

THINKING AHEAD

FLEXIBILITY AMONG ACTIVE LEARNING

A Thesis by Nathan Almen



HOW CAN ARCHITECTURE REDEFINE HIGHER EDUCATION?

An exploration of educational pedagogy and adaptive space. My interpretation of a potential educational shift.



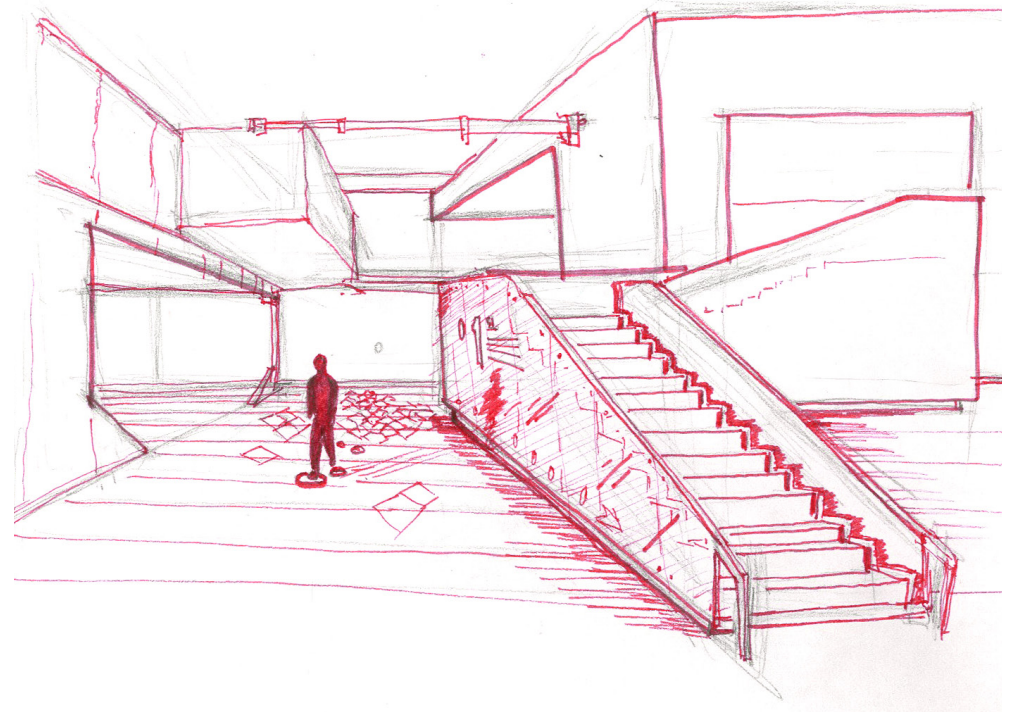
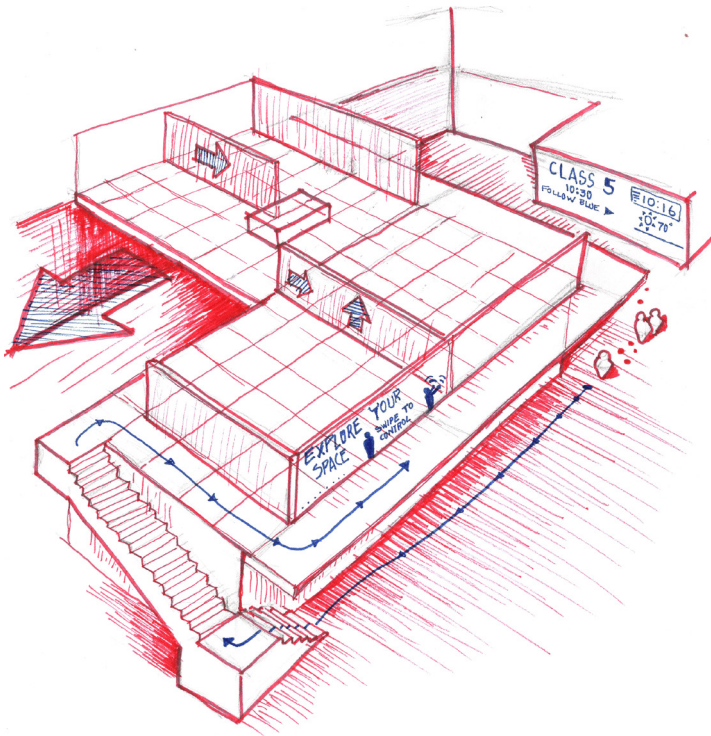
RESEARCH METHODOLOGY

EVALUATIVE RESEARCH METHODOLOGY

Analyzing past educational models and discovering what has made them successful has been the guiding research principle behind this project.

QUALITATIVE RESEARCH METHODOLOGY

Defining pedagogy and developing a deeper understanding of its successful principles became another important aspect of the project. Literature and past research examples illuminated qualities that the architecture can help emphasize.



A BRIEF REVIEW OF THE RESEARCH

What is active learning pedagogy?

ACTIVE LEARNING: Any instructional method that engages students in the learning process. In short, active learning requires students to do meaningful learning activities and think about what they are doing.



Why is active learning pedagogy effective?

CONTEXTUALIZED EDUCATION

NON-DESCRIPT

STUDENT INVOLVEMENT

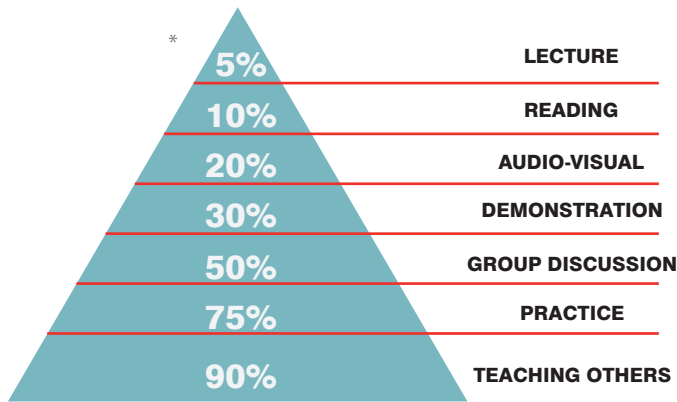
What other aspects of education play a role in our intellectual advancement?

SOCIAL

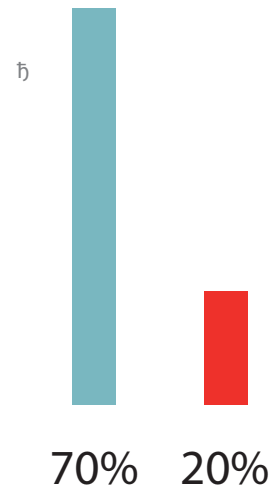
SELF PERCEPTION

CONNECTION TO NATURE

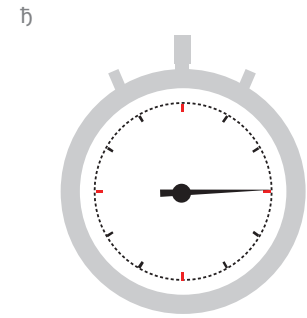
QUICK FACTS REGARDING PEDAGOGY



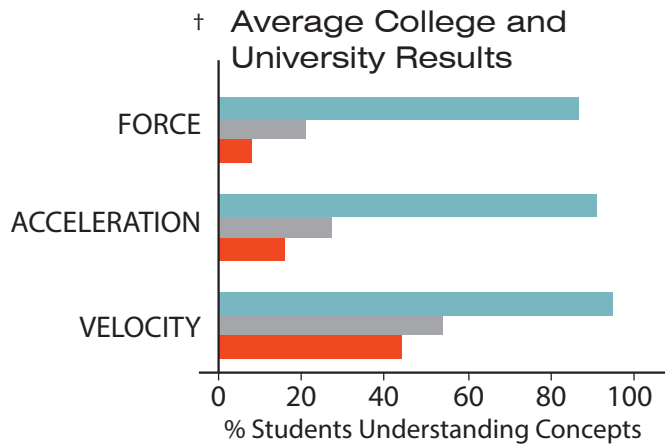
EDUCATIONAL RETENTION PYRAMID



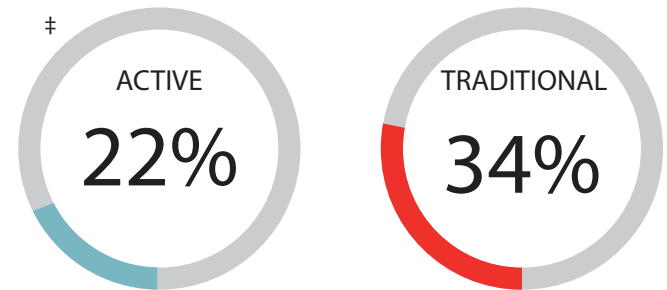
LECTURE RETENTION:
FIRST 10 MINUTES AND LAST 10 MINUTES



STUDENT ATTENTION SPAN
DURING A LECTURE IS ROUGHLY
15 MINUTES



■ After New Methods
■ After Traditional Instruction
■ Before Instruction



PERCENTAGE OF STUDENTS WHO FAILED TEST COURSE

† Laws, P., D. Sokoloff, and R. Thornton, "Promoting Active Learning Using the Results of Physics Education Research," *uniServe Science News*, Vol. 13, July 1999

‡ Freeman, S., S. Eddy, and M. McDonough "Active Learning Increases student performance in science, engineering, and mathematics," October 2013

§ Prince, "Does Active Learning Work? A Review of the Research," *J. Engr. Education*, 93 (3), 223-231, 2004

* Adapted from National Training Laboratories. Bethel, Maine

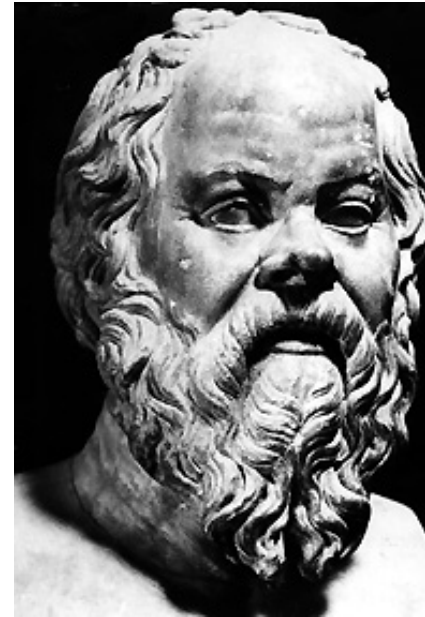
3 SCHOOLS OF THOUGHT INSPIRATION THROUGH THEORY



