

UMass Design Building

A Firsthand Account from Design through Owner Occupancy



Tom S. Chung, AIA LEED BD+C, Principal, Leers Weinzapfel Associates

Peggi L. Clouston, PEng, MASc, PhD, University of Massachusetts

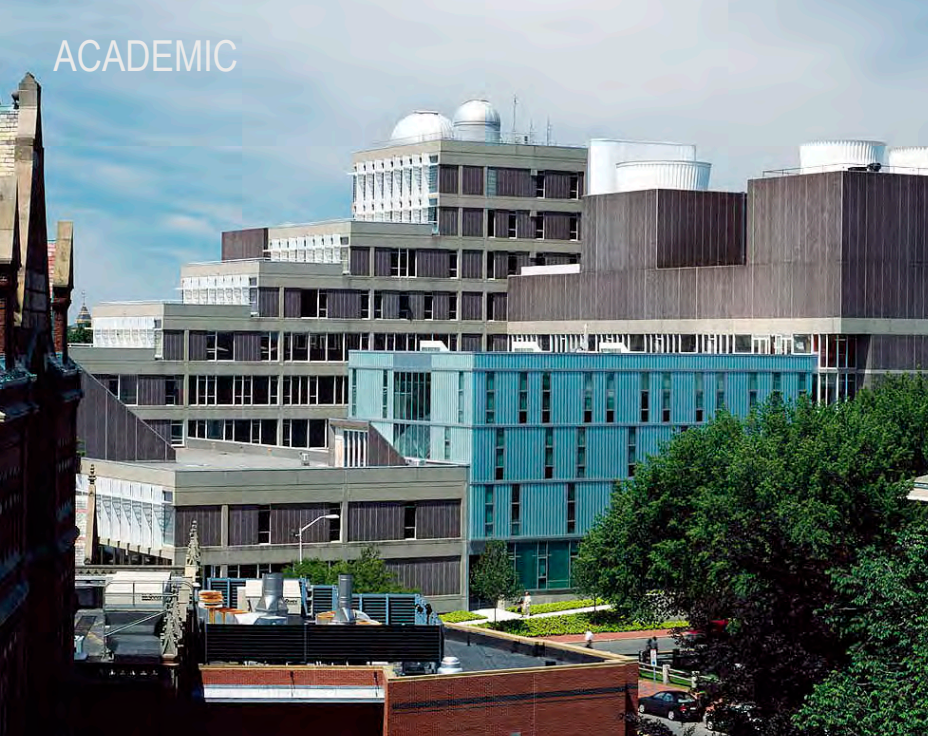
Disclaimer: This presentations was developed by a third party and is not funded by WoodWorks or the Softwood Lumber Board

National AIA Firm Award
Ranked in ARCHITECT Magazine's Top 50 Firms, 2015 & 2016
Over 85 National & Regional Design Awards
Over 100 National & International Publications

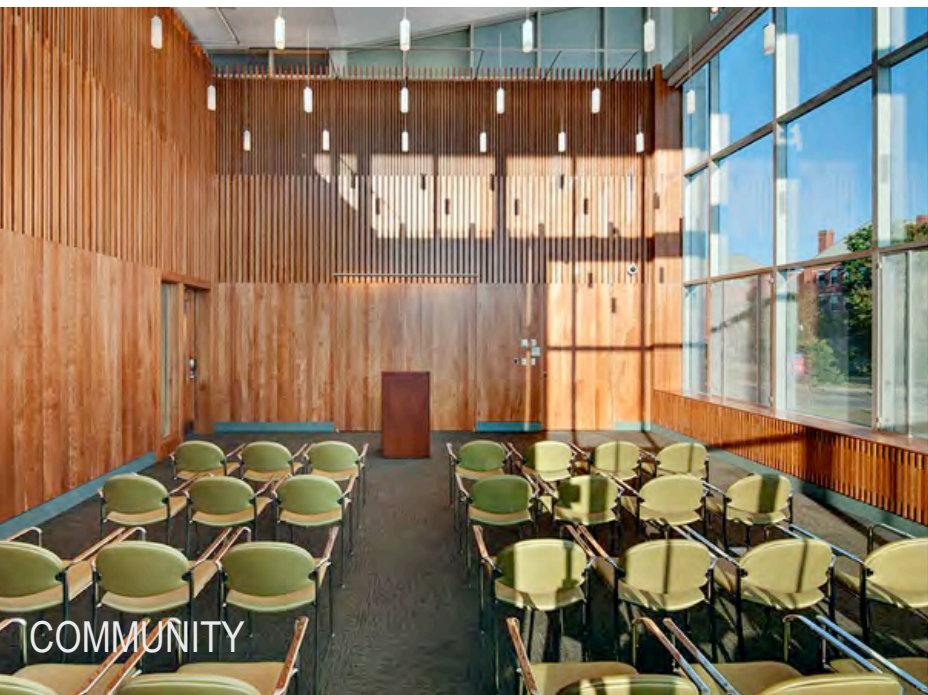


LEERS WEINZAPFEL ASSOCIATES

ACADEMIC



INFRASTRUCTURE



COMMUNITY



CIVIC



BUILDING AND CONSTRUCTION TECHNOLOGY

UMass Amherst | Department of Environmental Conservation

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THE FUTURE OF HEAVY TIMBER

Advanced uses of a traditional material and our own research are at the core of the Design Building

Learn more...



BCT News



475's Oliver Klein lectures on materials for passive house construction



Design Building at UMass Amherst Named

Calendar

OCT	all-day Advising Week
30 Mon	
NOV	all-day 2017 Greenbuild & ABX @ Boston, MA
6 Mon	
	all-day Registration begins for Spring 2018

Welcome to BCT!

Building and Construction Technology provides students with an unrivaled university education, which prepares our graduates for rewarding careers in construction management, sustainable building systems, and building materials technology. We offer a B.S. major, a minor, as well as a thesis M.S., professional M.S., and a Ph.D. degree.



BUILDING AND CONSTRUCTION TECHNOLOGY

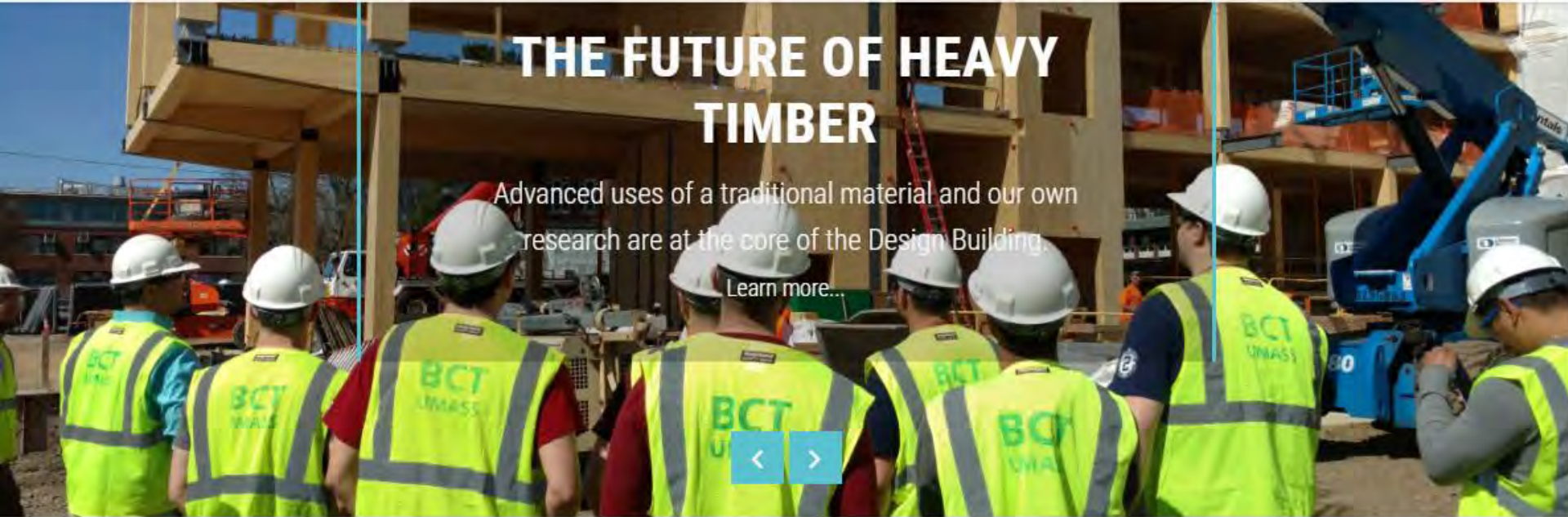
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THE FUTURE OF HEAVY TIMBER

Advanced uses of a traditional material and our own research are at the core of the Design Building.

Learn more...



Welcome to BCT!

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JOHN W. OLVER
DESIGN BUILDING



UMass Design Building

A Firsthand Account from Design through Owner Occupancy

AGENDA/ OUTLINE

Introduction

- Background, Context, & Design Concept

Design Process

- Structure & Architecture
- Central Commons
- Assuring the Client: Budget, Procurement & Code

Construction

- Mass Timber compared to Steel Construction
- Post&Beam Construction, Composite Floors, Shaft Walls, & Bracing
- Zipper Truss Mid-air Assembly

Occupancy Phase and Benefits of Mass Timber

- User Experience and Intangibles of Wood and Architecture
- Forestry & Sustainability Benefits

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Peggi Clouston, PEng, MASc, PhD, University of Massachusetts

**Project Background
&
Design Concept**

Regional Context



View of campus at upper left, from Connecticut River

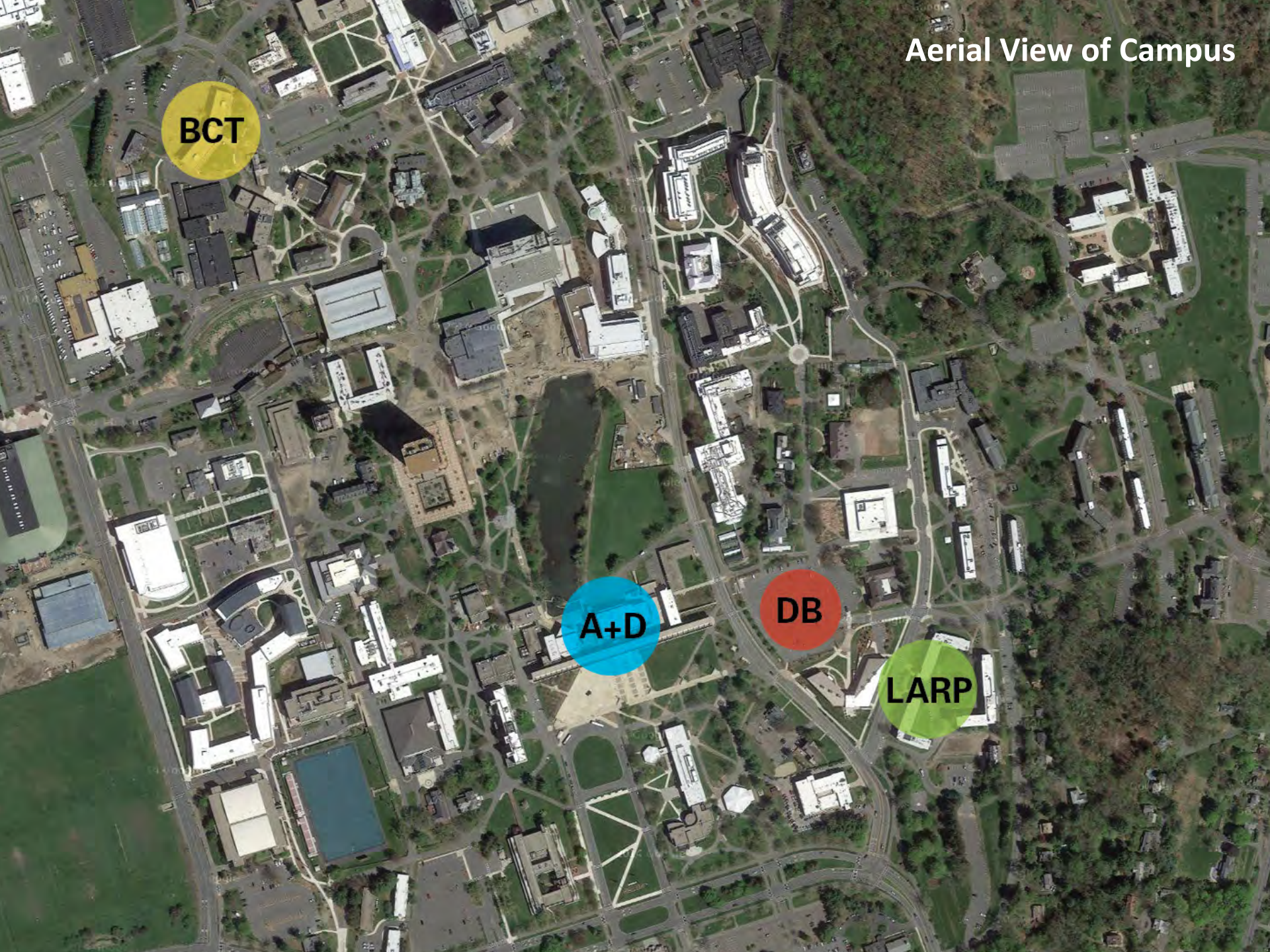
Aerial View of Campus

BCT

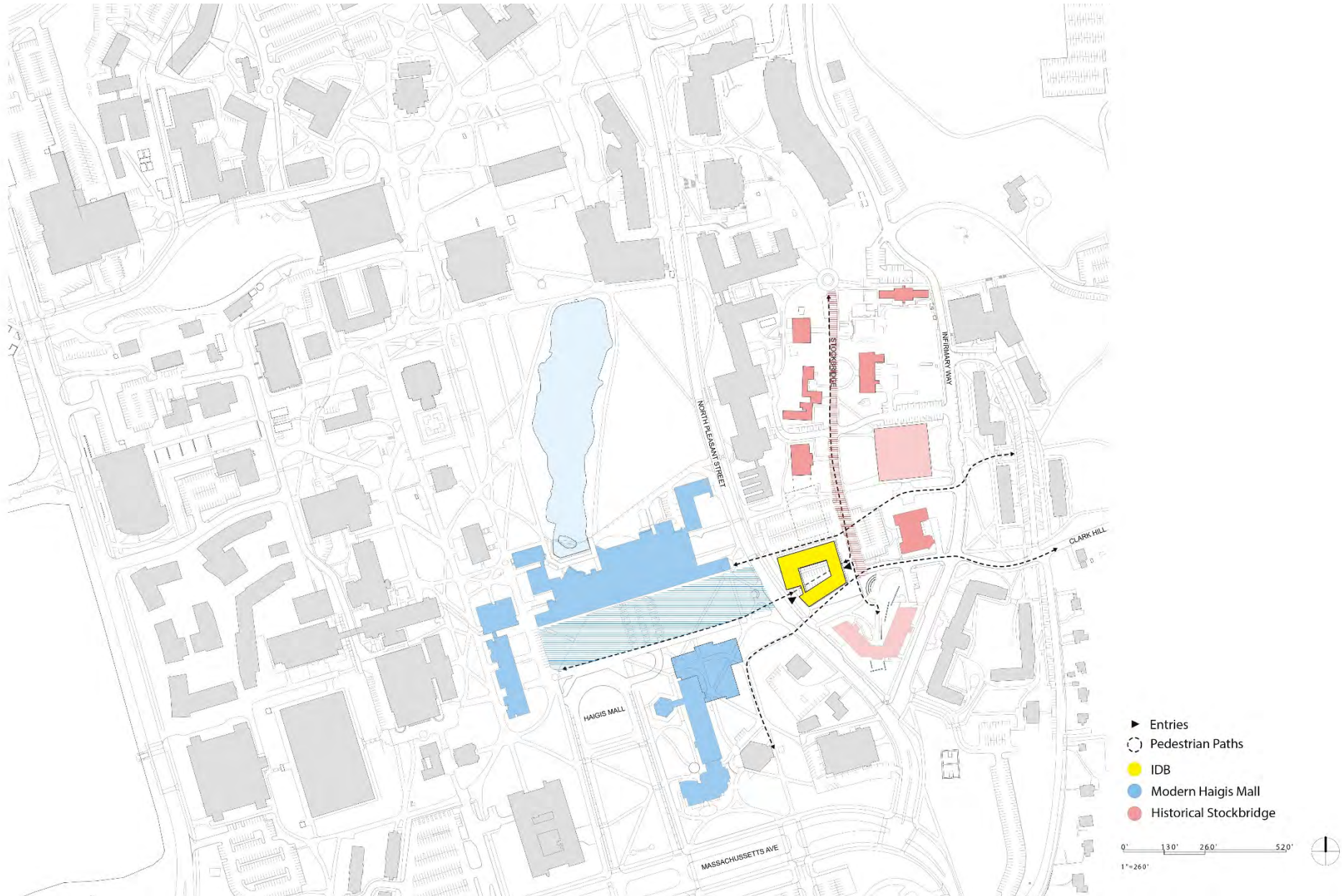
A+D

DB

LARP

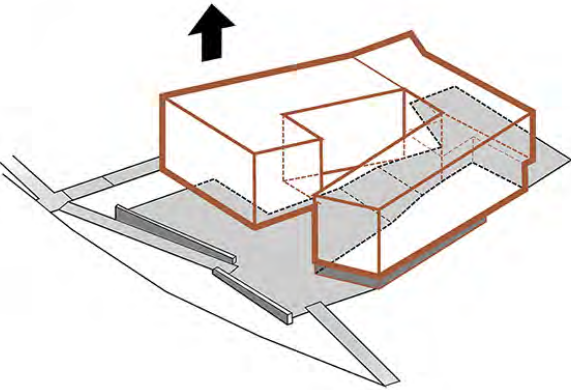
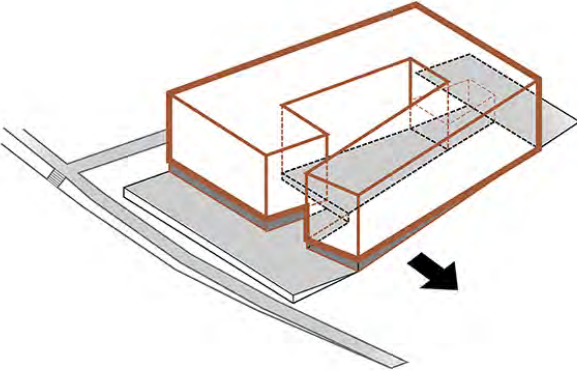
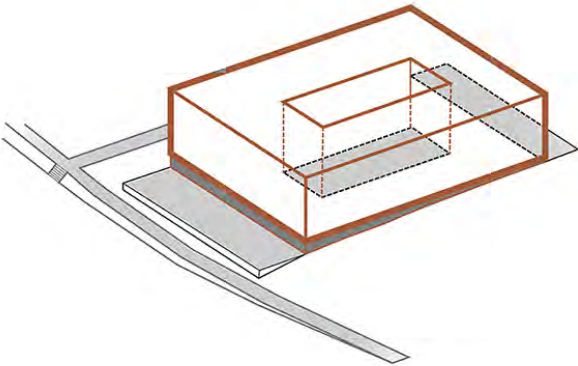


