The challenge for the IPRO collaboration space is not just to provide improved collaboration solutions but also to support students visions and work habits while transitioning them to new and constantly evolving ways of performing.

Problem & Purpose

•IIT IPRO teams have been scattered throughout classrooms and buildings with no real collaboratory space to call their own.

•The disjointed nature of the IPRO program creates a inefficient workplace environment which lacks resources and hinders team progress.

•A collaboratory space is needed for teams to work and as a showcase for interdisciplinary teams to show their accomplishments.

•Having this space will provide a more productive and efficient workspace for a program which helps define IIT as a university.

•The purpose of IPRO 301 (I.D.E.A.S) is to inspire and create a vision of what could be in an IPRO collaboratory center.

History

"Provide IIT students with an exemplary experience in making contributions as a part of a high performance multidisciplinary team by applying professional methods in a rigorous fashion to develop viable solutions that create value."
-Mission of IPRO Program-

•.The Interprofessional Projects (IPRO) Program was adapted by IIT in 1995 to instill the importance of teamwork and communication across various disciplines.

•Over the years, IIT has labeled itself as "The Interprofessional University" requiring all IIT students to take IPRO courses as a graduation requirement due to the benefits seen from the program's unique learning experience created from the boundless interaction among various professions.

Semester Organization

RESEARCH

Investigating IIT and facilities that support programs like IPRO at other universities.

ANALYSIS

Determining from the date gathered what should be done at IIT.

CONCEPT DESIGN

Creating an ideal solution to the problem and adapting two existing options.

PHASE ONE
Research

IIT

Facilities
Julia Valadez (Captain)
Gergana Horozova
Jessica Workman

Information Technology
Joel Cornelius

Educational Philosophy
Vito Natale

Business
Aaran McEneff
Farar Hussain

NORTHWESTERN

Facilities
Kai Hansen
Ruben Robledo

Information Technology
Kristin Lucchessi

Educational Philosophy
Kevin Krupp (Captain)

Business
Philip Brierley

PURDUE

Facilities
Dennis Radtke
Mihee Choe
Tim Phillips

Information Technology
Edward Scanlon (Captain)

Educational Philosophy
Mehrdad Nikamalfard

Business
Alexis Laurence

Research Methodology

Educational Philosophy
Investigation of the ideologies and core values of each program, their vision and history, the student experience, and curriculum.

Business Model
Costs and methods of conducting business as well as the organizations that each program incorporates itself with.

Information Technology
Management of both physical and digital data as well as policies on intellectual property rights, green technology, and web-based applications.

Facility Architecture
Drawings, photographs, and important architectural information about individual spaces and how the architecture itself serves to physically represent the program's ideals.

Facility Program
List of all spaces, square footages, and the way they interact with each other to create an effective learning environment.

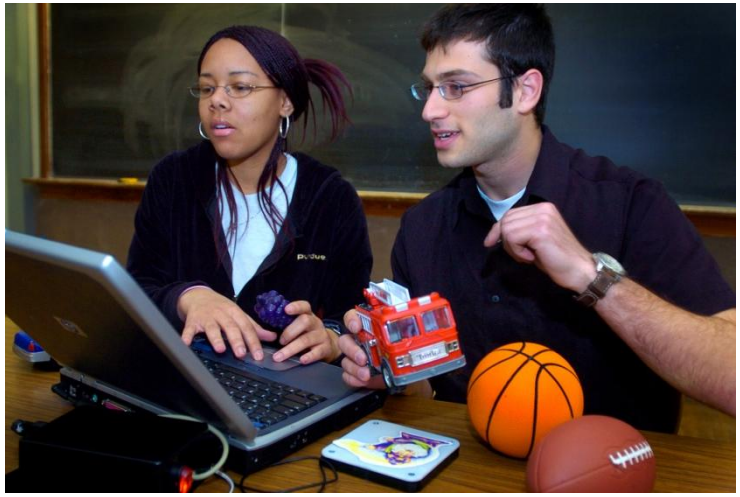
EPICS®

NORTHWESTERN UNIVERSITY QUAECUMQUE SUNT VERA 1851

IPRO It takes a team!
INTERPROFESSIONAL PROJECTS PROGRAM

Research Methodology

- Site Visits- Purdue University
  - Northwestern University
  - IIT
- Document Study
- Photos
- Interviews
- Surveys
- Field Study- 3424
  - Machinery Hall



Northwestern University
Segal Design Institute and the Ford Design Center

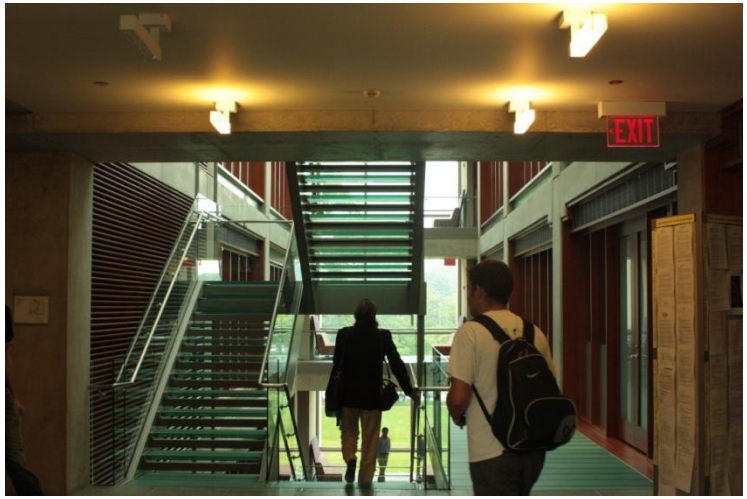
Educational Philosophy
- "Engineering: The creation of 'things' that improve people's lives."
- Integration of writing and presentation skills.
- Stress the need to eliminate traditional departmental boundaries, and focus on integration.

Business Model
- $30 million initial investment.
- Staff: Average $60,000 per staff member + 60% in indirect costs and benefits.
- The university has the first right of refusal for selling/buying rights.

Information Technology
- Students, Northwestern University, or federal government own intellectual property rights.
- Qualified students have access to the McCormick Prototyping lab and resources 24/7.
- Integrated Green Technology with an emphasis on energy consumption and quality of the indoor environment.

Northwestern University
Segal Design Institute and the Ford Design Center

Program Division	Area (nasf)	Total Priority Area	Schematic	100%DD
1. "DIRTY" SPACES				
1.1 Shops	5,310		5,050	4,935
1.2 Fabrication/Assembly	2,400		2,160	2,160
Subtotal		7,710	7,210	7,095
2. "WET" SPACES				
2.1 Gen. Purpose Wet Lab	1,750		1,895	1,895
Subtotal		1,750	1,895	1,895
3. "CLEAN" SPACES				
3.1 Classroom Studio	4,650		4,715	4,420
3.2 Design Study	2,400		2,300	2,400
3.3 Specialized Support	2,270		2,475	2,310
3.4 MMM	1,960		1,730	1,730
Subtotal		11,280	11,220	10,860
4. "VIRTUAL" SPACES				
4.1 Design/Learning	1,400		1,415	1,415
4.2 Computer Science Dept.	9,610		8,960	8,960
4.3 Computer Science Research	7,039		6,050	6,050
Subtotal		18,049	16,425	16,425
5. UNASSIGNED MCCORMICK				
5.1 Office / Support	2,331		1,335	1,335
Subtotal		2,331	1,335	1,335
6. ITI Spaces				
6.1 Offices / Support	800		825	825
6.2 CE Offices	420		420	240
6.3 Support	265		185	250
6.4 "Flexible" Research	995		785	1,035
6.5 Shop Space	550		410	490
Subtotal		3,030	2,625	2,840
7. MISCELLANEOUS				
7.1 Common Spaces	2,030		1,985	2,035
7.2 Building Services	1,685		1,105	1,420
Subtotal		3,715	3,090	3,455
TOTAL NSF		47,865	43,800	43,905
TARGET NSF		40,000	40,000	40,000
OVERAGE		7,865	3,800	3,905
Gross Square Foot at 1.5 net		71,798	65,700	65,858



Gross Area: 65,700 SF
Students: 600

Northwestern University
Segal Design Institute and the Ford Design Center

Floor:

3

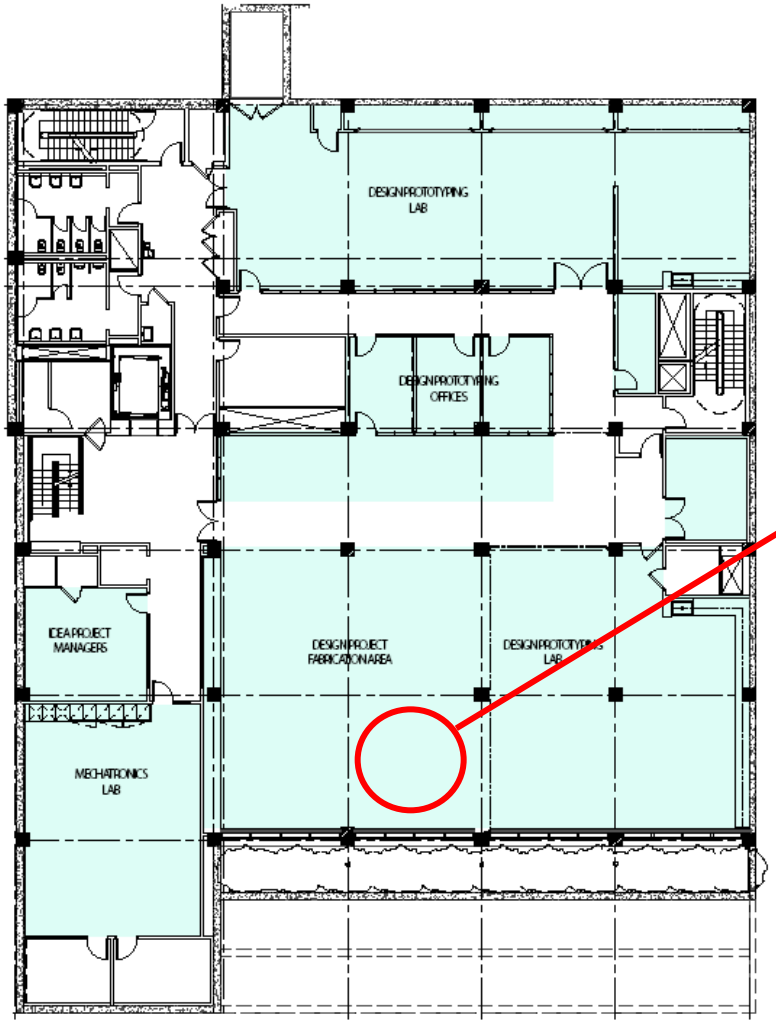
2

1

0

-1

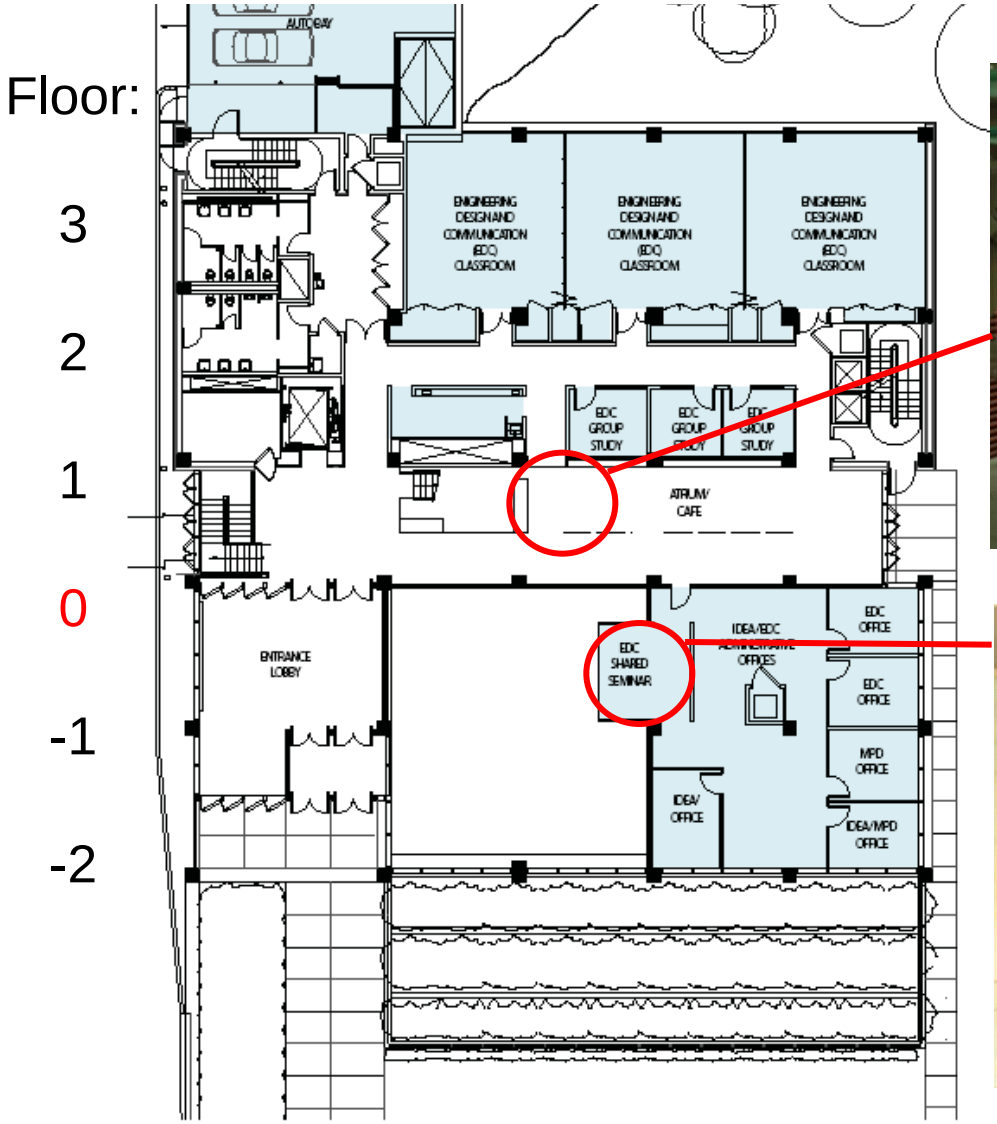
-2



Design & Prototyping Labs

- Available 24hrs per day
- Access to rapid Prototyping, CAD, and CNC facilities.
- 3 Permanent Staff Members
- 2-3x Height Spaces

Northwestern University
Segal Design Institute and the Ford Design Center



Northwestern University
Segal Design Institute and the Ford Design Center

Floor

3

2

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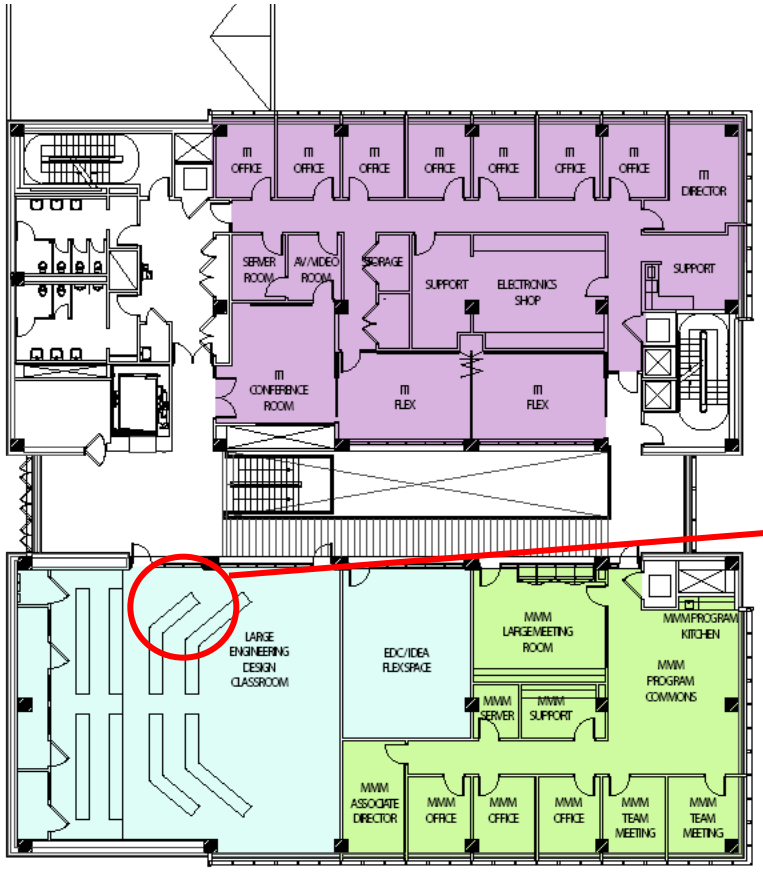


Large Design Classroom (Lecture Hall)

- Projector and White Screen

-Video Conferencing Capabilities

-Seats 70

Purdue University
EPICS: Engineering Projects in Community Service

Educational Philosophy

-Solve engineering based problems for local community service and educational organizations.

-Currently 30 majors in this program today.

-Based on students' needs while providing a unique learning experience.

Business Model

- $53.2 million

-$1,731,883 yearly operating costs

-Funding: Federal Grants, corporate funding, endowments, and alumni contributions.

Information Technology

-The university owns all intellectual property rights

-Not very high tech

-Customized web application for team organization and communication

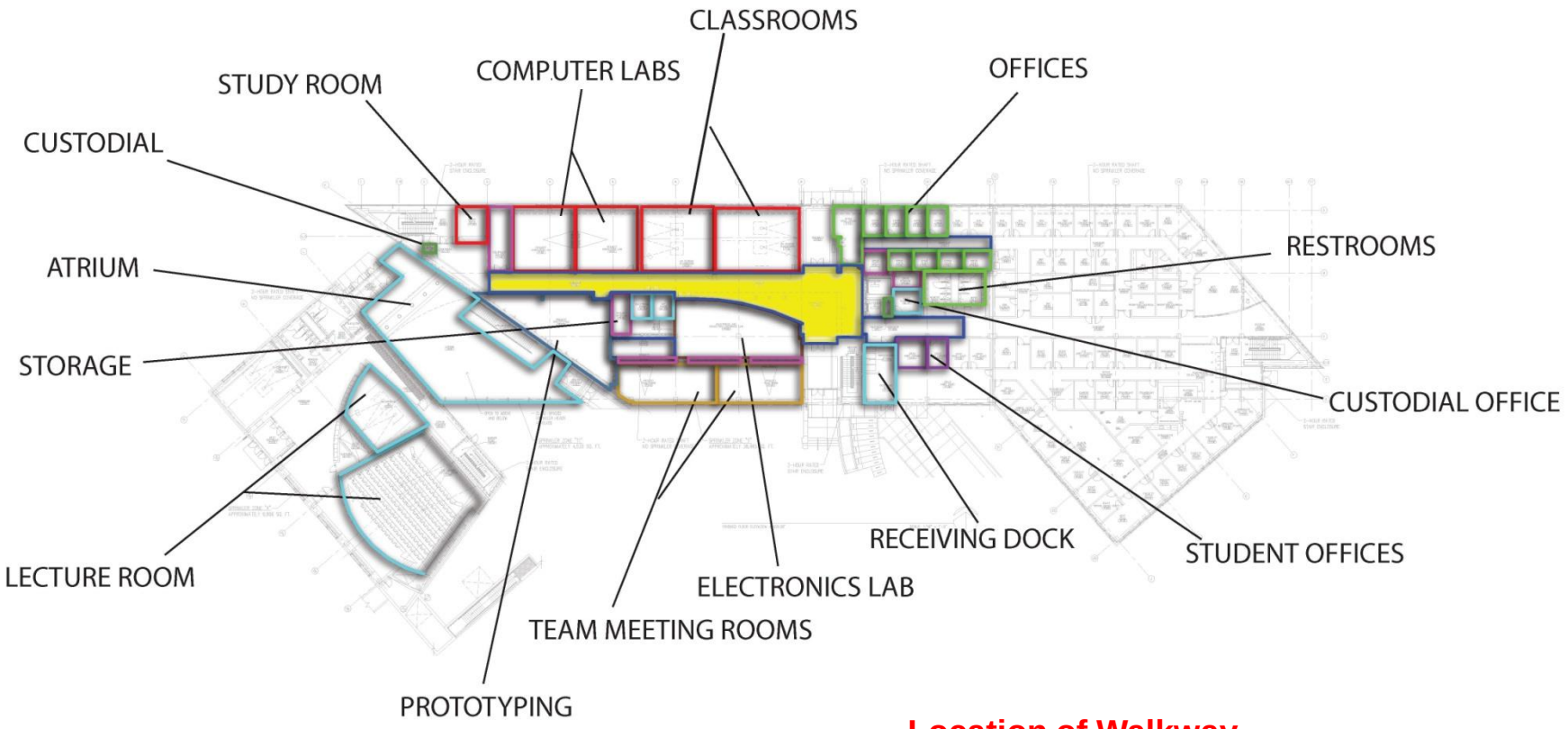
-Projectors, ample power, and internet access in every room

Purdue University
Neil Armstrong Hall of Engineering

Program Division	Area (nasf)	Total Priority Area
1. "DIRTY" SPACES		
1.1 Shops	4,500	
1.2 Fabrication/Assembly	500	
Subtotal		5,000
2. "WET" SPACES		
2.1 Gen. Purpose Wet Lab	1,300	
Subtotal		1,300
3. "CLEAN" SPACES		
3.1 Classroom Studio	4,120	
3.2 Design Study	2,570	
3.3 Specialized Support	4,000	
3.4 MMM	2,960	
Subtotal		13,650
4. "VIRTUAL" SPACES		
4.1 Design/Learning	1,200	
4.2 Computer Science Dept.	7,050	
4.3 Computer Science Research	2,200	
Subtotal		10,450
5. UNASSIGNED MCCORMICK		
5.1 Office / Support	2,300	
Subtotal		2,300
6. ITI Spaces		
6.1 Offices / Support	1,350	
6.2 CE Offices	400	
6.3 Support	320	
6.4 "Flexible" Research	1,160	
6.5 Shop Space	700	
Subtotal		3,930
7. MISCELLANEOUS		
7.1 Common Spaces	1,850	
7.2 Building Services	1,520	
Subtotal		3,370
TOTAL NSF		40,000
TARGET NSF		40,000
OVERAGE		0
Gross Square Foot at 1.5 net		60,000