MARIA MONTESSORI

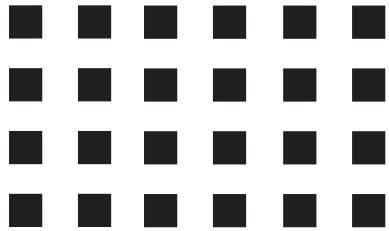


JOHN DEWEY

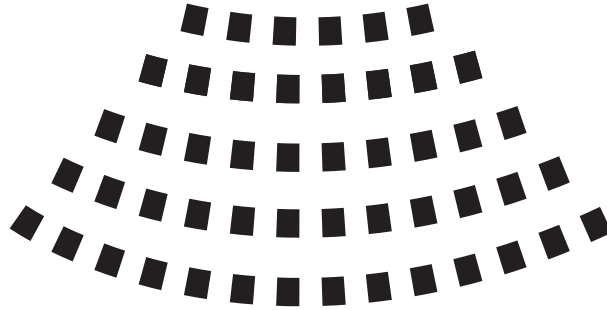


SOCRATES

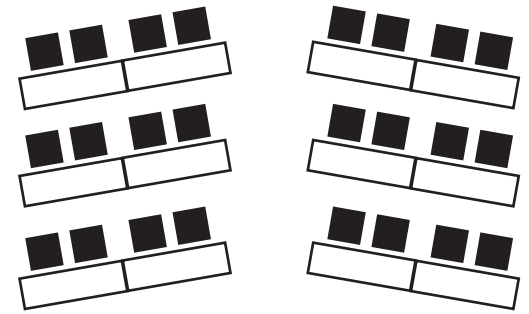
CLASSROOM SPATIAL ARRANGEMENT ANALYSIS



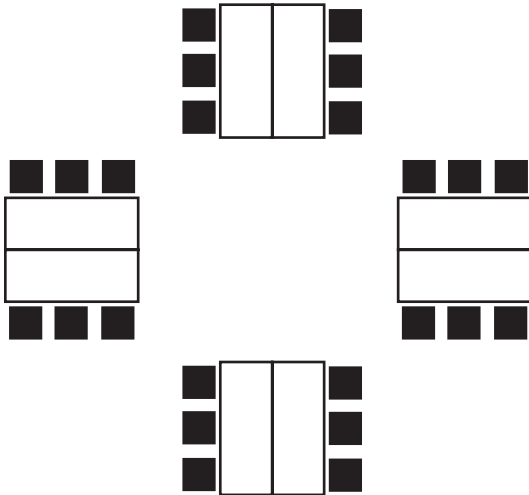
TRADITIONAL GRID ARRANGEMENT



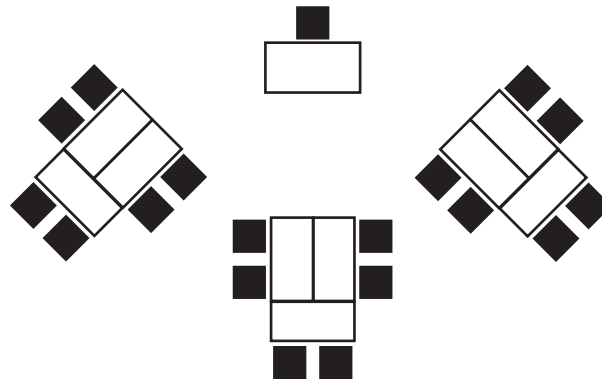
TIERED ARRANGEMENT



HERRINGBONE ARRANGEMENT



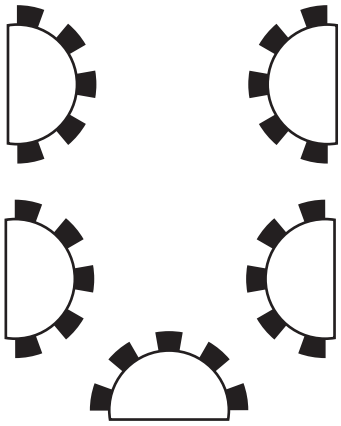
CLUSTERED ARRANGEMENT



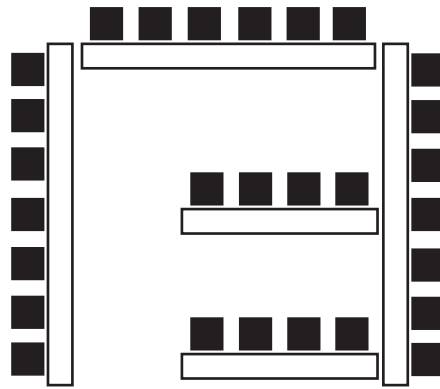
CLUSTERED RADIAL ARRANGEMENT



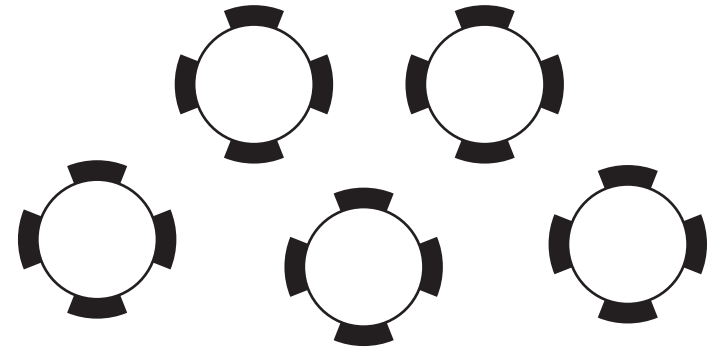
BOARDROOM ARRANGEMENT



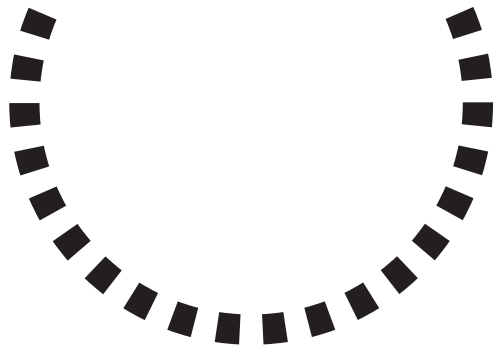
MEDIA CENTER ARRANGEMENT



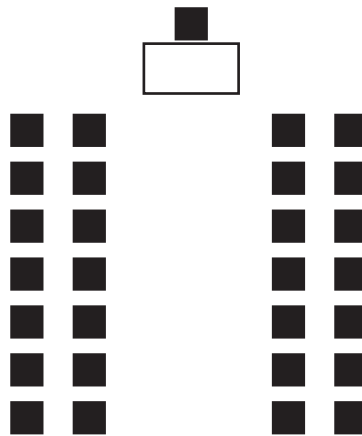
CHAINED ARRANGEMENT



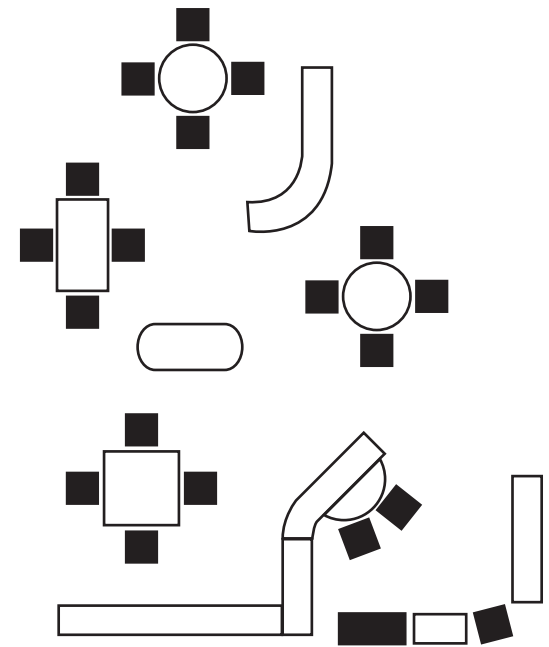
BALLROOM ARRANGEMENT



HORSESHOE ARRANGEMENT



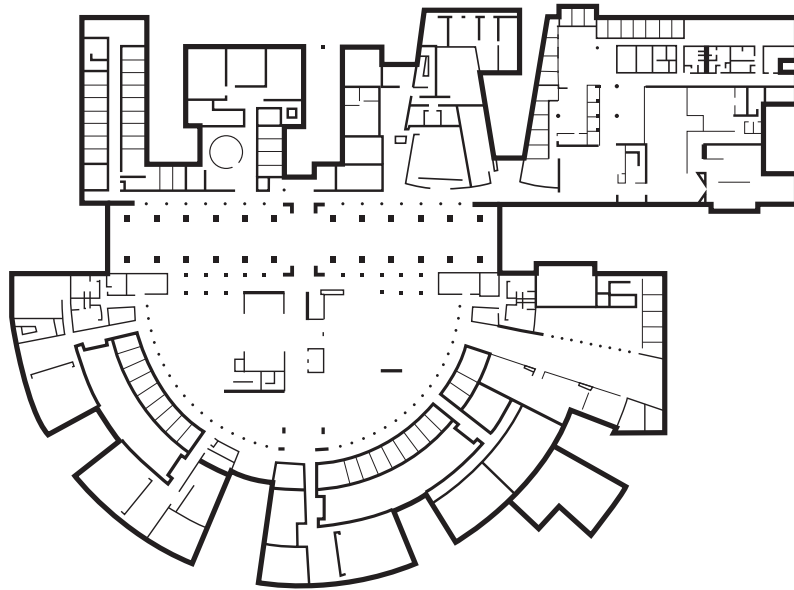
RUNWAY ARRANGEMENT



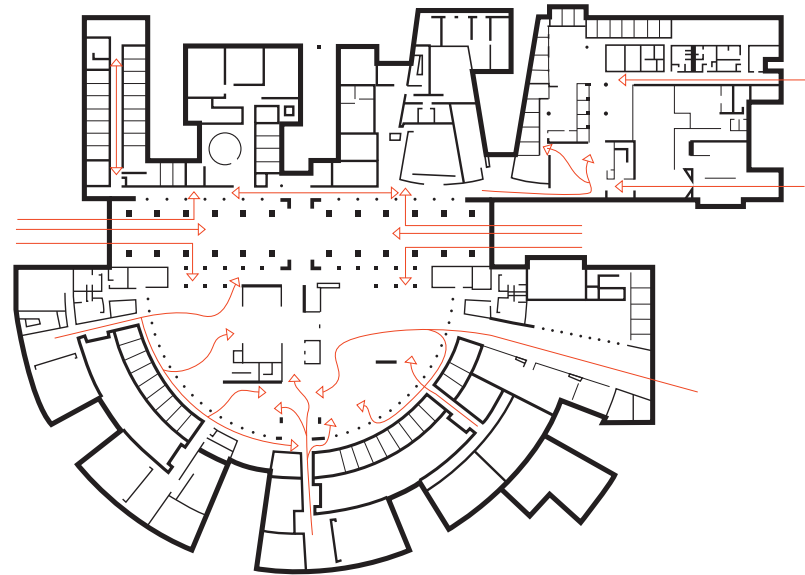
MONTESSORI ARRANGEMENT

CLASSROOM SPATIAL ARRANGEMENT ANALYSIS

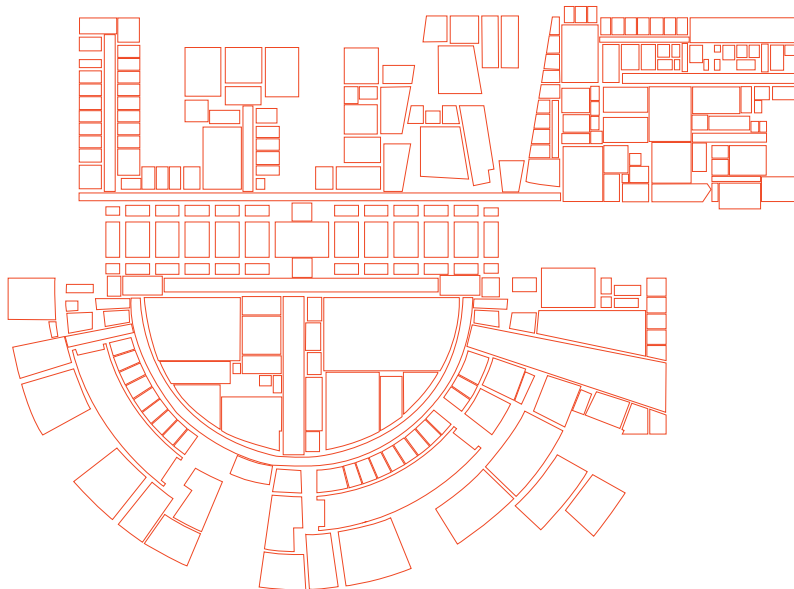
HBKU CARNEGIE MELLON - LEGORRETA + LEGORRETA