Campus Circulation

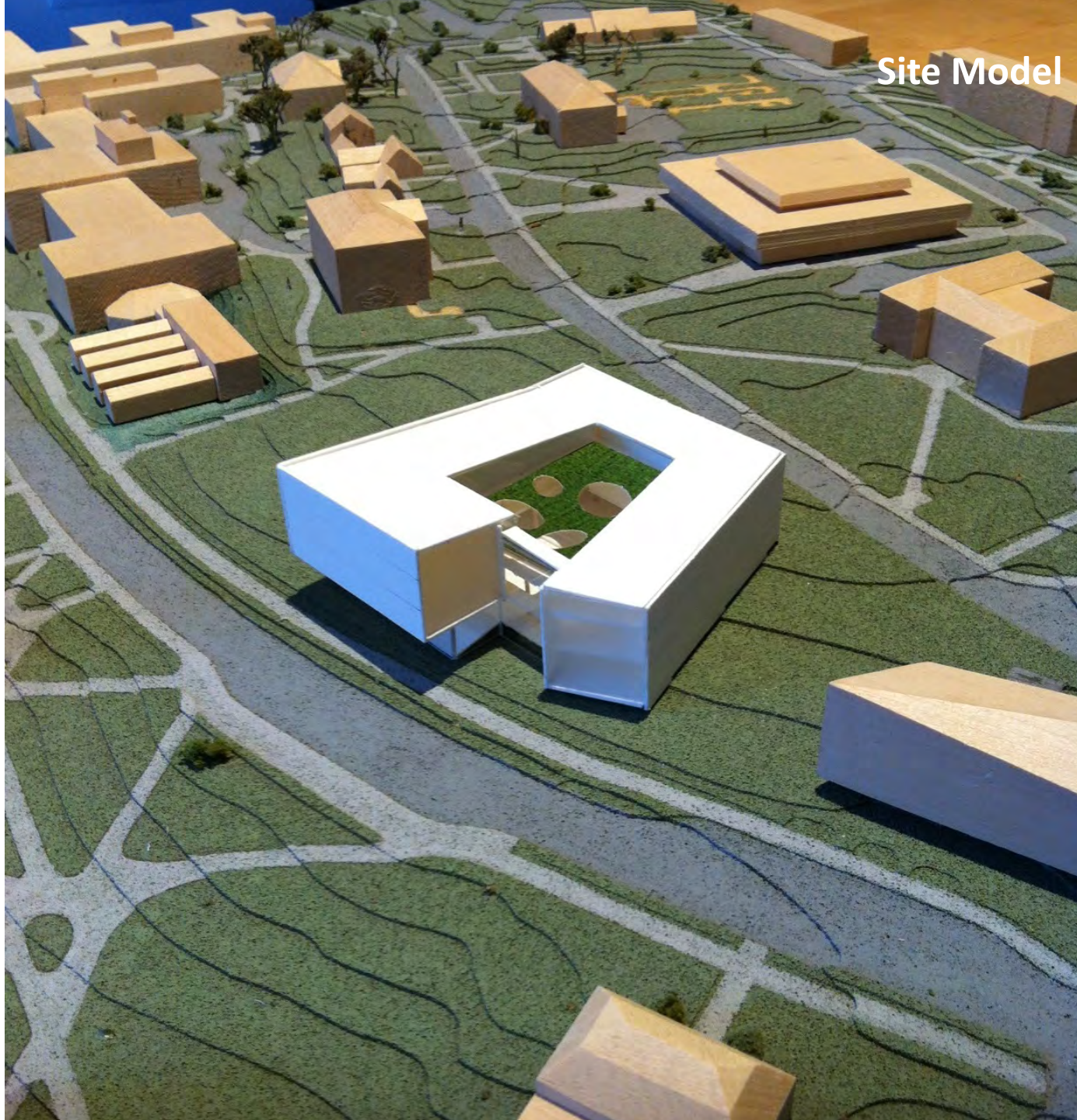




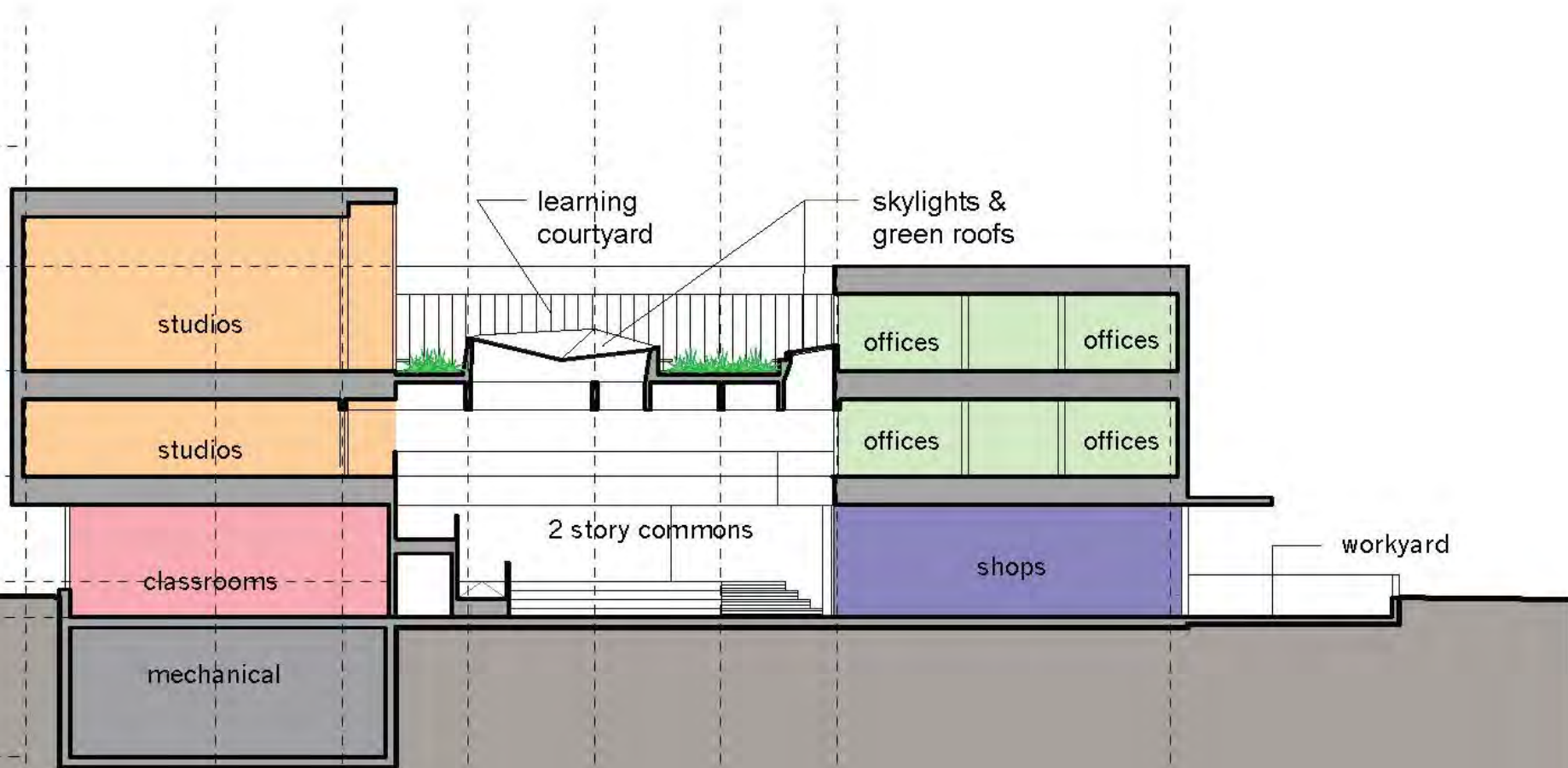
Building Concept Diagram



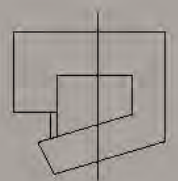
Site Model



Program Organization



2 STORY COMMONS
WITH LEARNING COURTYARD ABOVE
STACKED STUDIOS/ STACKED OFFICES

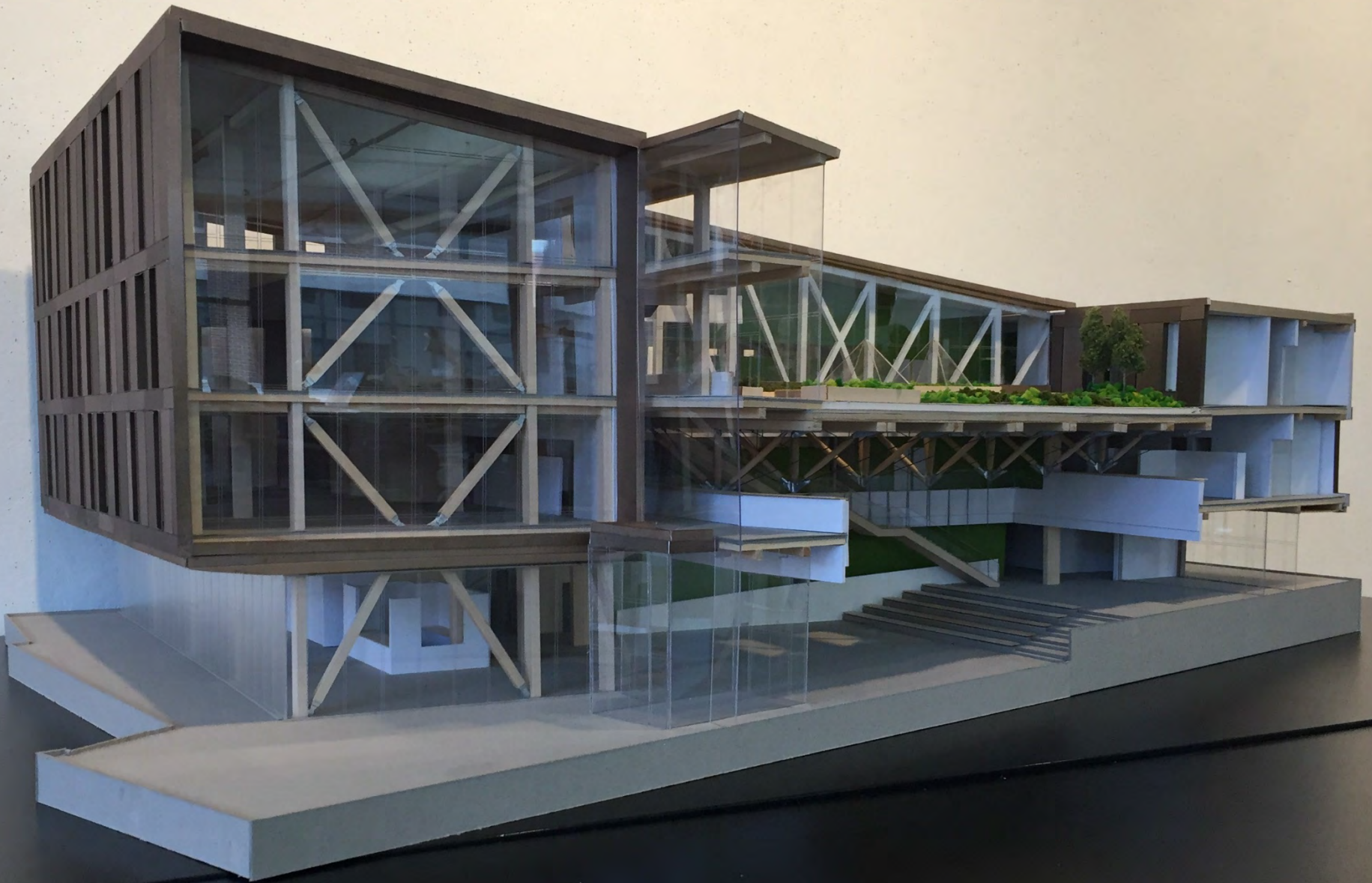


Section Through Commons and Learning Courtyard



Section Perspective

Cutaway Model



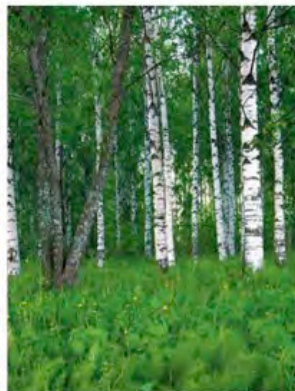
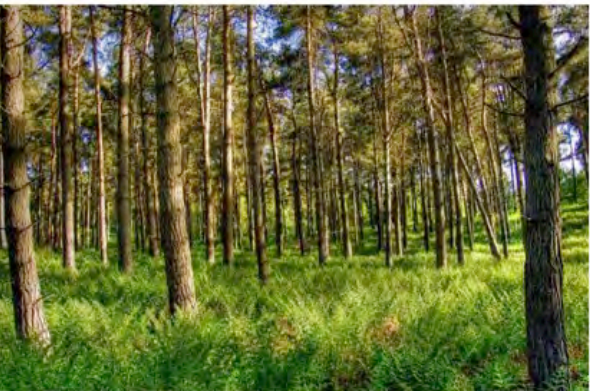
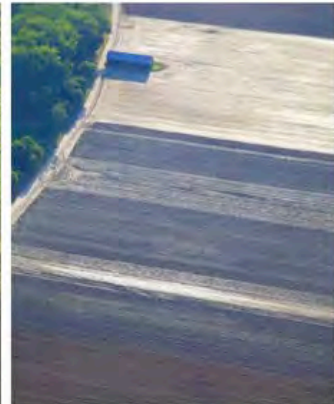
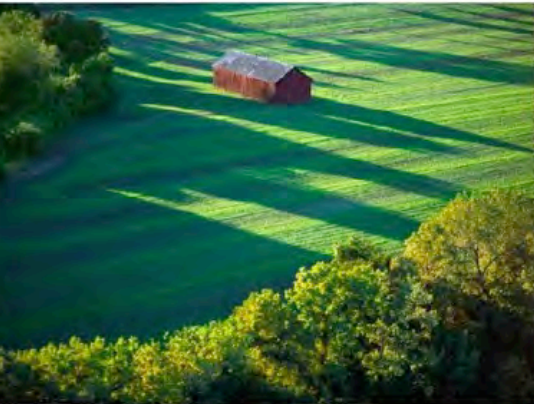
Central Commons



Learning Courtyard



Regional Context



View from Campus Core



View from Haigis Mall, across North Pleasant Street

View from Historic Stockbridge Way



View from North Approach

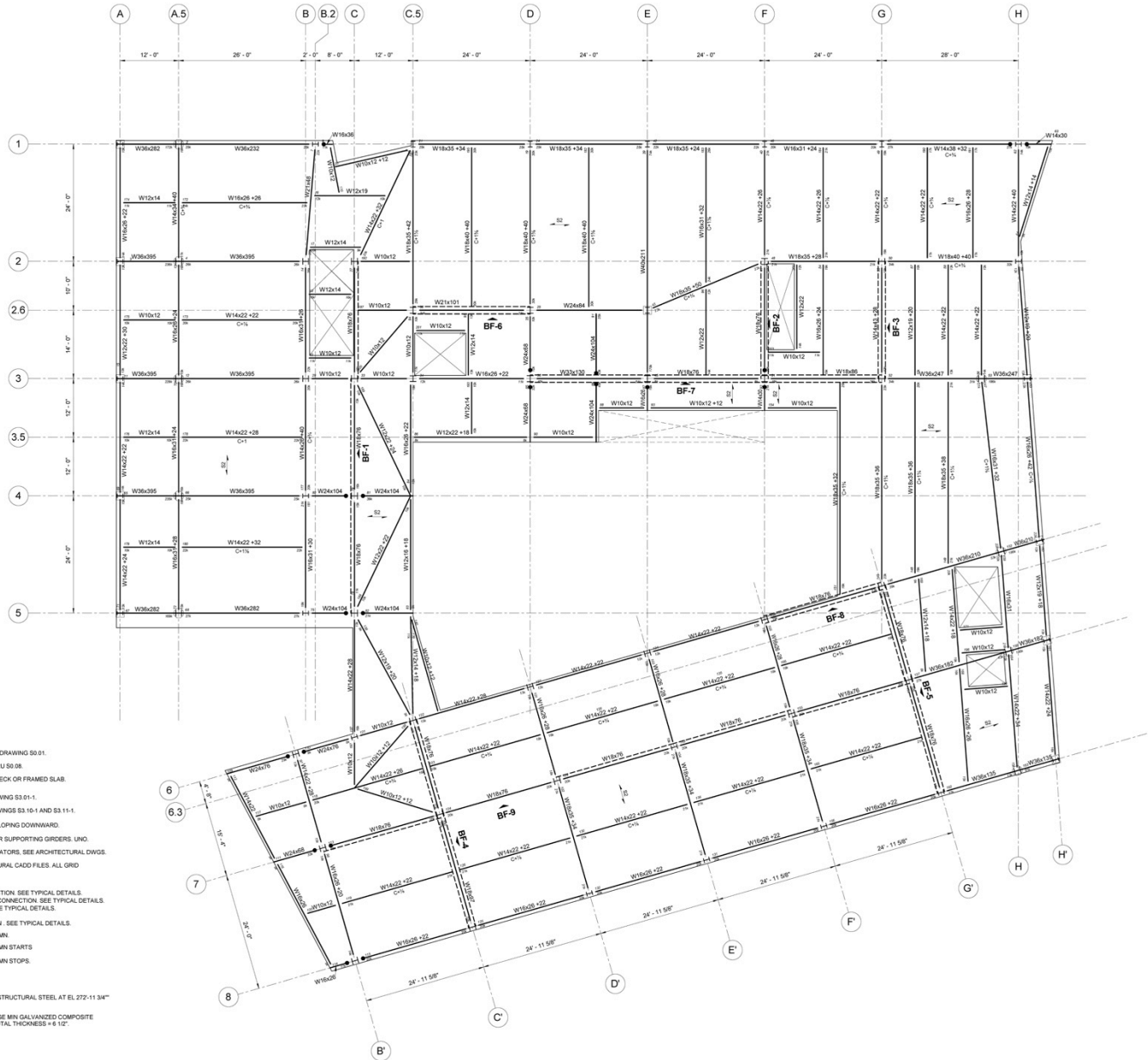


Design Process

Typical Floor Plan



Steel Column Grid



- NOTES (GENERAL)**
- G1. FOR GENERAL NOTES AND ABBREVIATIONS SEE DRAWING S0.01.
 - G2. FOR TYPICAL DETAILS SEE DRAWINGS S0.02 THRU S0.08.
 - G3. ——— INDICATES SPAN DIRECTION OF STEEL DECK OR FRAMED SLAB.
 - G4. FOR COLUMN SCHEDULE AND DETAILS SEE DRAWING S3.01-1.
 - G5. ——— ETC. INDICATES SHEAR WALL. SEE DRAWINGS S3.10-1 AND S3.11-1.
 - G6. SLOPED INDICATES DIRECTION OF FRAMING SLOPING DOWNWARD.
 - G7. BEAMS SHALL BE EQUALLY SPACED ALONG THEIR SUPPORTING GIRDERS. UNDO.
 - G8. FOR DIMENSIONS TO STAIRS FRAMING AND ELEVATORS. SEE ARCHITECTURAL DWGS.
 - G9. GRID DIMENSIONS ARE TAKEN FROM ARCHITECTURAL CADD FILES. ALL GRID DIMENSIONS SHALL BE VERIFIED.
 - G10.
 - |— INDICATES GRAVITY MOMENT CONNECTION. SEE TYPICAL DETAILS.
 - |— INDICATES MOMENT FRAME MOMENT CONNECTION. SEE TYPICAL DETAILS.
 - |— INDICATES TORSION CONNECTION. SEE TYPICAL DETAILS.
 - |— INDICATES DIAGONAL KICKER BRACE.
 - |— INDICATES SHEAR PLATE CONNECTION. SEE TYPICAL DETAILS.
 - G11. H INDICATES STRUCTURAL STEEL COLUMN.
 □ INDICATES STRUCTURAL STEEL COLUMN STARTS
 □ INDICATES STRUCTURAL STEEL COLUMN STOPS