Gross Area: 60,000 SF
Students: 300

Purdue University
Neil Armstrong Hall of Engineering

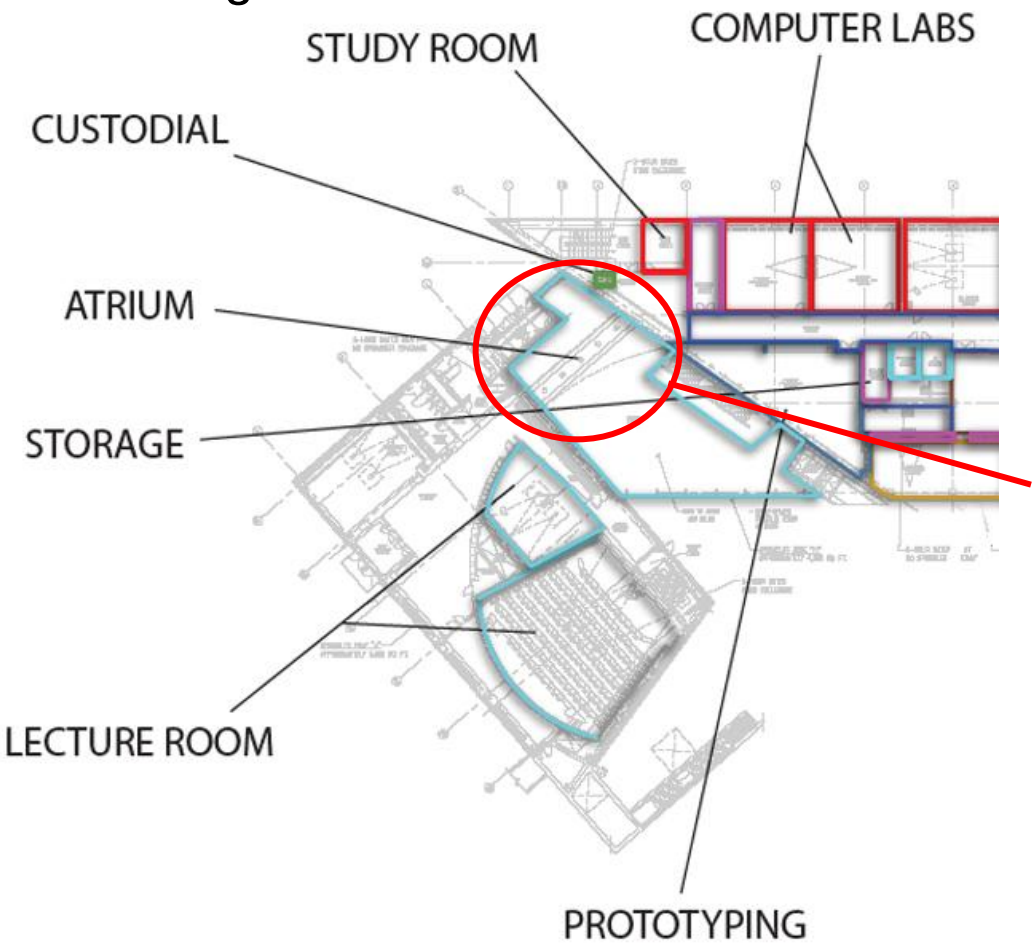


Location of Walkway

- All major building facilities centered around single walkway

Purdue University
Neil Armstrong Hall of Engineering

Left Wing:



Atrium

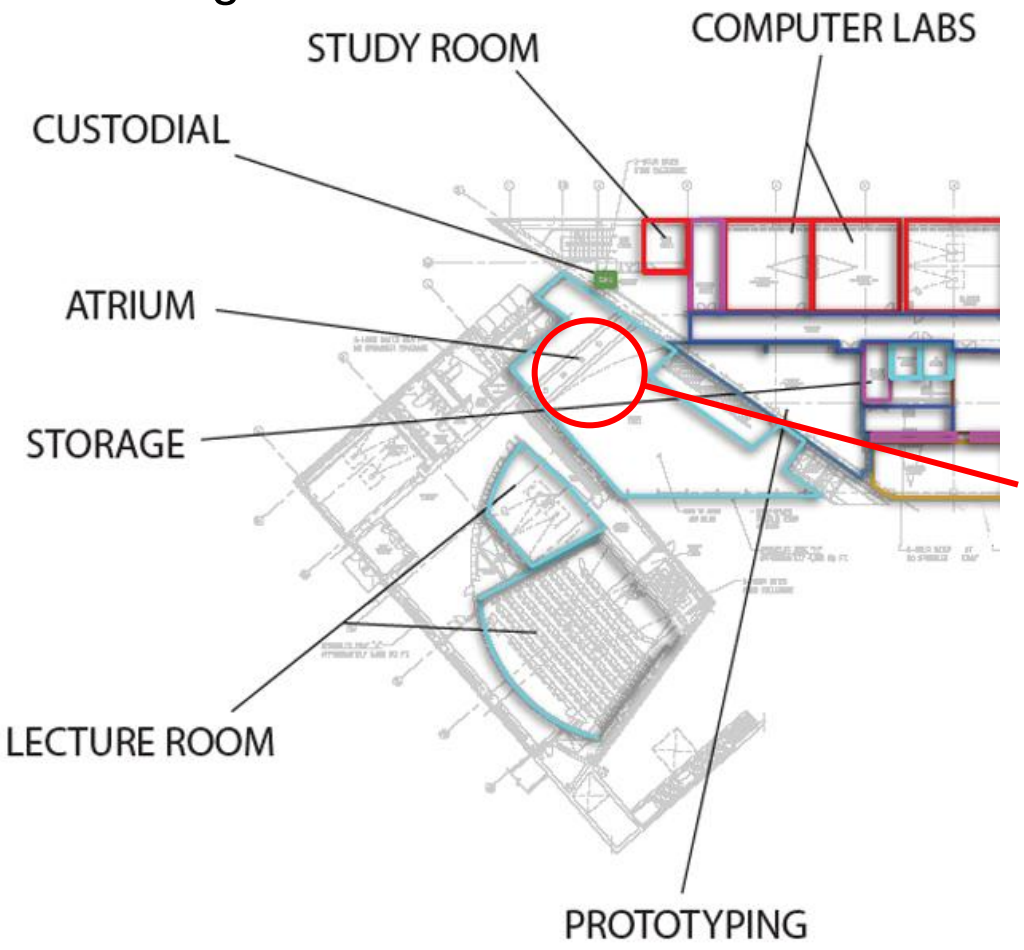
- Provides a dramatic, welcoming northern gateway to Purdue's campus

- Highlights significant achievements of Purdue's engineering program

- Showcases the importance and vitality of EPICS at Purdue

Purdue University
Neil Armstrong Hall of Engineering

Left Wing:

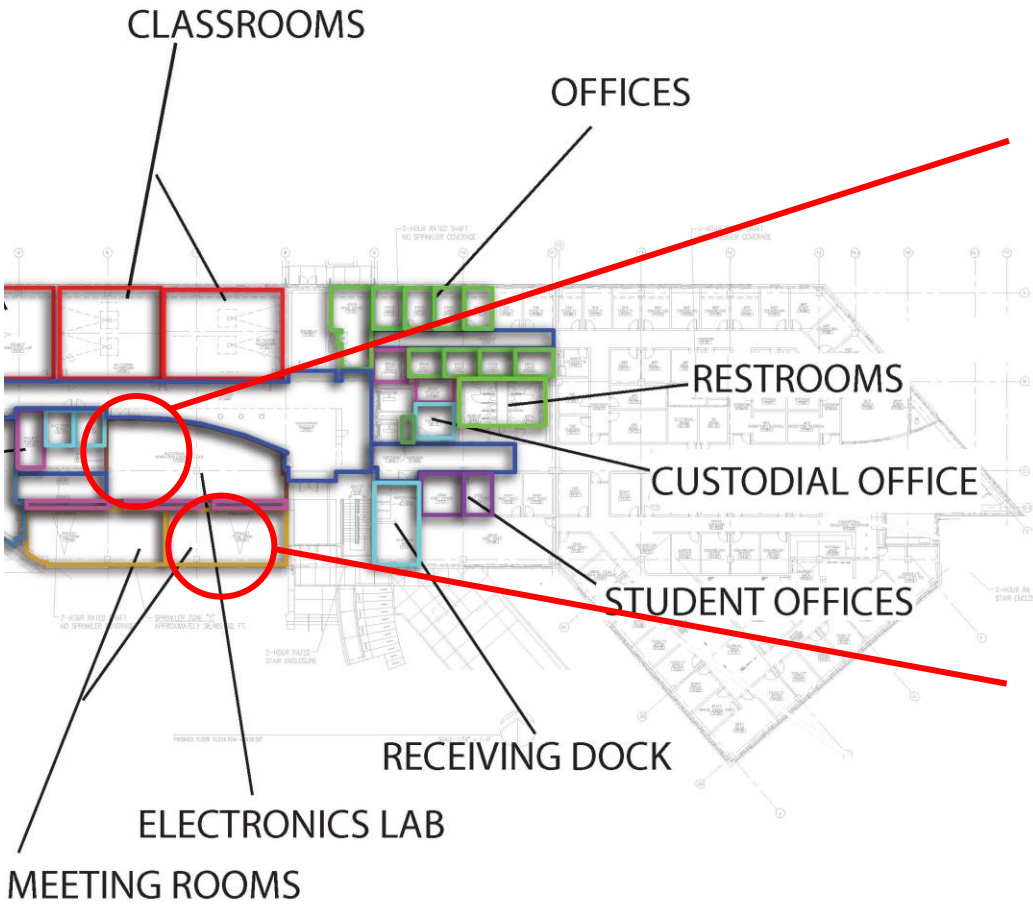


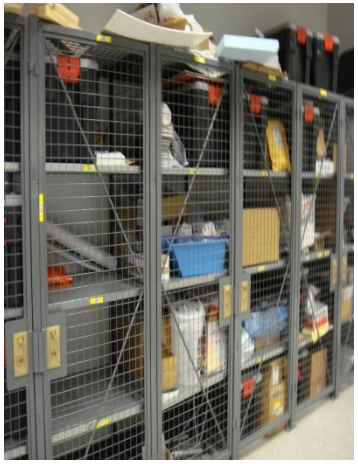
Display Area

- Allows visitors and prospective students to see and engage in completed projects

Purdue University
Neil Armstrong Hall of Engineering

Right Wing:





Illinois Institute of Technology
Inter-Professional Opportunity Projects

Educational Philosophy

- Goal - to help students gain experience working on a real-world problem with students from various disciplines.
- Current Values – communication, teamwork
- Future Values – Prototyping

Business Model

- Annual costs for program are $1.1 million per year including salaries.
- The IPRO program does not receive government funding.

Information Technology

- Software/data management is satisfactory.
- Hardware resources are more lacking.
- IPRO classrooms vary in their technological offerings.

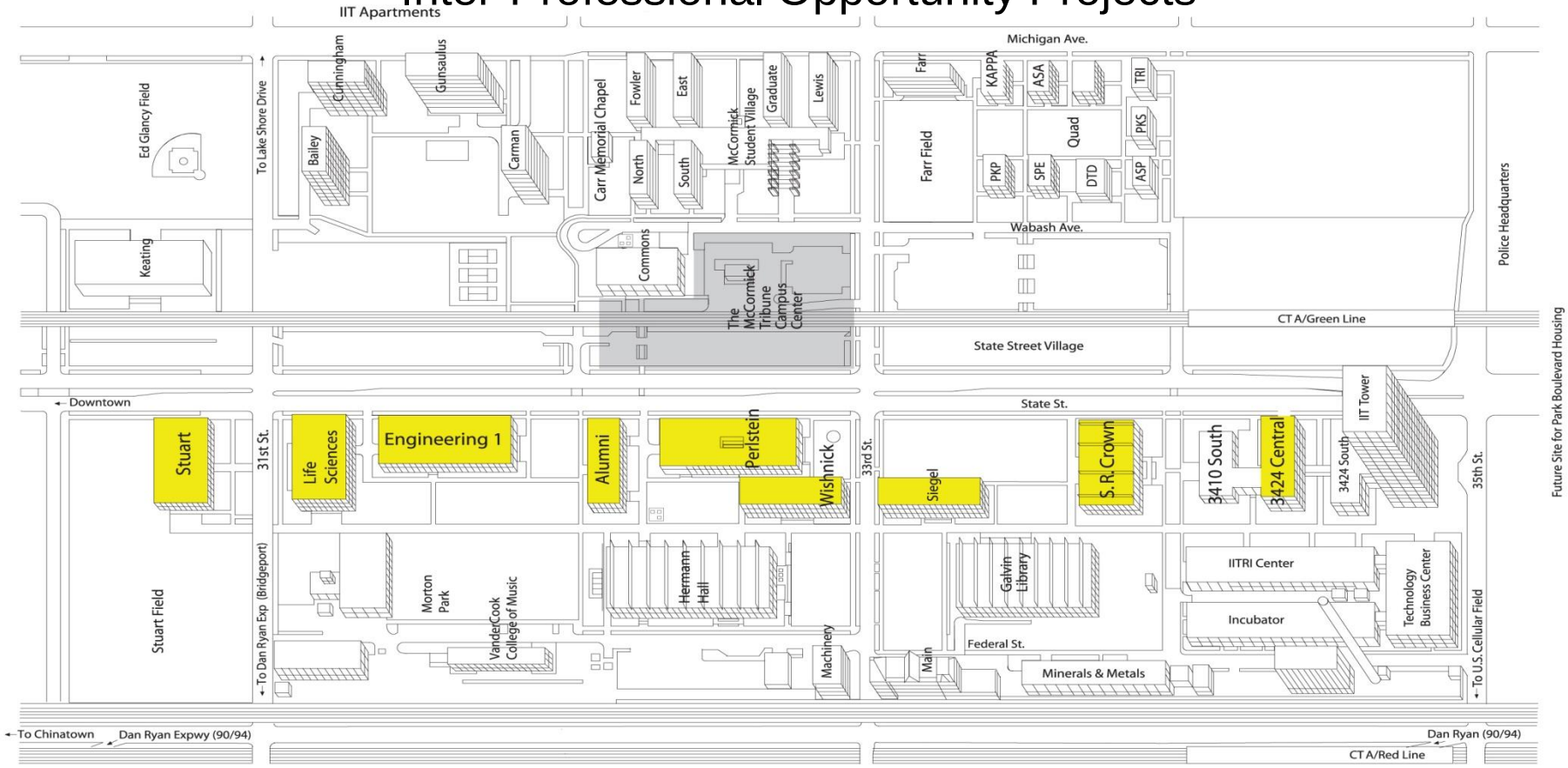
Illinois Institute of Technology
Inter-Professional Opportunity Projects

Program Division	Area (nasf)	Total Priority Area	Future Area (nasf)	Priority Area
1. "DIRTY" SPACES				
1.1 Shops	0		5,000	
1.2 Fabrication/Assembly	0		2,500	
Subtotal		0	7,500	
2. "WET" SPACES				
2.1 Gen. Purpose Wet Lab	0		2,000	
Subtotal		0	2,000	
3. "CLEAN" SPACES				
3.1 Classrooms	14,330		5,000	
3.2 Studios	3,600		5,000	
3.3 Auditorium	2,520		3,000	
3.4 Lounge	1,175		1,500	
3.5 Conference Room	1175		3000	
Subtotal		22,800	17,500	
4. "VIRTUAL" SPACES				
4.1 Design/Learning	0		1,500	
4.2 Computer Science Dept.	0		10,000	
4.3 Computer Science Research	0		8,000	
Subtotal		0	19,500	
5. UNASSIGNED MCCORMICK				
5.1 Office / Support	0		1,500	
Subtotal		0	1,500	
6. ITI Spaces				
6.1 Offices / Support	0		1,000	
6.2 CE Offices	0		500	
6.3 Support	0		300	
6.4 "Flexible" Research	0		1,000	
6.5 Shop Space	0		600	
Subtotal		0	3,400	
7. MISCELLANEOUS				
7.1 Common Spaces	0		2,000	
7.2 Building Services	0		2,000	
Subtotal		0	4,000	
TOTAL NSF		22,800	55,400	

Gross Area: 22,800 SF

Students: 600

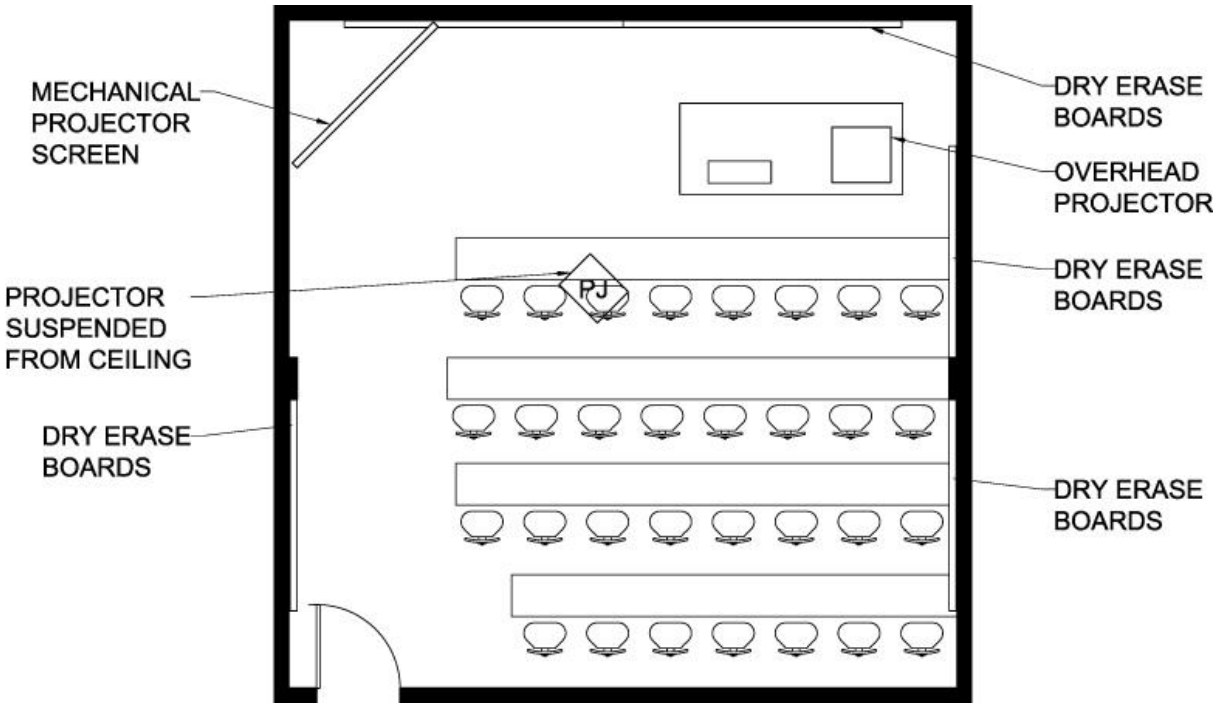
Illinois Institute of Technology
Inter-Professional Opportunity Projects



Locations of IPRO Classes

- Scattered throughout the campus

Illinois Institute of Technology
Inter-Professional Opportunity Projects

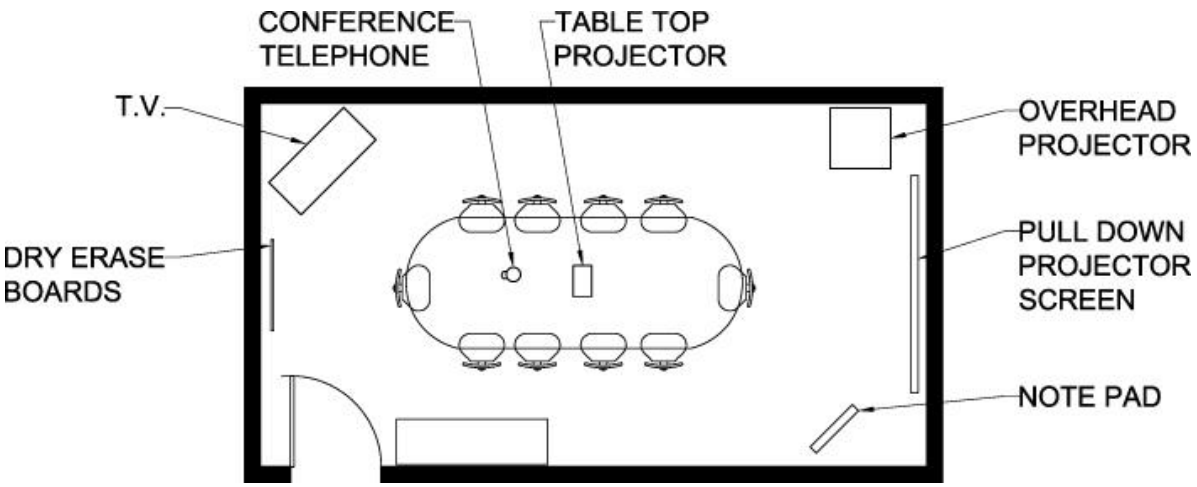


Typical: Classrooms

-24’ x 24’

-Seats 30 people

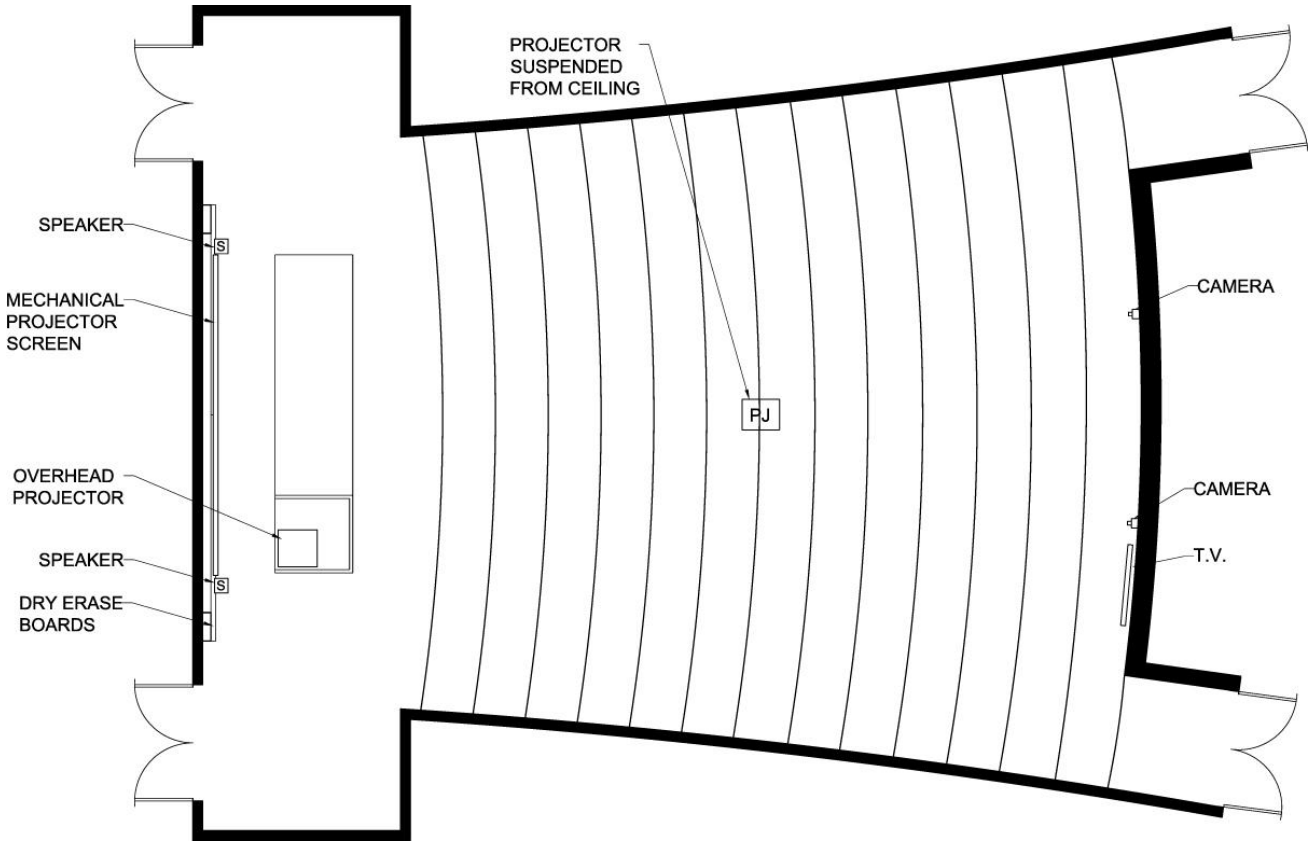
Illinois Institute of Technology
Inter-Professional Opportunity Projects