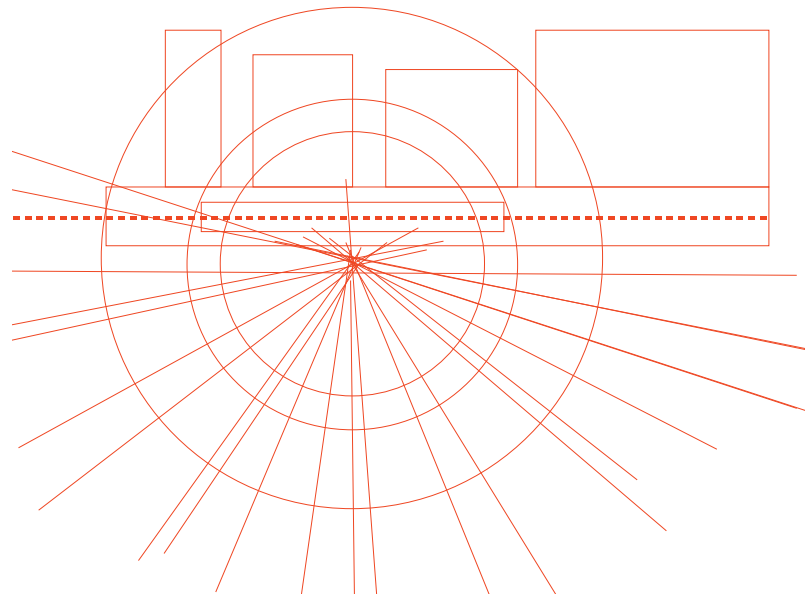
FLOOR PLAN



PATHS OF CIRCULATION

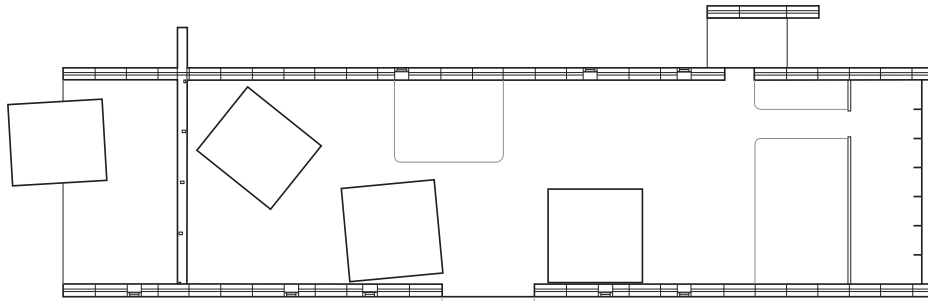


SPATIAL ANALYSIS

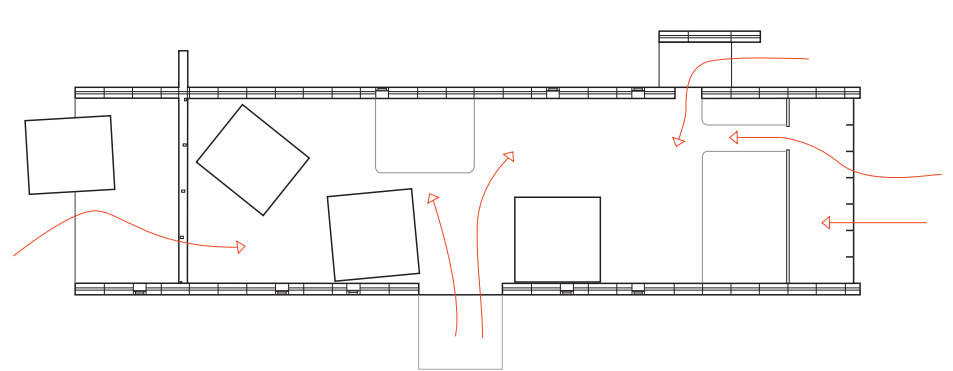


DEFINING GEOMETRY

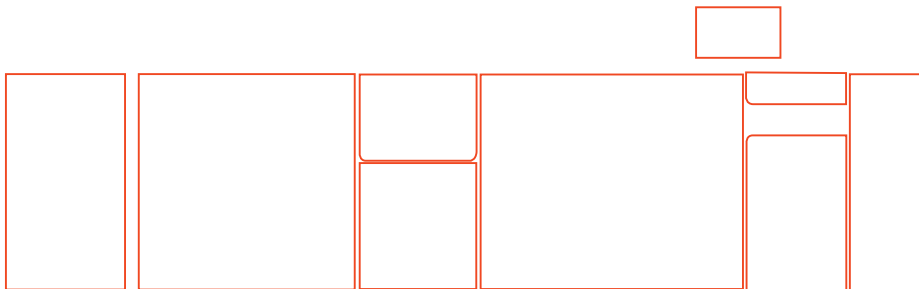
NAKED HOUSE - SHIGERU BAN



FLOOR PLAN



PATHS OF CIRCULATION



SPATIAL ANALYSIS

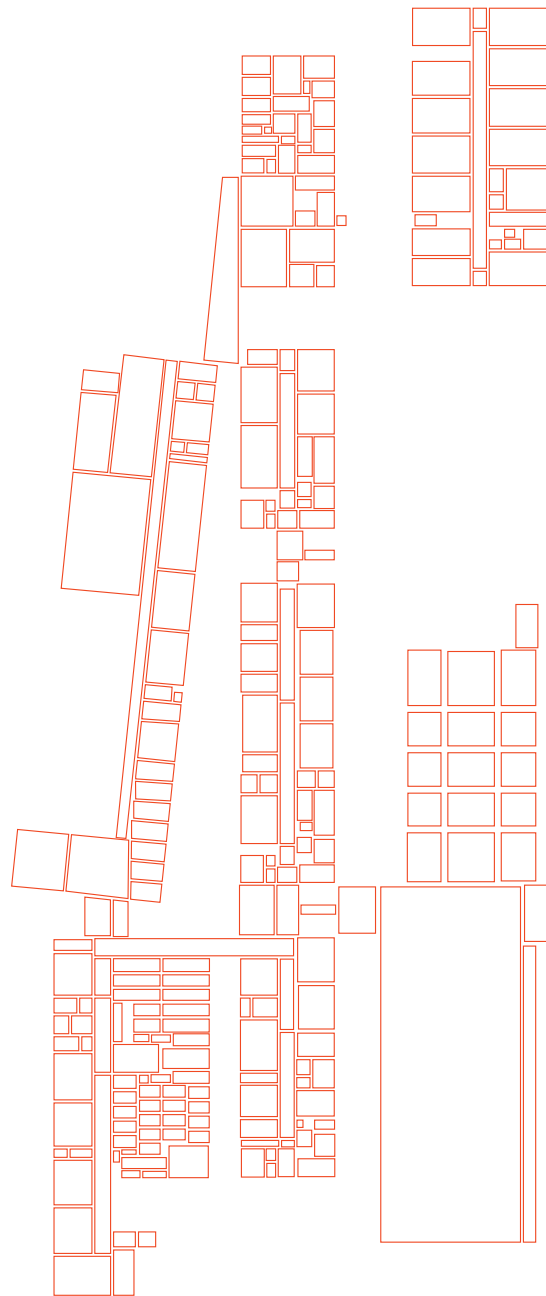


DEFINING GEOMETRY

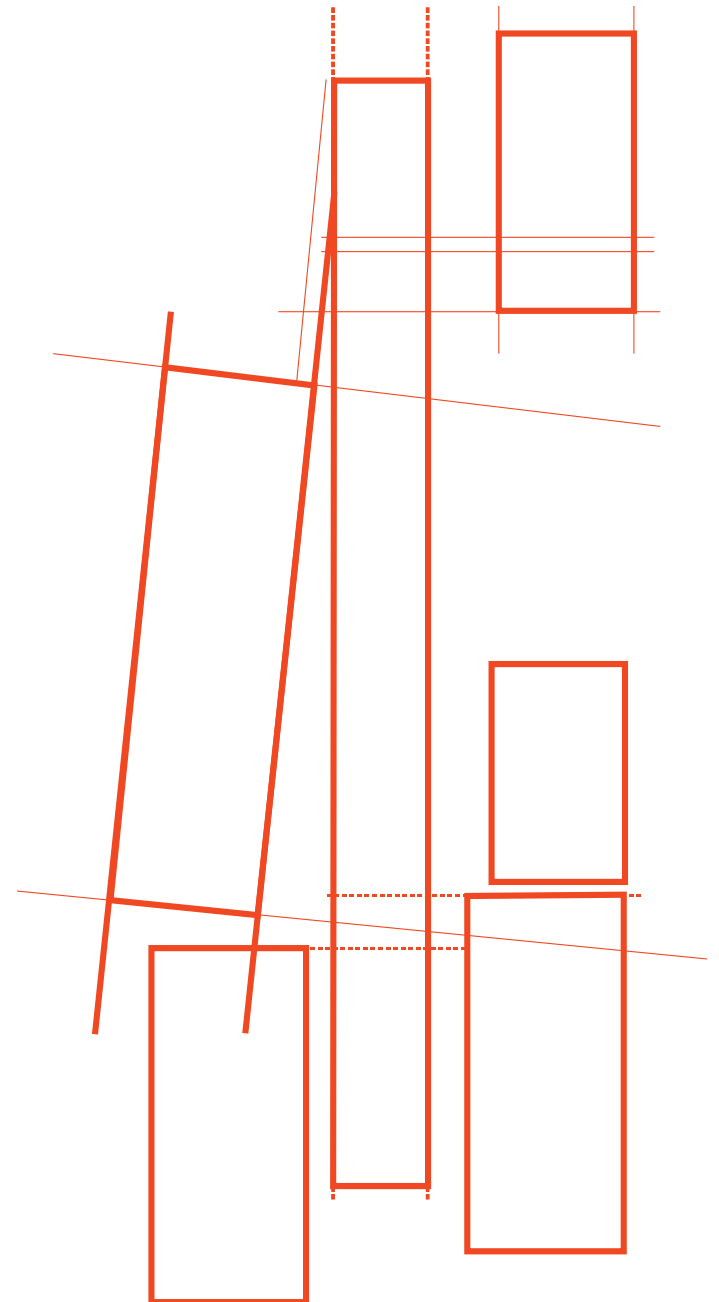
BOURNVILLE COLLEGE - BROADWAY MALYAN



FLOOR PLAN/CIRCULATION



SPATIAL ANALYSIS



DEFINING GEOMETRY

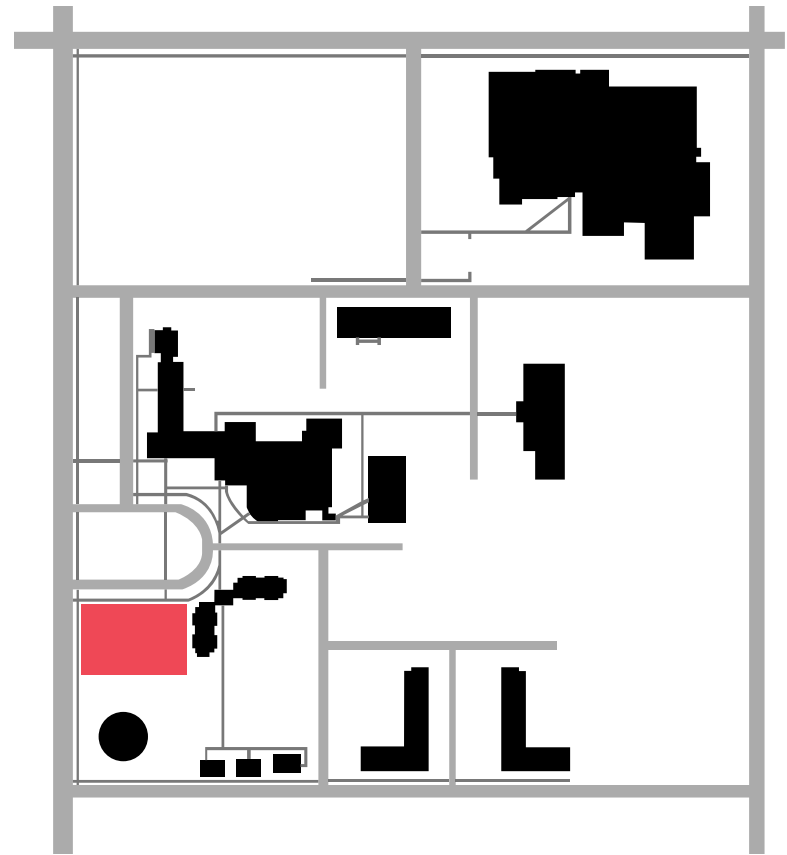


SITE ANALYSIS

Williston, ND

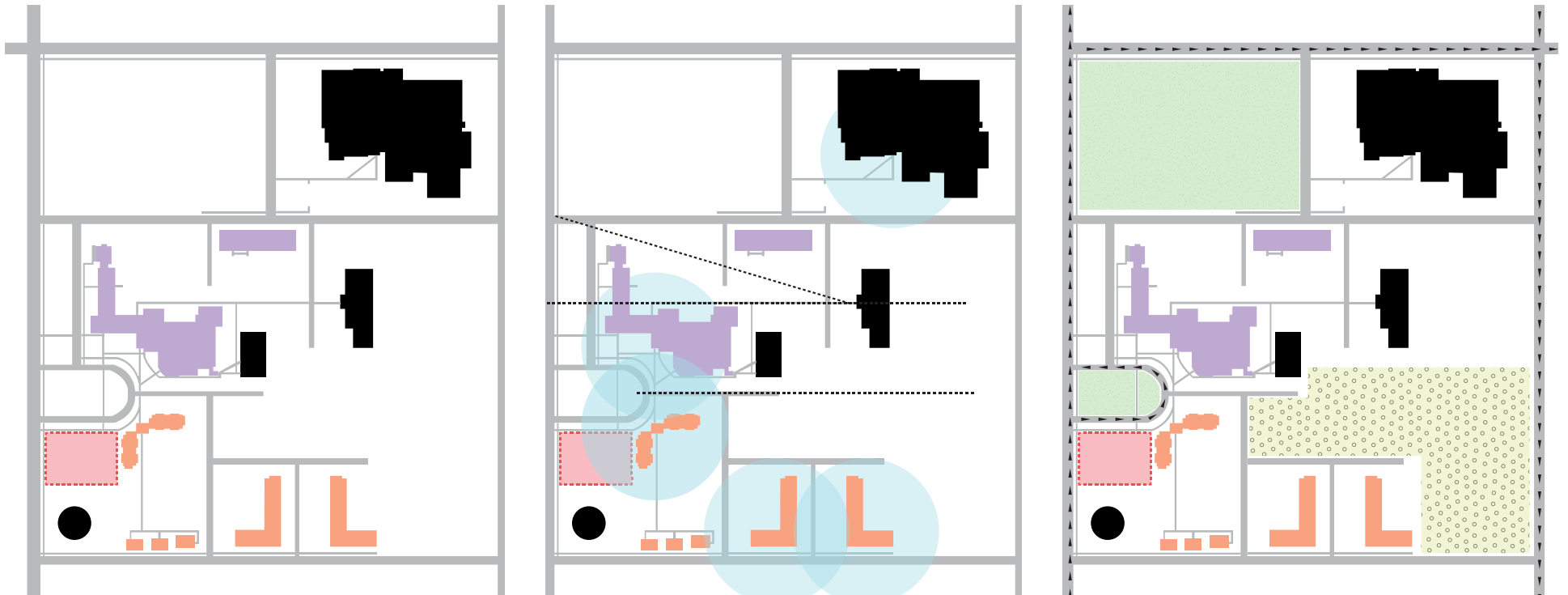


WILLISTON FIGURE GROUND



WSC CAMPUS MAP

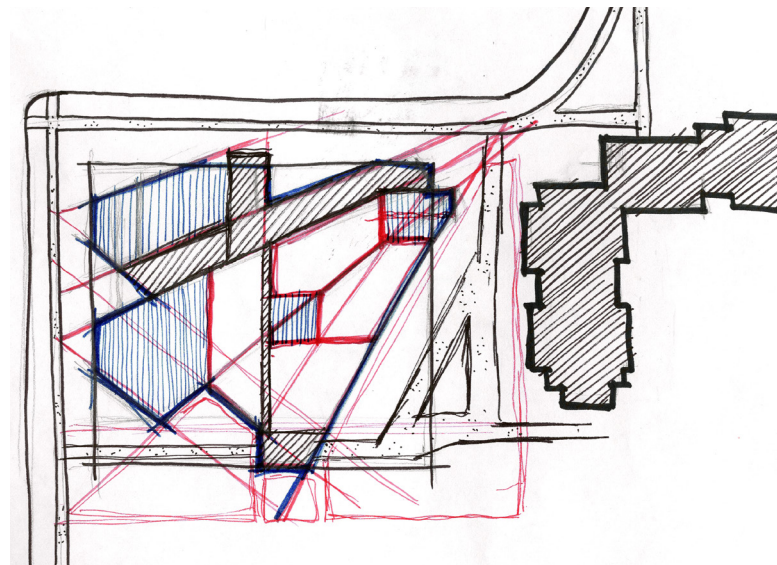
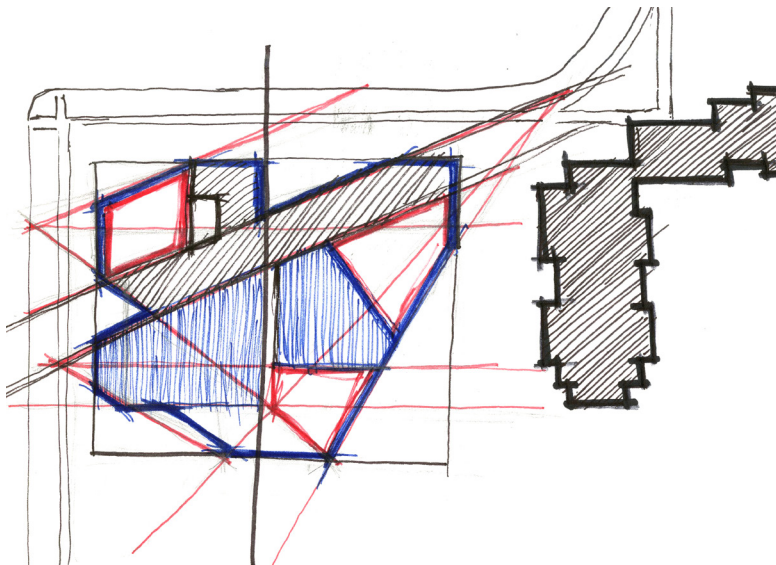
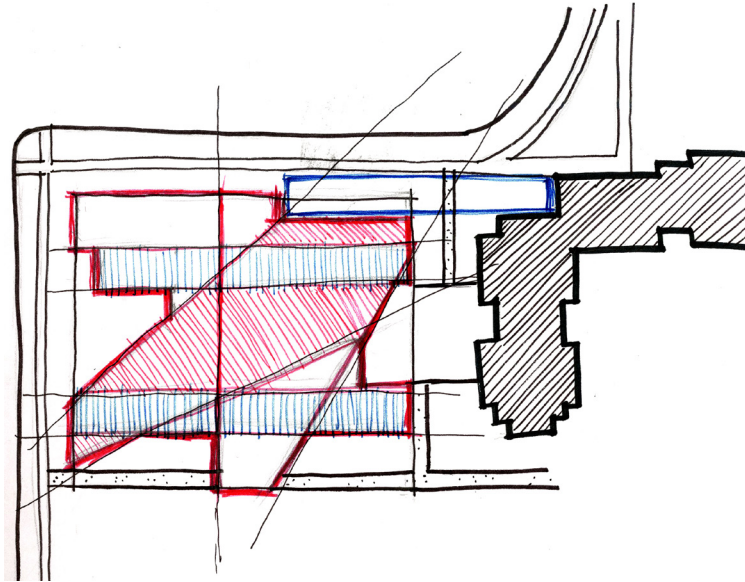
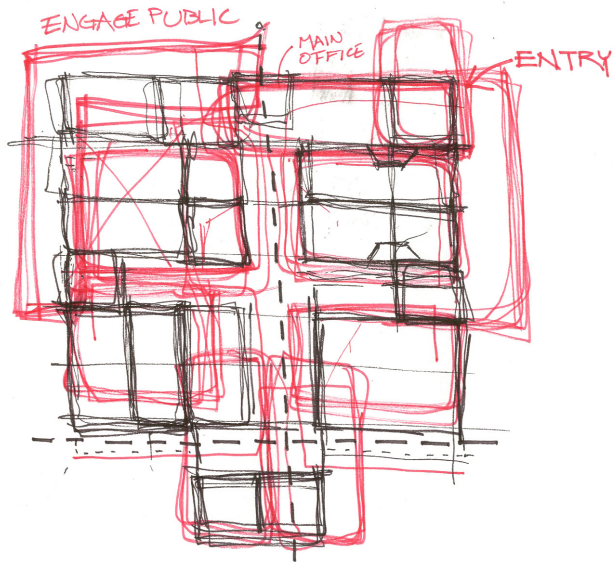
SITE ANALYSIS