- NOTES (SECOND FLOOR)**
- 1 TOP OF STRUCTURAL SLAB AT EL. 372'-4". TOP OF STRUCTURAL STEEL AT EL. 372'-11.34" UNLESS NOTED (+) OR (-) ON PLAN.
 - 2 ——— INDICATES SPAN DIRECTION OF 3'-18 GAGE MIN GALVANIZED COMPOSITE STEEL DECK + 3" LF LIGHT WEIGHT CONCRETE. TOTAL THICKNESS = 6" 12". REIN. W/ 4# W2.3W2.3 WWF THROUGHOUT.

DESIGN BUILDING
 UNIVERSITY OF MASSACHUSETTS,
 AMHERST, MA



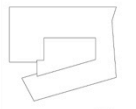
owner's project identification number
 UMBA 12-43

designator

issued for
 DESIGN DEVELOPMENT COST ESTIMATE
 date
 15 AUGUST 2014

revisions
 item date

drawn by
 Author
 key plan



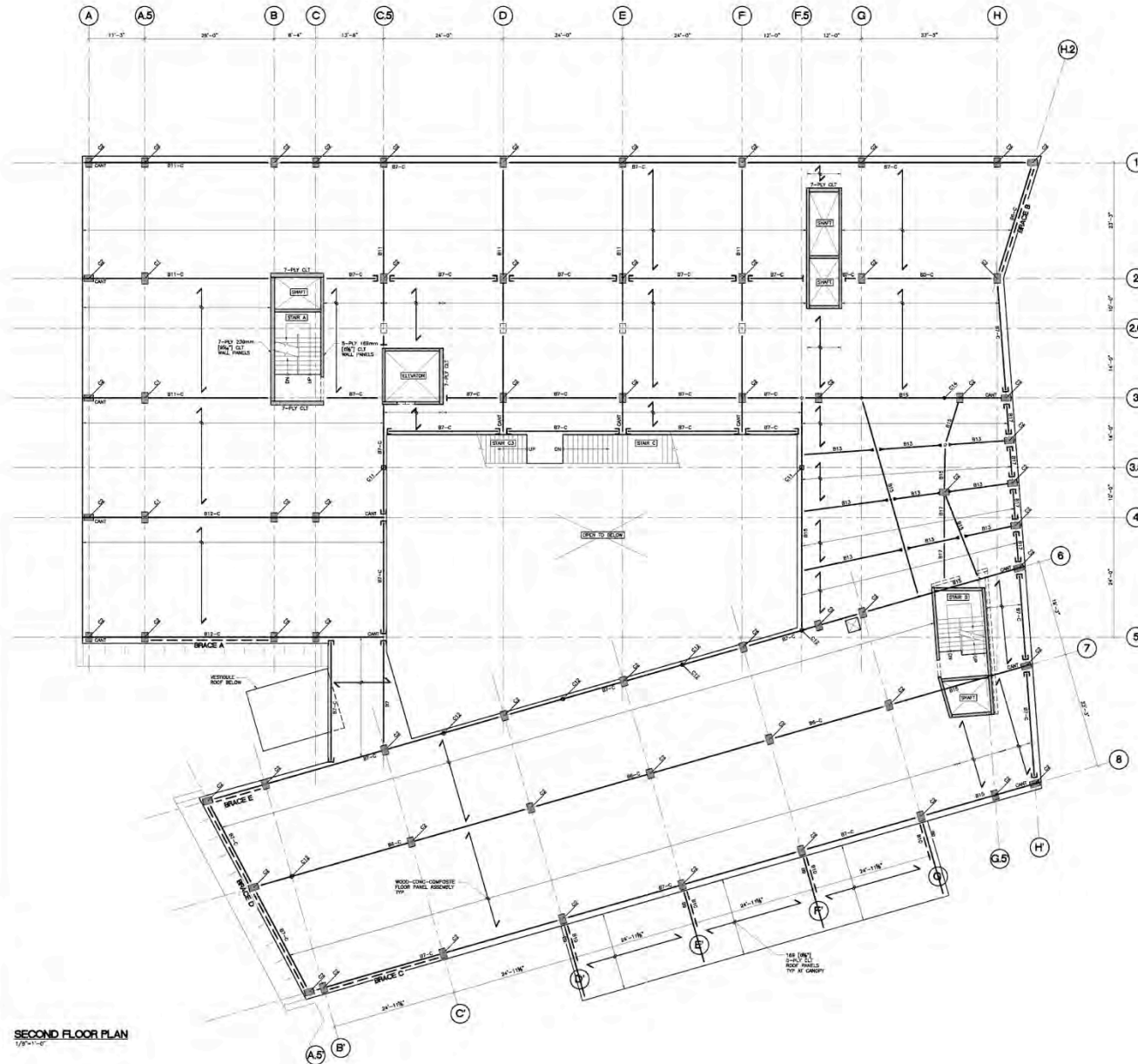
scale

sheet title
SECOND FLOOR PLAN

sheet number

S2.02

Timber Column Grid



SECOND FLOOR PLAN
1/8"=1'-0"

EQUILIBRIUM
 Equilibrium Consulting Inc.
 Structural Engineers
 100 West Main Street, Suite 200
 Amherst, MA 01002
 Tel: 413.253.1000
 Fax: 413.253.1001
 Email: info@equilibrium.com
 Website: www.equilibrium.com

UMASS INTEGRATED DESIGN BUILDING
 University of Massachusetts
 Amherst, MA

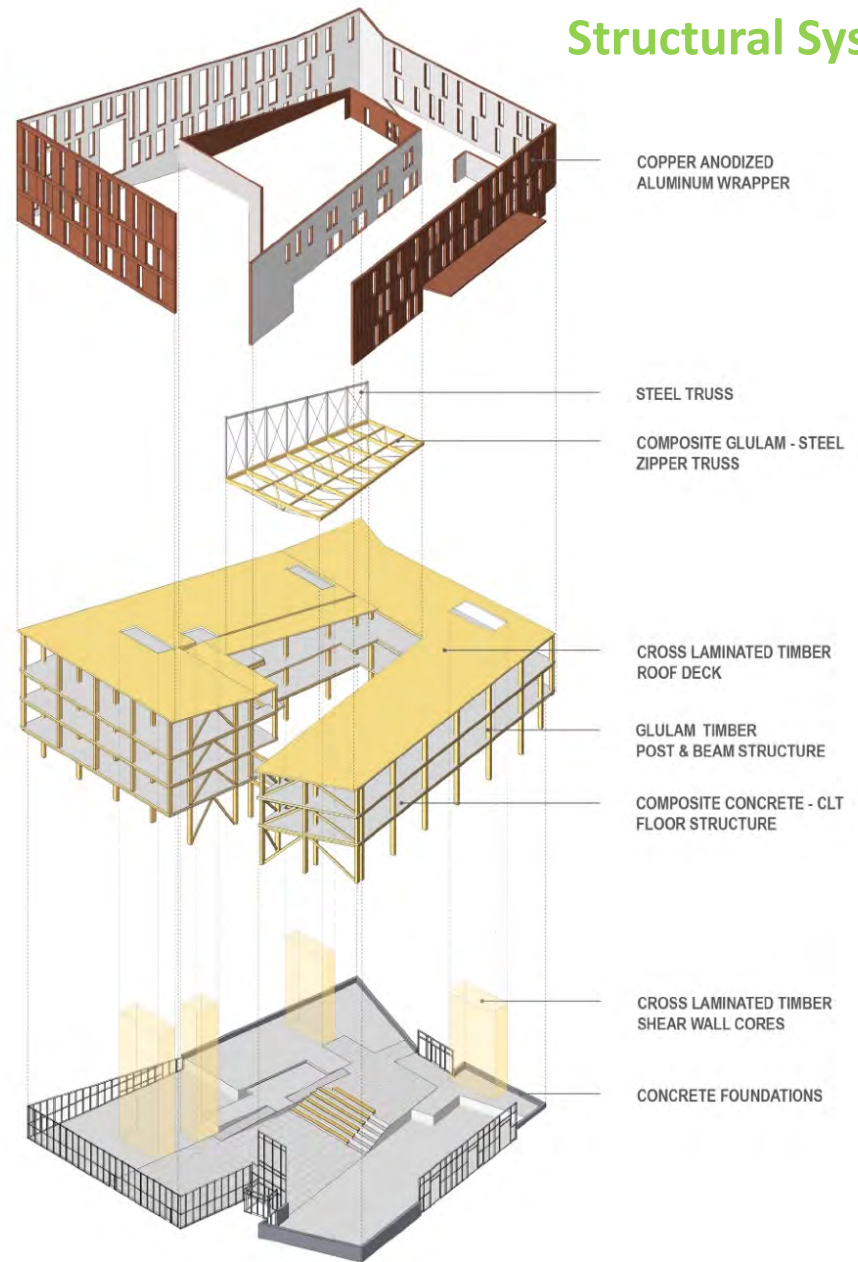


Owner's Project Identification Number
 UMMA PROJECT #12-A3
 UMMASS BUILDING #720



08/11/14	ISSUED FOR DESIGN DEVELOPMENT
08/11/14	ISSUED
Project No.	14090
Client	UM
Designed by	08/06/06
Checked by	08
Date	08/11/14