Typical: Conference Room

- 15 people occupancy

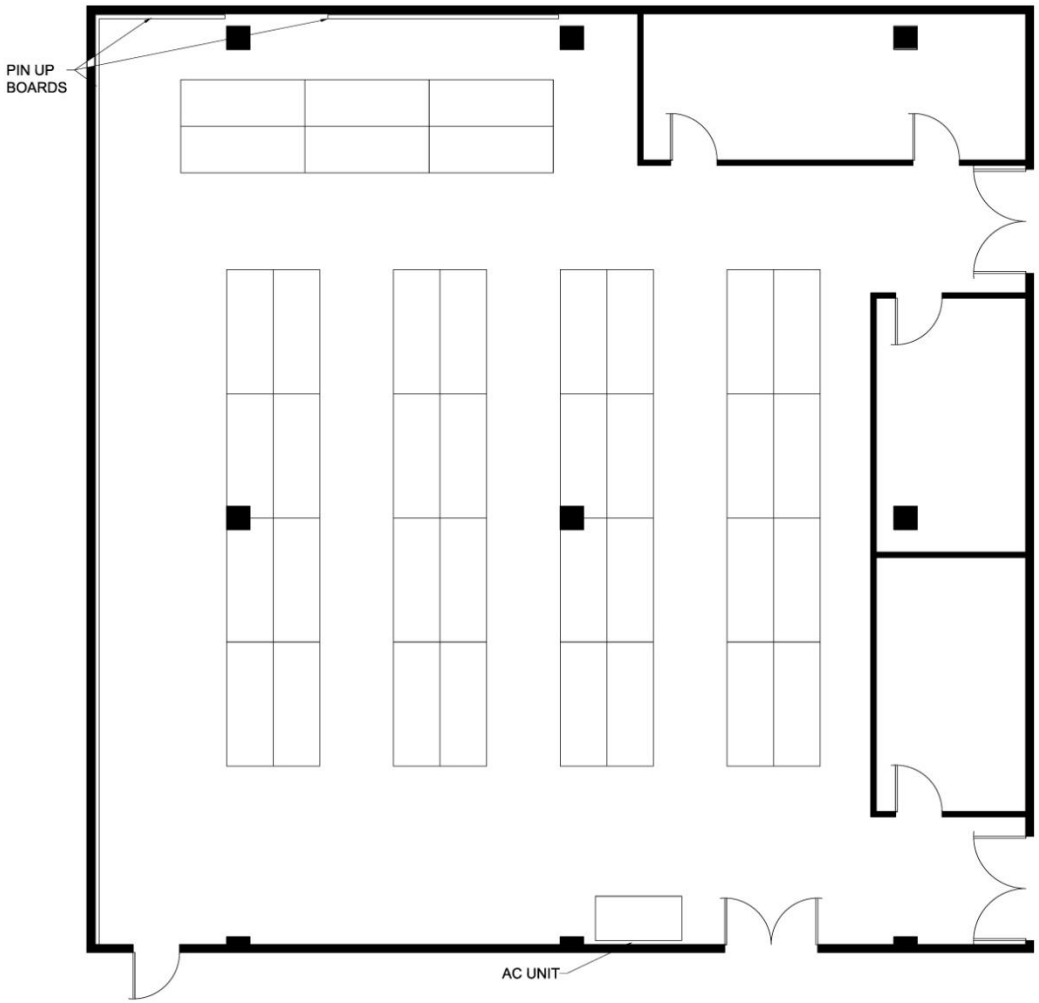
Illinois Institute of Technology
Inter-Professional Opportunity Projects

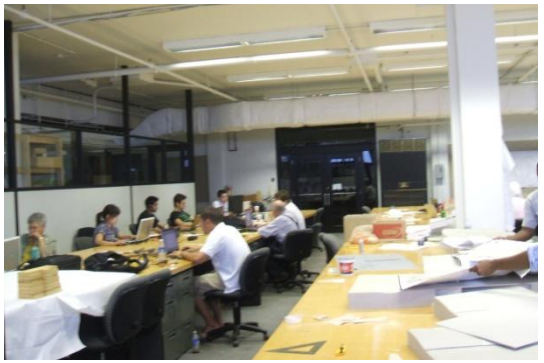


Typical: Auditorium

-Seats 224 people

Illinois Institute of Technology

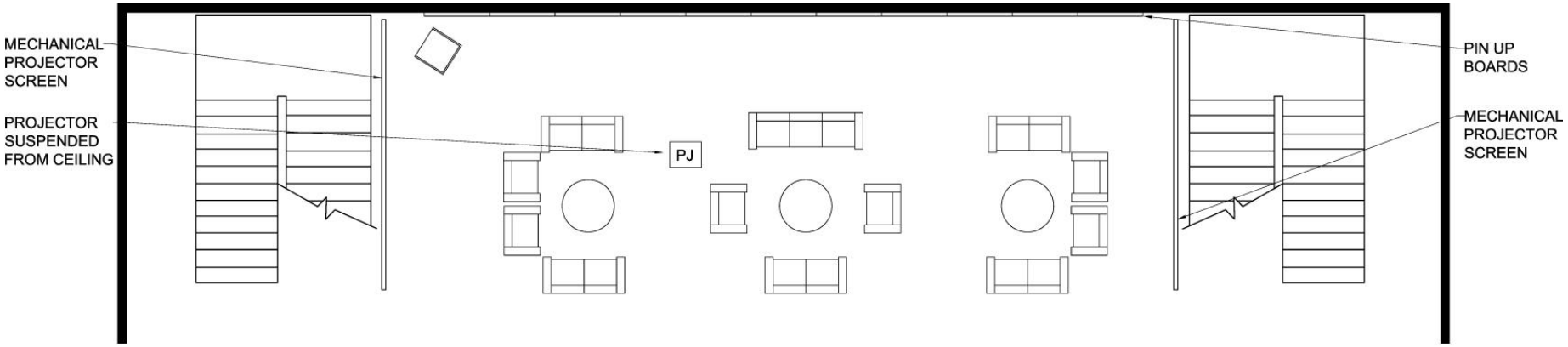




Typical: Studio Space

-Open plan

Illinois Institute of Technology



Typical: Lounge Space

Illinois Institute of Technology
Interprofessional Opportunity: Proposed Program

Program Division	*Proposed Area (NASF)*	*Updated Proposal*
1. "DIRTY" SPACES		
1.1 Shops	5,000	5,000
1.2 Fabrication/Assembly	2,500	1,800
Subtotal	7,500	6,800
2. "WET" SPACES		
2.1 Gen. Purpose Wet Lab	0	0
Subtotal	0	0
3. "CLEAN" SPACES		
3.1 Classrooms	5,000	10,500
3.2 Studios	5,000	4,000
3.3 Auditorium	3,000	1,800
3.4 Lounge	1,500	400
3.5 Conference Room	3000	1,200
3.6 Library	0	100
Subtotal	17,500	18,000
4. "VIRTUAL" SPACES		
4.1 Computer Labs	2,000	2,000
4.2 Printing/TechStorage	500	250
4.3 Computer Science Research	0	0
Subtotal	2,500	2,250
5. UNASSIGNED		
5.1 Office / Support	1,500	3,500
Subtotal	1,500	3,500
6. IPRO Support		
6.1 Offices	1,000	800
6.2 Lounge	500	300
6.3 Conference	1,000	
6.4 Storage	7,000	7,000
Subtotal	9,500	8,100
7. MISCELLANEOUS		
7.1 Common Spaces	2,000	1,400
7.2 Building Services	2,000	3,900
7.3 Outdoor Space		4,500
Subtotal	4,000	9,800
TOTAL NSF	55,400	48,450

The I.D.E.A.S Proposed Facility Solves:

- Easy Access to Multiple types of Functional Spaces

- Emphasizes Inter-IPRO Collaboration

- Consolidated location for storing old projects and records.

- Provides a professional environment for hosting company sponsors.

-Iconic Building Image on Campus

Gross Area: 48,450 SF
Students: 600

PHASE TWO
Proposal For I.D.E.A.S.

ARCHITECTURE_SITE

IDEAL
Kai Hansen
Gergana Horozova
Jessica Workman

MACHINERY HALL
Kevin Krupp
Ruben Robledo
Julia Valadez

A2
Dennis Racltke
Tim Phillips
Mihee Choe

BUSINESS

Alexis Laurence
Philip Brierley
Aaran McEneff

INFORMATION TECHNOLOGY

Kristin Lucchesi
Joel Cornelius
Edward Scanlon

EDUCATIONAL PHILOSOPHY

Vito Natale
Mehrdad Nikamalfard
Faraz Hussain

Educational Philosophy

Important learning and development roles

•IPRO is largely based on active learning, in which, the learners are placed in situations where they are responsible for their own learning and therefore directly linked to the construction of knowledge.

Developmental Roles

Intellectual – achieved through construction of knowledge

Learning – continual improvement of learning skills

Institutional – continual improvement in quality of work

Professional – goal of using best research practices

Self – reflective practice/self-evaluation

Business Model Recommendations

- **Costs**
  - Do Not use Developer built lease back option unless absolutely necessary
  - Target donations in return for naming rights and partnerships
- **Funding**
  - Aim for federal grants/ Alumni donations
  - Target corporate and entrepreneurial relationships
- **Marketing**
  - Employ a full time staff member dedicated to raising awareness and funding for the program
- **Intellectual Property**
  - Case by case basis
  - Consider NU's policy of encouraging students to request money from entrepreneurs in return to forfeit future royalties due
- **Independent Start-Up's**
  - Rent Labs/Shops etc. to bring in additional revenue
  - Enhance reputation through networking, saving on marketing expense

Information Technology proposal

Infrastructure

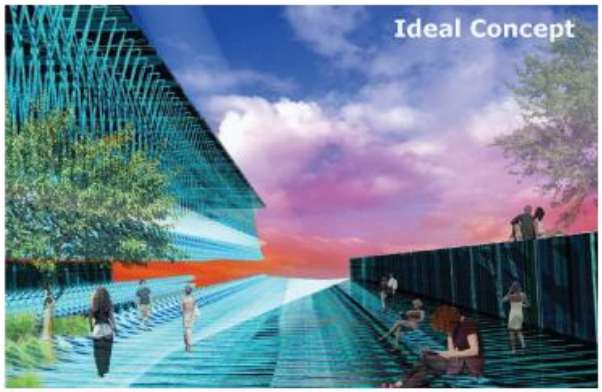
- Centralized management of resources
- Thick client computer labs
- Inventory management system for devices
- Wired network access wherever possible
- Centralized printing center

Technologies in Every Room

- Projector and accessible controller
- Wired and wireless network access
- Sufficient power sources

Specialized Technologies

- Smart Boards
- Green technologies
- Thick client server
- IPRO application server

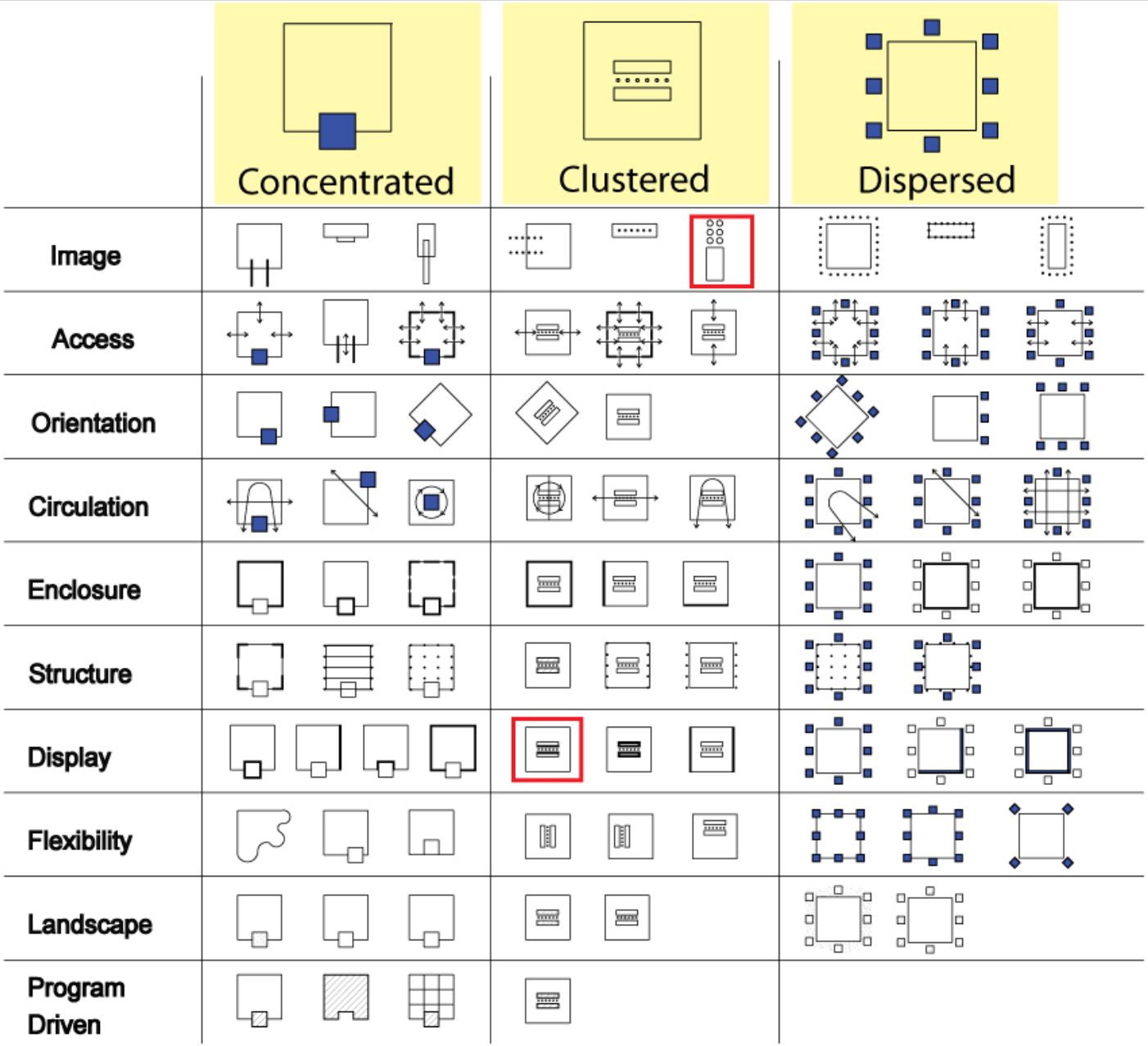

Ideal Concept

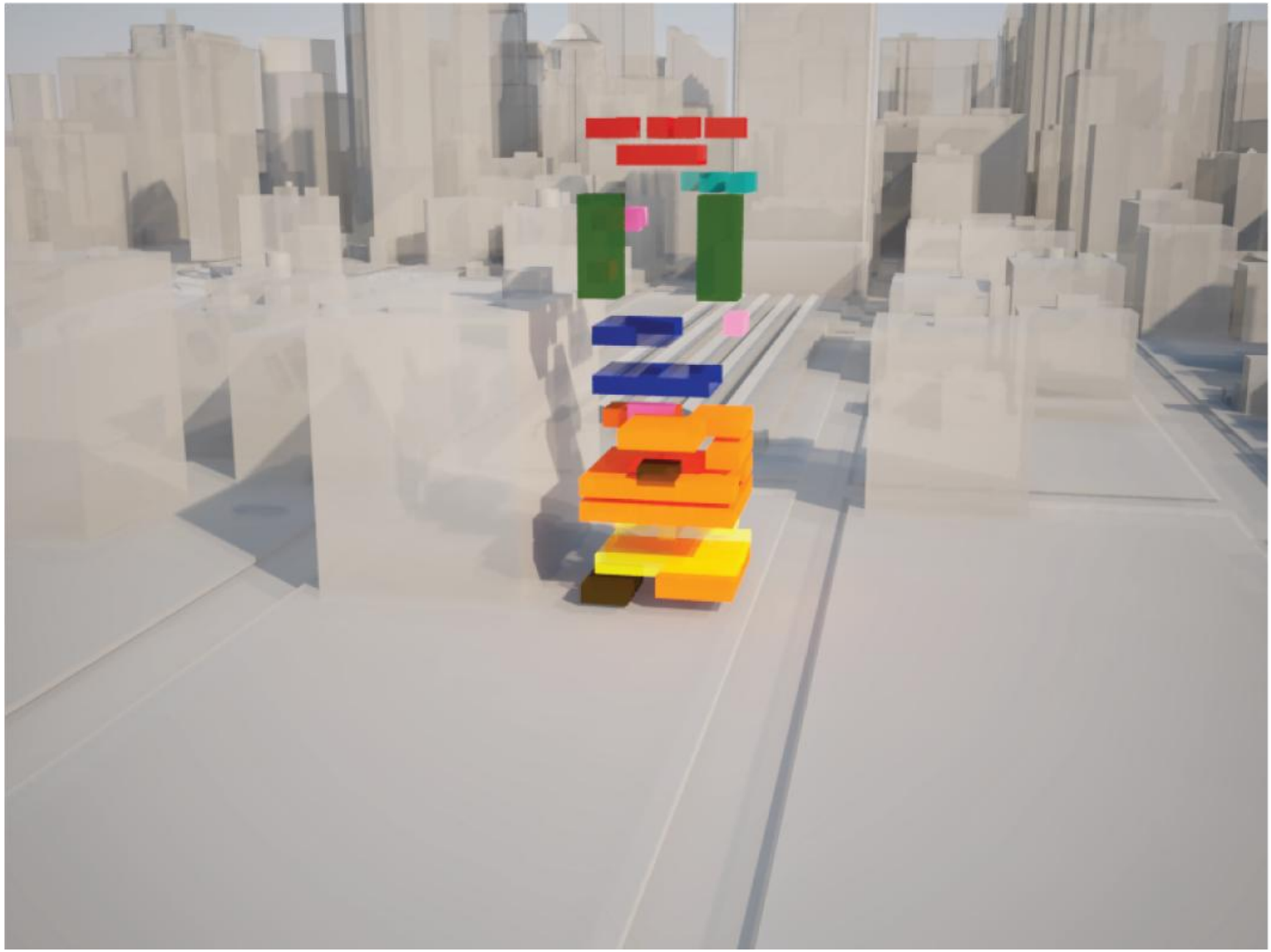

A2


Machinery hall


Site
Educational Facilites
IIT Administration
Student Amenities
Residential
CTA_Green Line
CTA_Red Line
Grass
Other

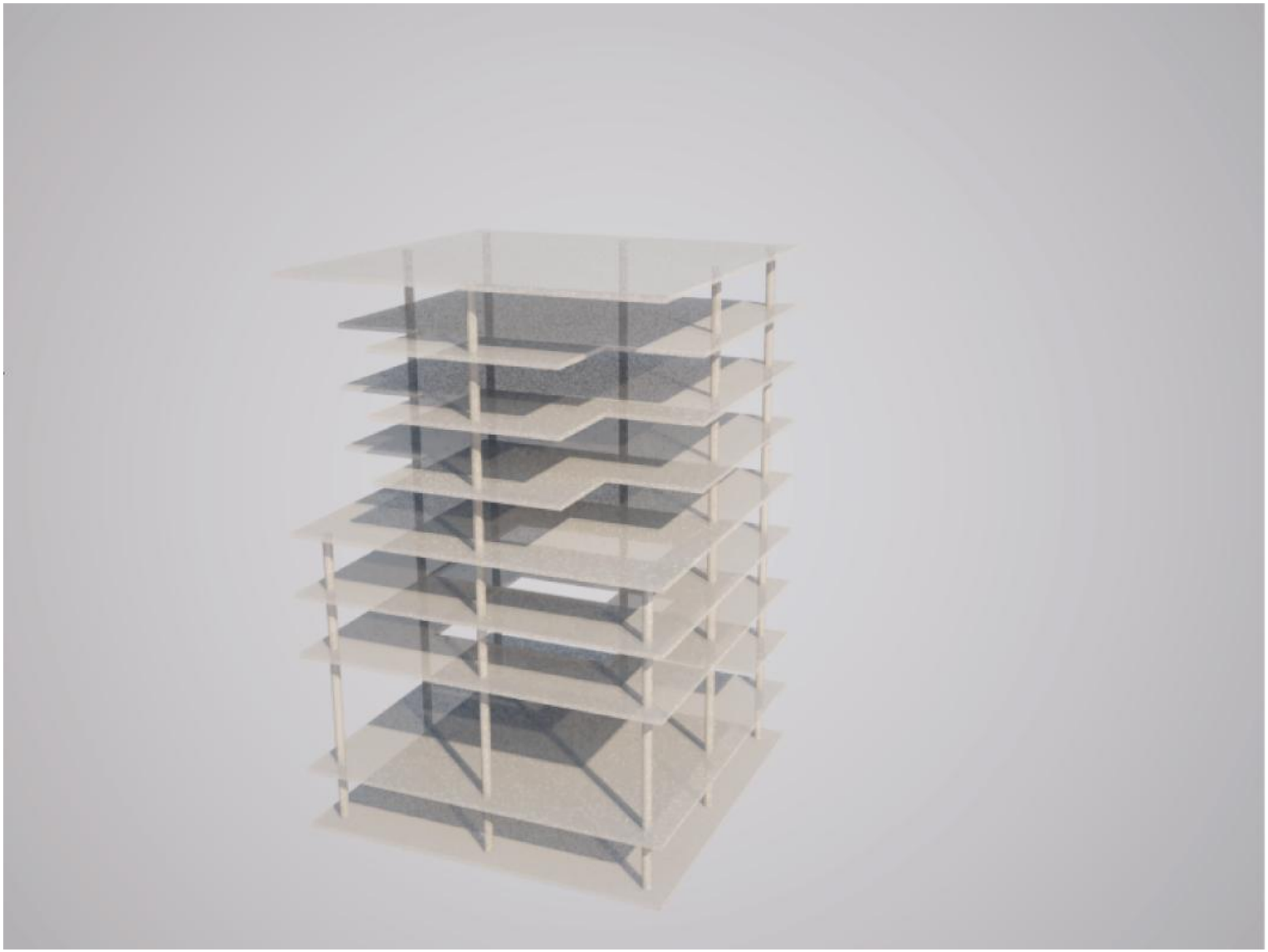
	Concentrated	Clustered	Dispersed
Image			
Access			
Orientation			
Circulation			
Enclosure			
Structure			
Display			
Flexibility			
Landscape			
Program Driven			


Concentrated
Clustered
Dispersed
Image
Access
Orientation
Circulation
Enclosure
Structure
Display
Flexibility
Landscape
Program Driven