WILLISTON IN PHOTOS A SENSE OF PLACE



POETIC INTERPRETATION SPATIAL GEOMETRY OF THE SITE

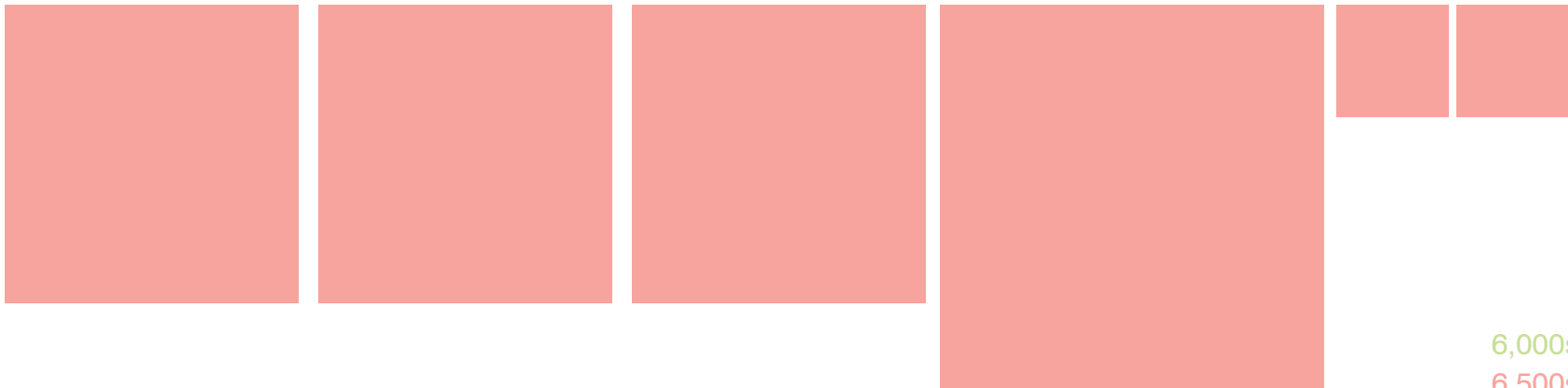


PROGRAMMING

EDUCATIONAL 6,000sqft



CORE ACTIVITY SPACES 6,500sqft



ADMINISTRATIVE 1,050sqft



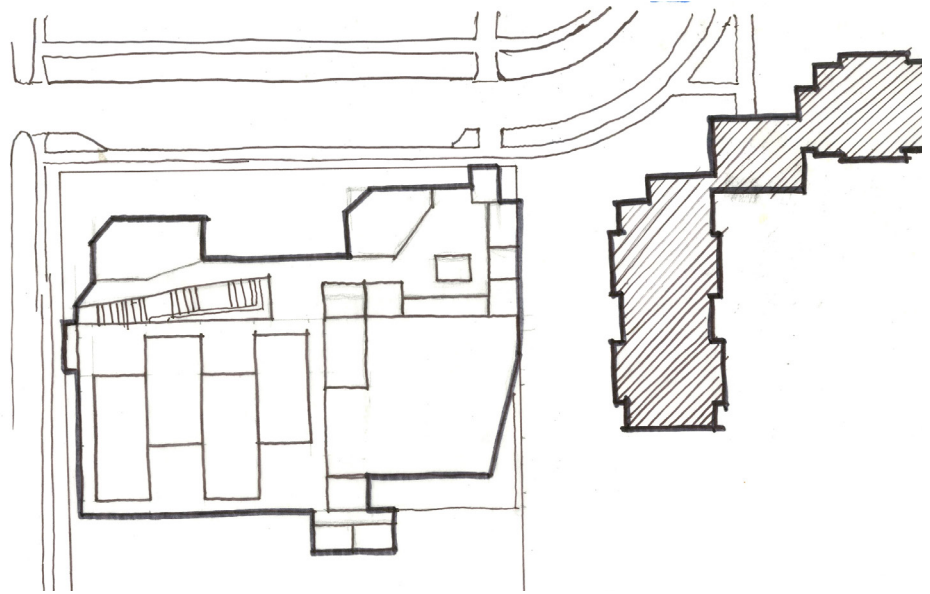
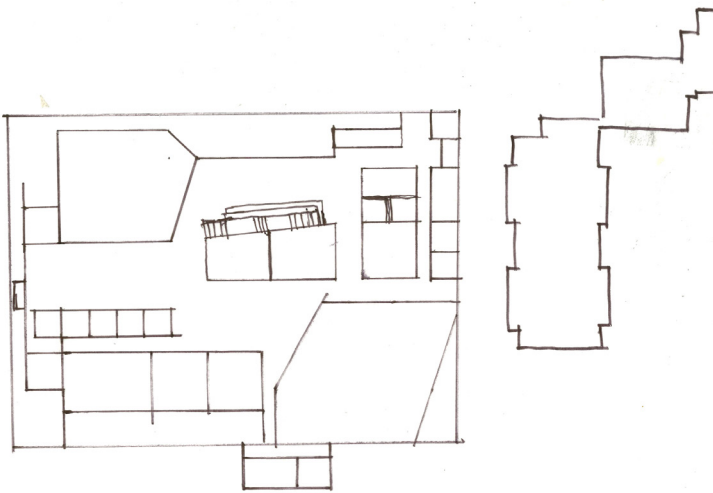
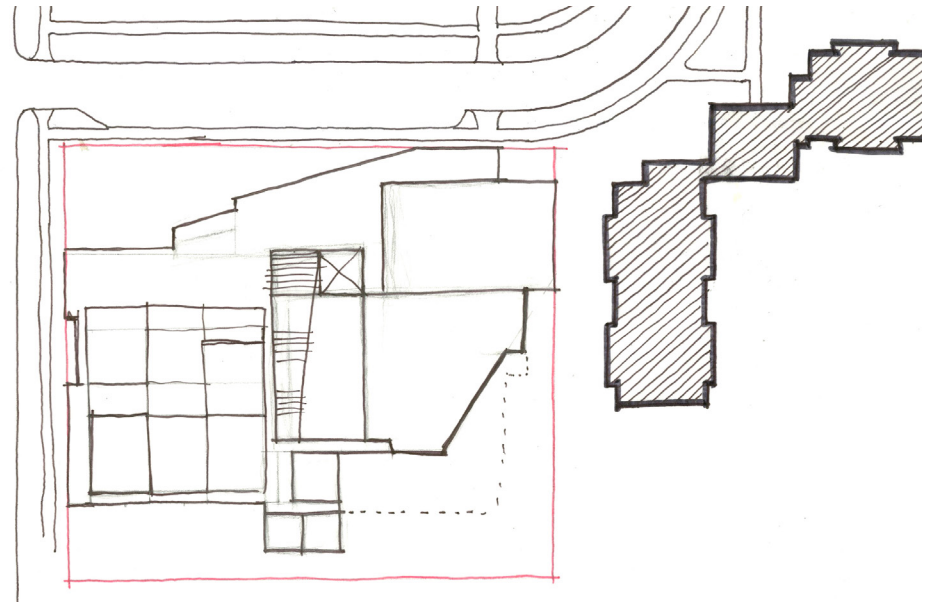
SUPPORT SPACES 3,100sqft



6,000sqft
6,500sqft
1,050sqft
3,100sqft

Total
16,500sqft

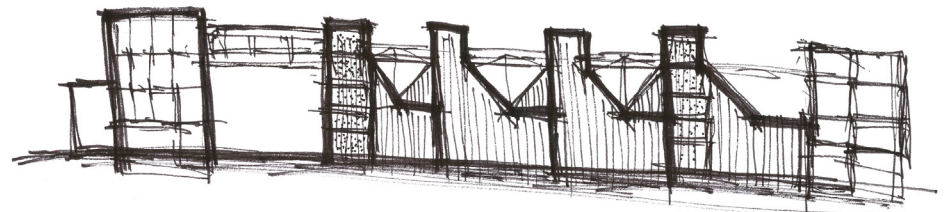
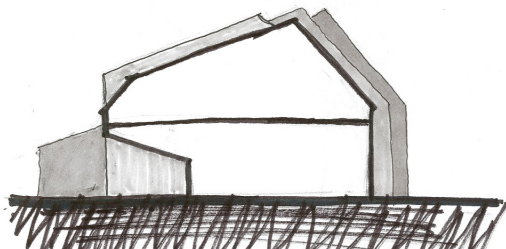
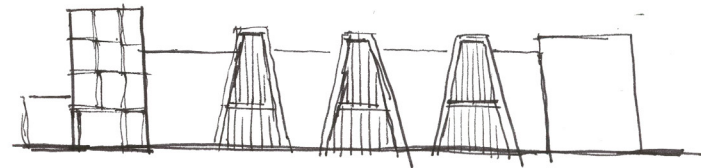
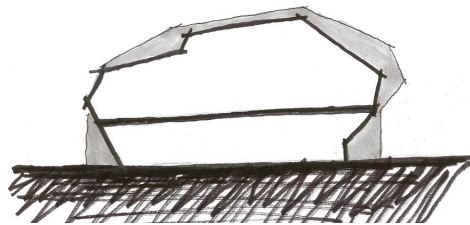
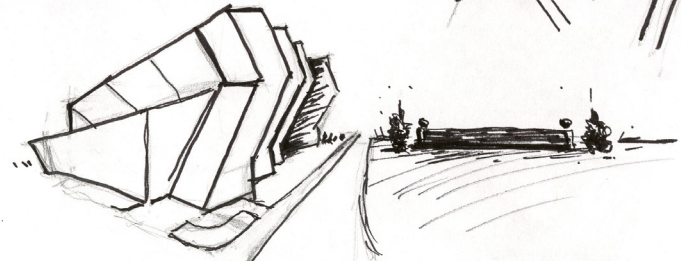
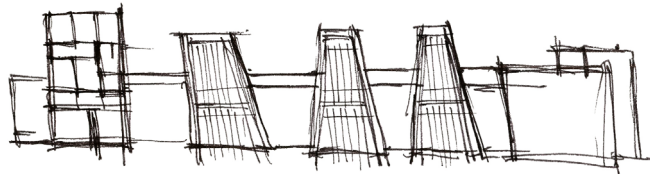
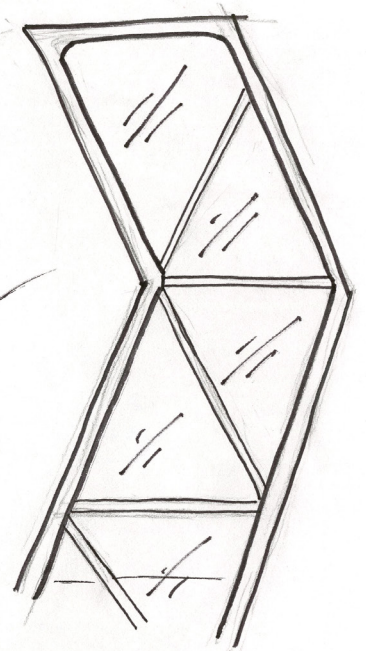
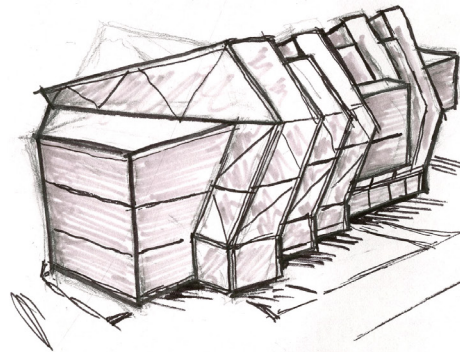
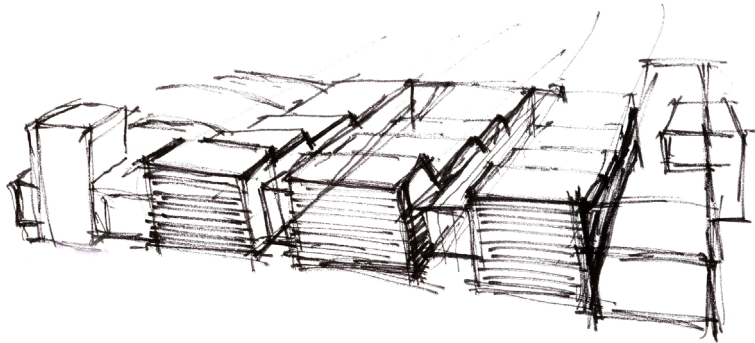
PROGRESSION



