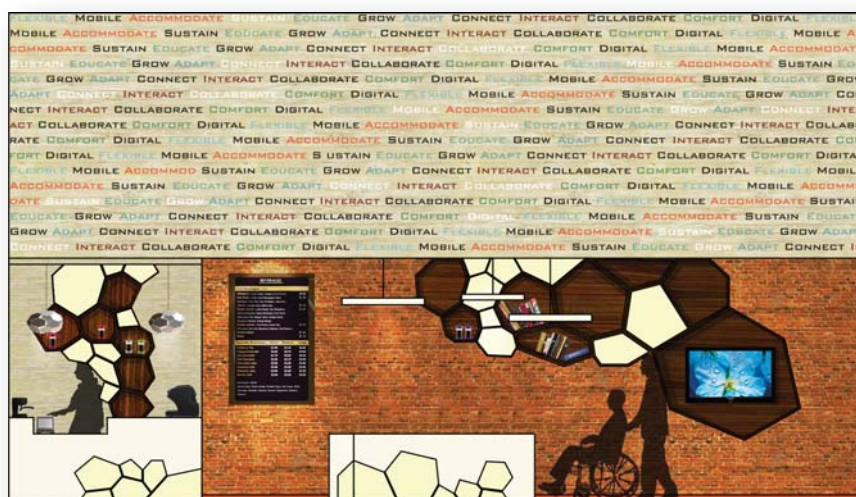
FURNITURE AND MATERIALS



SOUTH SIDE ELEVATION
SCALE: 1/8" = 1'-0"



WATERFALL/GROUP STUDY ELEVATION
SCALE: 1/8" = 1'-0"



CAFE ELEVATION
SCALE: 1/8" = 1'-0"



CLASSROOM GLASS WALL ELEVATION
SCALE: 1/8" = 1'-0"

- 1 **Knoll: Sapper XYZ & ReGeneration** Designed to support focus by one person, or teamwork collaboration for up to 6 people; BIFMA level 3 certified, GREENGUARD Indoor Air Quality Certified and GREENGUARD for Children & SchoolsSM certified, and contribute to achieving LEED credits for Commercial Interiors, New Construction and Existing Buildings
- 2 **Kimball Office: Fit Chair** Designed for collaboration and conversation; 100% of all Kimball Office manufactured products are ANSI/BIFMA level 2 or 3 Certified
- 3 **Herman Miller: Embody Chair** Designed to reduce stress, by keeping you in a balanced posture so you stay relaxed and focused; the embody chair is made with only renewable energy and is 95% recyclable
- 4 **Izzy: Clara Table** A human centered design that encourages a new, collaborative workstyle; certified for Indoor Advantage Gold: Indoor Air Quality Certified to SCS-EC10.2-2007
- 5 **Herman Miller: Setu Chair** Setu chairs are manufactured using 100% green electrical energy from wind and captured landfill off-gassing; made with 42% recycled materials and is 93% recyclable overall
- 6 **Knoll: Toboggan Chairs, Universal Power Collection and Sapper 50** Designed as sled based flexible, collaborative chair; GREENGUARD Indoor Air Quality Certified® and GREENGUARD Children & SchoolsSM Certified as well as BIFMA level 3 Certified, and contribute towards LEED certification; using recycled materials and is 93% recyclable overall
- 7 **Herman Miller: SAYL Chair** Set bar for performance, ergonomics, quality, and appearance, adapting to each person's unique shape; lightweight chair that is 93% recyclable
- 8 **Izzy: Dewey Help Desk** Designed as a collaborative space, containing many features to assist the user, it can be used for individual study or used for group discussion; GREENGUARD Indoor Air Quality Certified, GREENGUARD Children & SchoolsSM Certified, BIFMA level 3 Certified, and contribute to LEED certification; 93% recyclable overall
- 9 **Izzy: Dewey Table** Designed as a collaborative space, containing a dry-erase board surface, it is geared towards group study; GREENGUARD Indoor Air Quality Certified, GREENGUARD Children & SchoolsSM Certified, BIFMA level 3 Certified, and contribute to LEED certification; 93% recyclable overall
- 10 **NunoErin: Interactive Diamond Bench** Seating that offers an interactive light experience, responding to the electrical fields of the human body; top surface of bench is 40% recycled content and features a renewable finish
- 11 **Edra: On the Rocks** Composed of four irregularly shaped elements, providing for comfortable, casual seating for students in the lounge area
- 12 **Patcraft: Hue Modular Carpet 10296 Tangerine 00600, Hume 00110, Bali 00400** Orange, beige, and blue carpet tiles; 100% solution dyed, 100% sustainable, non-PVC tile backing system, EcoWorx was awarded the Presidential Green Chemistry Award by the Environmental Protection Agency (EPA) for its environmental and performance benefits, and contribute towards LEED certification
- 13 **Wausau Tile: Terrazzo TG2249** Mix of white with clear, turquoise, and orange recycled glass; Wausau products focus on conserving, recycling and reusing materials and resources, can contribute towards LEED certification
- 14 **Armstrong: Standard Excelon Imperial Texture 51813 Pumpkin Orange, 51803 Pearl White, 57506 Colorado Stone** Orange, beige, and blue VCT; contribute towards LEED certification scoring an EQ Credit of 4.3 - Low-emitting Materials, a MR Credit of 4.0 - Recycled Content (10% or 20%), and a MR Credit of 5.0 - Local/Regional Materials & Sourcing
- 15 **JSI: Surface Finish Blonde Echo** GREENGUARD certified, uses DuraTexPLUS which is an anti-microbial product protection added directly to the DuraTex low-emissions finish, reduces hazardous emissions, and can contribute towards LEED certification
- 16 **Maraham: The Firm 003 Unique** Application-Seating Fabric; contributes to LEED MR Credit 6-Rapidly Renewable Materials, contributes to LEED IEQ Credit 4.5-Low Emitting Materials, Systems Furniture and Seating, contributes to LEED HC MR Credit 5-Furniture and Medical Furnishings, and Greenguard and Greenguard Children & Schools Certified
- 17 **3form: Struttura Float Large Sea, OJ, Moss** Wall partition with blue, orange, and green colored transparencies, including magnetic and markerboard finish on both sides; member of the USGBC and materials can contribute towards LEED-certified commercial buildings
- 18 **HUVCO: Daylighting Solutions, Parans Optical Cable and Luminaires** Fiber optic cable made of thin fiber optic strands transmitting natural sunlight far into the building; can contribute towards LEED certification
- 19 **Proven Winners: Fiber Optic Grass** Contains 10"-12" clumps with fine hair-like blades that terminate with a slight inflorescence, resembling those fiber optic lamps; can contribute towards LEED certification

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