Urban Ideal

Exploded view

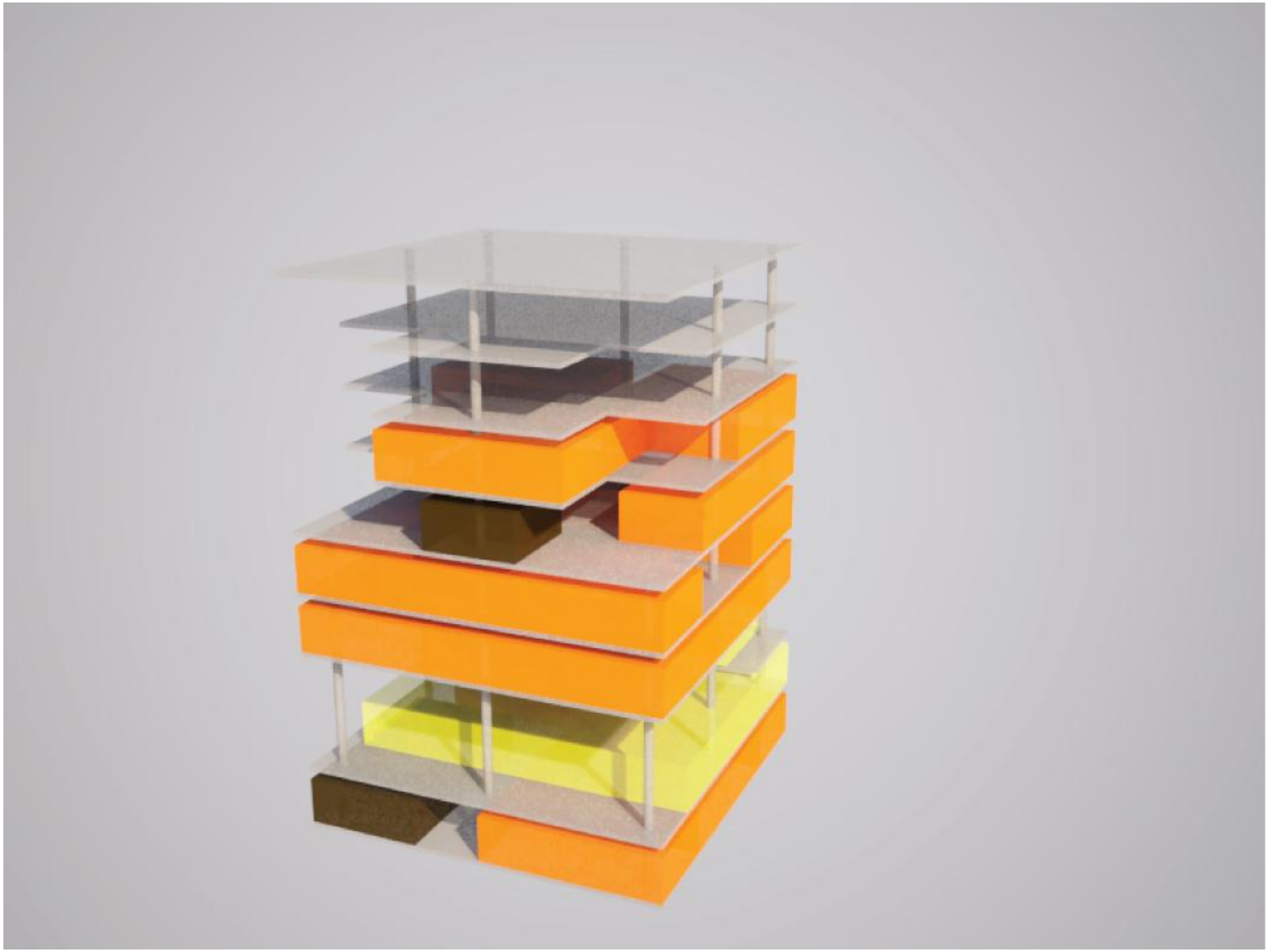


Urban Ideal

Structure

Urban Ideal

Common Areas



Urban Ideal

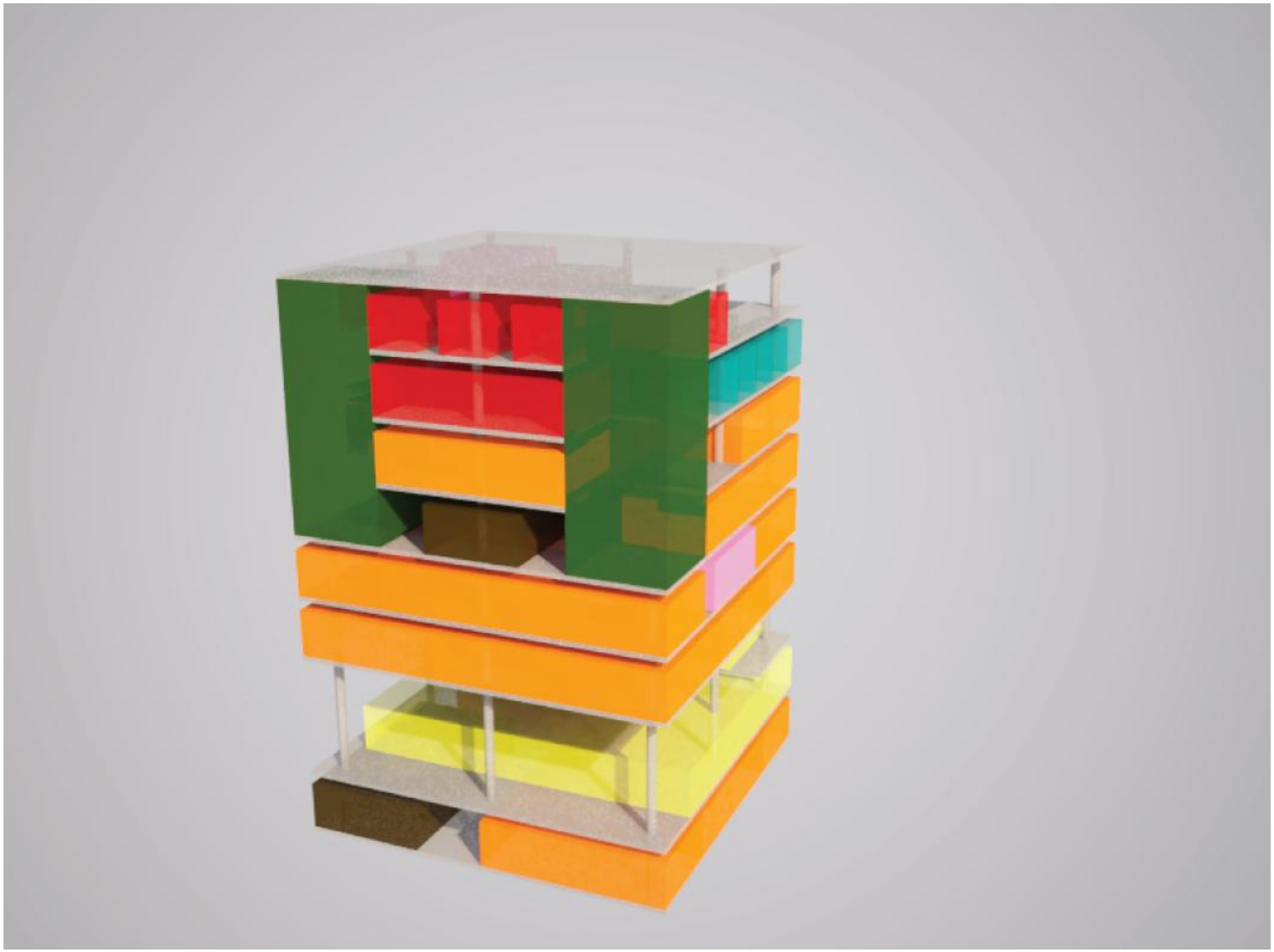
Classrooms
& Shops

Urban Ideal

Building Services,
Instructor &
Student offices,
& Storage

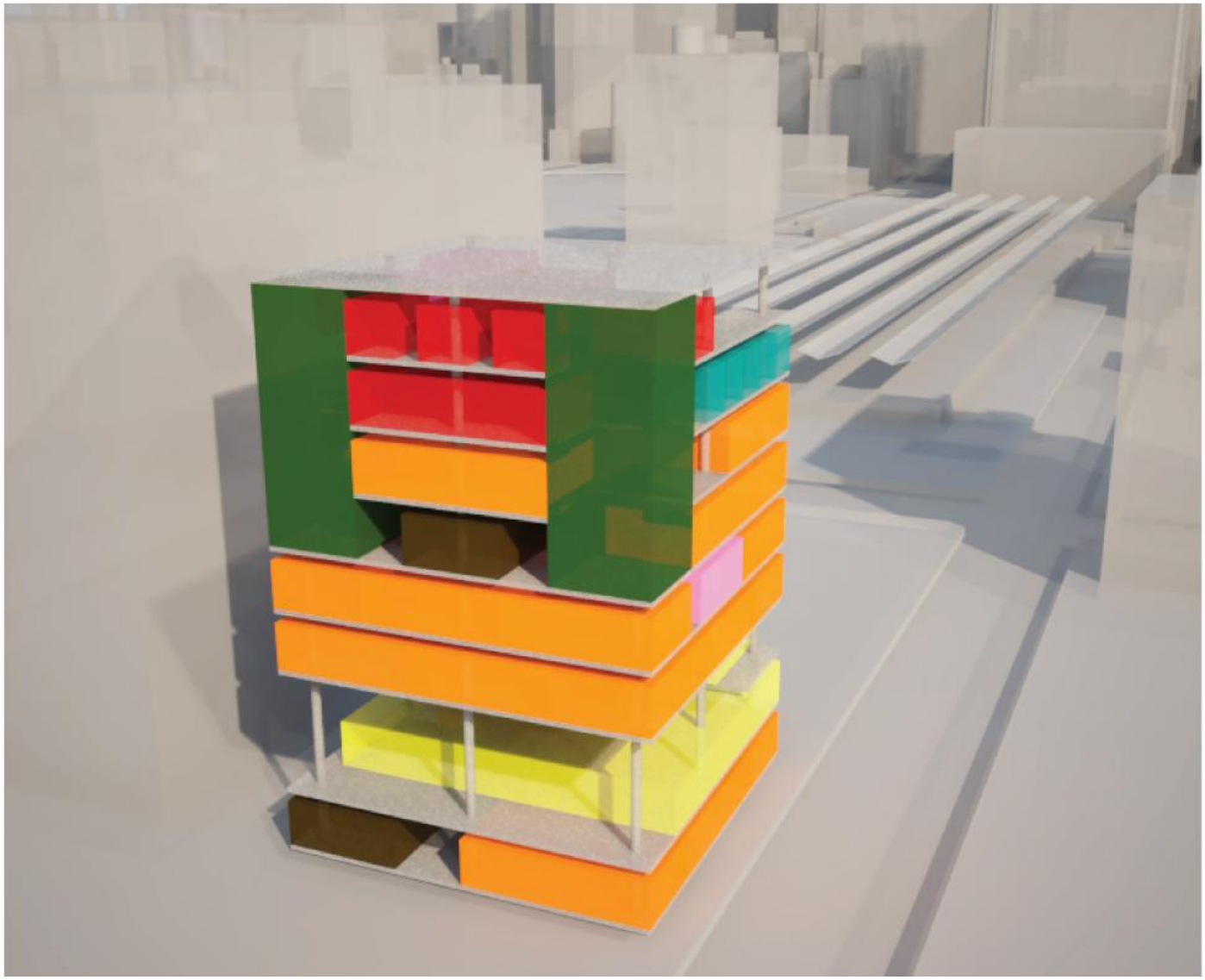
Urban Ideal

IPRO Offices

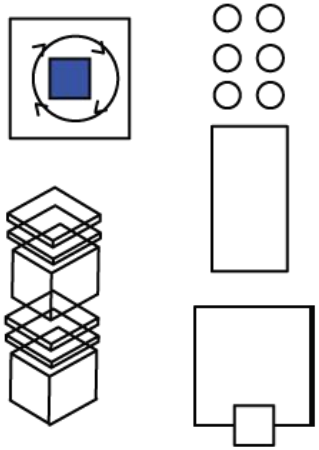


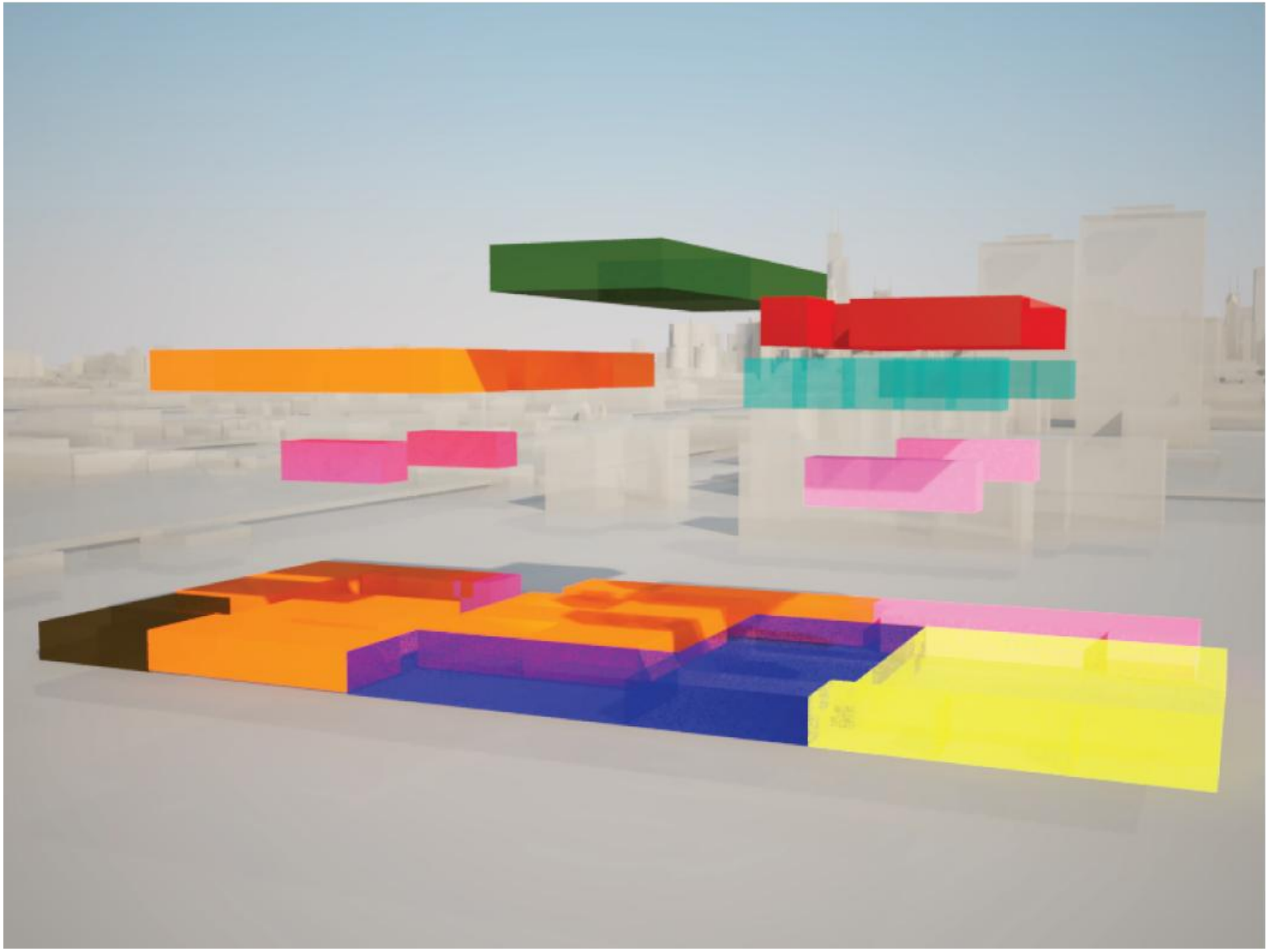
Urban Ideal

Outdoor Space



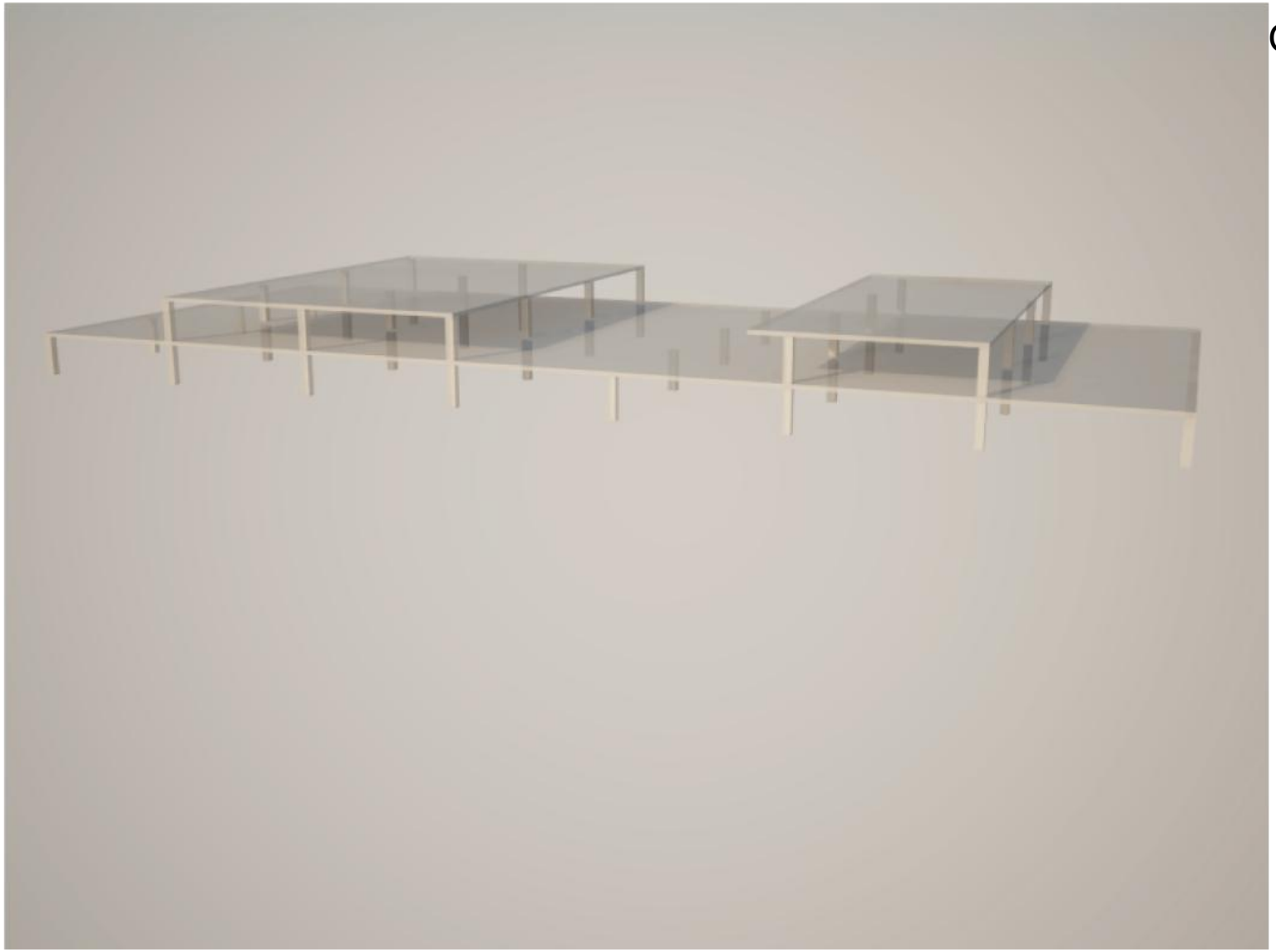
- Red - IPRO Offices
- Yellow - Shops
- Orange - Classroom & Meeting Rooms
- Cyan - Instructor / Student Offices
- Blue - Storage
- Magenta - Building Services
- Brown - Common Areas
- Green - Outdoors Spaces