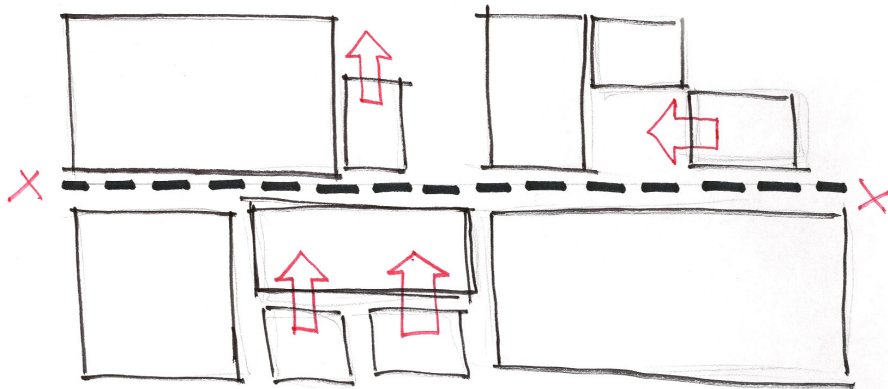
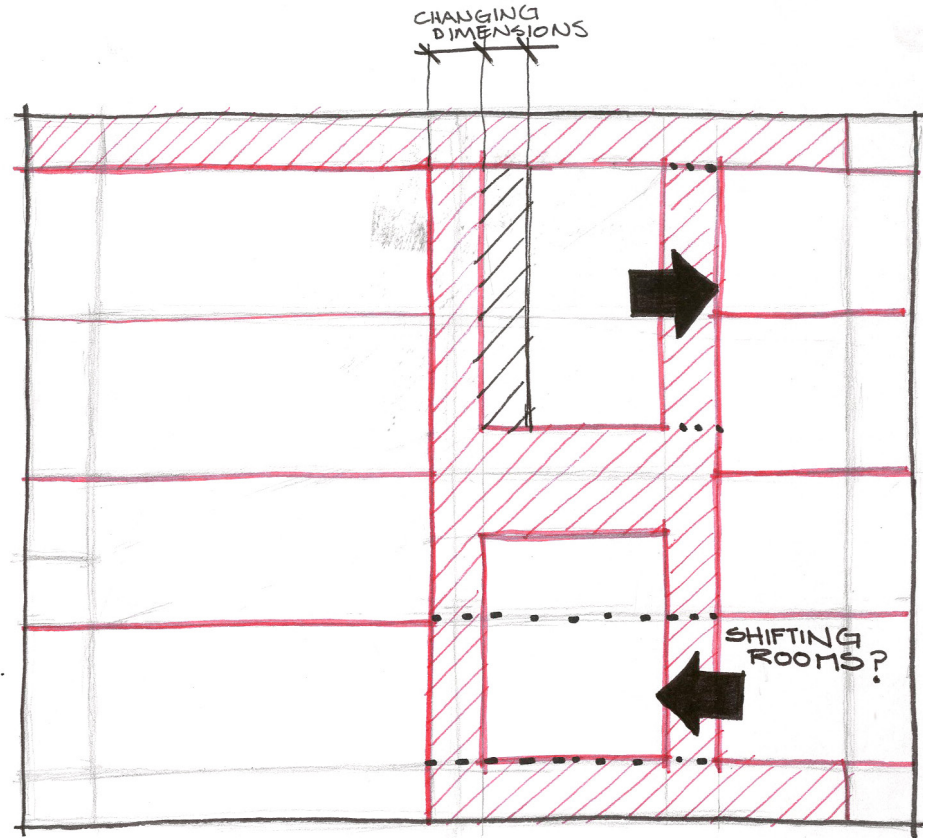
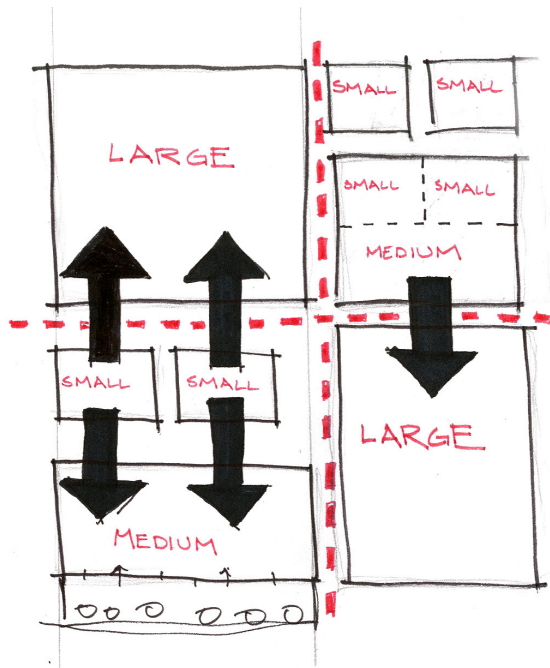
INITIAL FLOOR PLANS



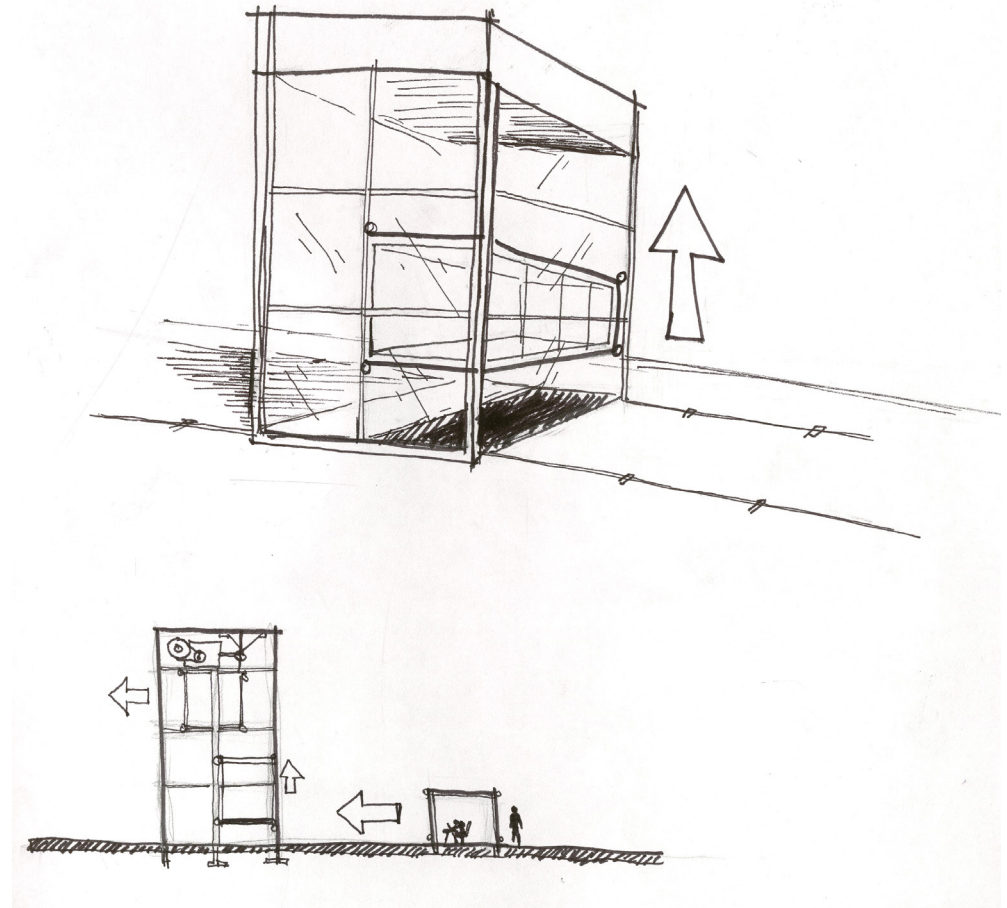
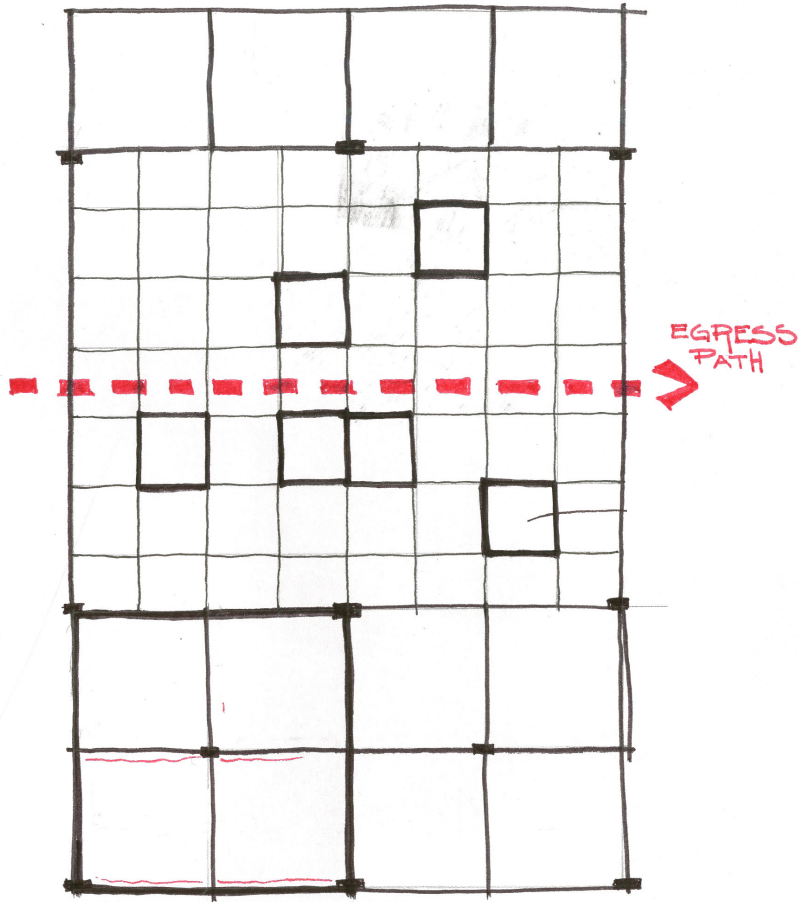
CONCEPTUAL DEVELOPMENT



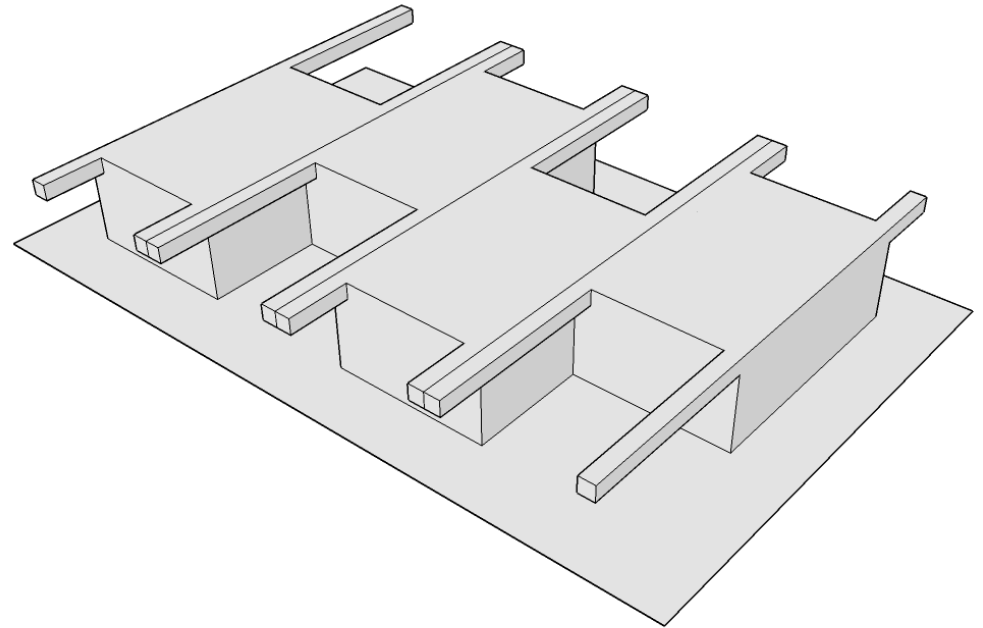
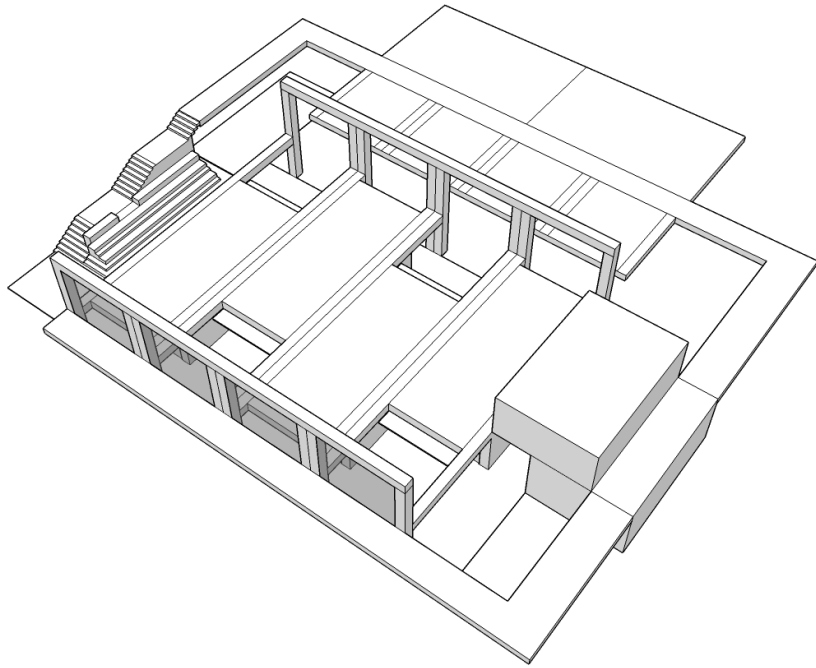
IMPLEMENTING ADAPVTIVE SPACES