Structural Systems





CLT



GLULAM



NLT



DLT



LVL



LSL



PSL



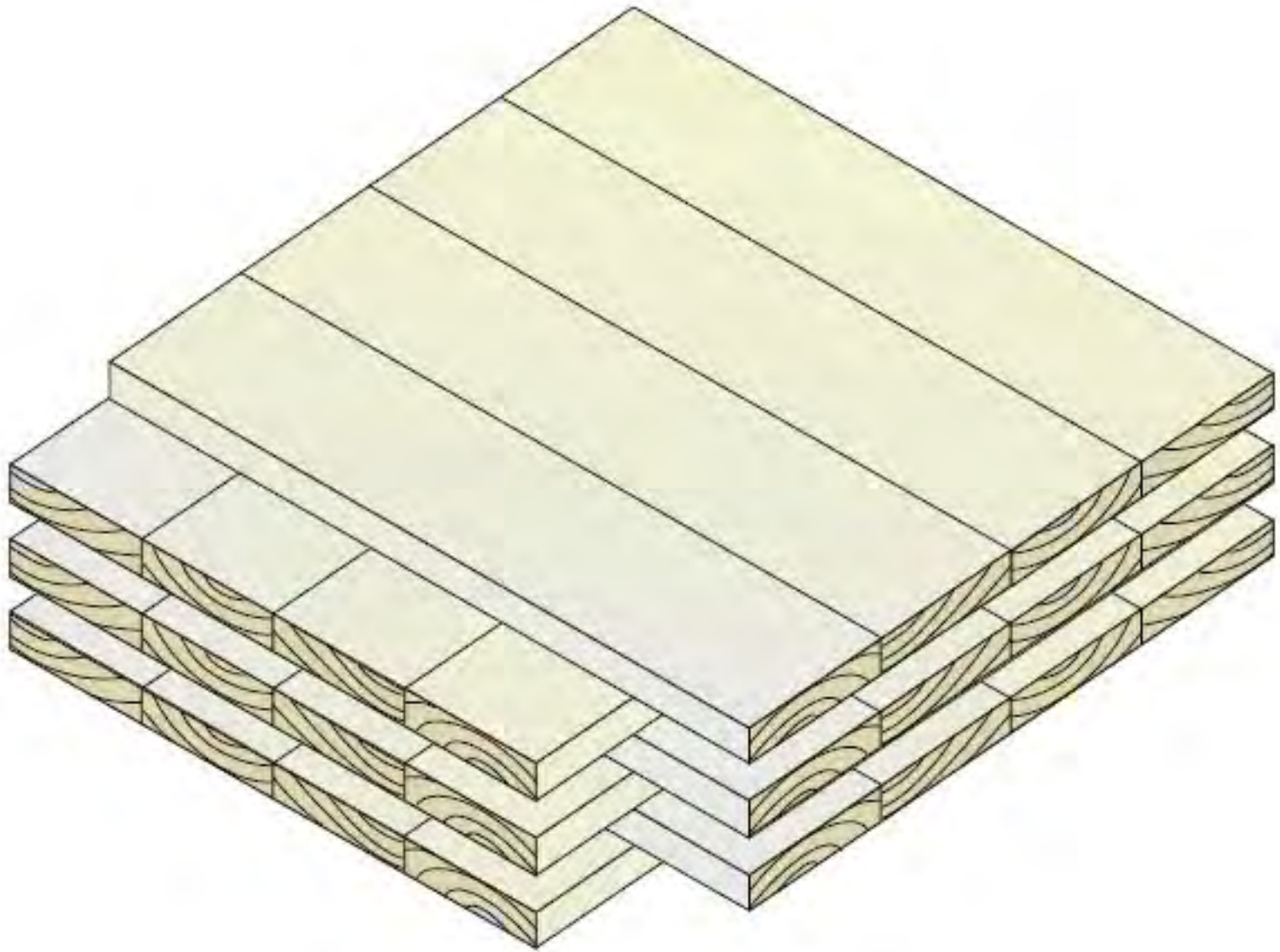
MPP

**Glue Laminated (Glu-lam)
Beams, Columns, and Diagonal Bracing**

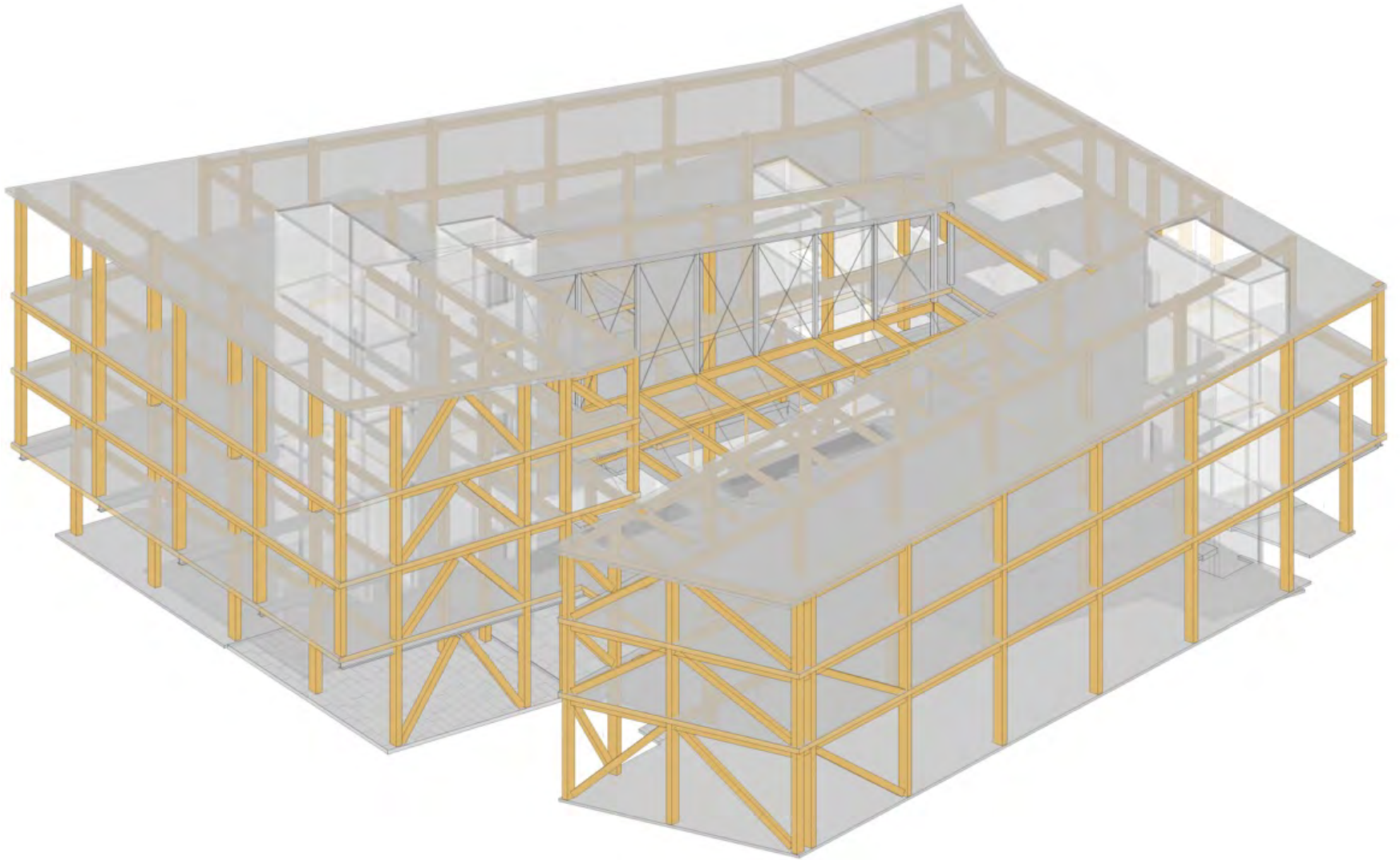


**Cross Laminated Timber (CLT)
for Floor Panels and Shear Walls**

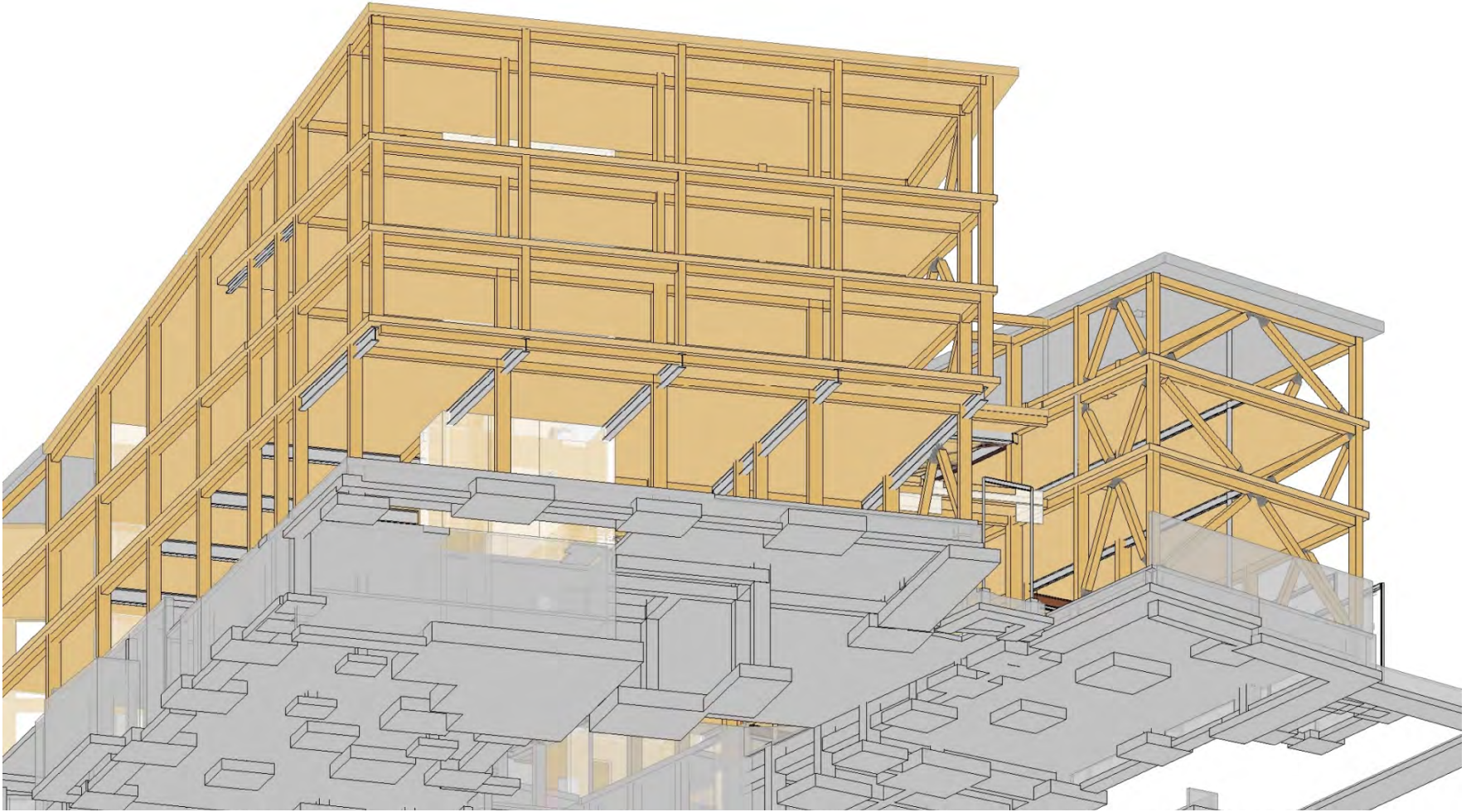




Post and Beam Structural Framework



Structural Framework



Revit Model



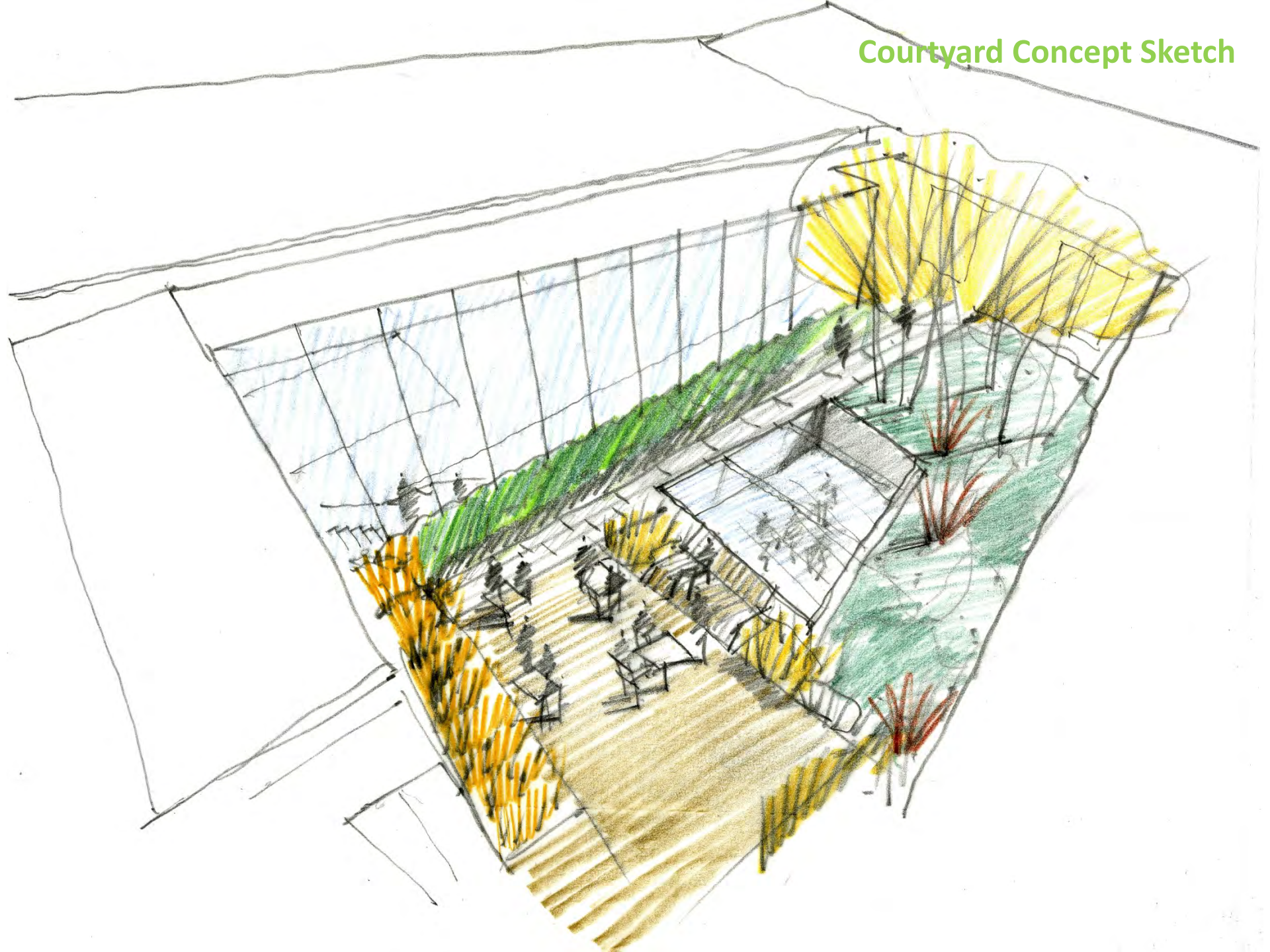
Central Commons and Courtyard Design

Structural Challenges:

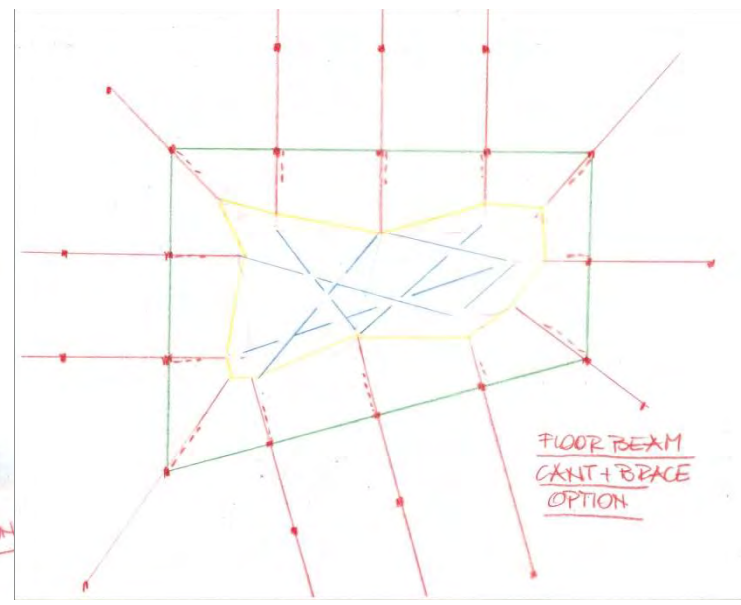
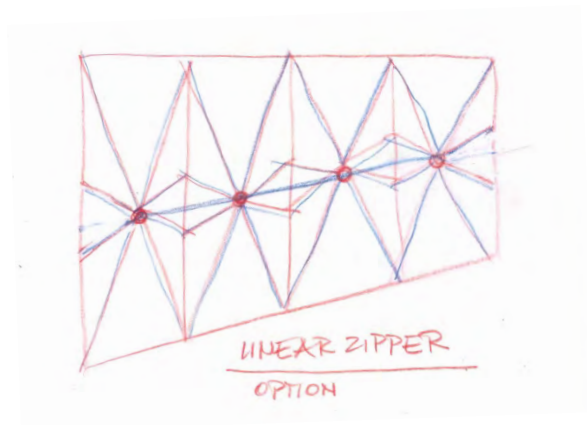
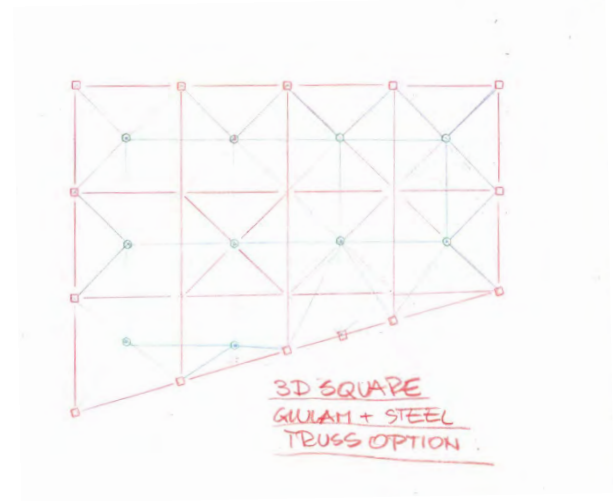
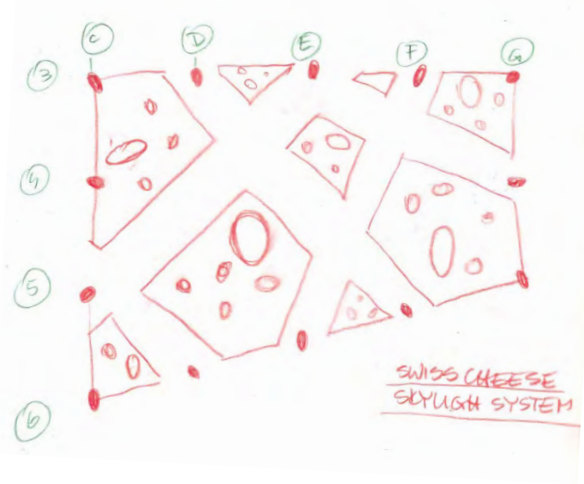
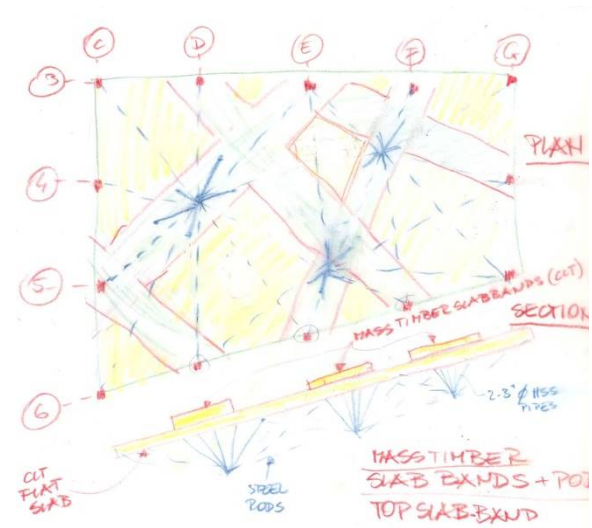
- Longest span with heavy loading above
- Minimize structural depth
- Wet garden on a wood structure