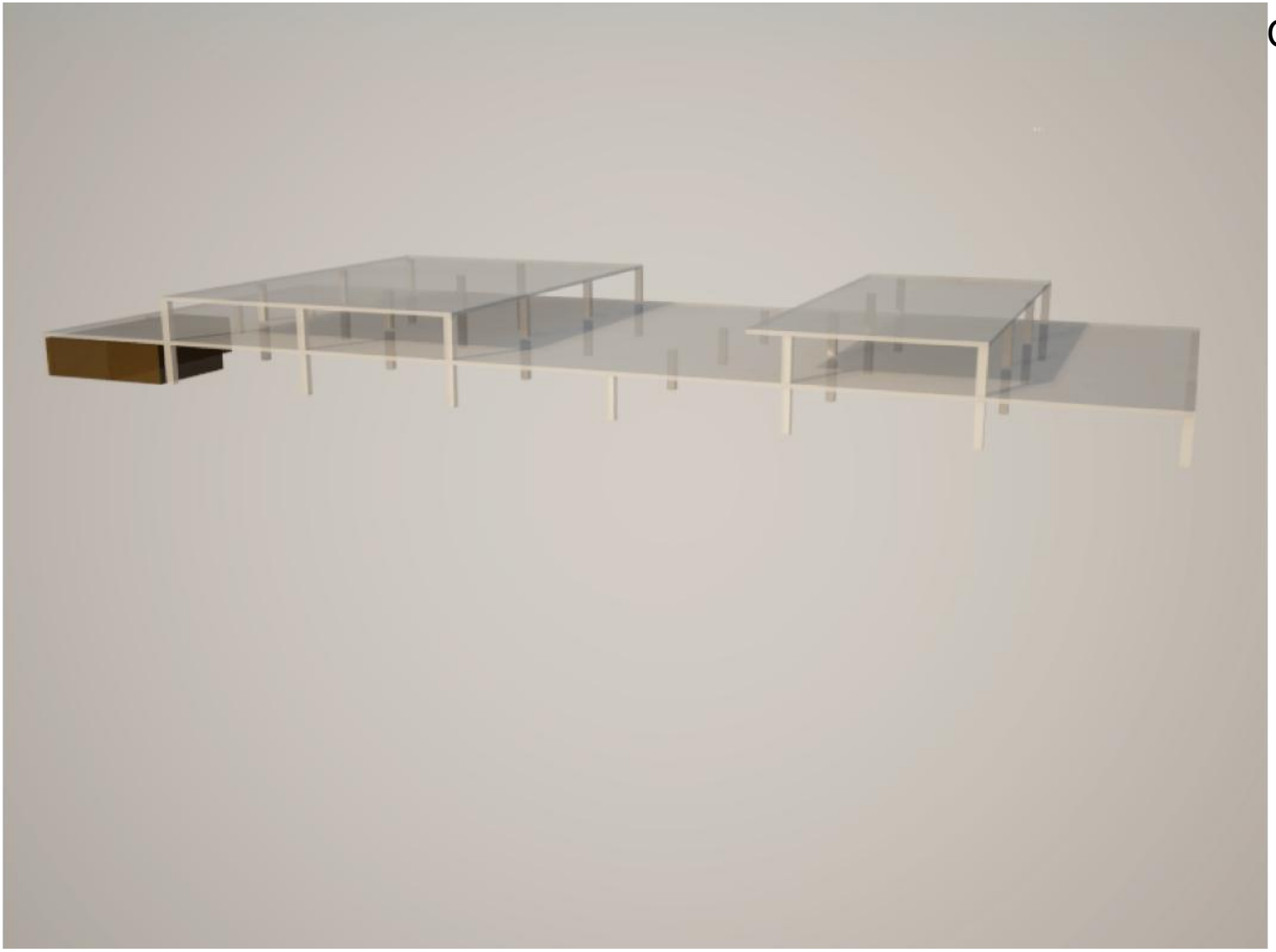
Campus Ideal

Exploded view



Campus Ideal

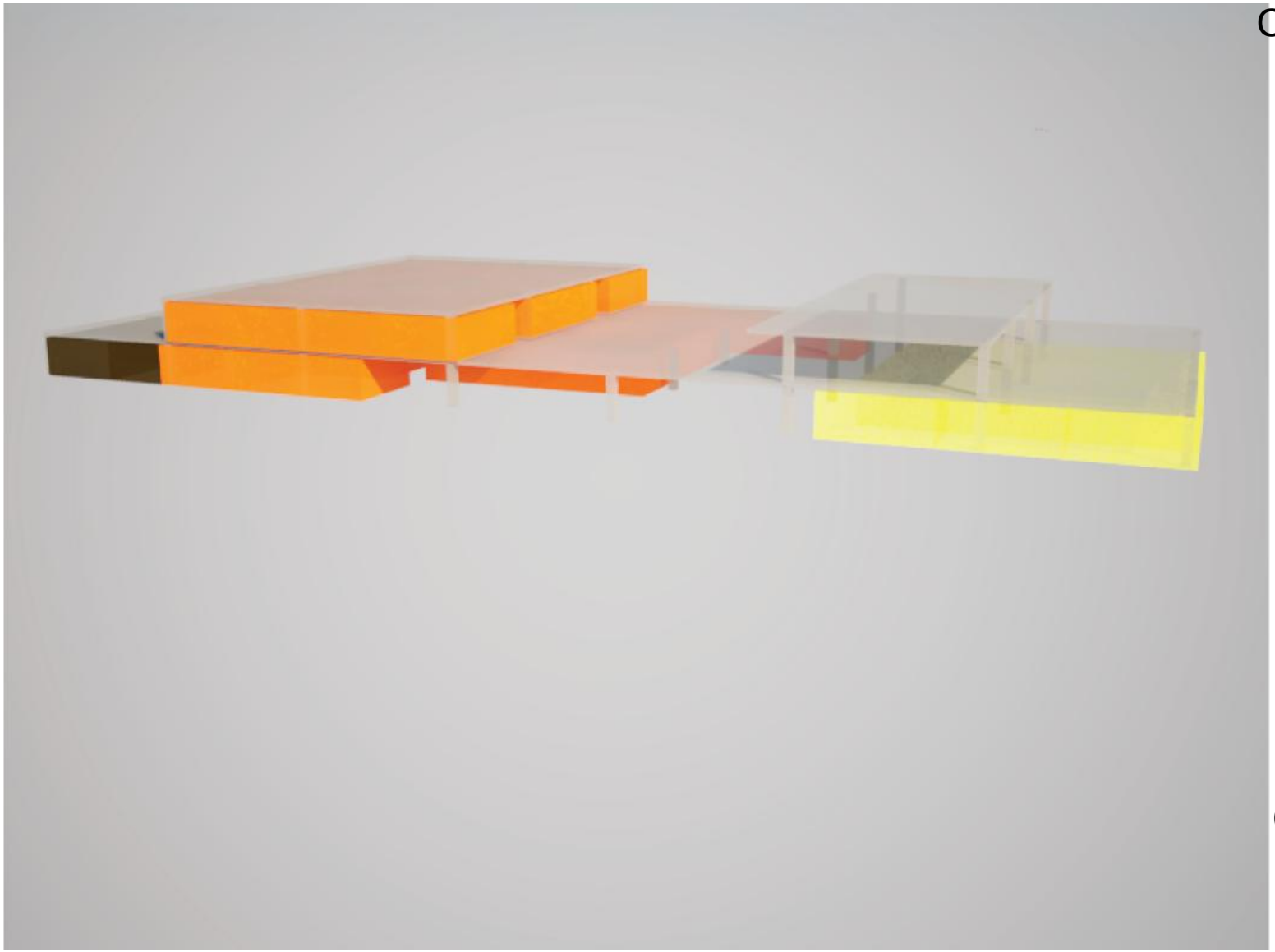
Structure



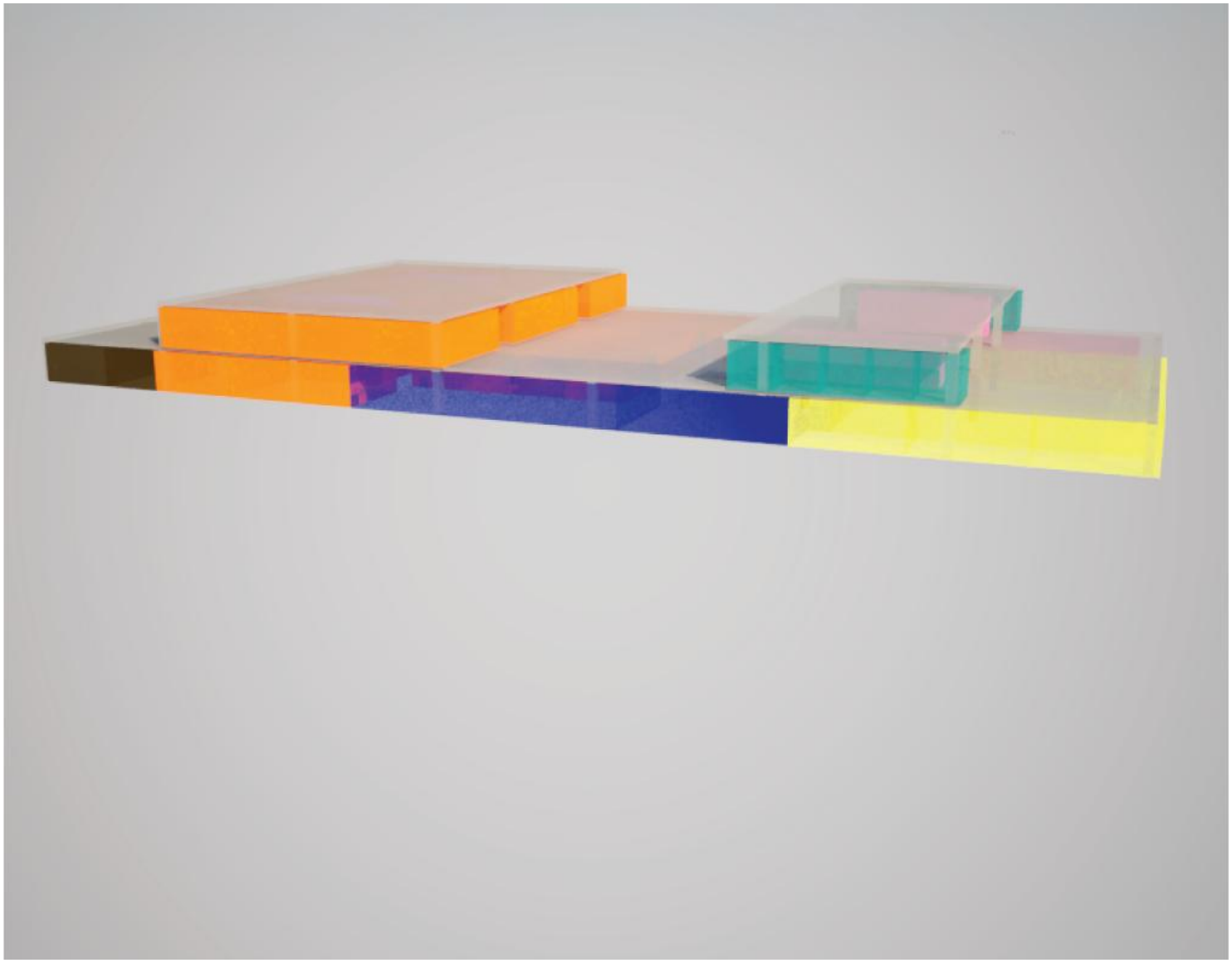
Campus Ideal

Common Areas

Campus Ideal

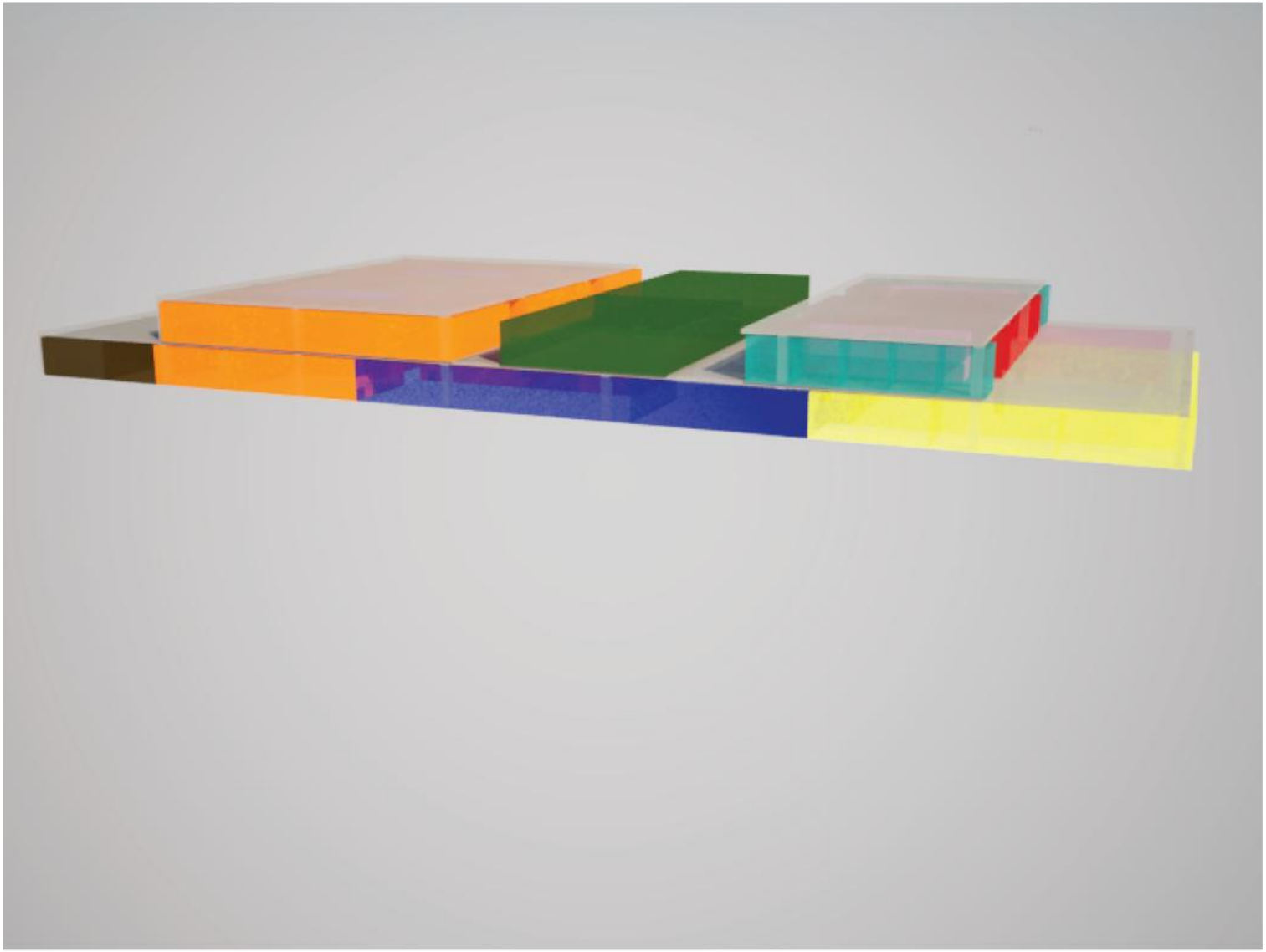


Classrooms
& Shops



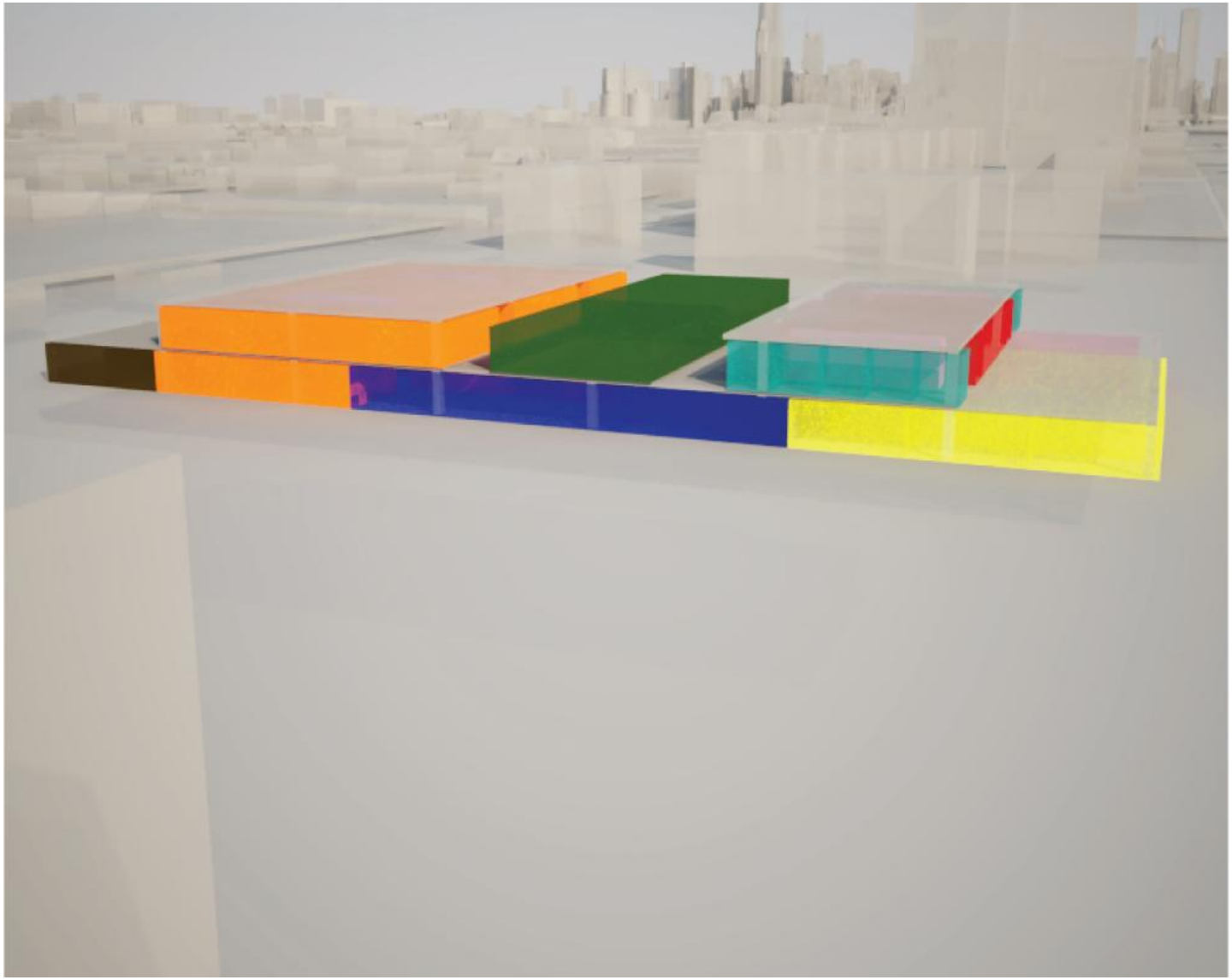
Campus Ideal

Building Services,
Instructor &
Student offices,
& Storage



Campus Ideal

Outdoor Space



Red - IPRO Offices

Yellow - Shops

Orange - Classroom & Meeting Rooms

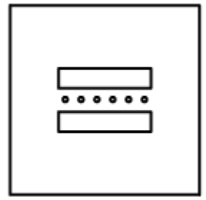
Cyan - Instructor / Student Offices

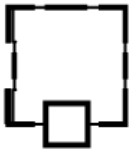
Blue - Storage

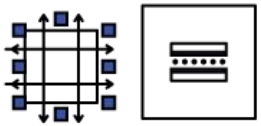
Magenta - Building Services

Brown - Common Areas

Green - Outdoors Spaces








Ideal Concept


Ideal Concept

Site Analysis_Existing

Machinery Hall

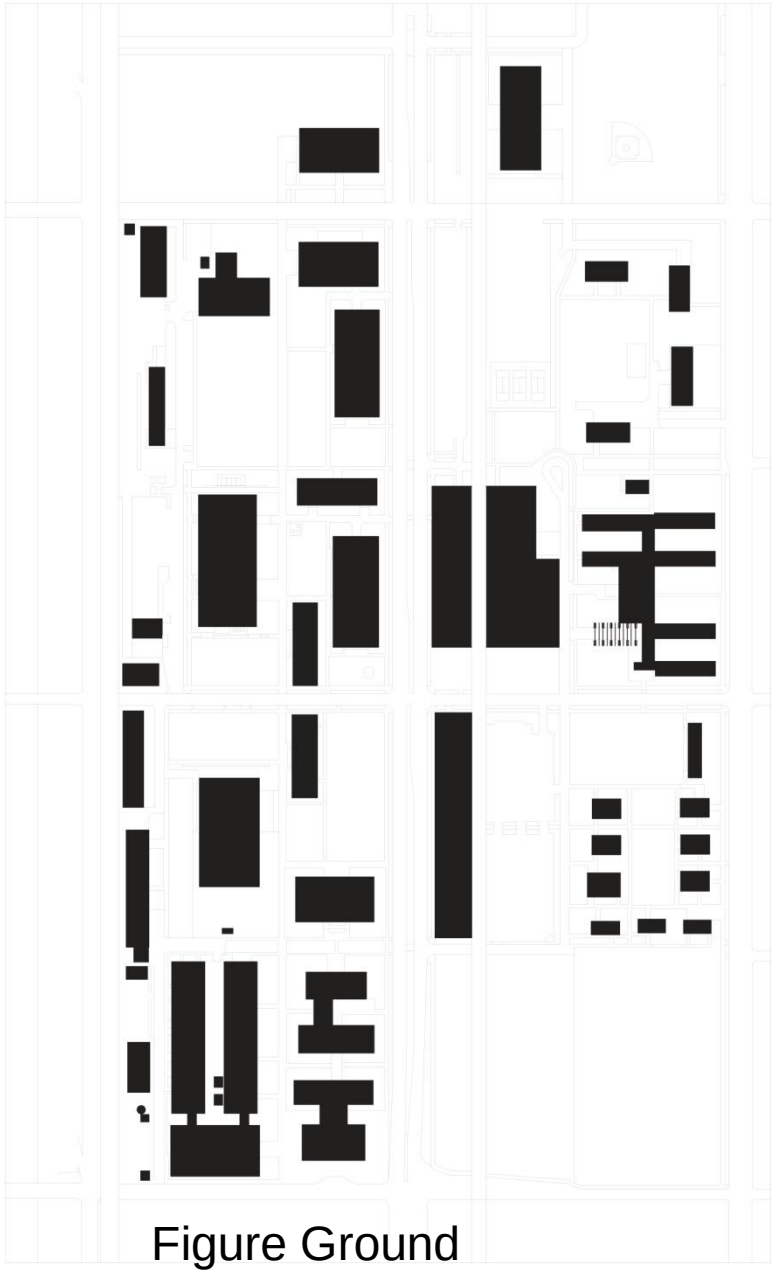
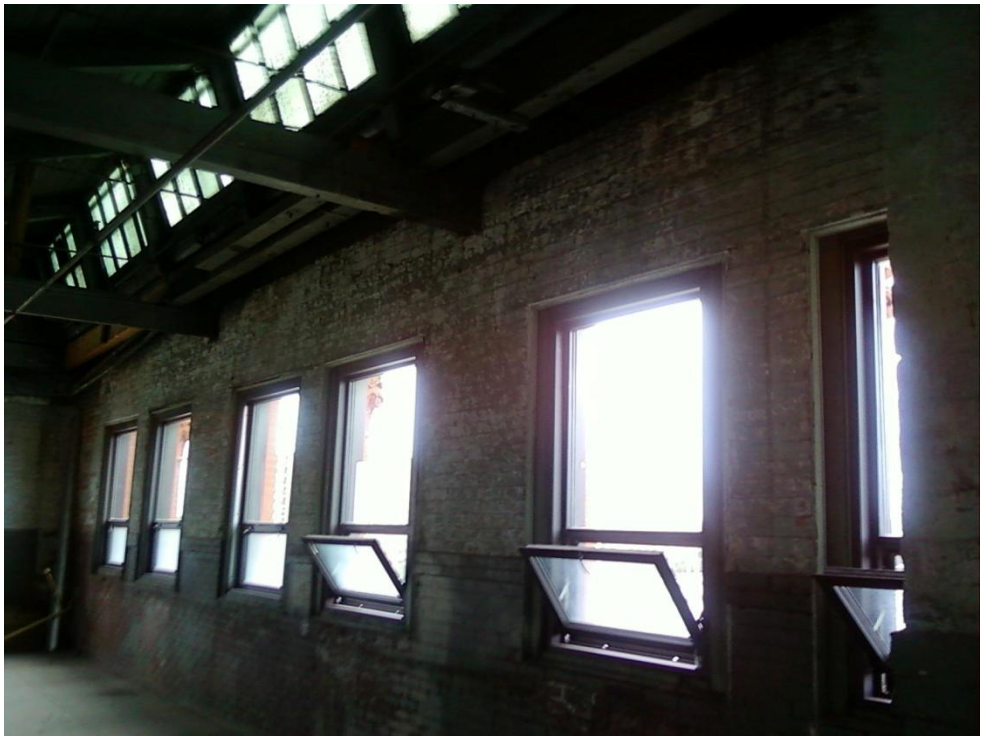
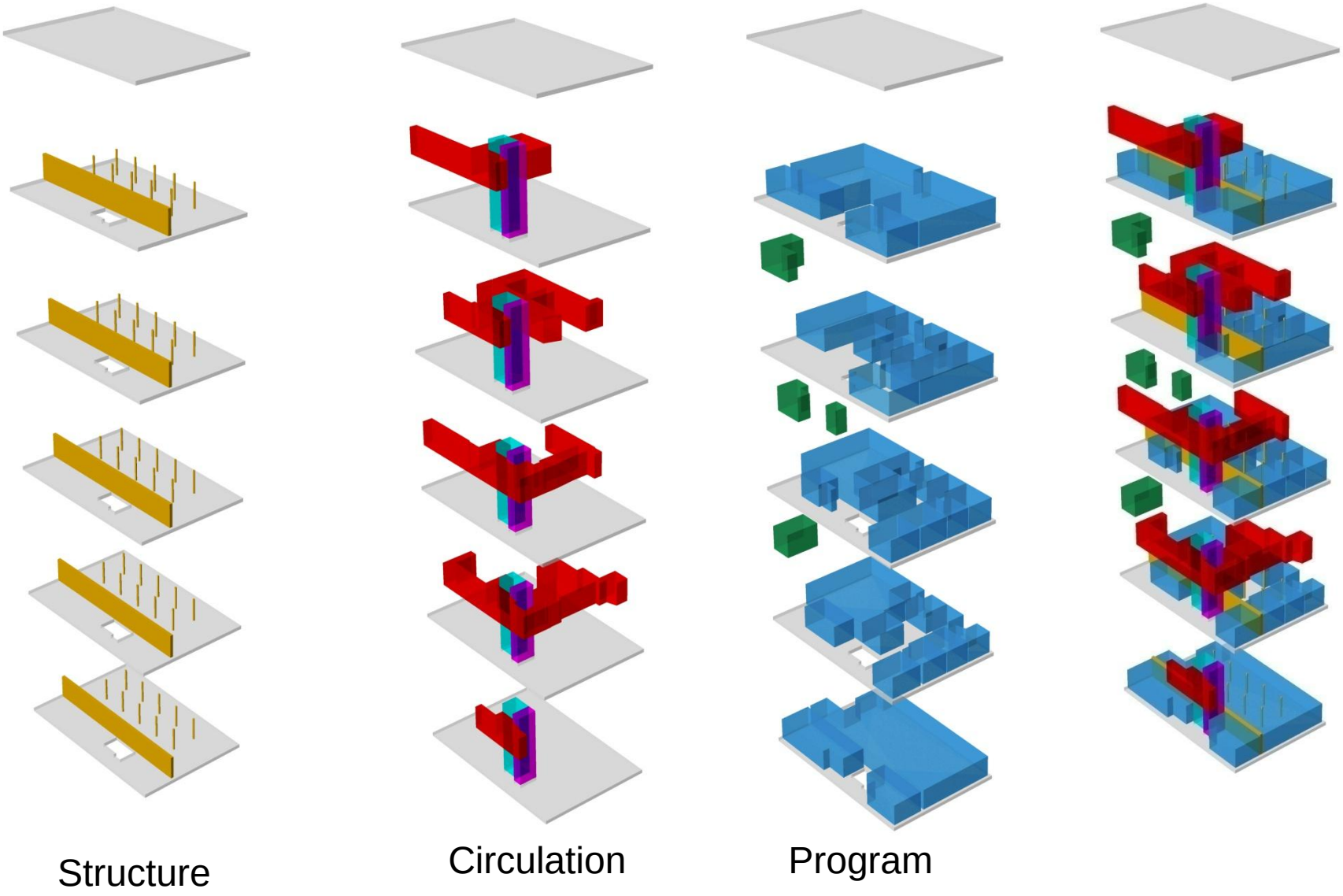