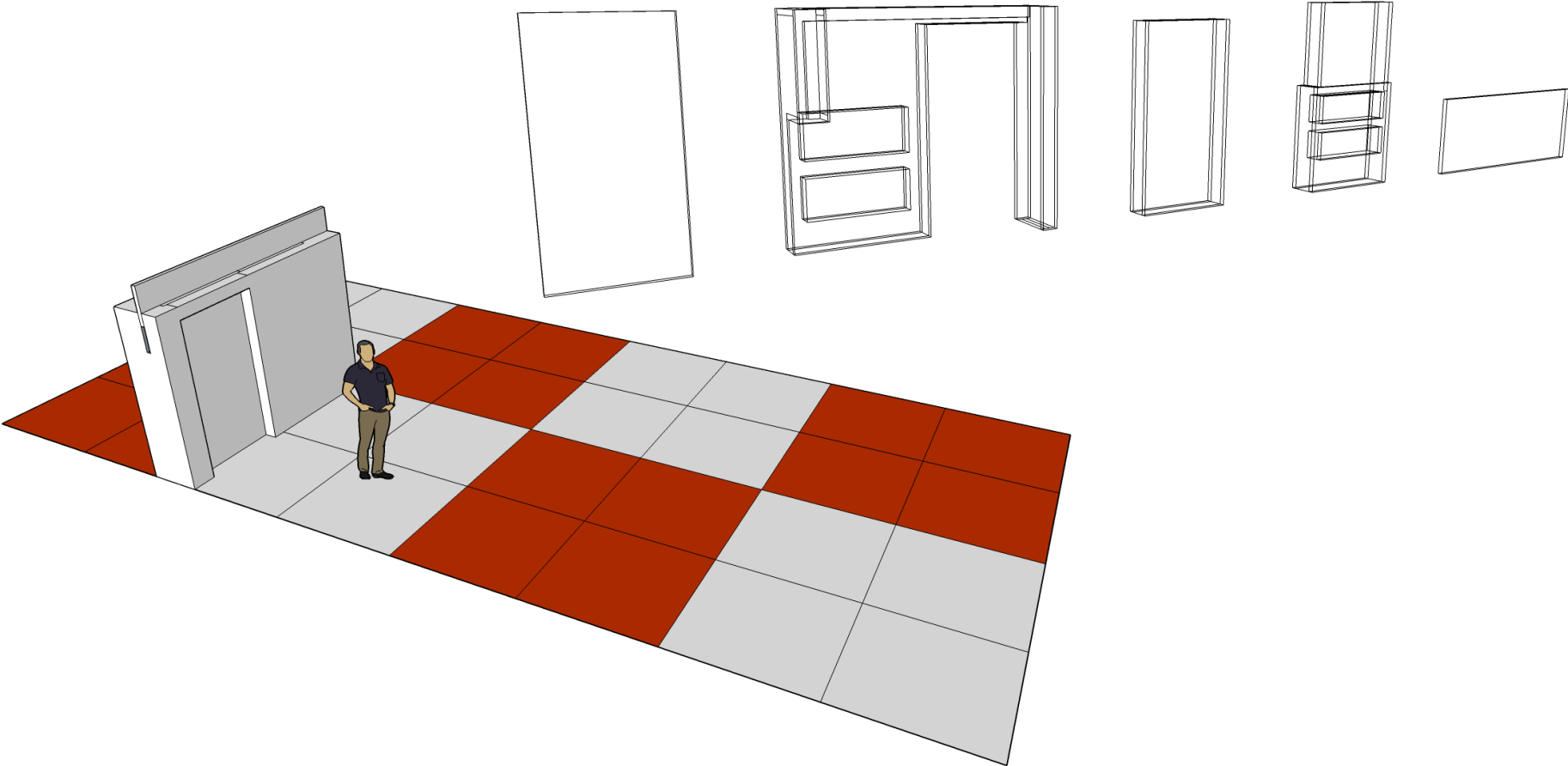
MOBILE CLASSROOMS



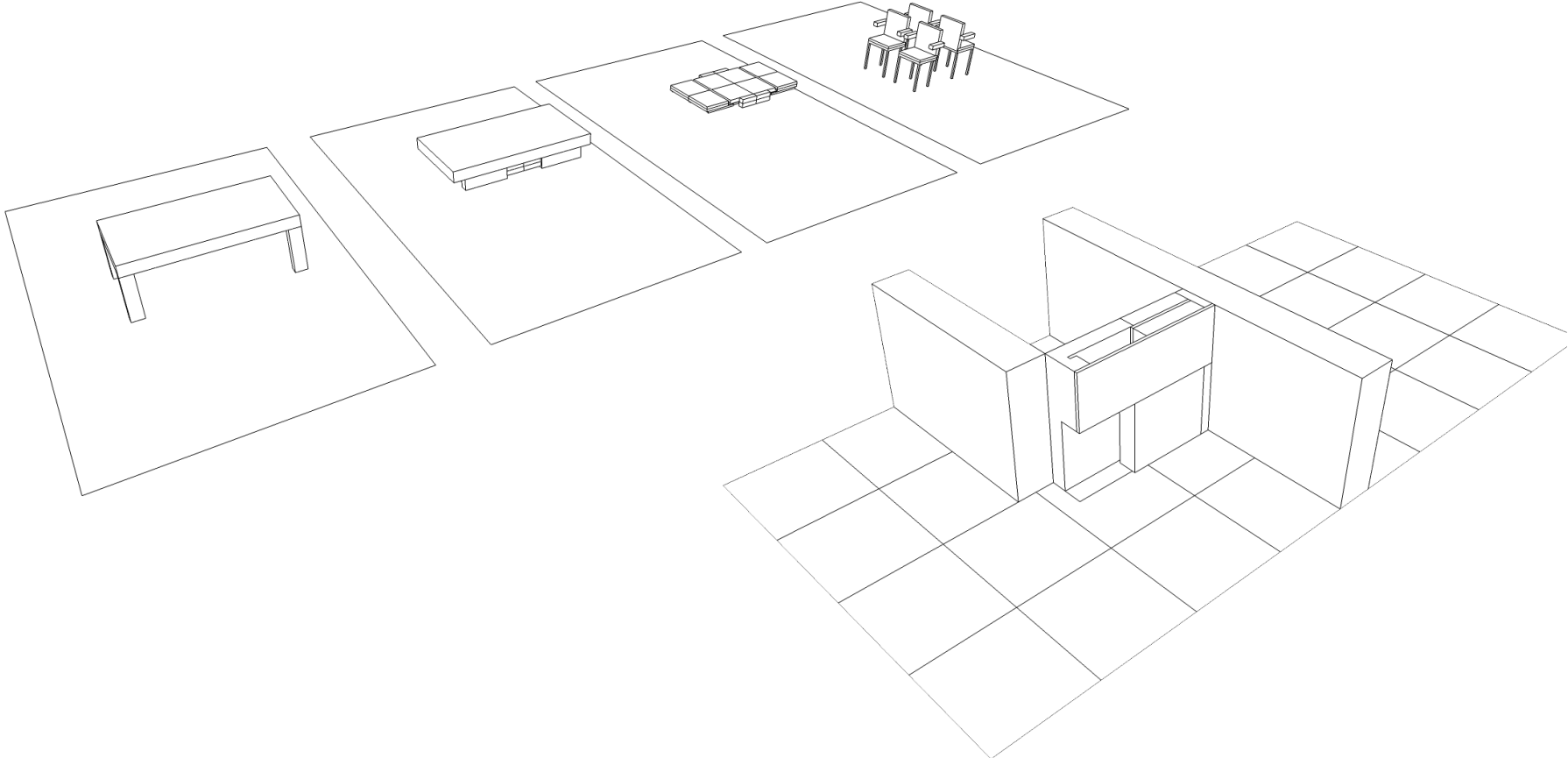
MOBILE CLASSROOMS



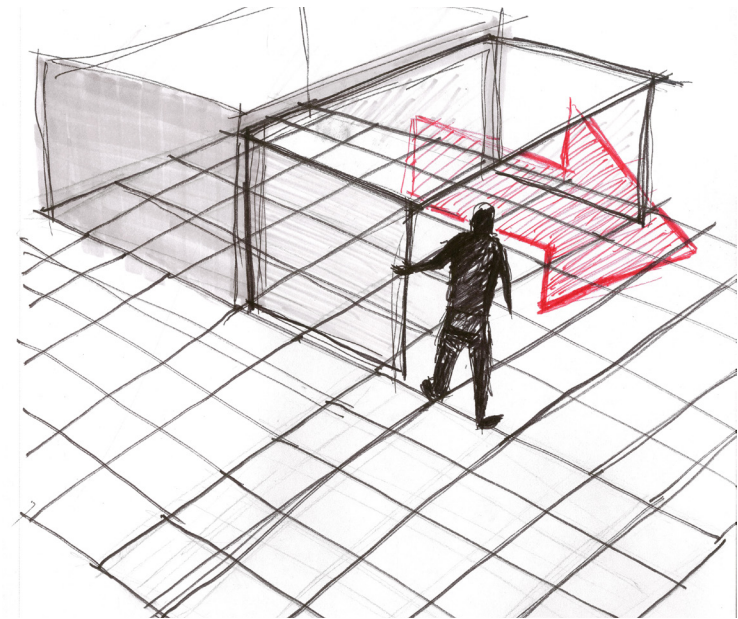
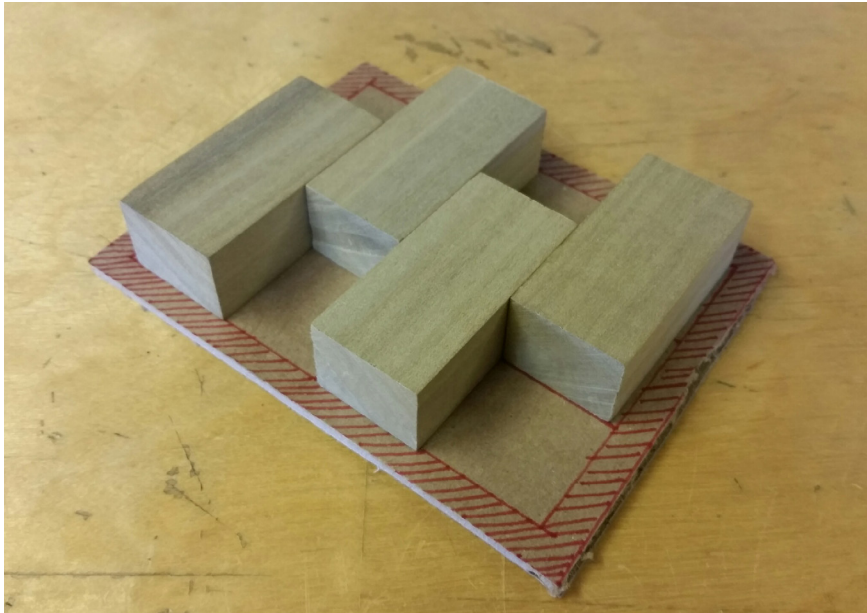
CREATING A MODULAR: DESIGNING FOR EFFICIENCY



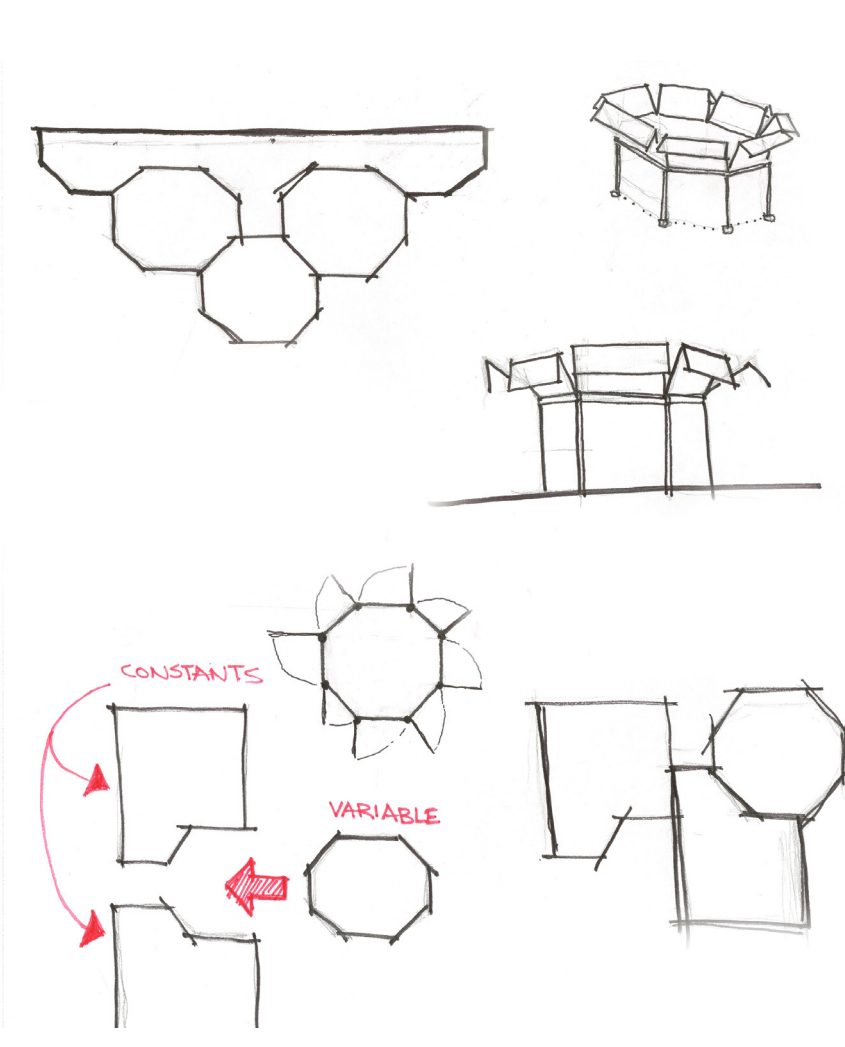
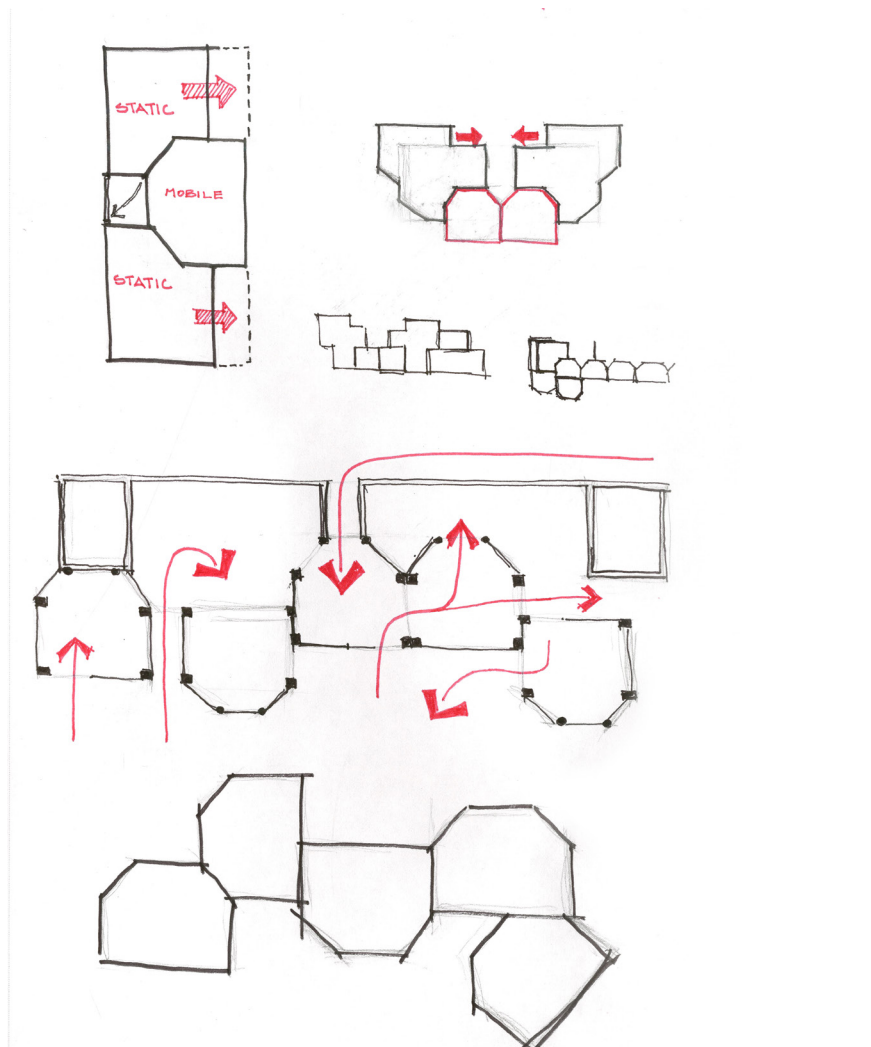
CREATING A MODULAR: DESIGNING FOR EFFICIENCY