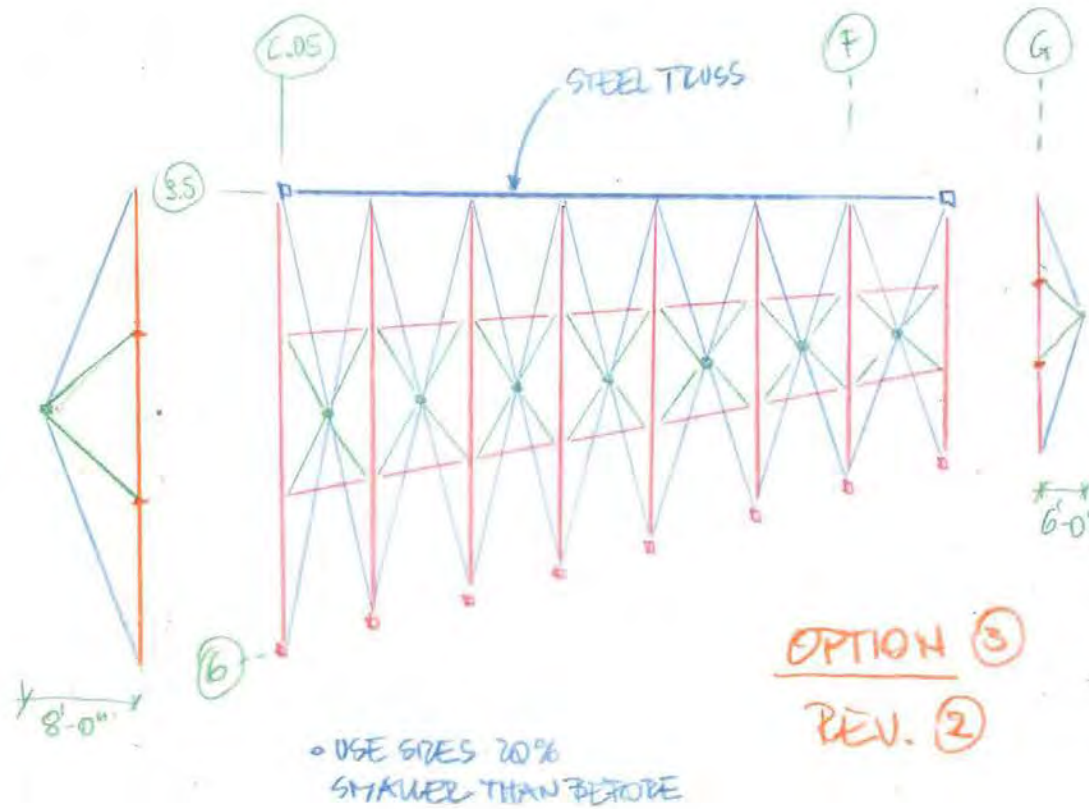
Courtyard Concept Sketch



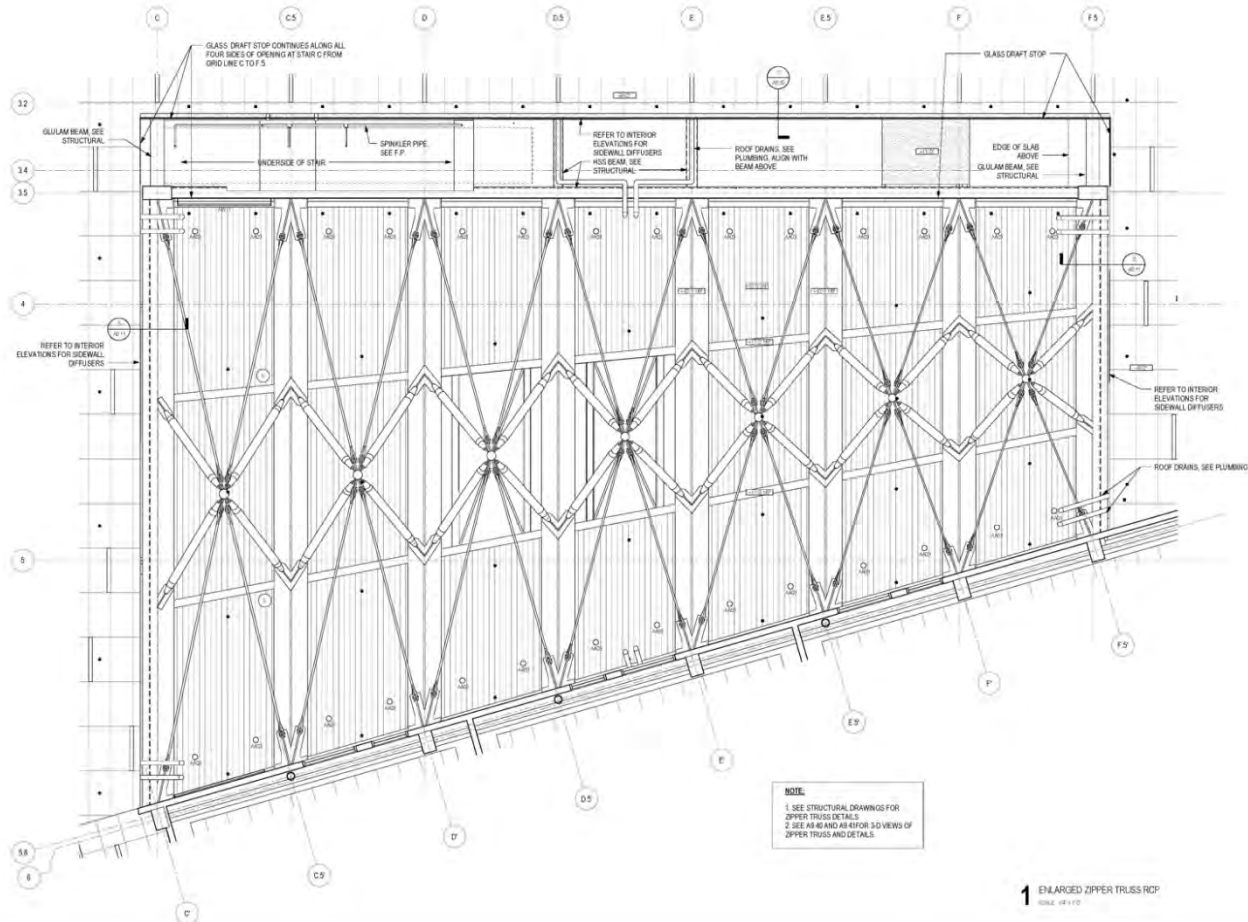
Central Space Structural Concepts



Zipper Truss Final Concept

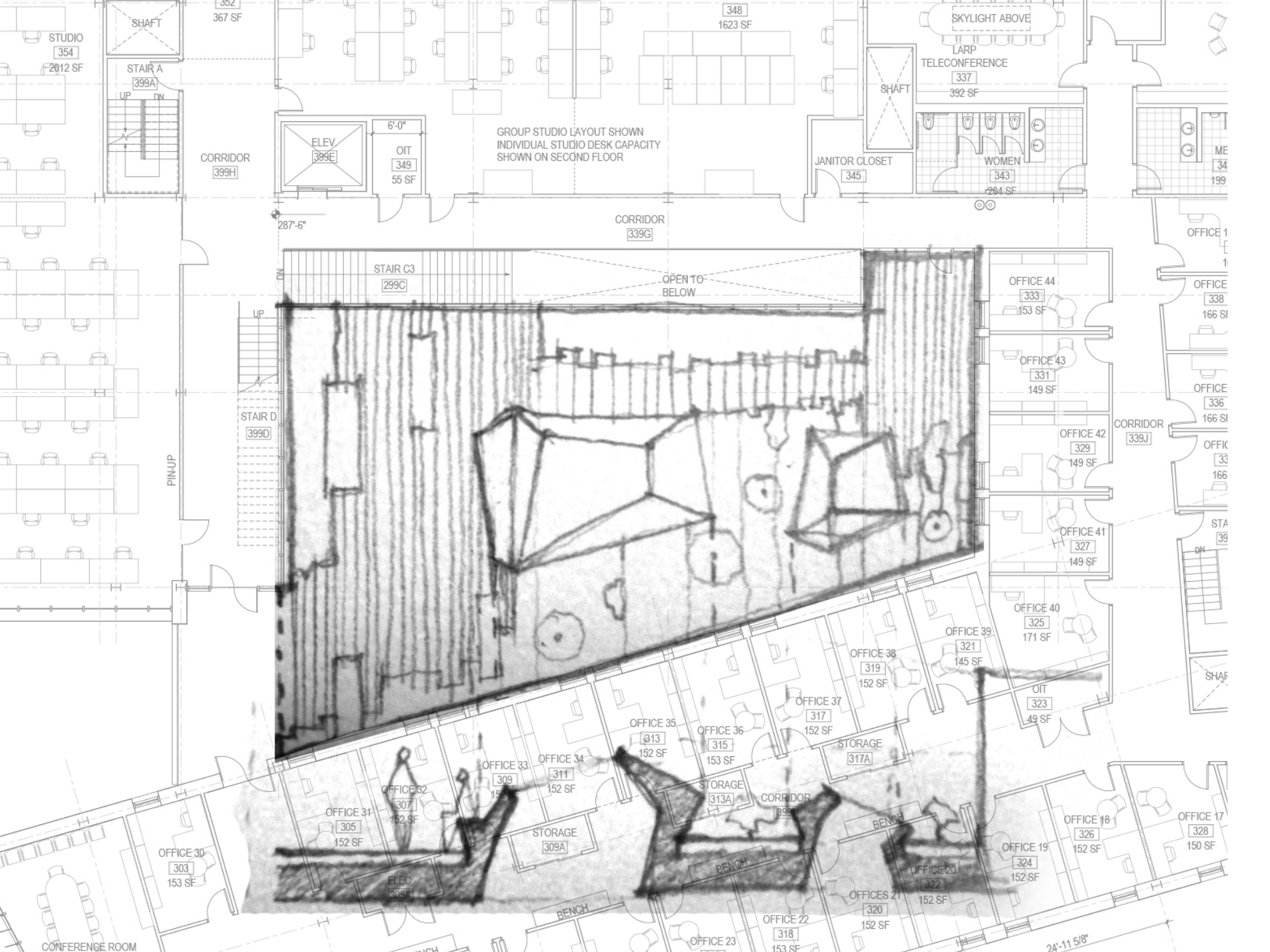


Reflected Ceiling Plan



Zipper Truss Model





STUDIO
354
2012 SF

SHAFT
367 SF

392

348
1623 SF

SKYLIGHT ABOVE

LARP TELECONFERENCE
337
392 SF

STAIR A
399A
UP
DN

CORRIDOR
399H

ELEV
399E

6'-0"
OIT
349
55 SF

GROUP STUDIO LAYOUT SHOWN
INDIVIDUAL STUDIO DESK CAPACITY
SHOWN ON SECOND FLOOR

SHAFT

JANITOR CLOSET
345

WOMEN
343
284 SF

ME
34
199

287'-6"

CORRIDOR
339G

STAIR C3
299C
UP
DN

OPEN TO
BELOW

STAIR D
399D
UP

PIN-UP

OFFICE 44
333
153 SF

OFFICE 1
1

OFFICE 338
166 SF

OFFICE 336
166 SF

CORRIDOR
339J

OFFICE 333
166 SF

OFFICE 42
329
149 SF

OFFICE 41
327
149 SF

STA
39
DN

OFFICE 40
325
171 SF

OFFICE 38
319
152 SF

OFFICE 39
321
145 SF

OIT
323
49 SF

SHAFT

OFFICE 35
313
152 SF

OFFICE 36
315
153 SF

OFFICE 37
317
152 SF

STORAGE
317A

OFFICE 33
309
152 SF

OFFICE 34
311
152 SF

STORAGE
313A

CORRIDOR
339I

OFFICE 32
307
152 SF

OFFICE 31
305
152 SF

STORAGE
309A

BENCH

OFFICE 18
326
152 SF

OFFICE 17
328
150 SF

OFFICE 19
324
152 SF

OFFICES 21
320
152 SF

OFFICE 22
318
153 SF

OFFICE 23
316
153 SF

BENCH

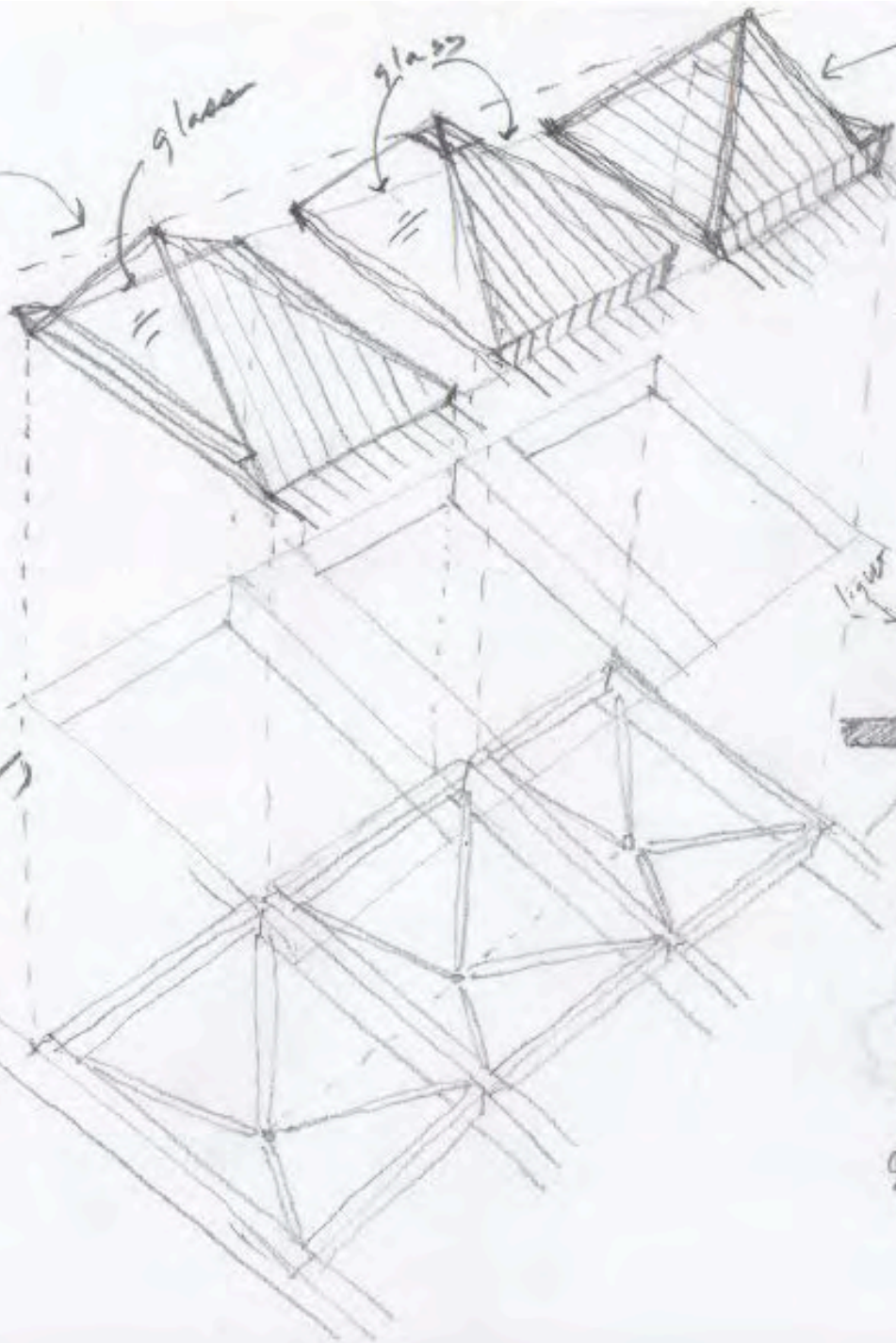
ELEC
305A

CONFERENCE ROOM

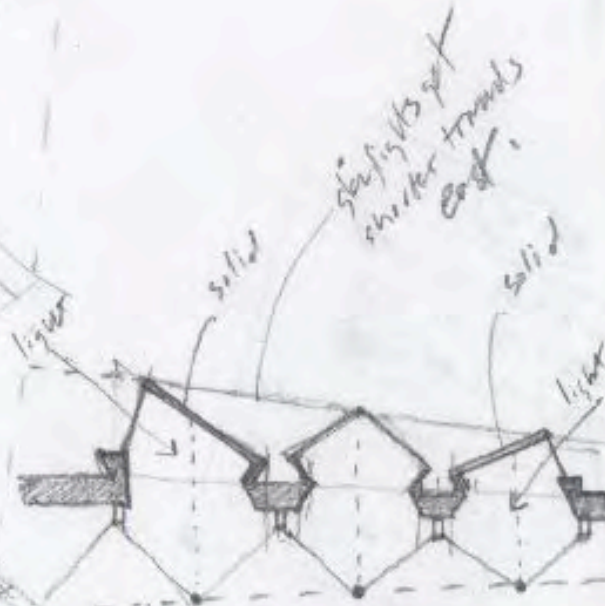
24'-11 5/8"

variations
on
the
reverse pyramid
geometry of
zipper truss
below.

but still has
a not symmetric
more organic
form.



← glass.



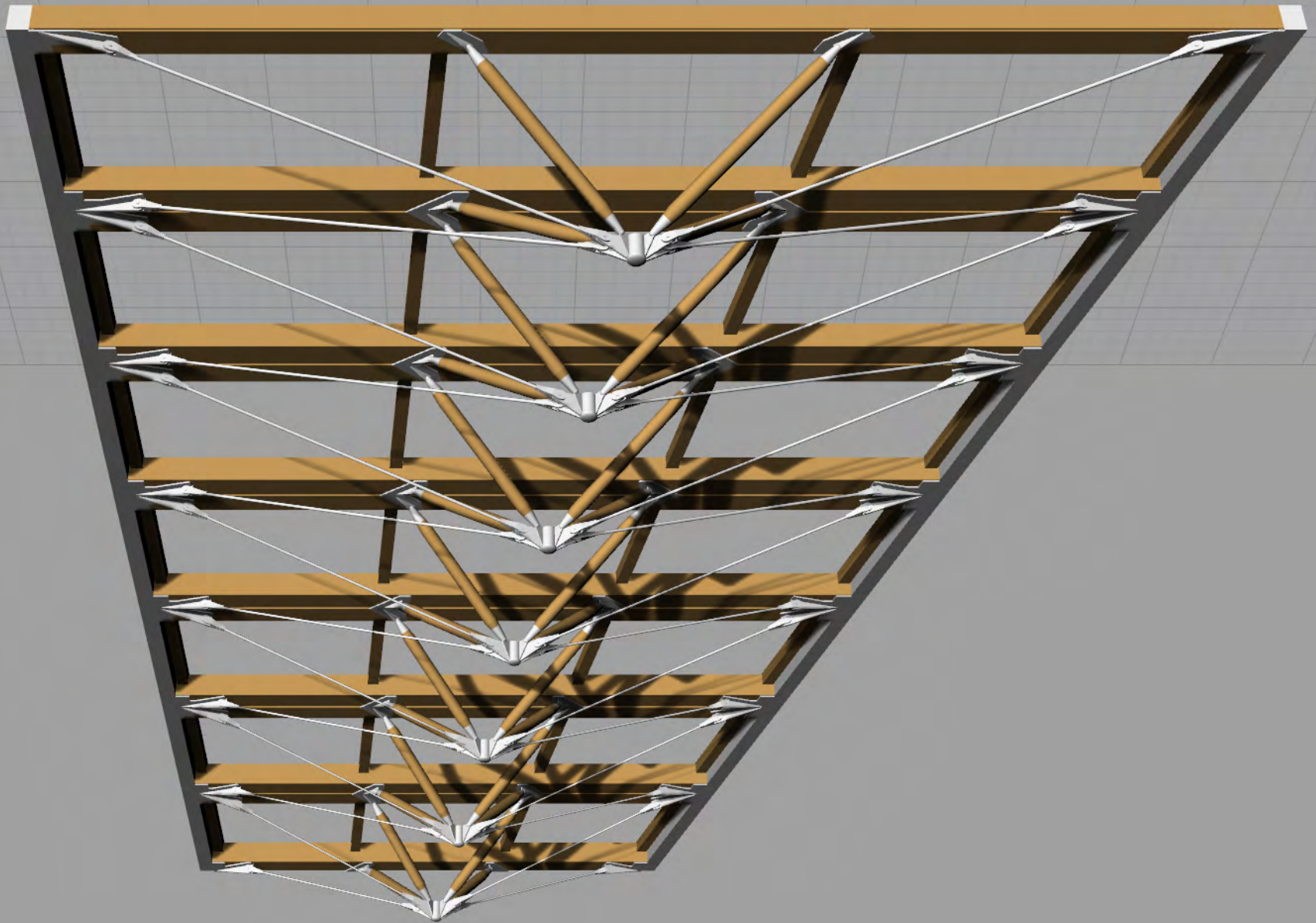
truss gets shallower
towards east.

section

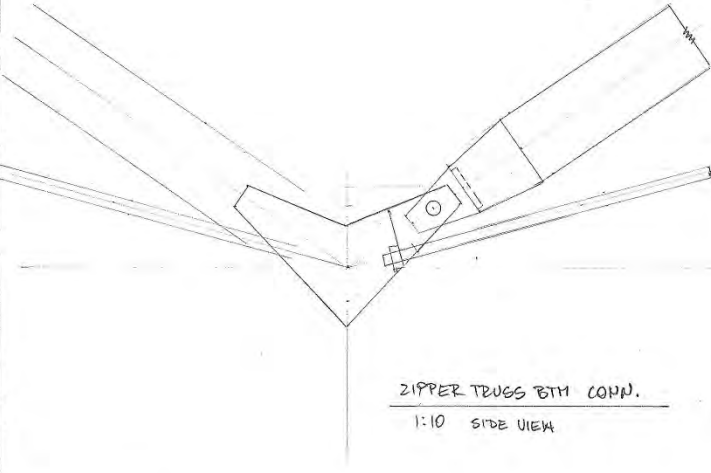
Courtyard Model Views



Zipper Truss Model



Project: 103
 Subject: ZIPPER TRUSS CONN. Page No. _____
Job No. _____
 By: CH Checked: _____
Date: _____
 Date: _____



ZIPPER TRUSS BTH CONN.
1:10 SIDE VIEW

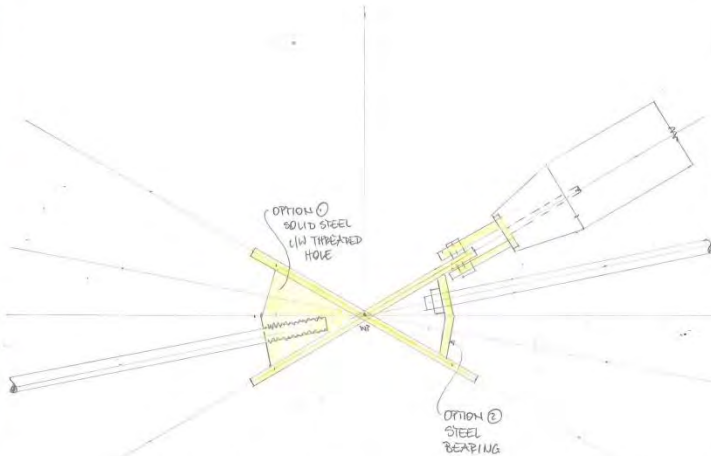
1030 25-524

Project: 103
 Subject: ZIPPER TRUSS CONN. Page No. _____
Job No. _____
 By: CH Checked: _____
Date: _____
 Date: _____