Figure Ground

Figure Ground _ Close Up



Existing Conditions

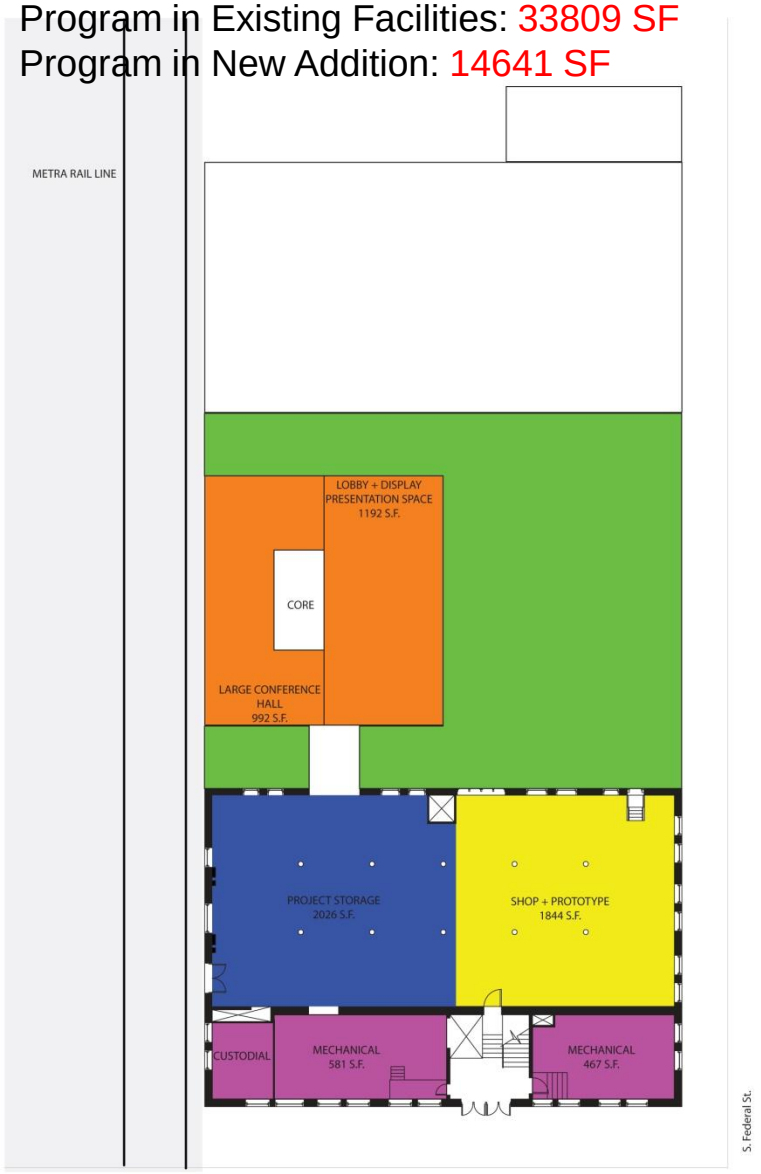


Structure

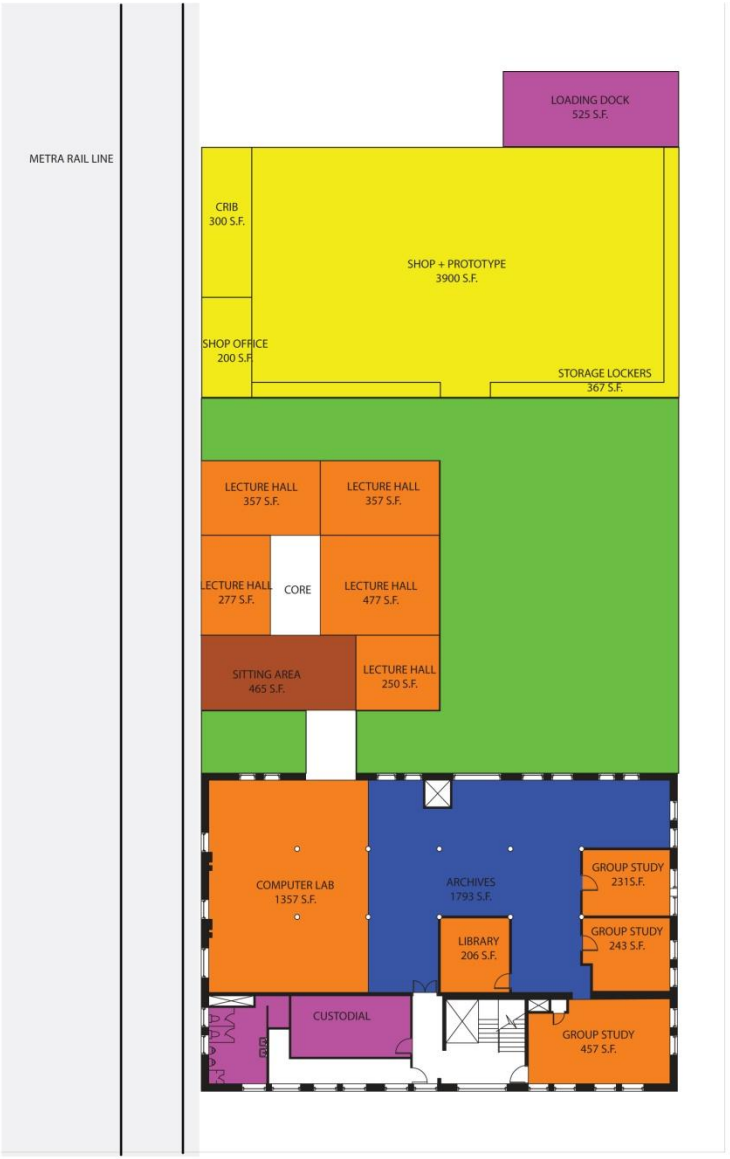
Circulation

Program

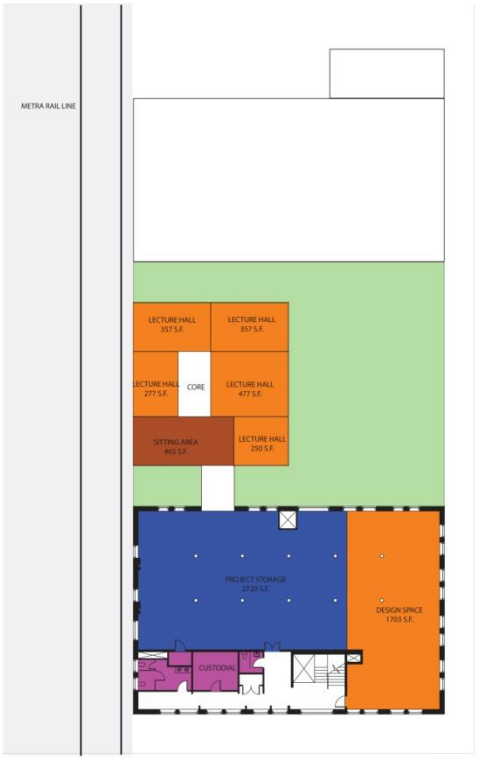
Program in Existing Facilities: 33809 SF
Program in New Addition: 14641 SF