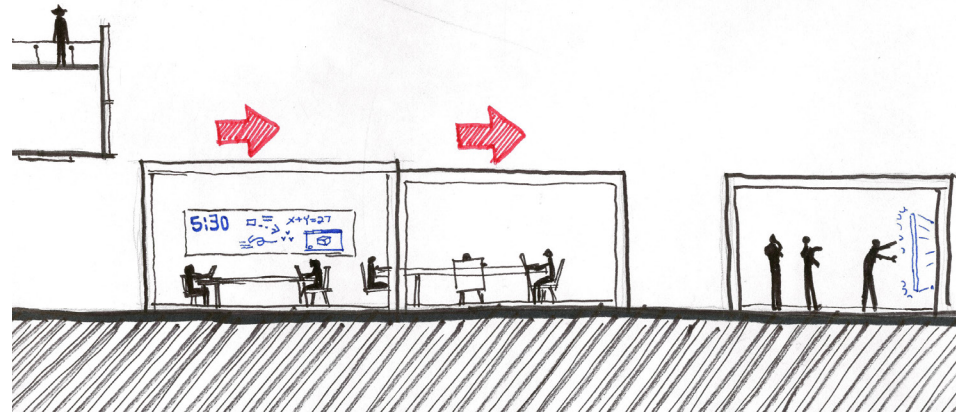
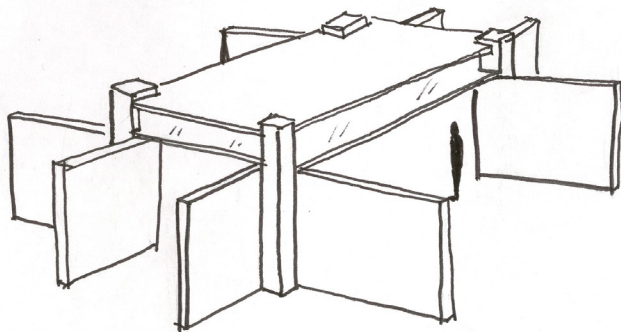
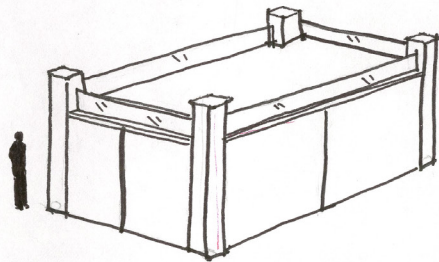
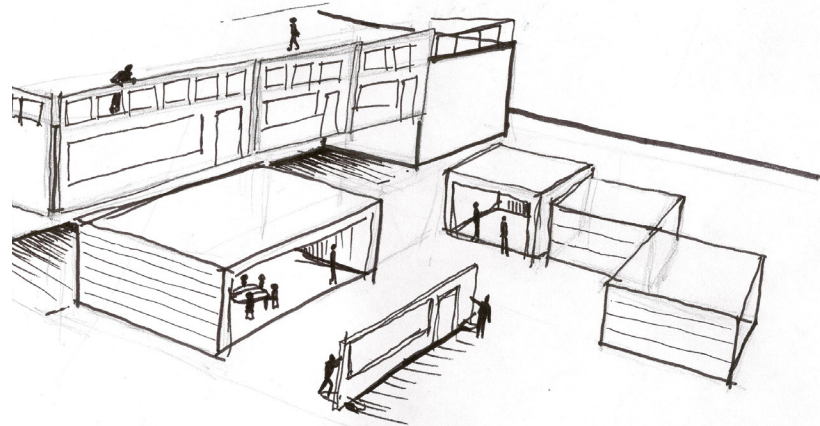
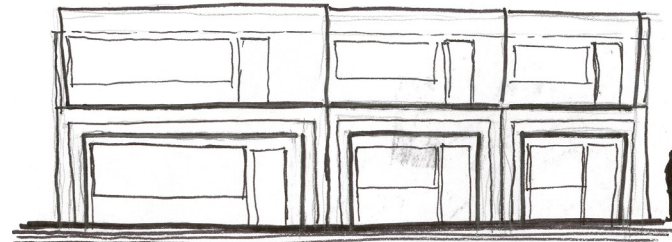
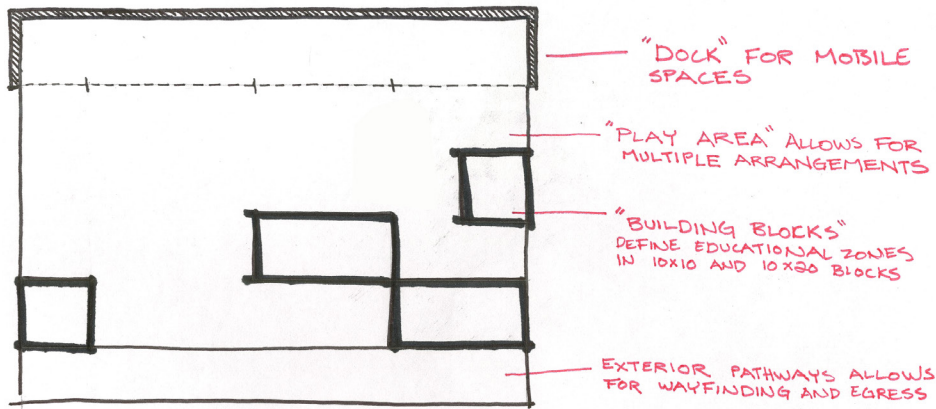
CREATING A MODULAR: DESIGNING FOR EFFICIENCY



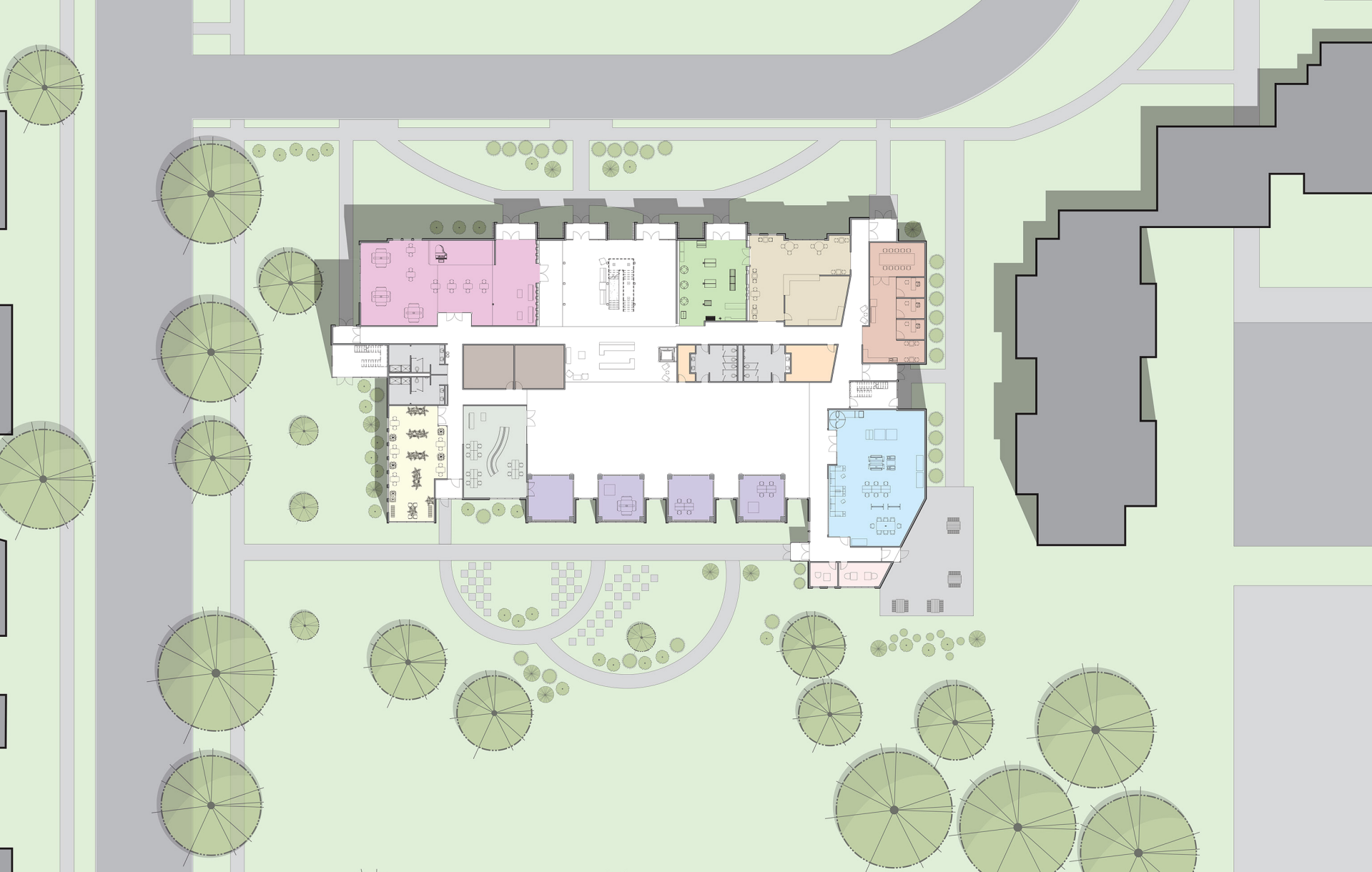
CREATING A MODULAR: DESIGNING FOR EFFICIENCY