Structural Engineers Equilibrium Consulting Inc

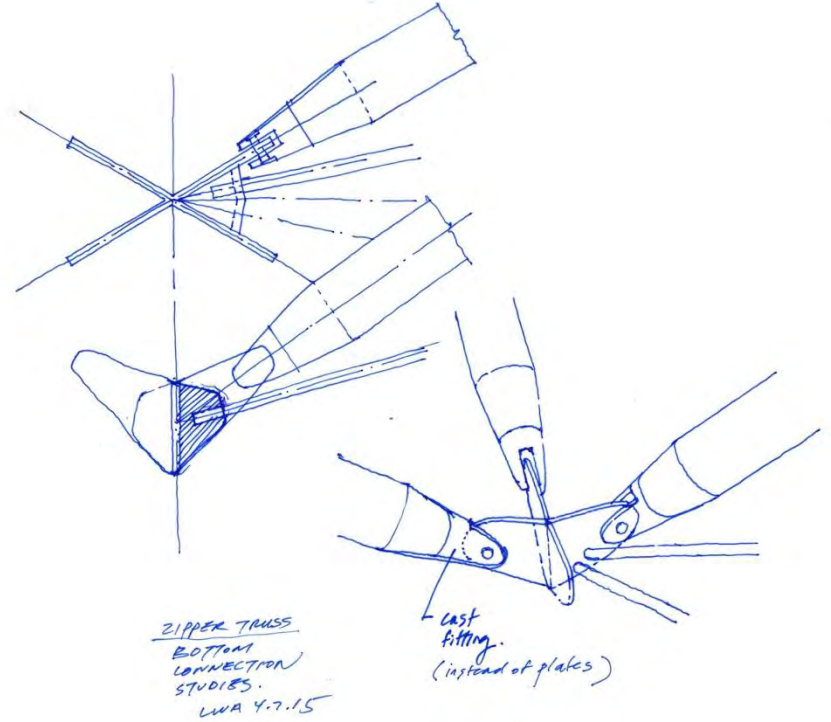
202-388 West 8th Ave
Vancouver BC V6Y 3X2
Canada

+1 604 720 1422
info@equilibria.com
equilibria.com



ZIPPER TRUSS BTH CONN.
BOTTOM VIEW 1:10

1030 25-524 2015 0402



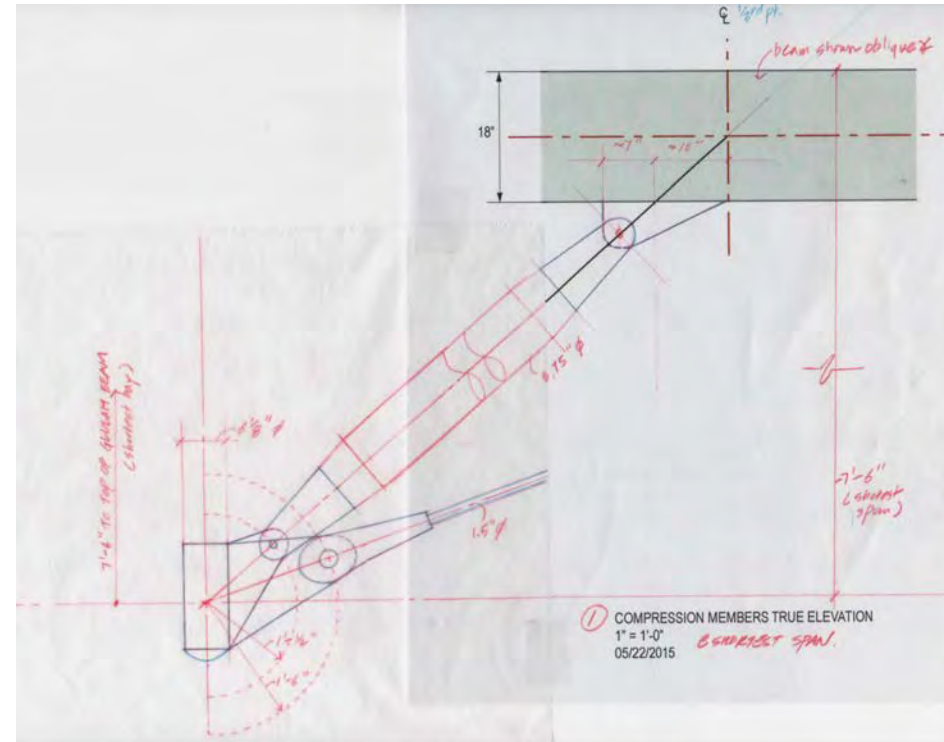
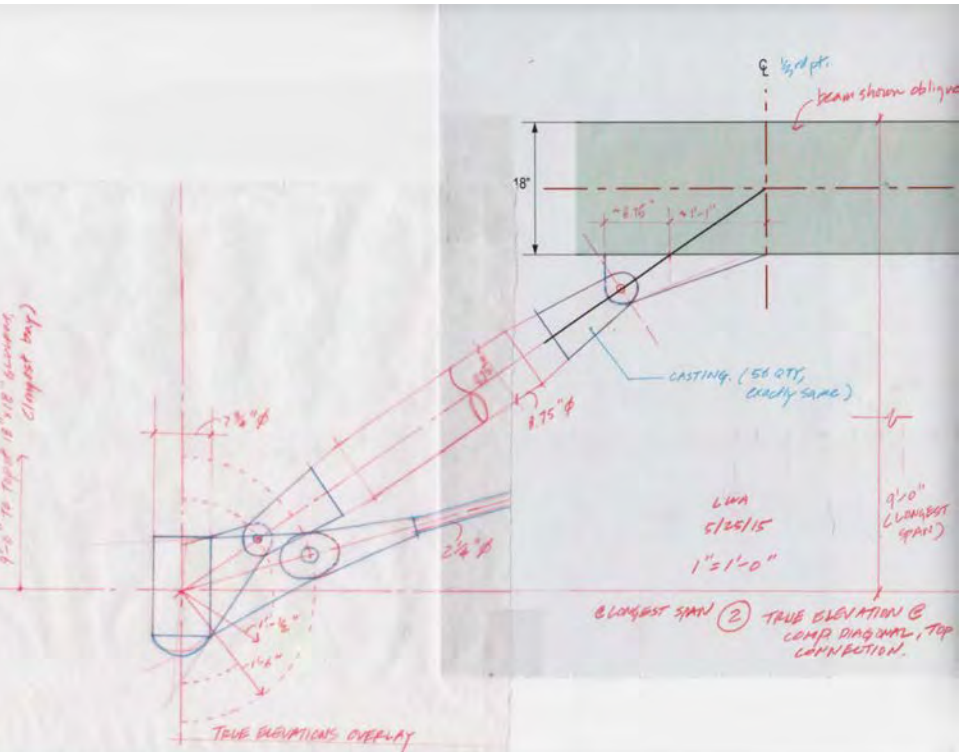
ZIPPER TRUSS
BOTTOM
CONNECTION
STUDIES.
LWA 4.7.15

Cast fitting.
(instead of plates)

EQUILIBRIUM

EQUILIBRIUM

Central Connector Studies





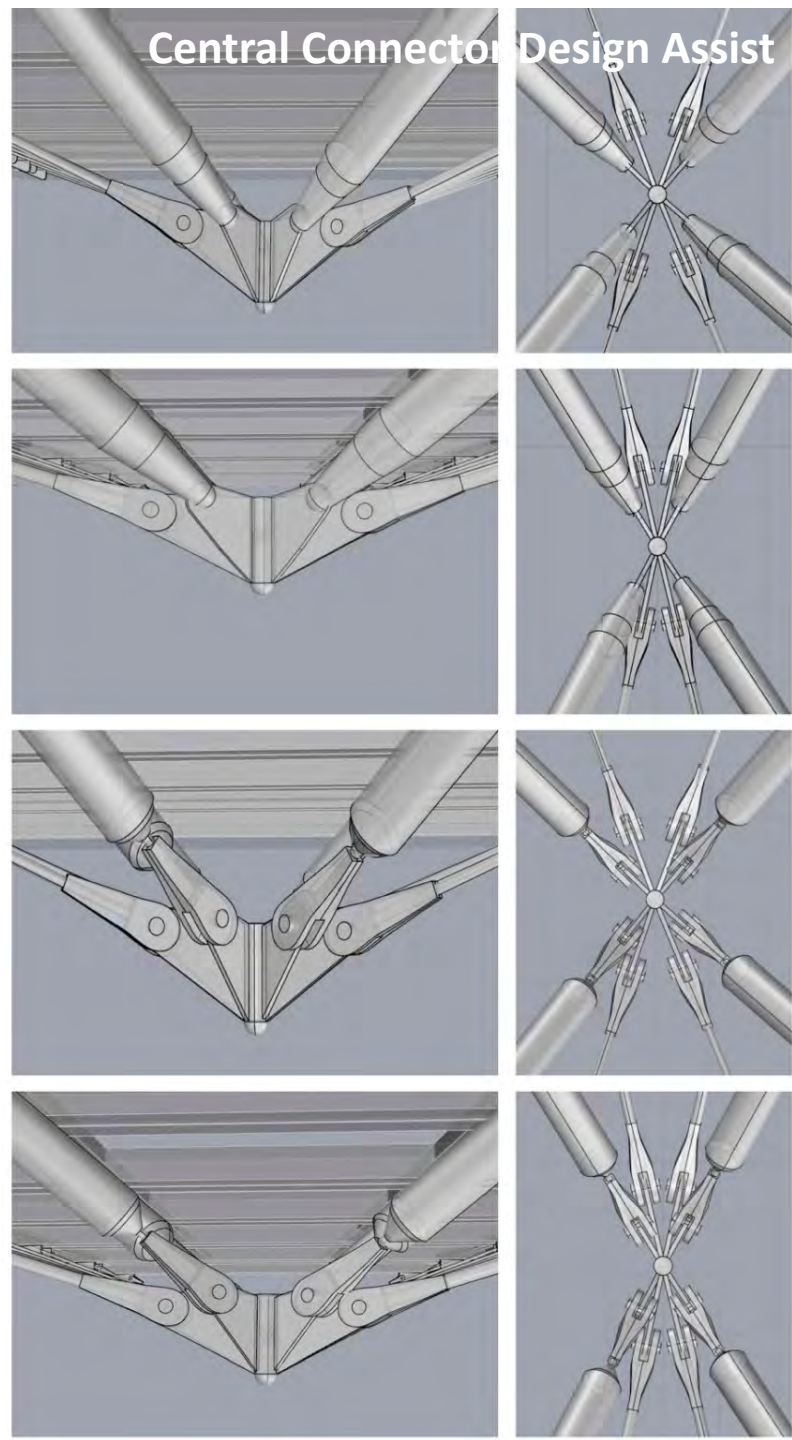
SHORTEST SPAN
CAST ENDS

LONGEST SPAN
CAST ENDS

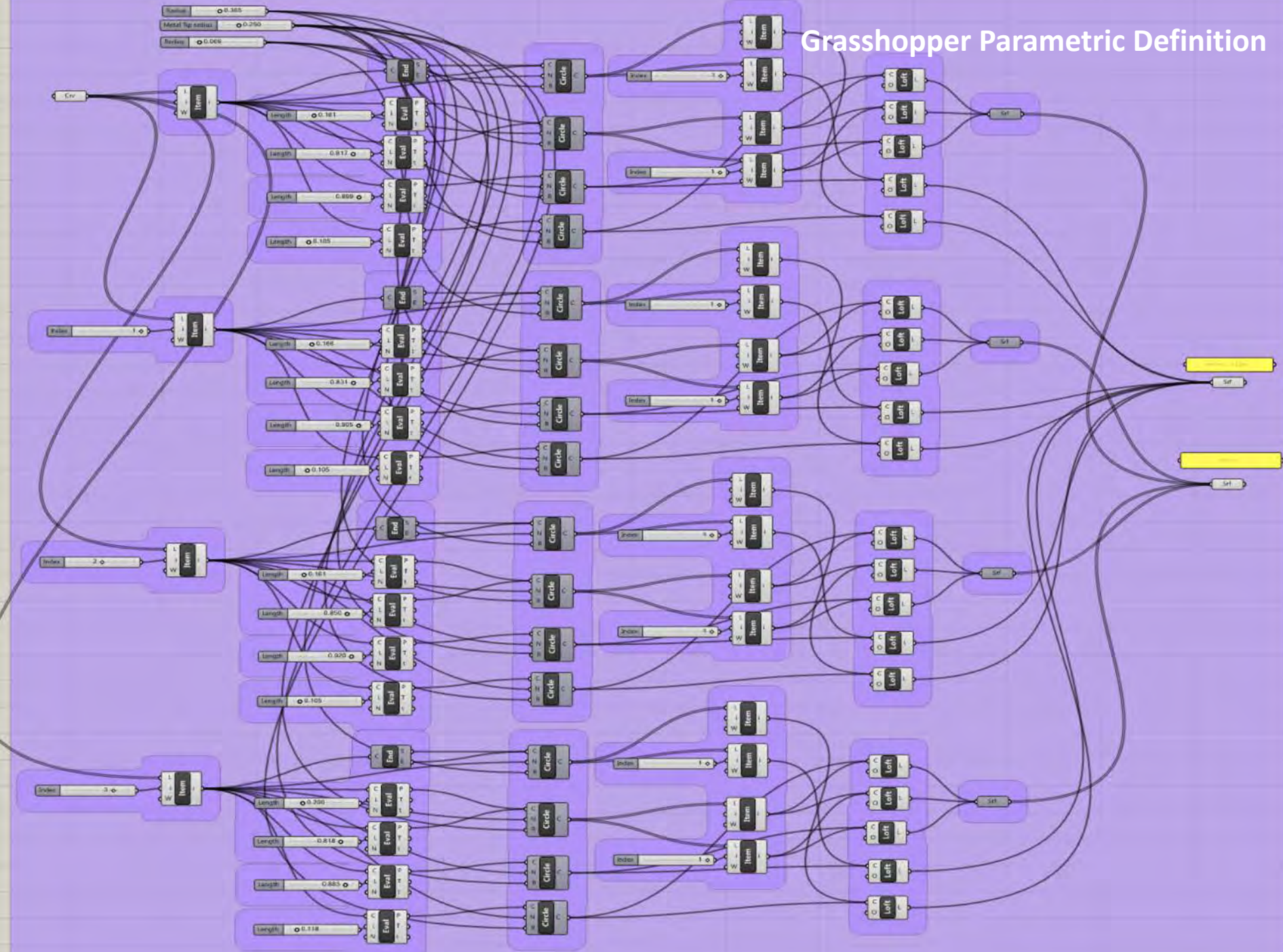
SHORTEST SPAN
BESISTA COMPRESSION CONNECTORS