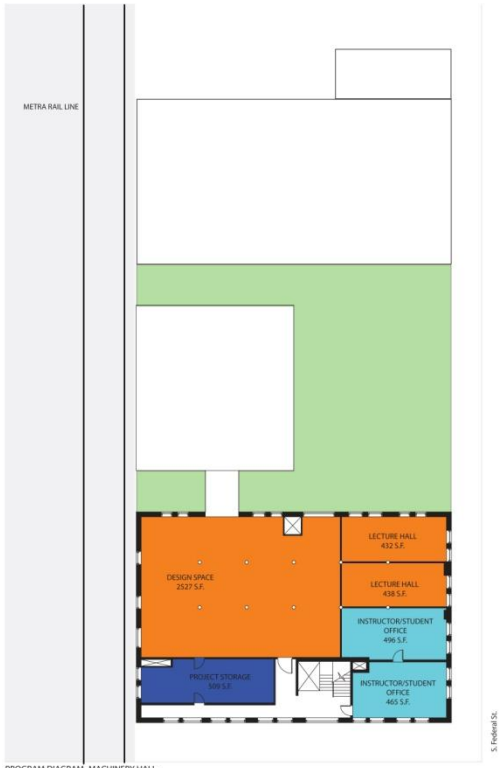
PROGRAM DIAGRAM_MACHINERY HALL
LEVEL 00



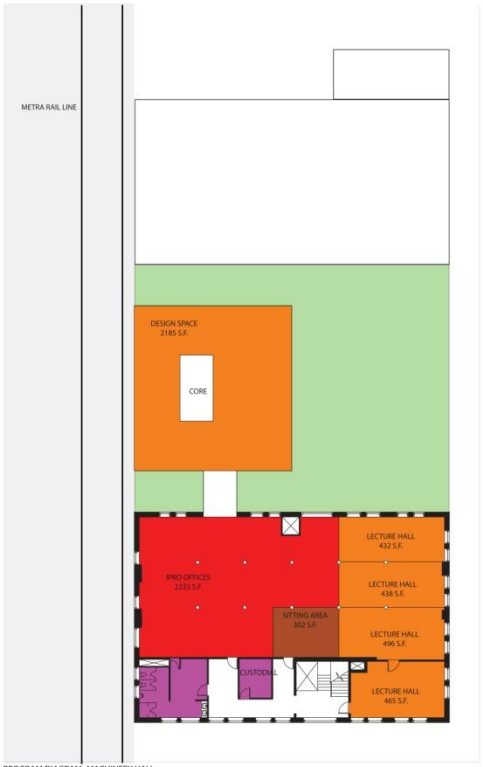
PROGRAM DIAGRAM_MACHINERY HALL
LEVEL 01



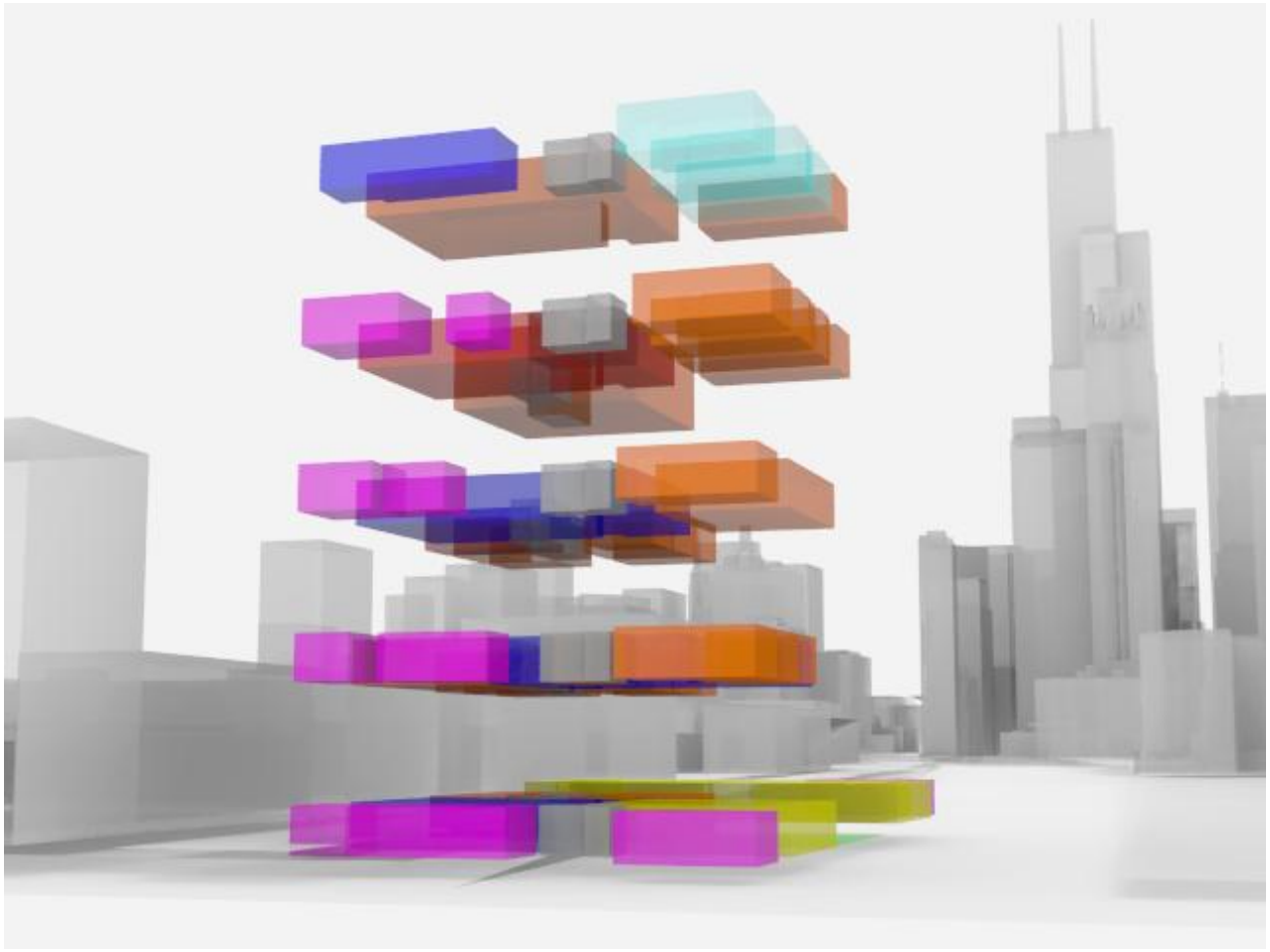
PROGRAM DIAGRAM_MACHINERY HALL
LEVEL 02



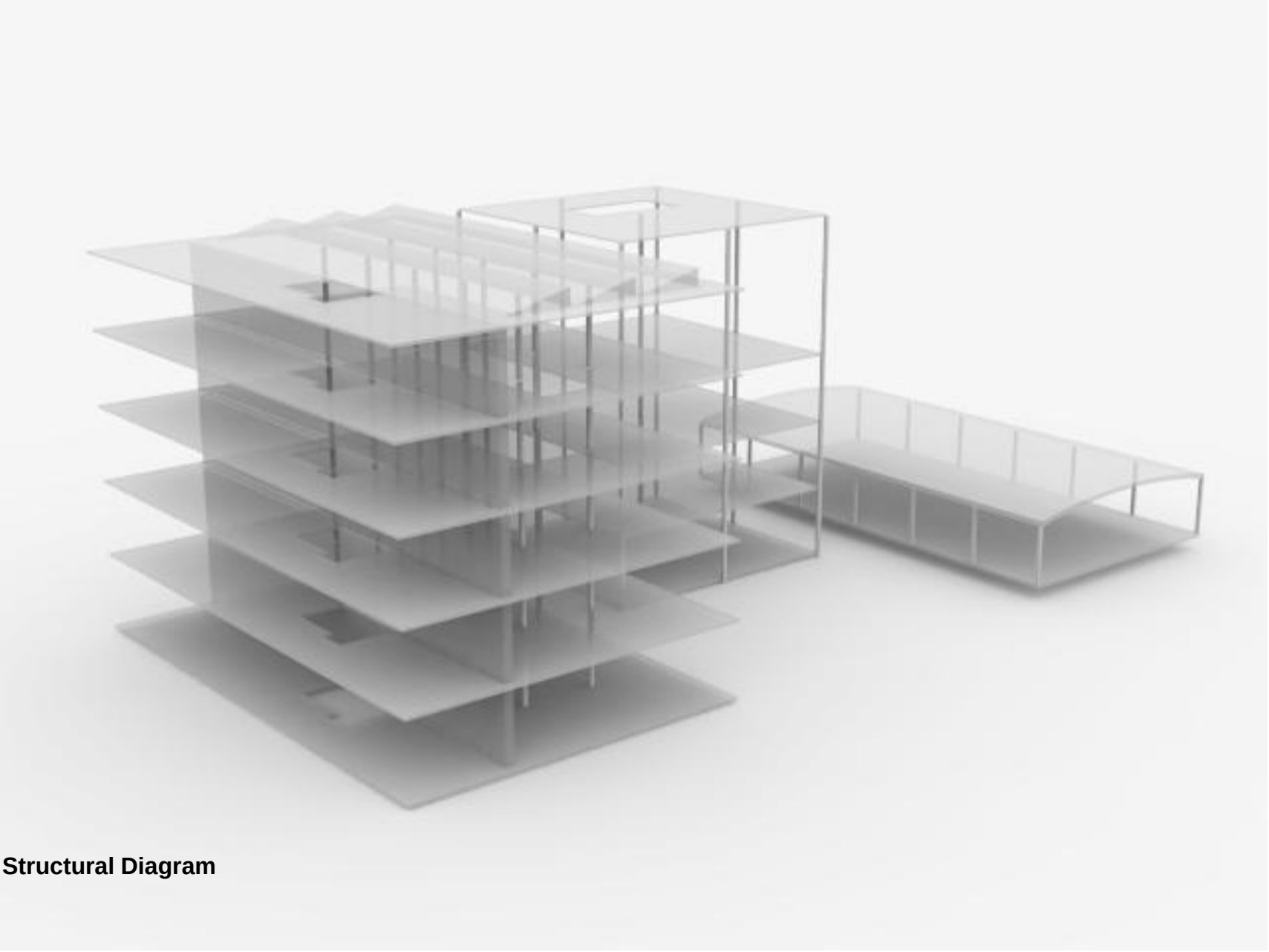
PROGRAM DIAGRAM_MACHINERY HALL
LEVEL 04



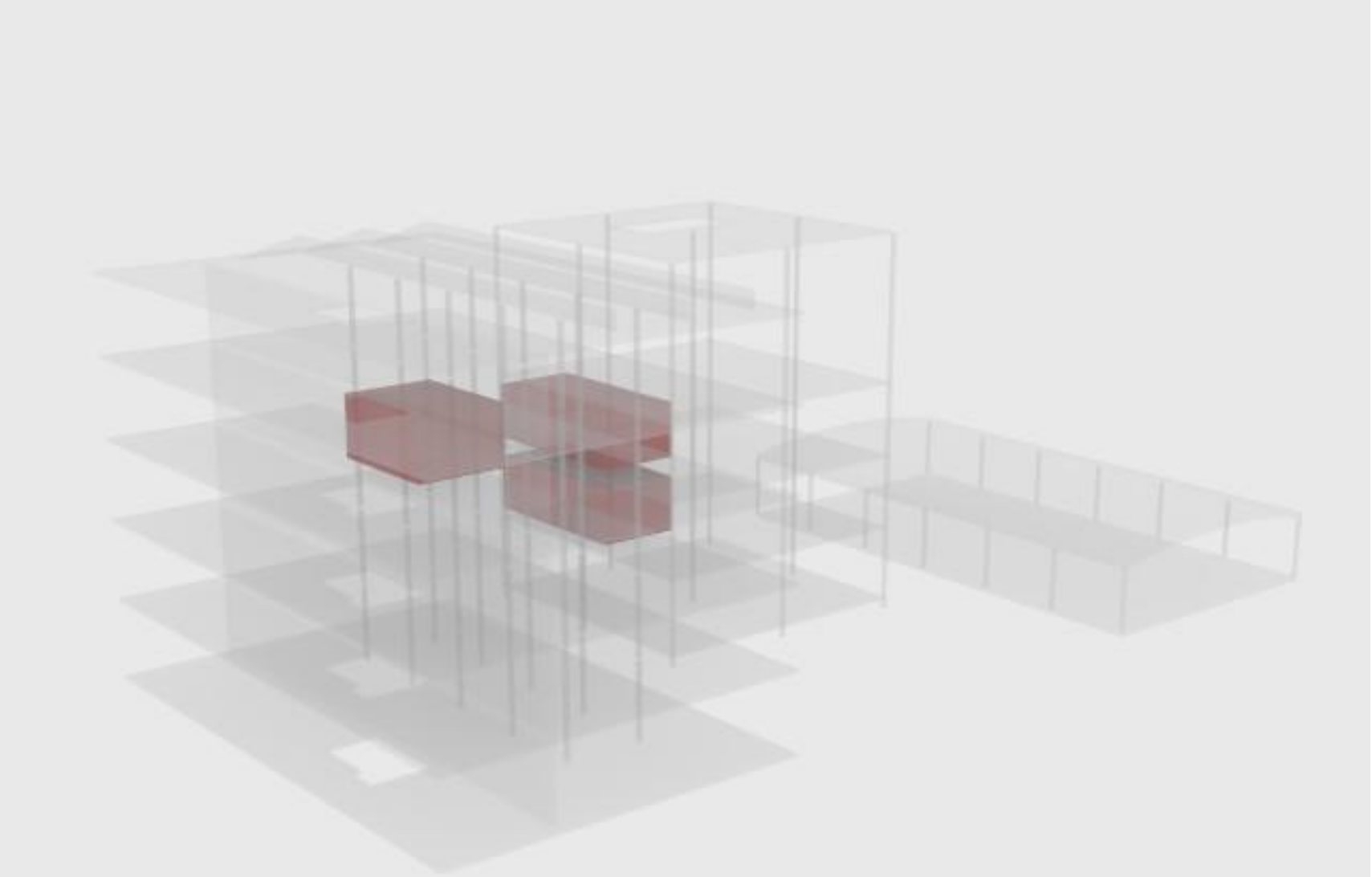
PROGRAM DIAGRAM_MACHINERY HALL
LEVEL 03



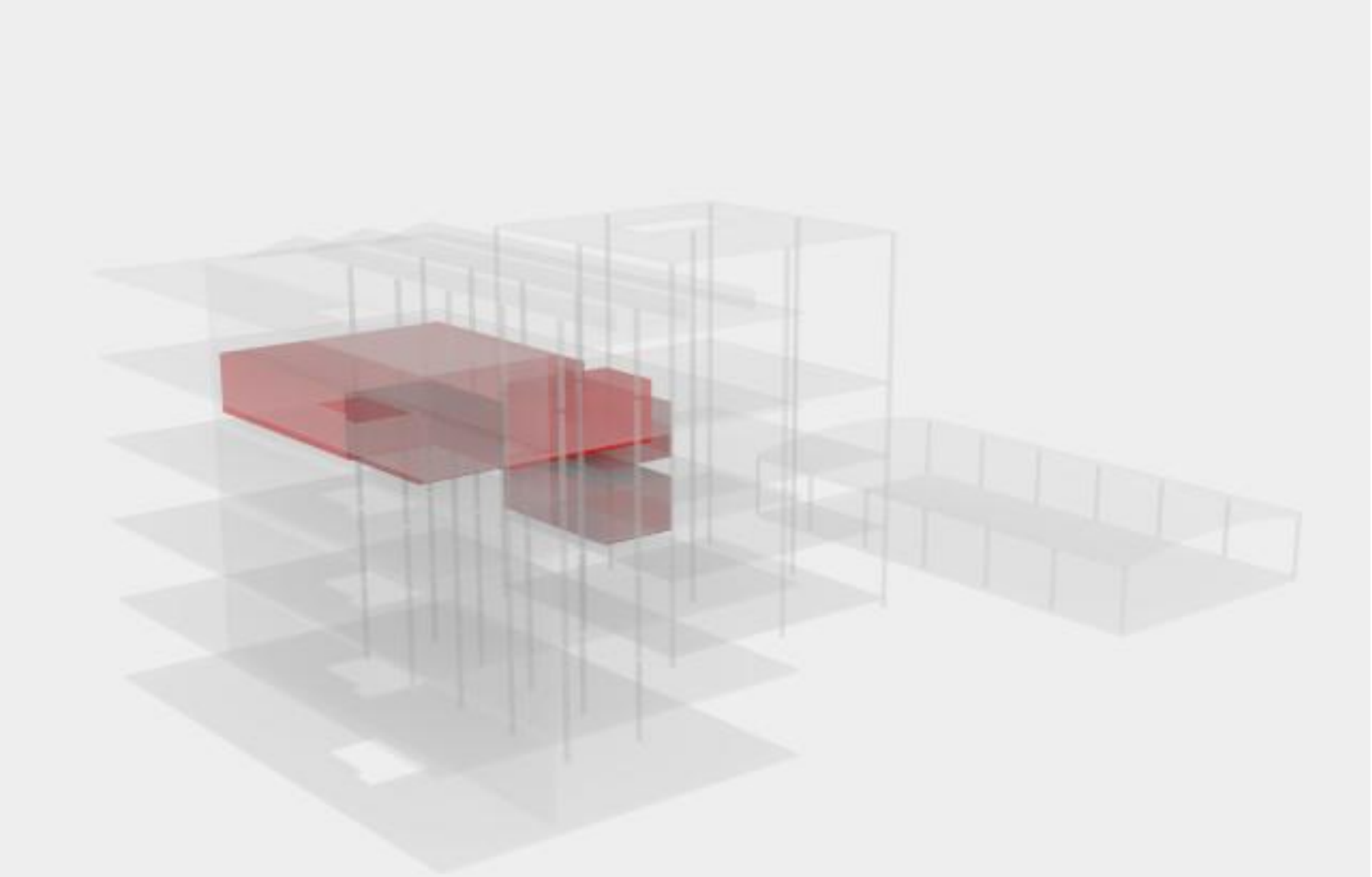
Exploded Axonometric View



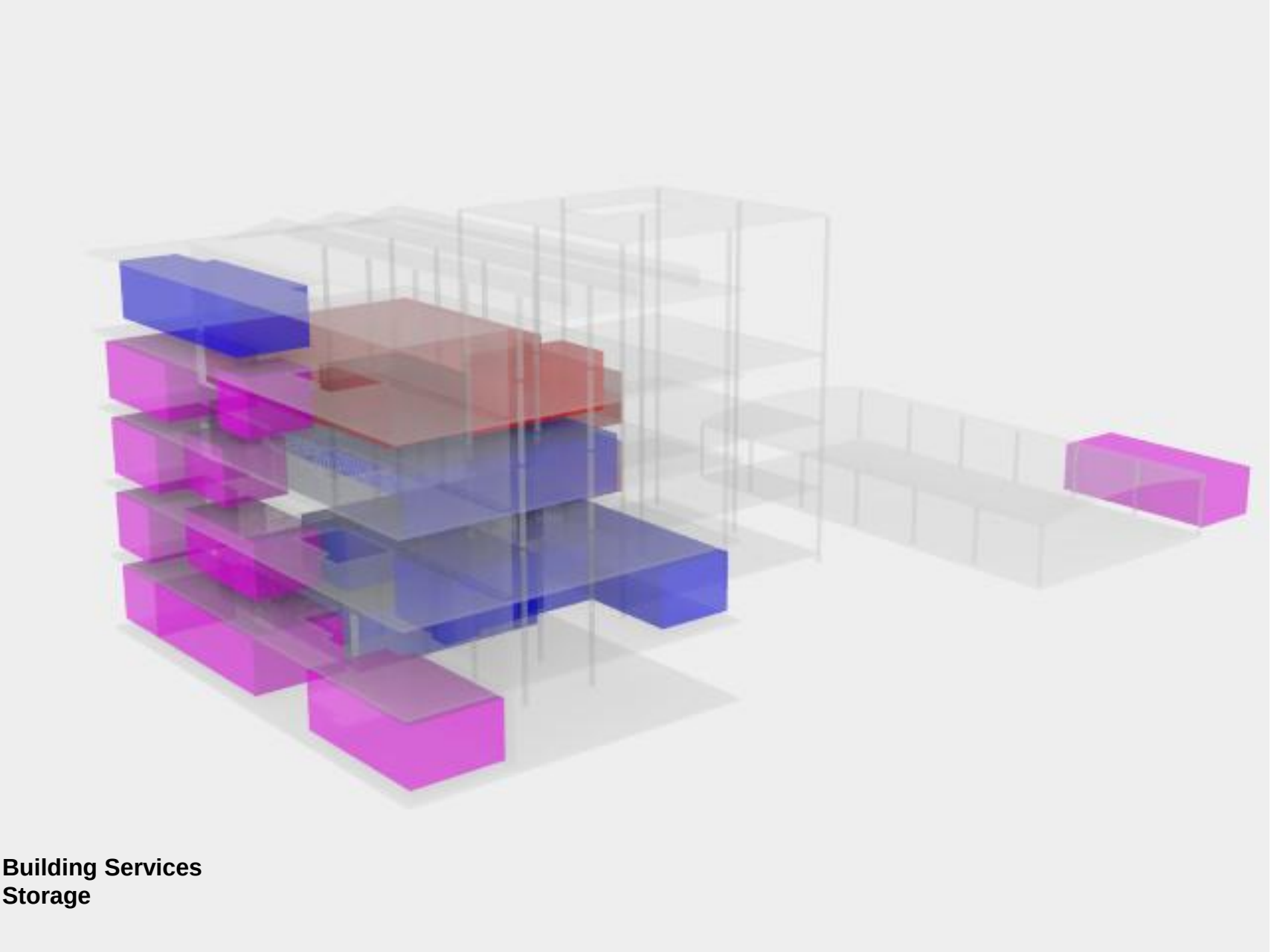
Structural Diagram



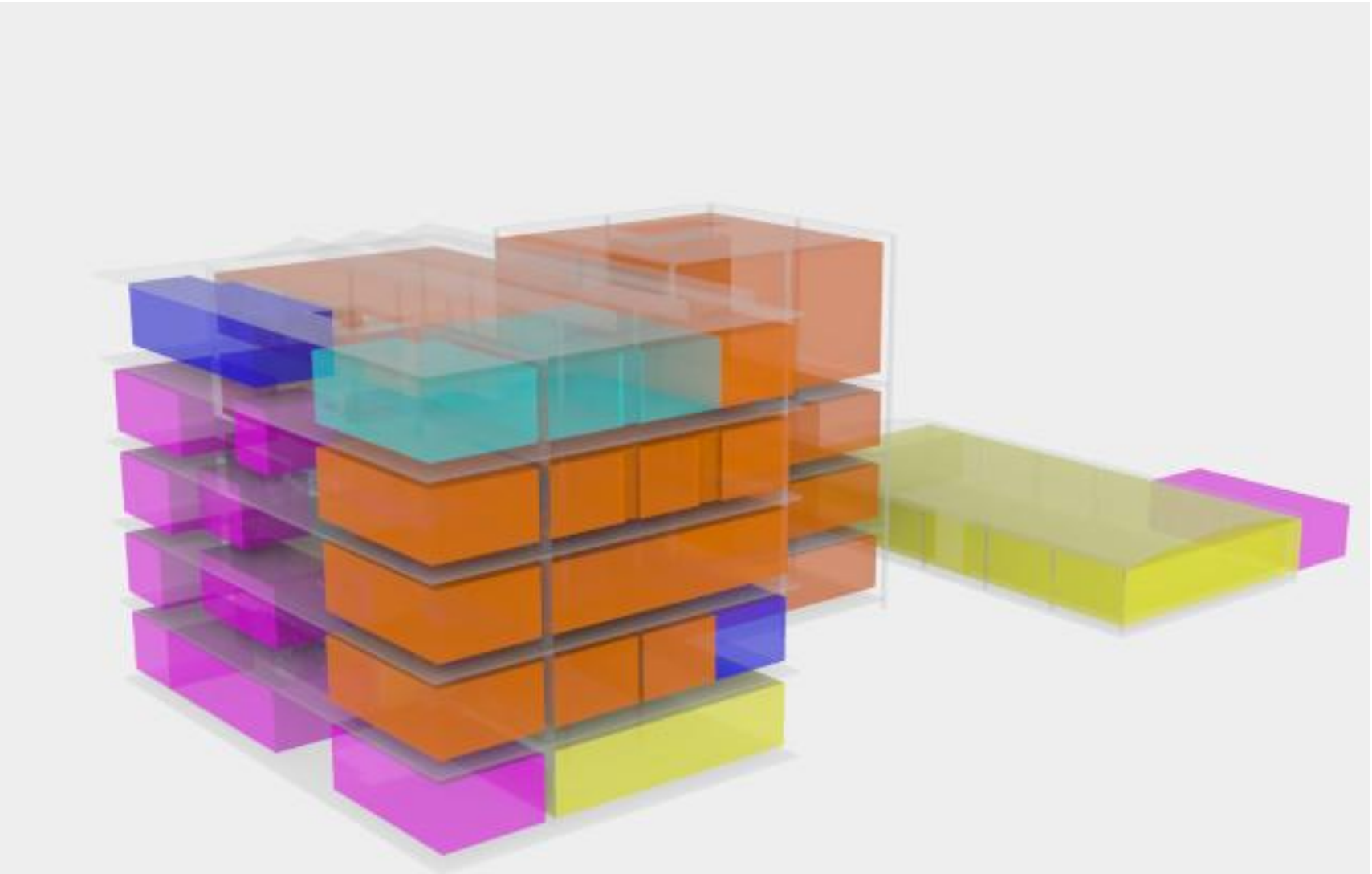
Common Areas



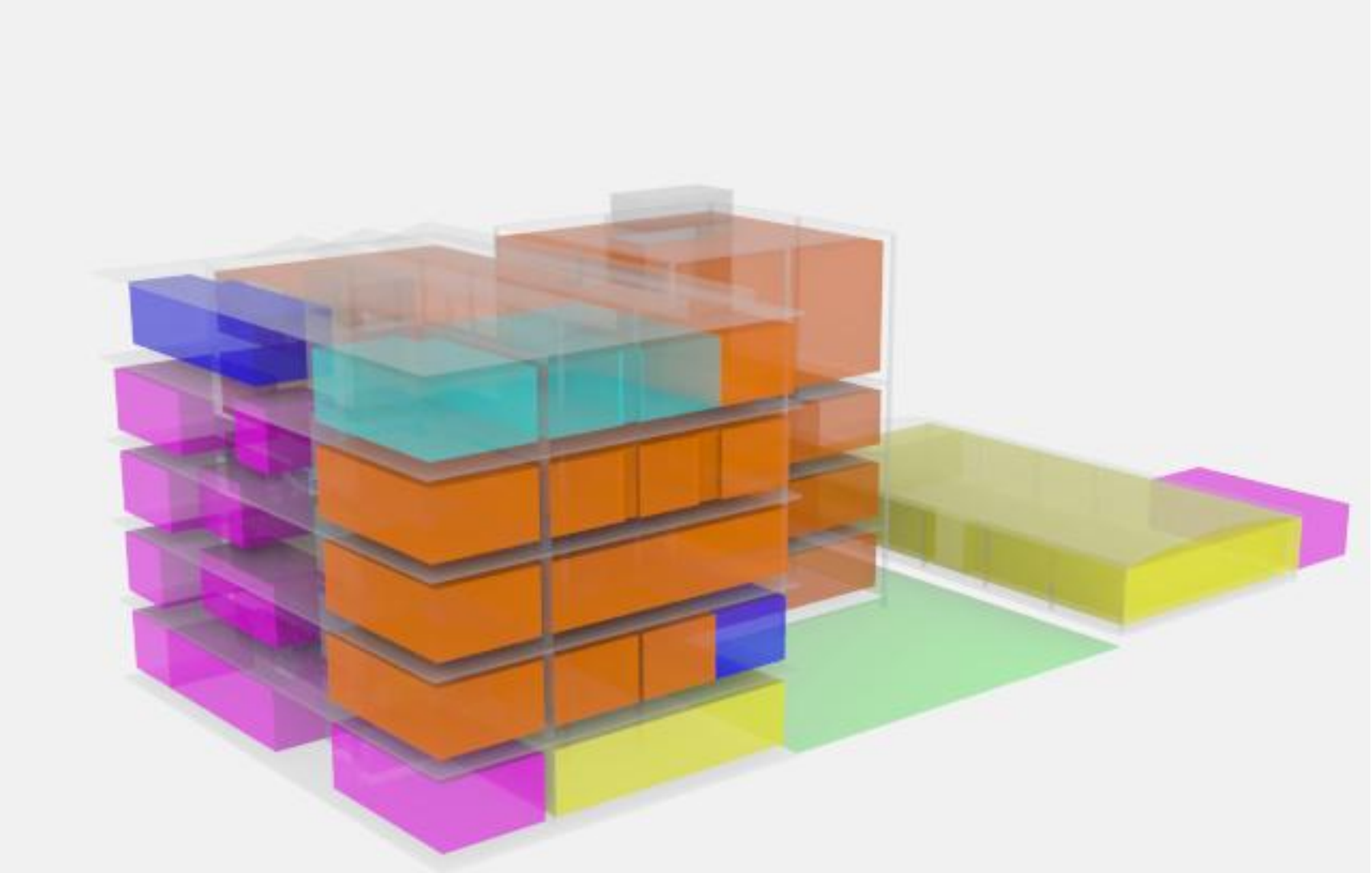
IIT_IPRO Offices



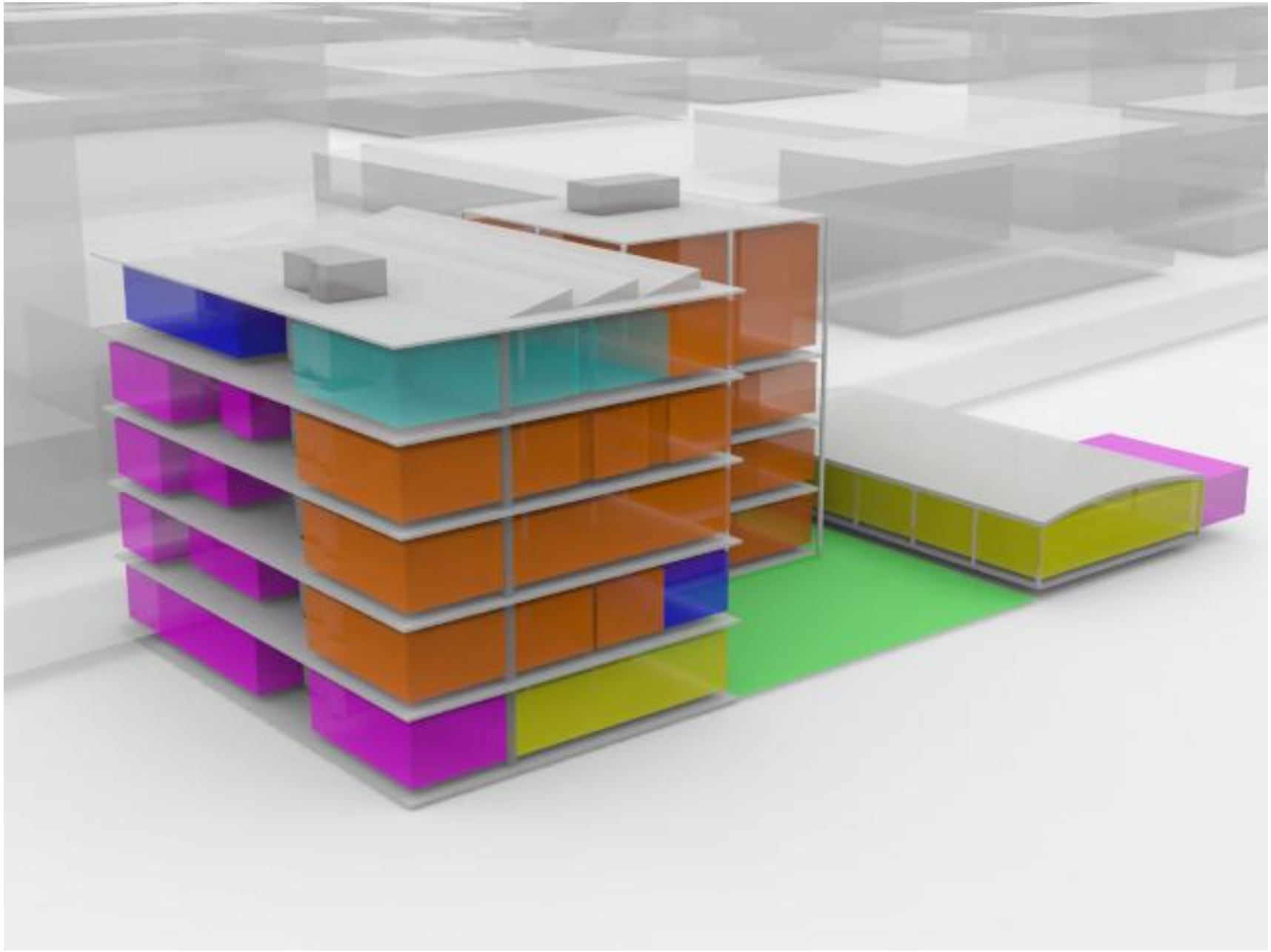
Building Services
Storage



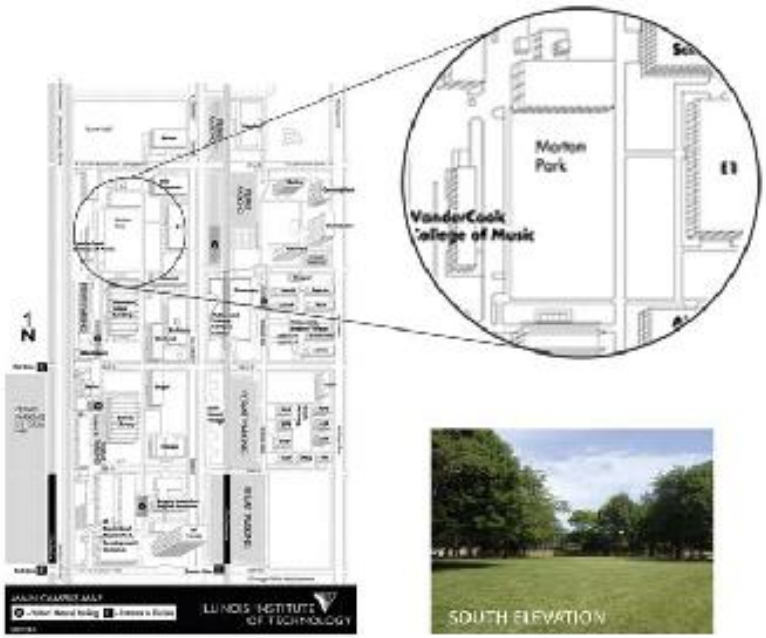
Shops
Instructur / Student Offices
Class / Meeting Rooms



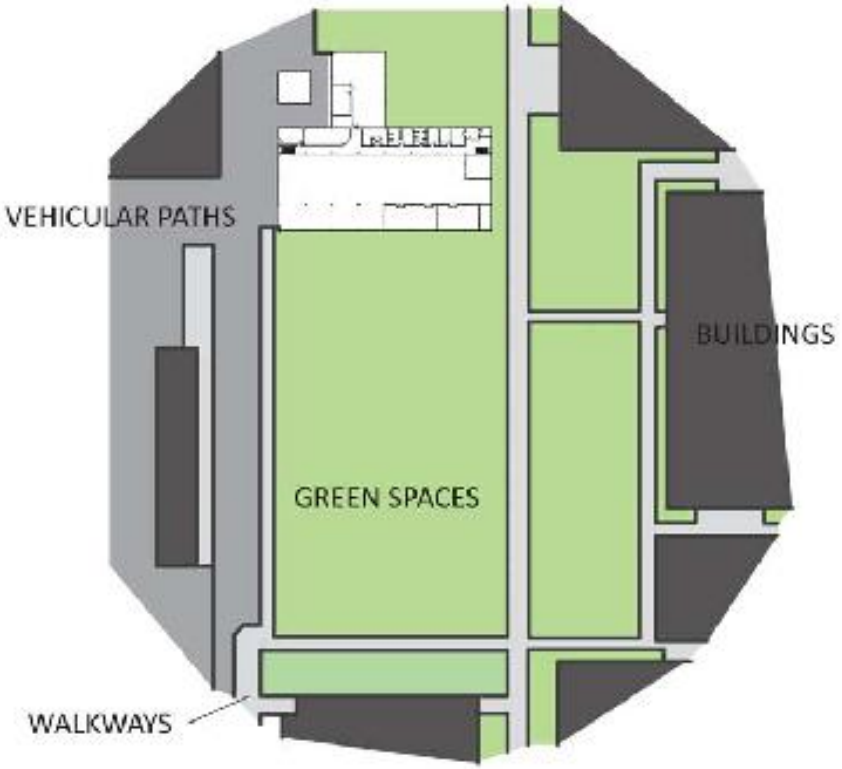
Outdoor Areas



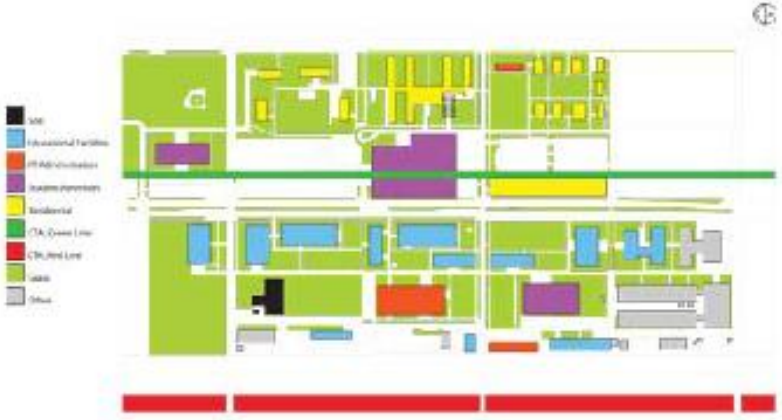
A2 – CTA BUILDING


Morton Park
VanderCook College of Music
N
ILLINOIS INSTITUTE OF TECHNOLOGY

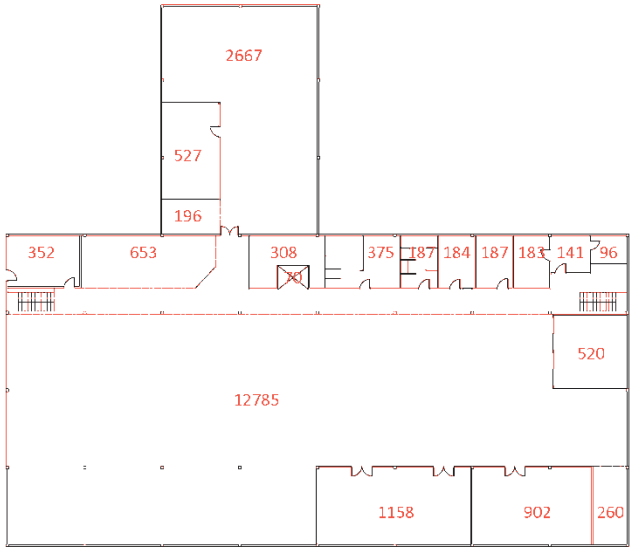
SOUTH ELEVATION


VEHICULAR PATHS
BUILDINGS
GREEN SPACES
WALKWAYS

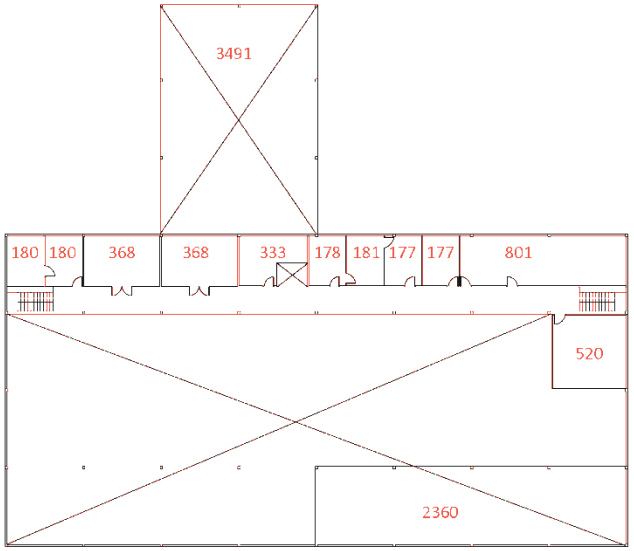

RED LINE
TRAIN STOP
GREEN LINE
TRAIN STOP
35ST. EXIT
31ST. EXIT
TO LAKE SHORE DRIVE
31ST. EXIT



EXISTING FLOOR AREA TO PROPOSED PROGRAM



FIRST FLOOR SCALE - 1'=1/32" TOTAL = 21,751 s.f.