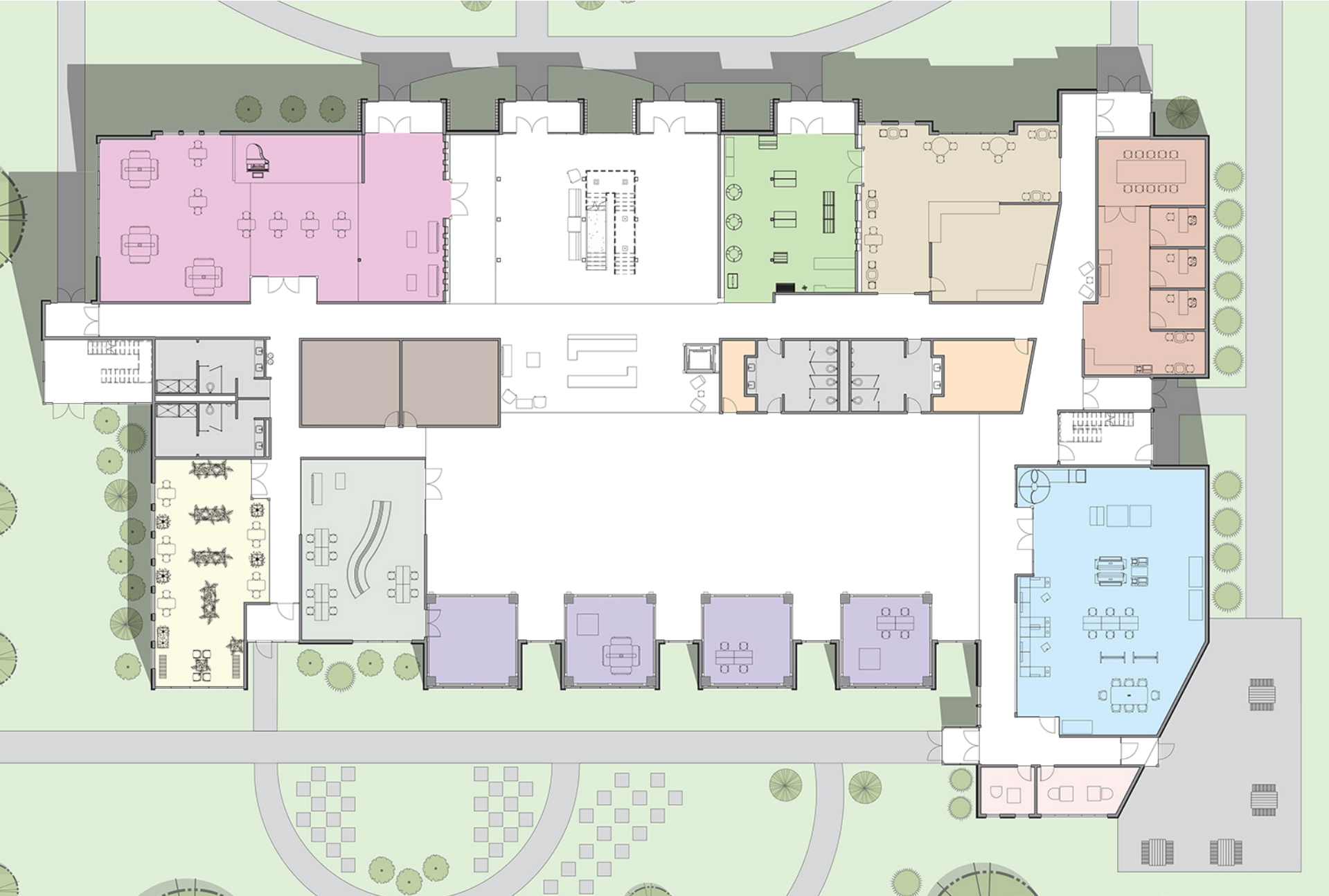
ADAPTIVE SPACE DEVELOPMENT



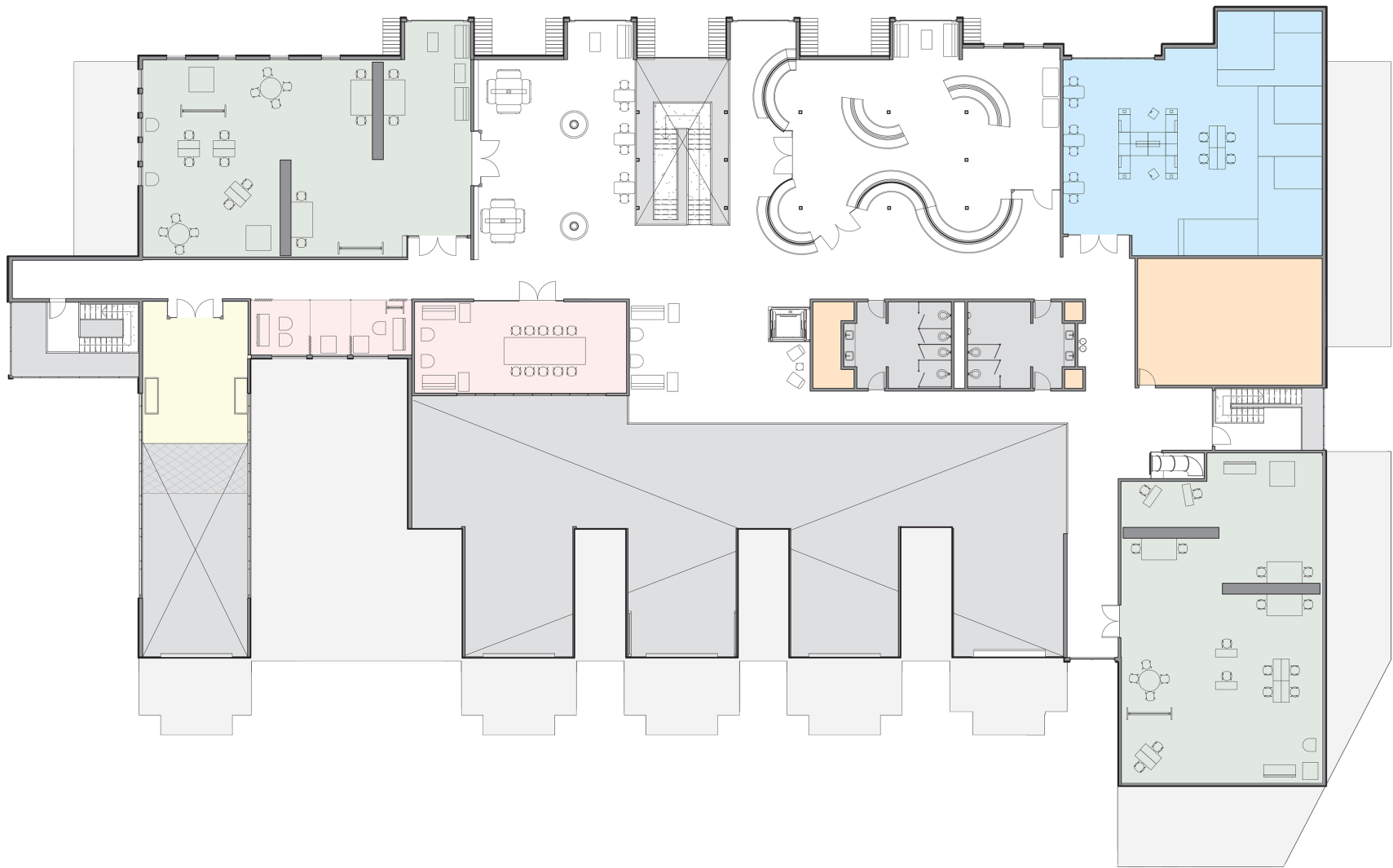
SITE PLAN



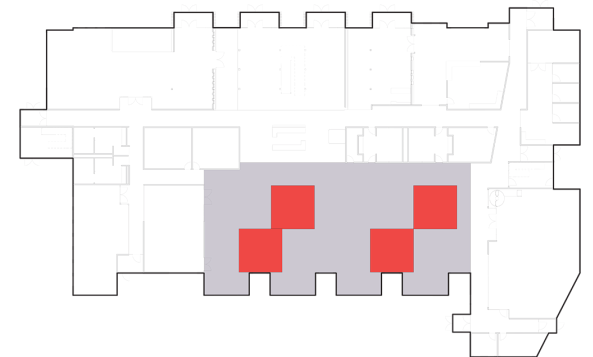
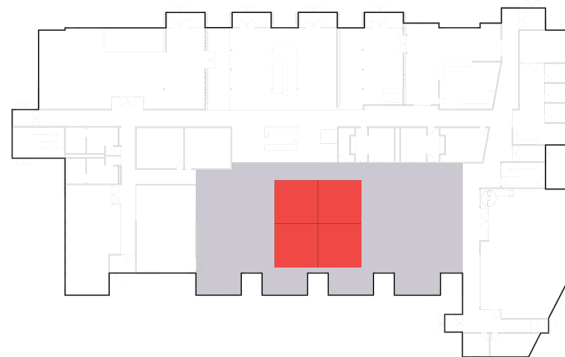
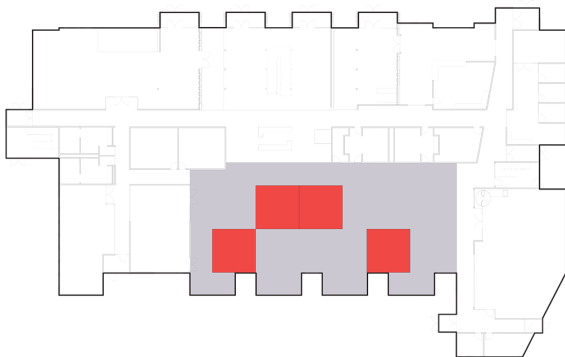
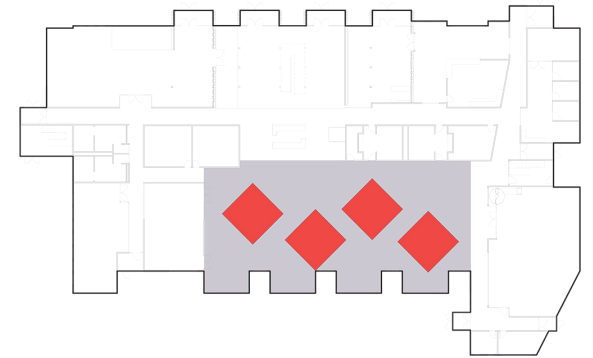
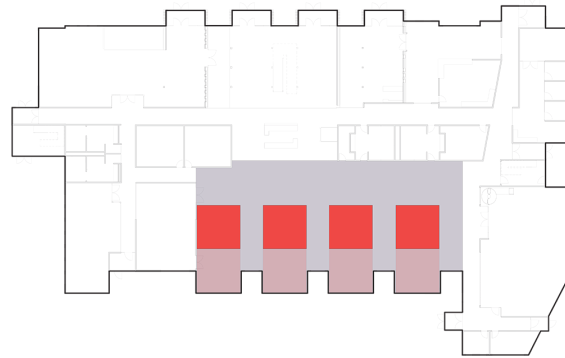
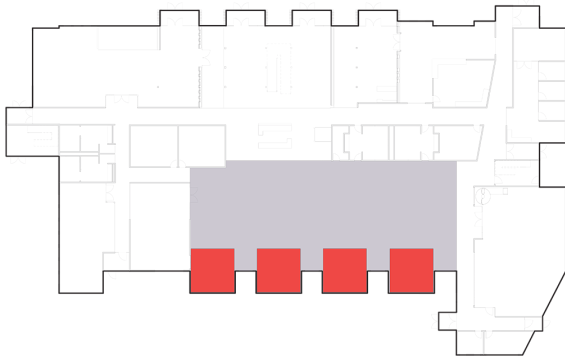
FLOOR PLAN



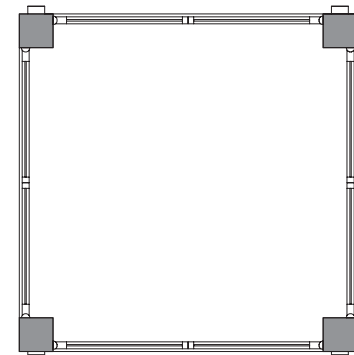
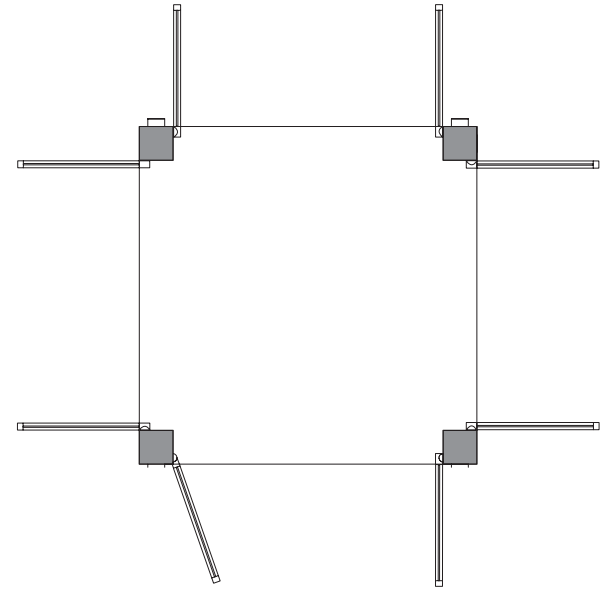
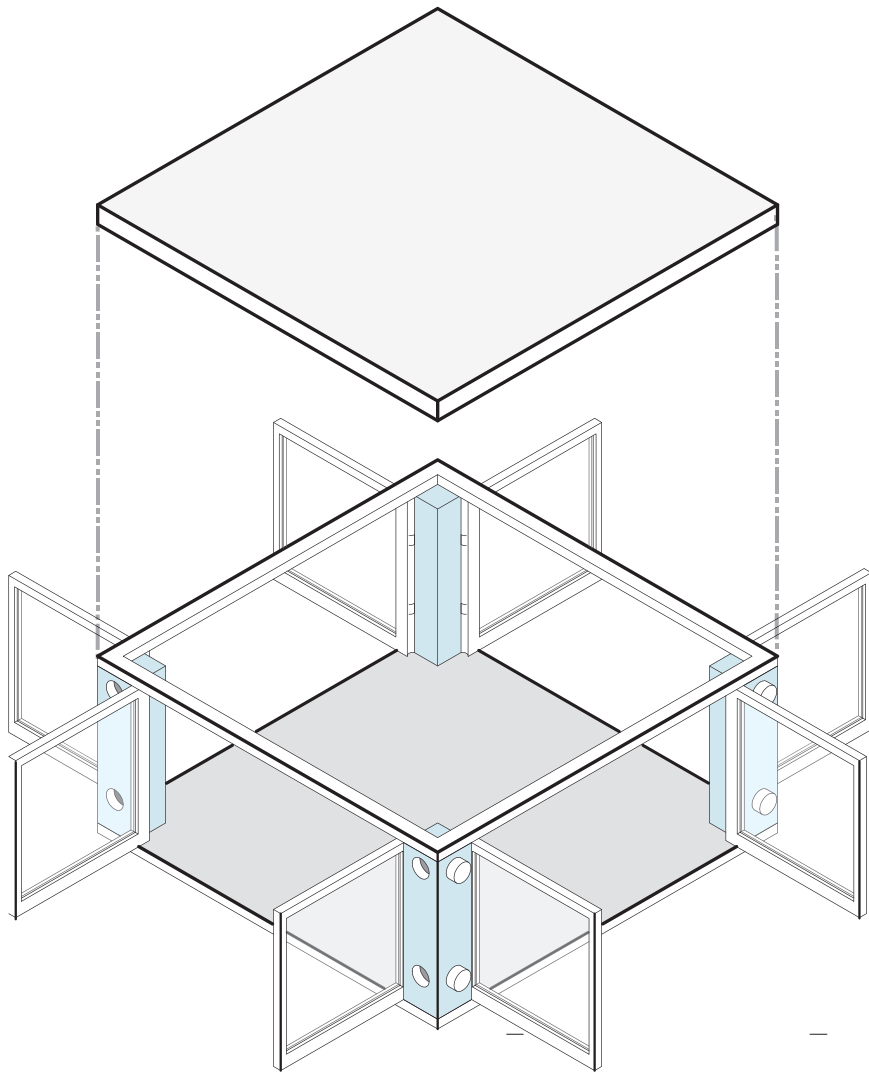
SECOND FLOOR PLAN



PERMUTATION AND ADAPTABILITY



EDUCATIONAL PODS



EDUCATIONAL PODS