LONGEST SPAN
BESISTA COMPRESSION CONNECTORS

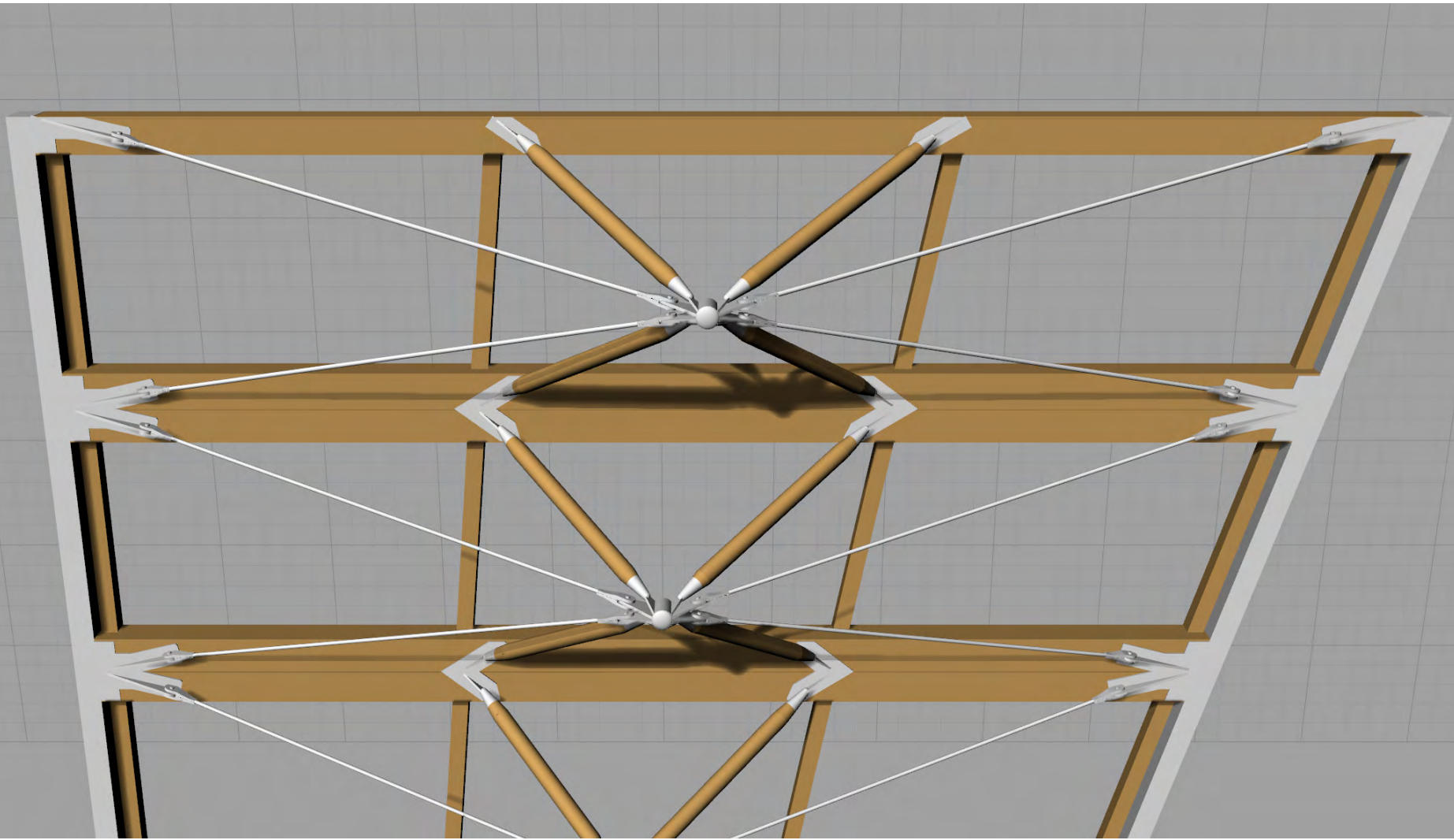
Central Connector Design Assist



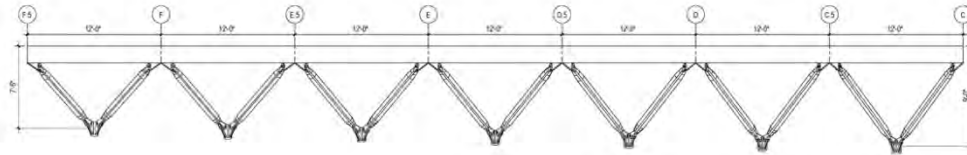
Grasshopper Parametric Definition



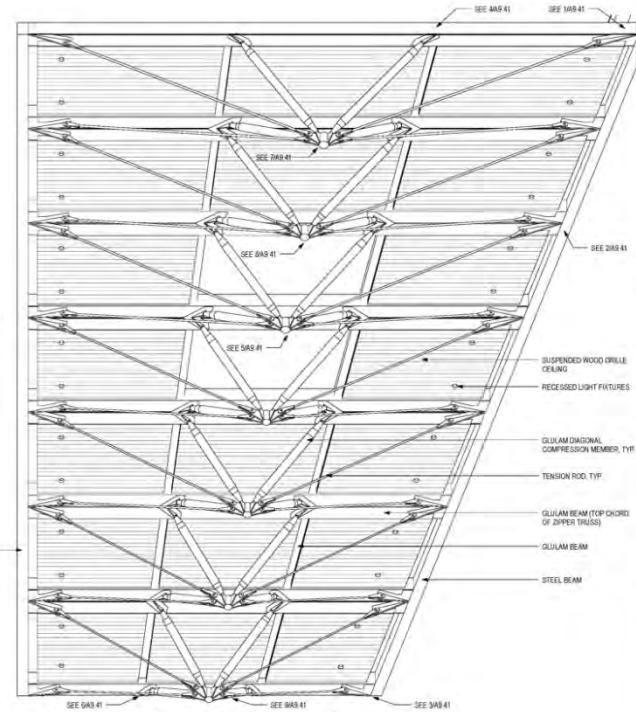
Rhino Model Detail



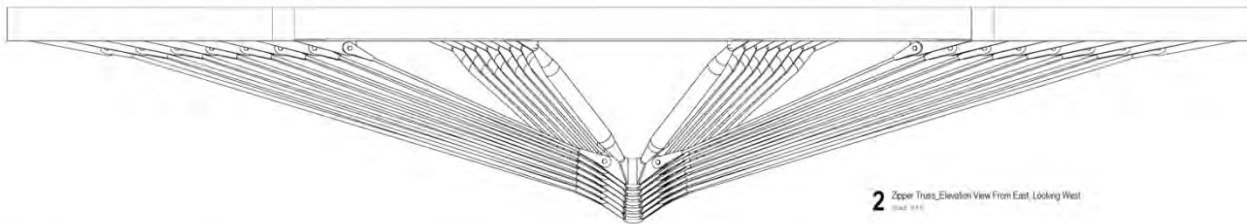
Profile and Layout



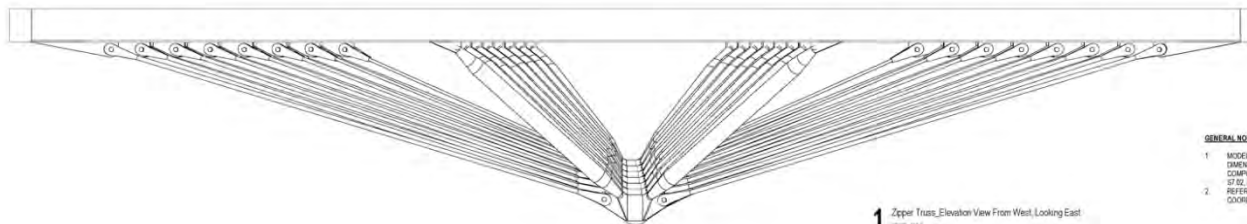
4 Zipper Truss, Elevation View From North, Looking South
SCALE: 1/8" = 1'-0"



3 Zipper Truss, General View From Below (Zipper Truss & Suspended Wood Grille Ceiling Shown Only)
SCALE: 1/8" = 1'-0"



2 Zipper Truss, Elevation View From East, Looking West
SCALE: 1/8" = 1'-0"

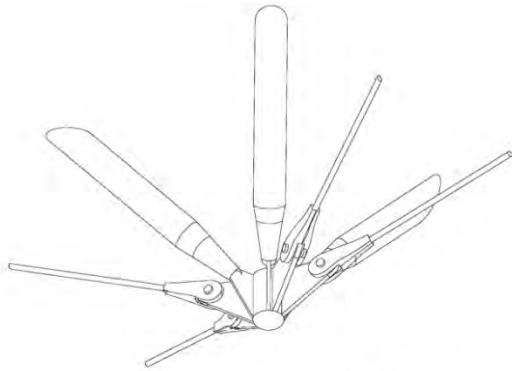


1 Zipper Truss, Elevation View From West, Looking East
SCALE: 1/8" = 1'-0"

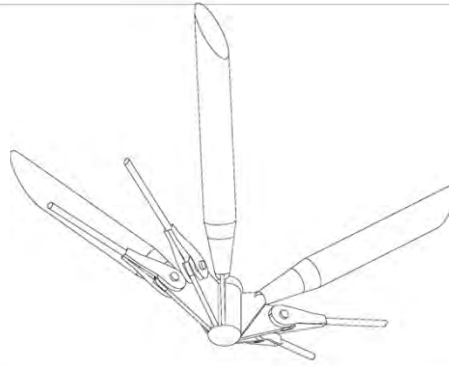
GENERAL NOTE:

1. MODEL VIEWS SHOWN ARE INTENDED TO GIVE A GENERAL THREE-DIMENSIONAL VISUAL REPRESENTATION OF ZIPPER TRUSS & ITS COMPONENTS ONLY. REFER TO STRUCTURAL DRAWINGS S7.00, S7.01, S7.02, AND S7.03 FOR DIMENSIONS AND REQUIRED INFORMATION. REFER TO AS 024 FOR RCP OF ZIPPER TRUSS AREA FOR COORDINATION WITH RFP UTILITIES.
- 2.

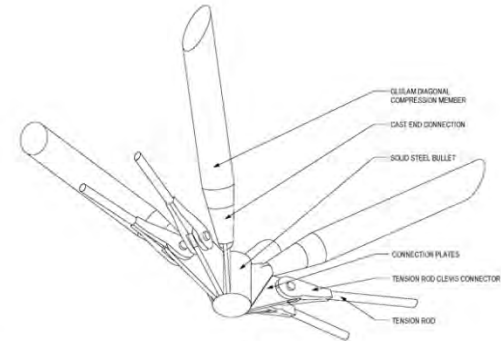




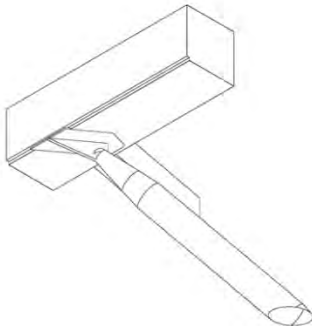
9 Zipper Truss_Bottom Connection, Shortest Bay
SCALE: 1/2" = 1'-0"



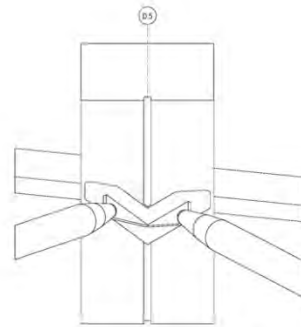
8 Zipper Truss_Bottom Connection, Mid Bay
SCALE: 1/2" = 1'-0"



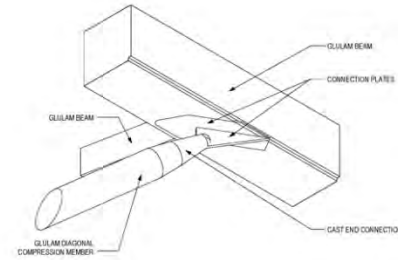
7 Zipper Truss_Bottom Connection, Longest Bay
SCALE: 1/2" = 1'-0"



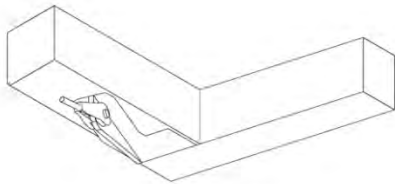
6 Zipper Truss_Compression Diagonal Connection, Shortest Bay
SCALE: 1/2" = 1'-0"



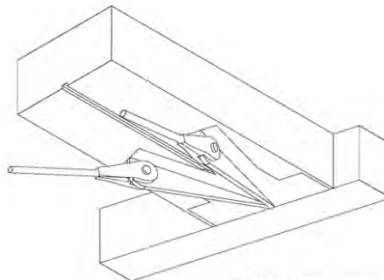
5 Zipper Truss_Compression Diagonal Connection, Mid Bay
SCALE: 1/2" = 1'-0"



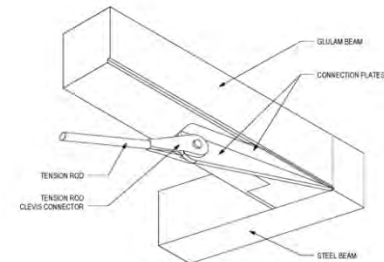
4 Zipper Truss_Compression Diagonal Connection, Longest Bay
SCALE: 1/2" = 1'-0"



3 Zipper Truss_Heel Connection, Shortest Bay
SCALE: 1/2" = 1'-0"

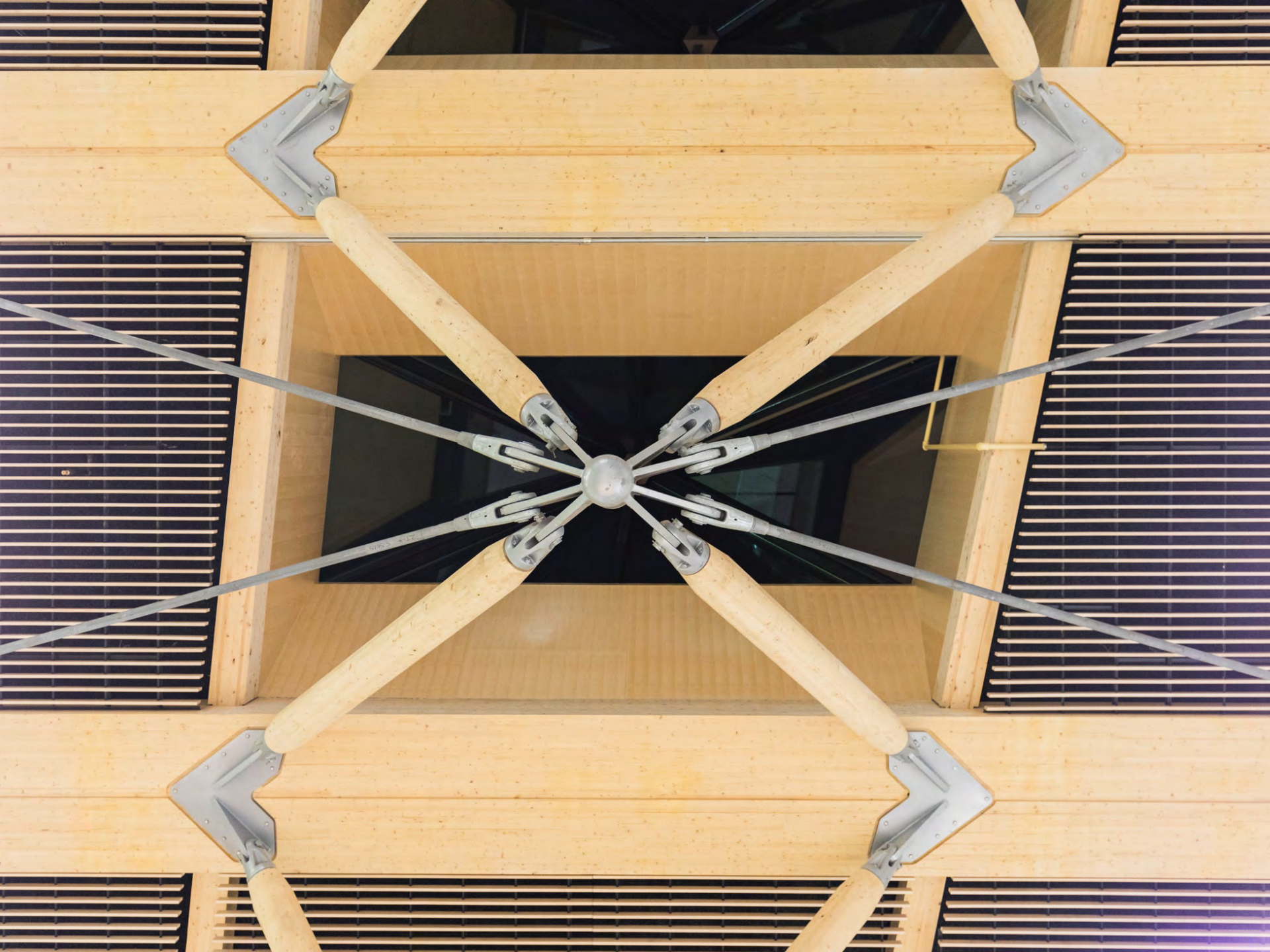


2 Zipper Truss_Heel Connection, Mid Bay
SCALE: 1/2" = 1'-0"



1 Zipper Truss_Heel Connection, Longest Span
SCALE: 1/2" = 1'-0"

GENERAL NOTE:











Project Team

- **Client: University of Massachusetts Building Authority**
- **User: University of Massachusetts, Amherst
Architecture & Design, LARP, Building Construction & Technology**
- **Architectural / Structural Design Team:
Architect: Leers Weinzapfel Associates
Structural Design Engineer: Equilibrium Consulting
SER: SGH**
- **AHJ:
MA State Building Inspector
MA Board of Appeals**
- **Construction Team:
Construction Manager
Timber Fabricator and Installer**

Key Issues

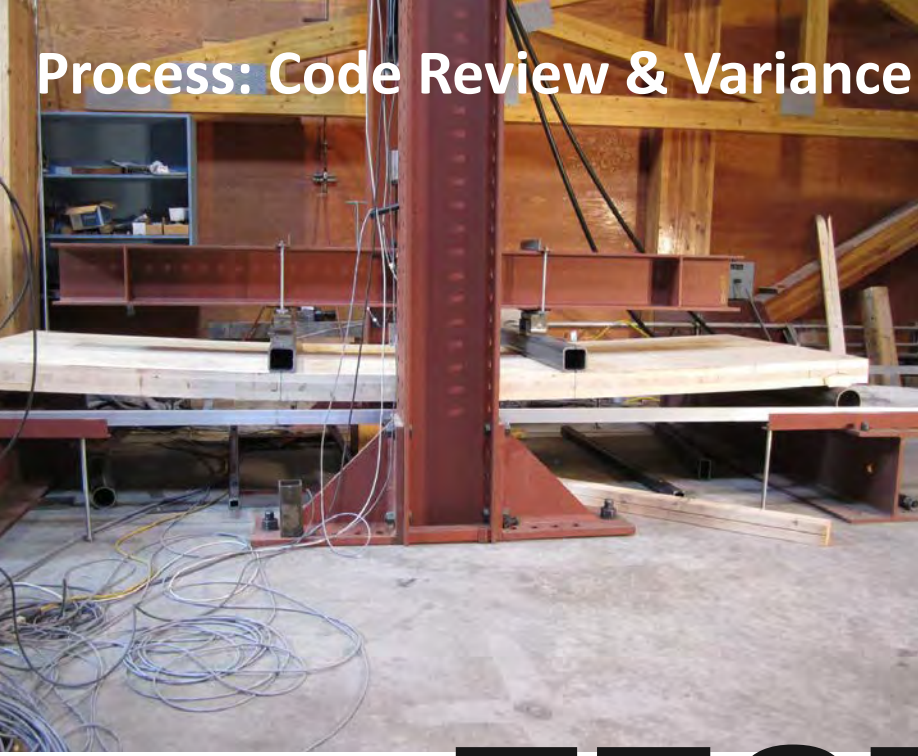
- **Danger of “Over Estimating Contingency” by Construction Managers or Cost Estimators due to the “Unknown”**
- **Importance of multiple Bidders**
- **Coordination of Fabricator and Installer Team**

CLT roof/floor panels and shear walls

CLT floor panels and glulam beams with composite concrete



Process: Code Review & Variance



TESTING



Process: Code Review & Variance

Proposed Alternate Structural Systems

Cross Laminated Timber (CLT) roof and floor decks and shear walls

- 20 + years in Europe, recent projects in Canada similar to IDB
- Recognized in 2015 International Building Code and 2015 National Design Specification for Wood
- ANSI/APA PRG -320: current material fabrication requirements and stress grades
- CLT Handbook US Edition : Guidelines for CLT design and construction published by FPI, FPL and APA
- Connections between CLT panels similar to traditional wood frame construction
- Employing high strength, ductile HSK connections as shear wall anchors