SECOND FLOOR SCALE - 1'=1/32" TOTAL = 9,384 s.f.

EXISTING TOTAL = 31,135 s.f.

PROPOSED PROGRAM

IIT IPRO Offices (support staff): 2893 sq. ft.
- -8 office spaces:
- -common area:
- -meeting room:
- -storage/printing:

Shops: 6836 sq. ft.
- -prototyping/model making shop:
- -office space:
- -crib:
- -storage lockers:
- -shop storage:

Class/Meeting Rooms: 21,542 sq. ft.
- -lecture rooms (15):
- -computer labs (2):
- -design spaces (5):
- -large conference hall:
- -library:
- -study space (2):
- -presentation spaces (1):

Instructor/Student Offices: 550 sq. ft.
- -instructor offices (1):
- -student/support offices (1):

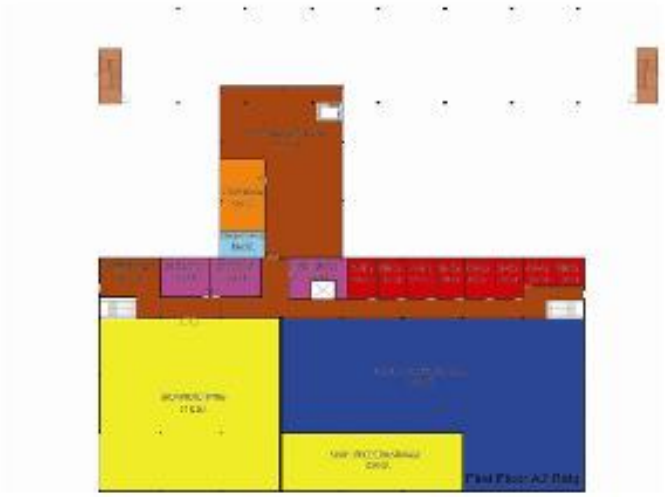
Storage: 7000 sq. ft.
- -archival storage:
- -model storage:

Building Services: 1800 sq. ft.
- -loading dock:
- -custodial:
- -mechanical:
- -rest rooms:

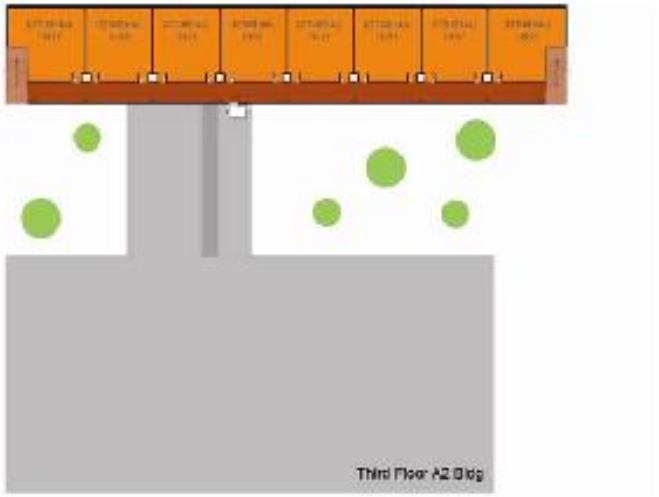
Common Areas: 2959 sq. ft.
- -lobby:
- -sitting areas:
- -display spaces:

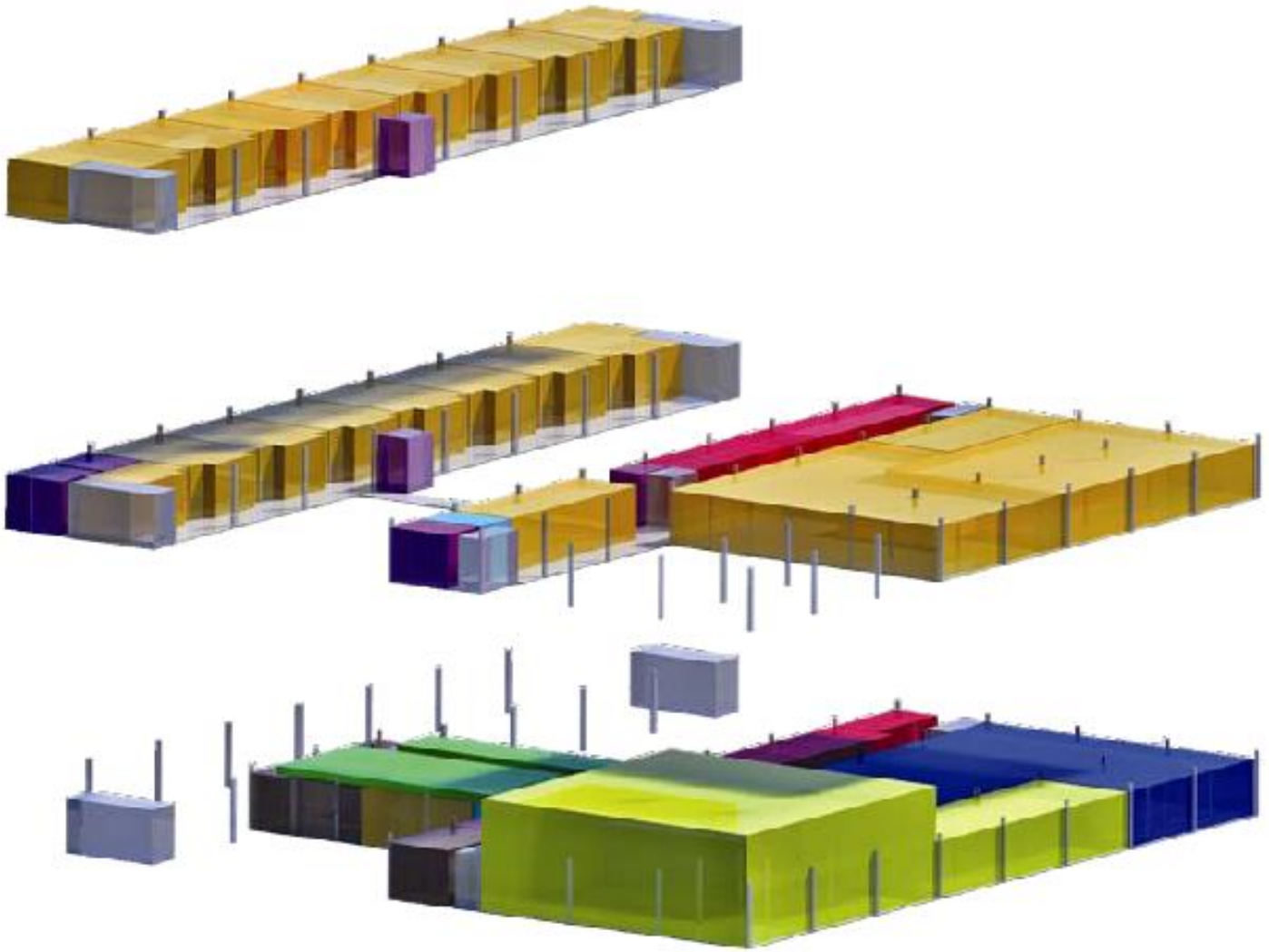
Outdoor Spaces: 2589 sq. ft.
- -garden:
- -education spaces:

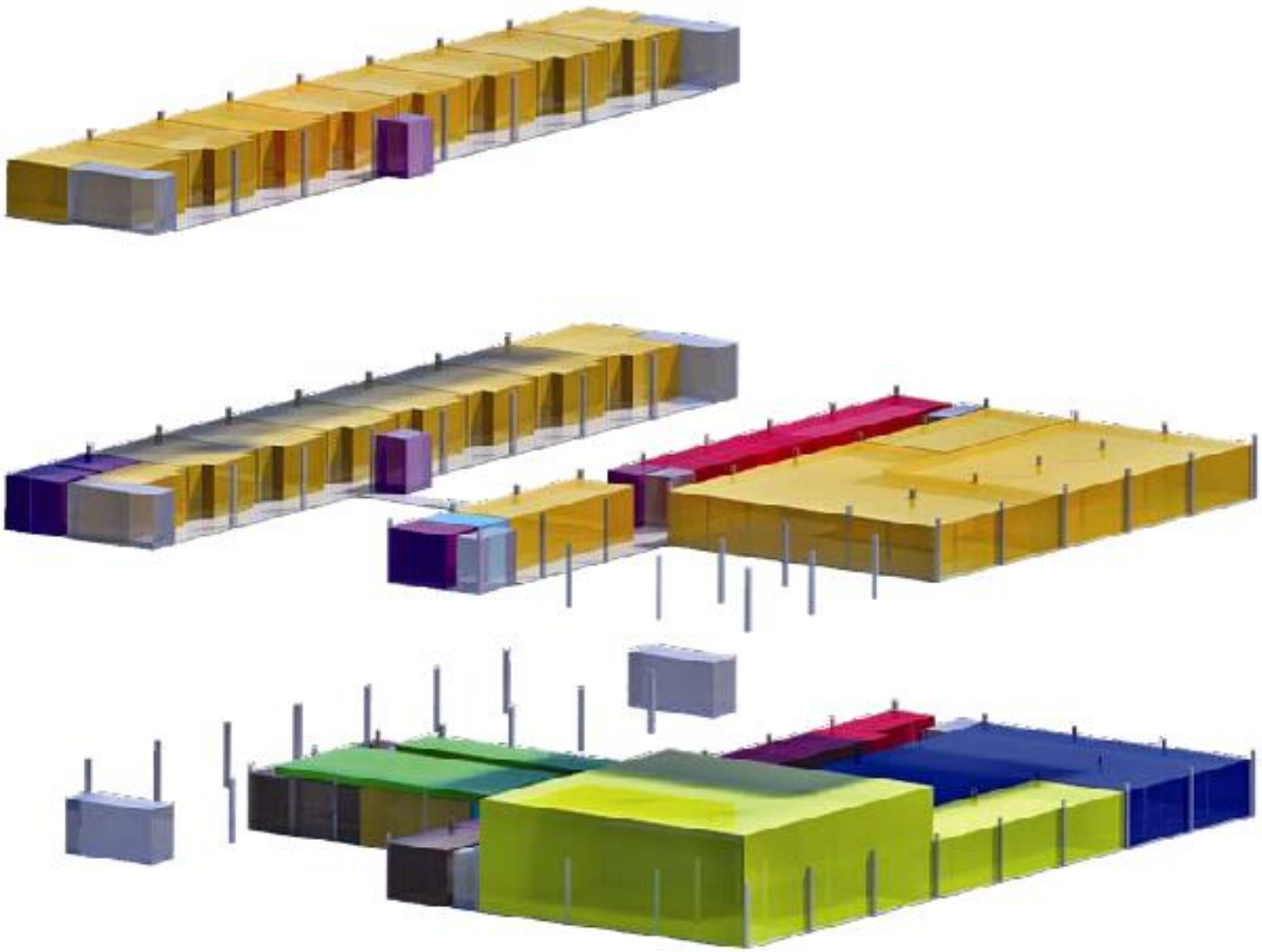
PROPOSED TOTAL = 46,169 s.f.

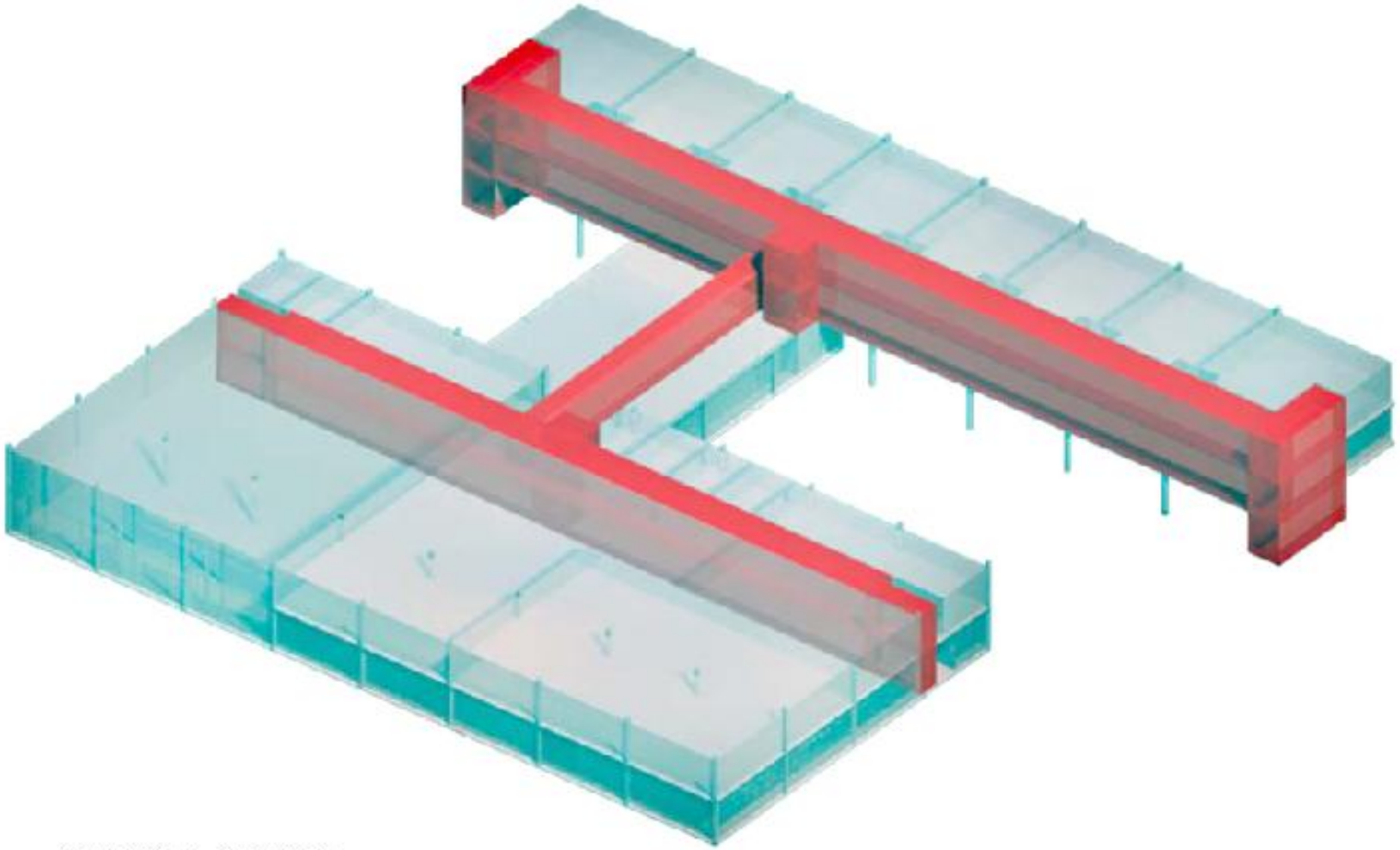



Second Floor A2 Bldg


Third Floor A2 Bldg

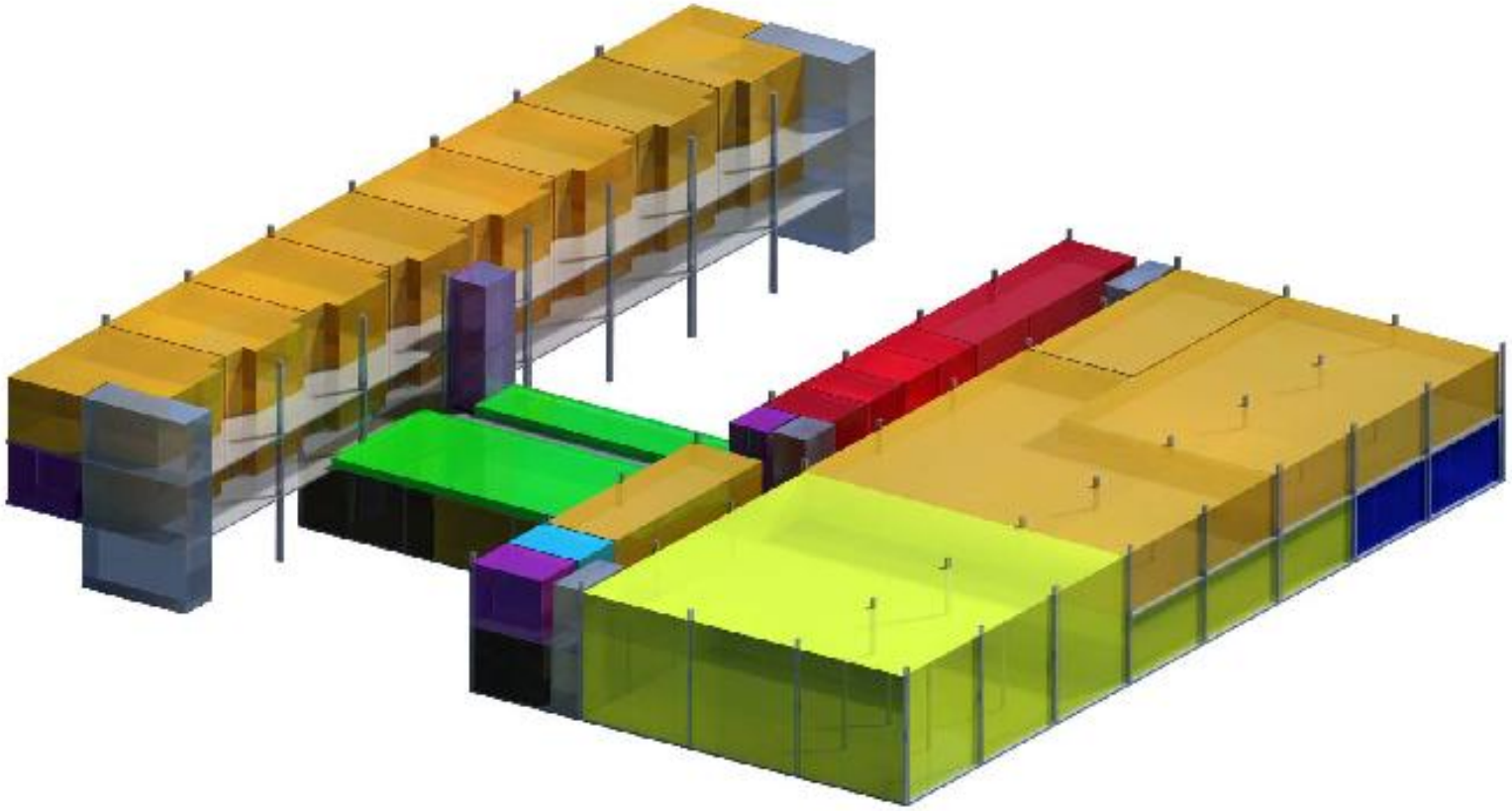




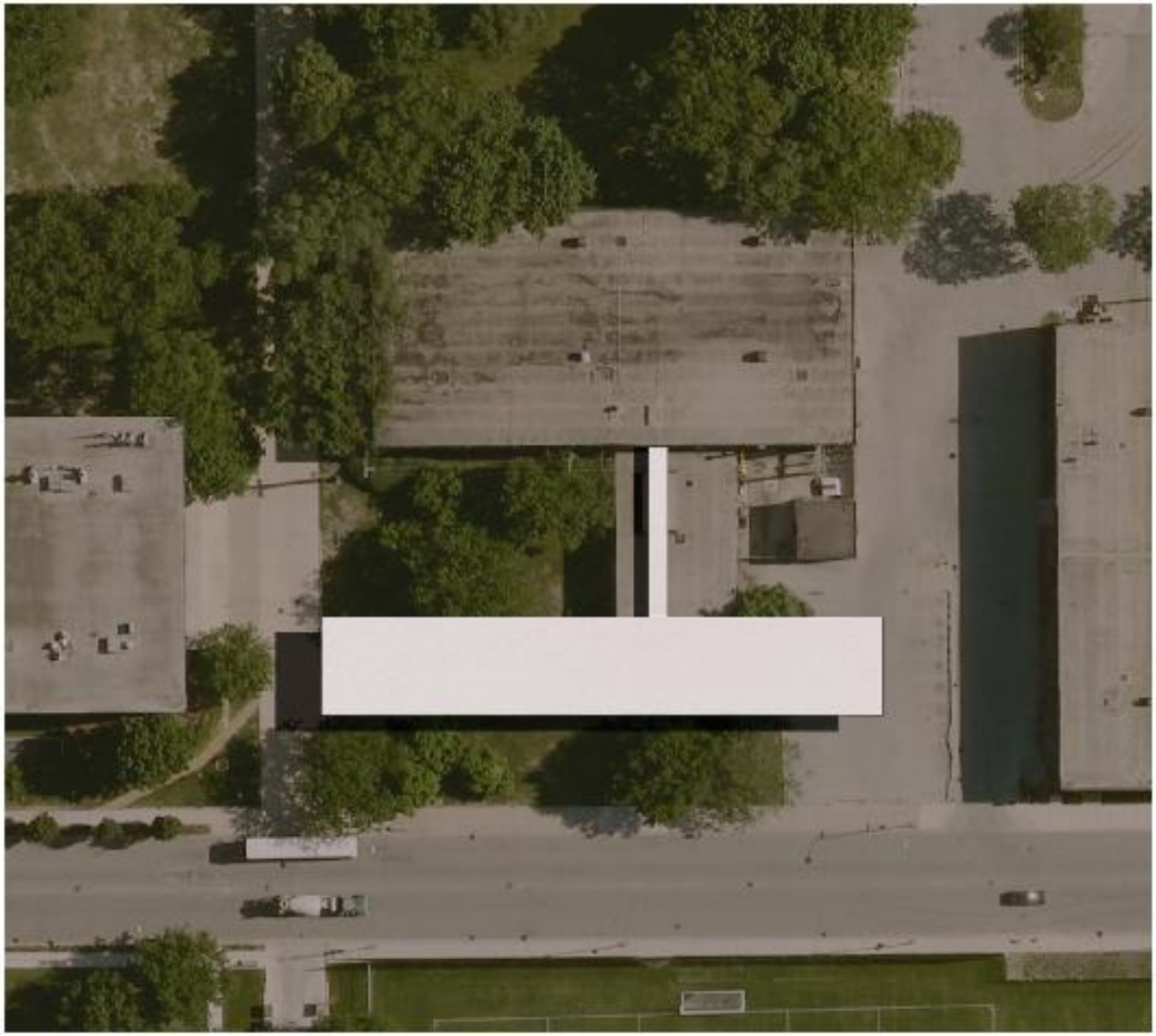


CIRCULATION

NORTHEAST PERSPECTIVE



SOUTHWEST PERSPECTIVE



The Next Steps

•An IPRO team continuing the collaboratory center project will need to gather feedback from others on the current progress of IPRO 301 and alter their plan of action accordingly.

•The project will need to continually become more focused (based on feedback and feasibility) with the ultimate goal of having an IPRO center constructed.

•Given more feedback and real world constraints (budgets etc) the once purely conceptual IPRO center can evolve into a realistic possibility.