CLT floor decks and glued laminated timber beams with composite concrete deck

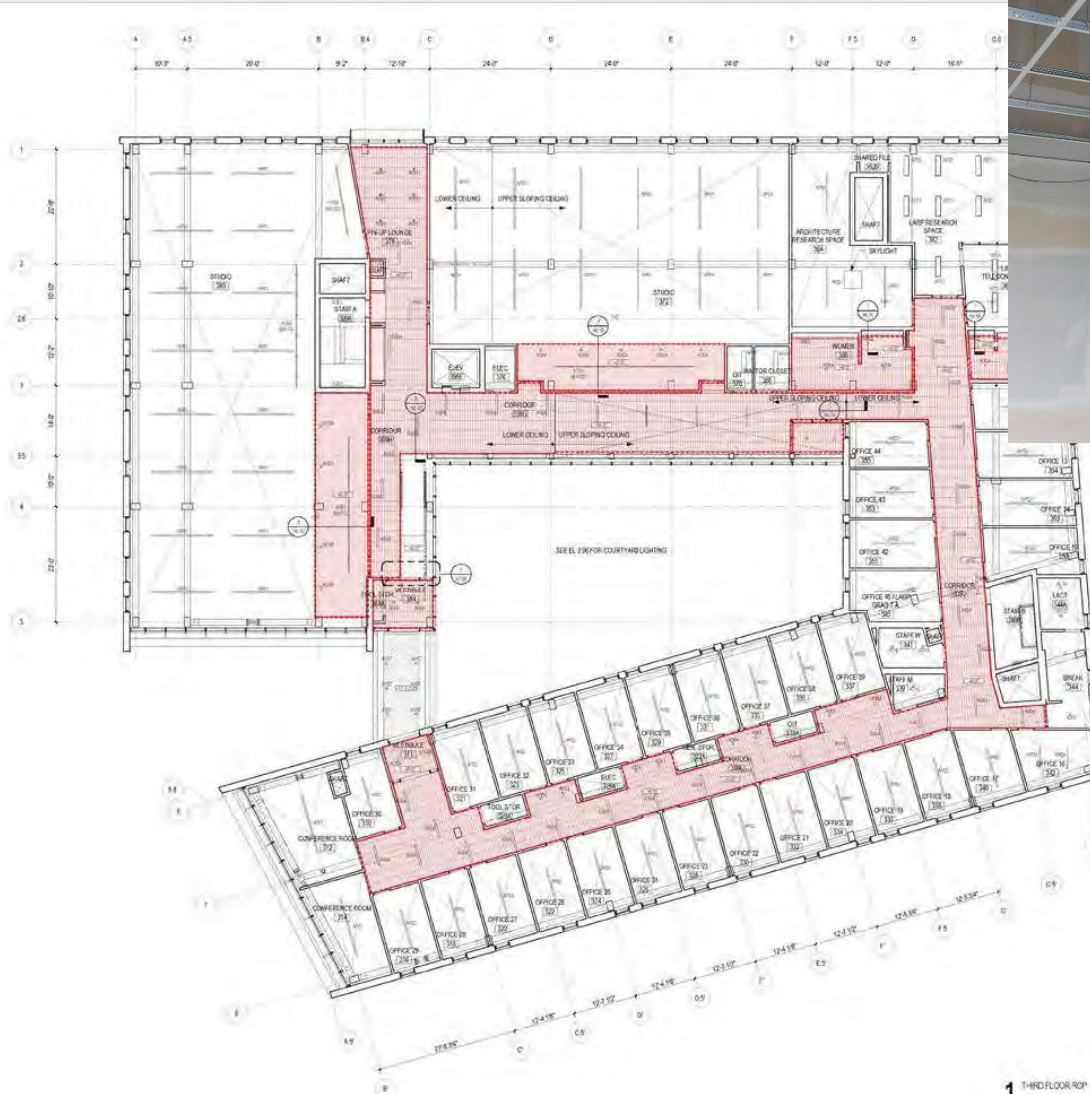
- 20 + years in Europe, extensive research and testing in Germany with HBV connector system
- CLT units provide required strength, concrete decks only counted on for stiffness

Alternative Structural Systems



Process: Code Review & Variance

Concealed Ceiling Areas



5318 SF CONCEALED SPACE
23.8% OF FLOOR AREA HAS
CONCEALED SPACE

1 THIRD FLOOR RCP

NOTES:
1. SEE ELECTRICAL PLANS FOR LIGHT FIXTURE
INFORMATION AND QUANTITIES.

CONSTRUCTION



How is it Constructed?

Very Much like a Steel Building

Steel Post & Beam  **Glulam Post & Beam**

Steel/Concrete Floors  **CLT/Concrete Floors**

Steel Deck Roof  **CLT Roof**

Concrete Shafts  **CLT Shafts**

Steel Braces  **Glulam Braces**

Post and Beam Structural Framework

Steel



Post and Beam Structural Framework





Glulam Beam to Column Connection



Glulam Beam to Column Connection







Photo credit: A. Schreyer

Fab lab, wood shop, and BCT lab: framed in one day



Steel-Concrete Composite



Steel – Concrete Composite



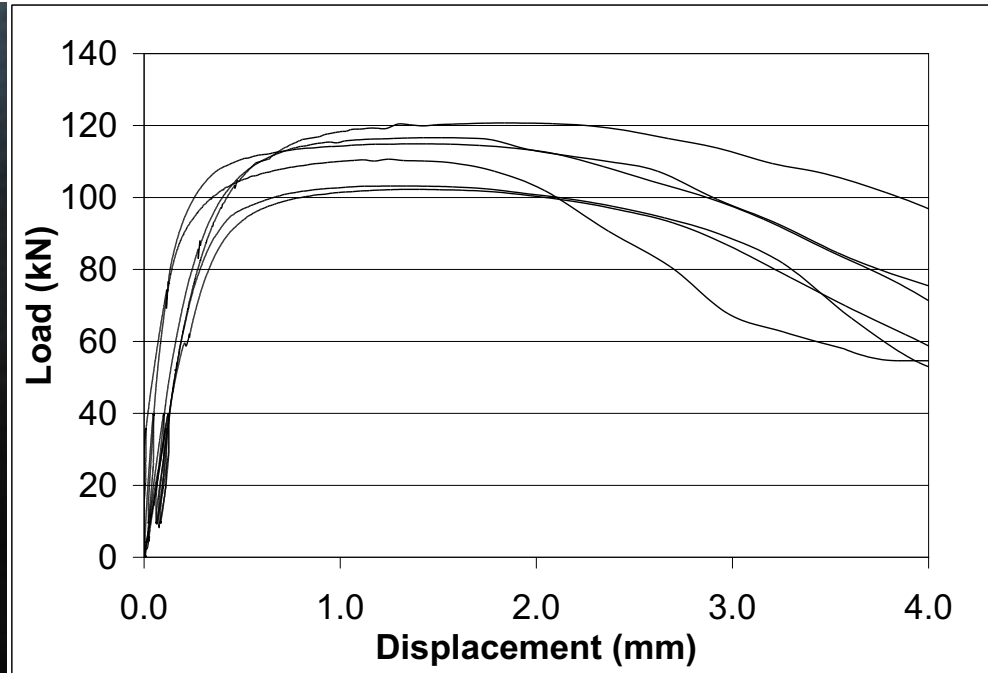
CLT – Concrete Composite



CLT – Concrete Composite



UMass research on HBV Shear Connector



- Clouston P, Bathon L, Schreyer A. 2005. "Shear and Bending Performance of a Novel Wood-Concrete Composite System". *ASCE Journal of Structural Engineering*. 131(9), pp.1404-1412
- Clouston P, Schreyer A. 2008. "Design and Use of Wood-Concrete Composites". *ASCE Practice Periodical on Structural Design and Construction*, 13(4), pp. 167-175

CLT - Concrete Composite Floor



CLT - Concrete Composite Floor



CLT - Concrete Composite Floor



CLT - Concrete Composite Floor



Concrete Shaft



Shear Walls

CLT Shaft



Shear Walls





Photo credit: A. Schreyer





Steel Bracing



Lateral Cross Bracing

Glulam Bracing



Lateral Cross Bracing

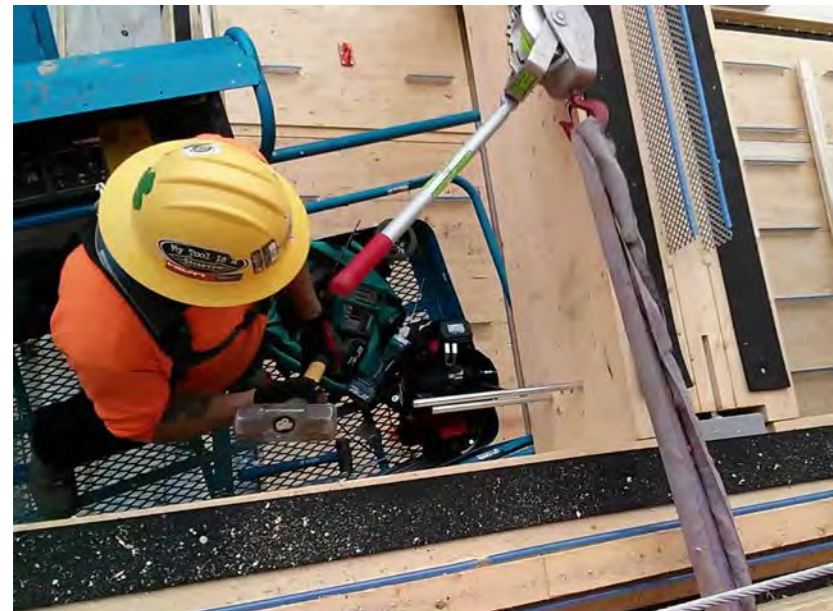
Lateral Cross Bracing



Lateral Cross Bracing



Slotted-in plates with tight fitting dowels



Zipper truss mid-air assembly







Photo credit: A. Schreyer



Photo credit: A. Schreyer





OCCUPANCY PHASE & BENEFITS



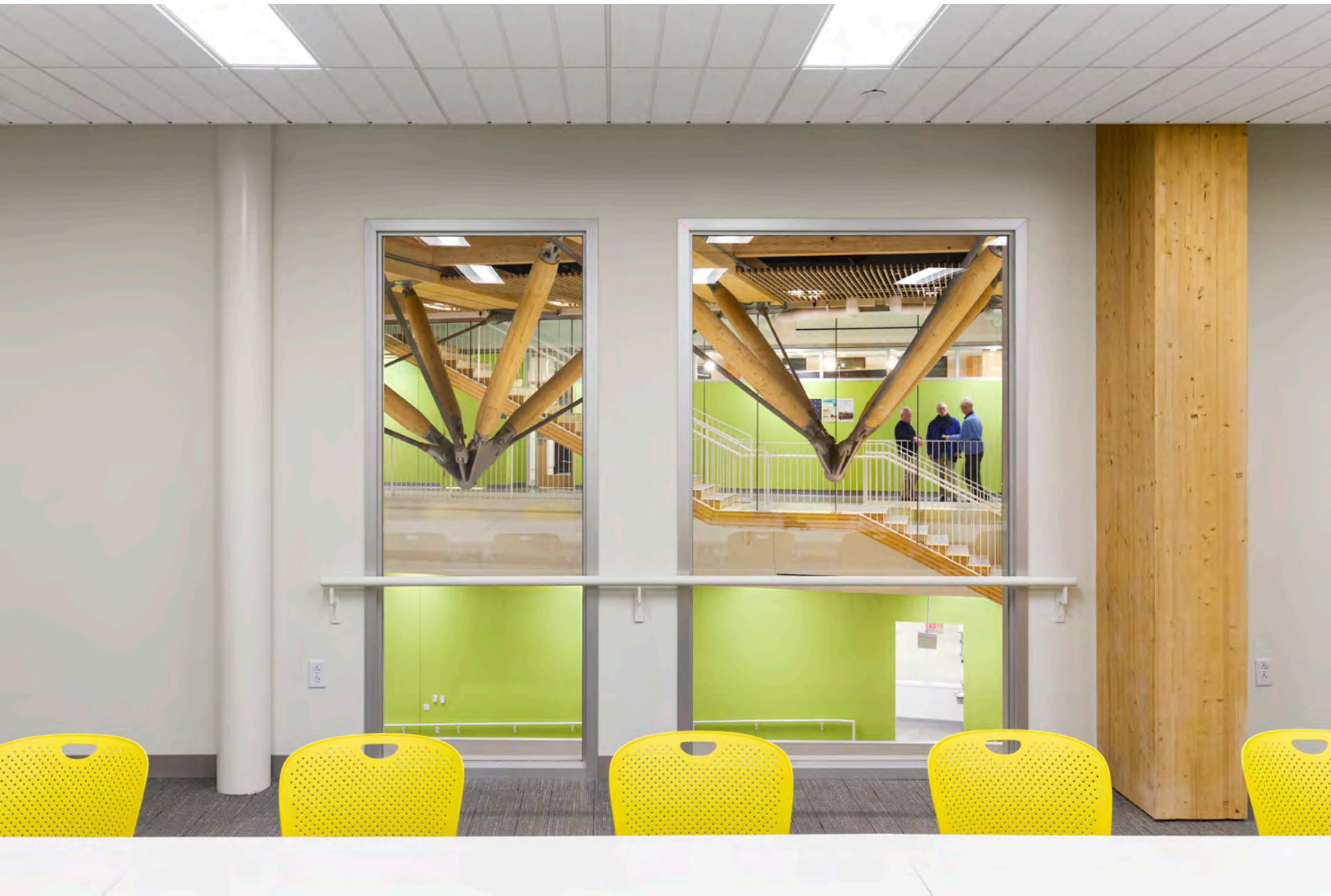








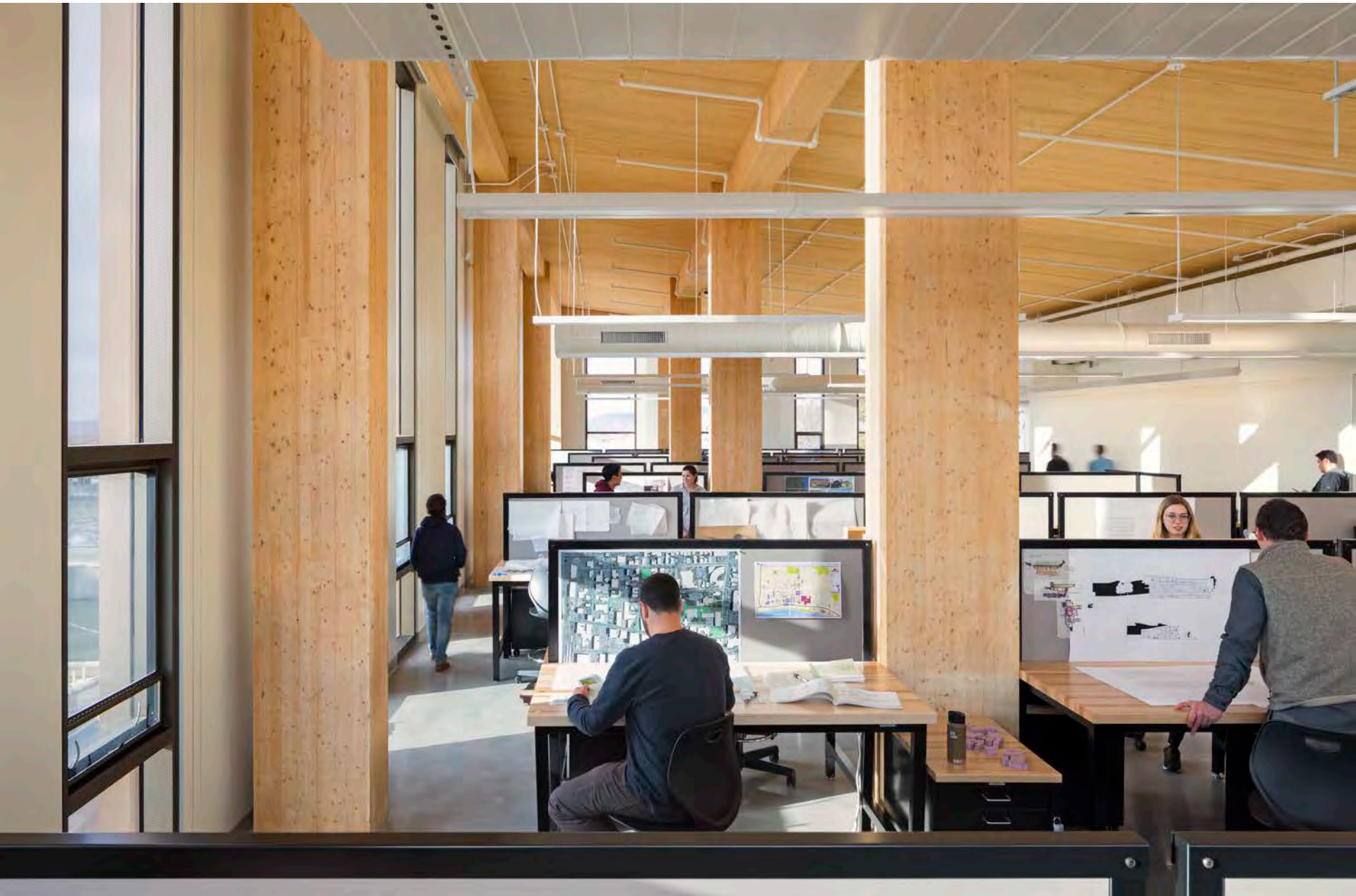






Conference rooms offer sweeping views of campus and opportunities for close-up views of the structural timber.









Rooftop courtyard



Engineering Local Species Cross Laminated Timber



Massachusetts
Eastern Hemlock



National Science Foundation
WHERE DISCOVERIES BEGIN

Principal Investigator: P.L. Clouston (clouston@umass.edu)
Co-Investigators: A.C. Schreyer & S. R. Arwade

What are we doing?

Proof-of-concept computer modeling and testing

Why are we doing it?

To create markets for local wood species, green jobs and to preserve local forest health

Carbon Summary

CASE STUDY

UNIVERSITY OF MASSACHUSETTS OLVER DESIGN BUILDING

Inspiration through Innovation

At UMass Amherst, an Exposed Mass Timber Structure is a Teaching Tool



 **WoodWorks™**
WOOD PRODUCTS COUNCIL



Volume of wood products used (m³):

2081 m³ (73482 ft³) of lumber and sheathing



U.S. and Canadian forests grow this much wood in:

6 minutes



Carbon stored in the wood:

1463 metric tons of CO₂



Avoided greenhouse gas emissions:

1218 metric tons of CO₂



Total potential carbon benefit:

2681 metric tons of CO₂

Equivalent to:



512 cars off the road for a year ⁱ



Energy to operate a home for **228** years ⁱ

reTHINK
WOOD®

Olver Design Building, UMass, Amherst



Awards

- 2018 **Wood Design Awards Jury's Choice for Wood Innovation**, WoodWorks
- 2017 **Building of the Year**, world-architects
- 2017 **Most Innovative Project Award** (less than \$100 million), Architectural Engineering Institute
- 2017 **Excellence in Structural Engineering Award** (New Buildings \$20 to \$100 Million), National Council of Structural Engineering Associations
- 2017 **Awards of Merit for Structural Systems Design and Architectural Engineering Integration**, Architectural Engineering Institute
- 2017 **Award of Merit, Higher Education/Research Category**, ENR New England
- **+ 6 more!**

DESIGN BUILDING PRESS REVIEW

Home > About Us > The John W. Oliver Design Building at UMass Amherst > Design Building Press Review

The UMass Design Building has received quite a bit of media attention. The following is a listing of what has been written and posted about it.

(newest on top)

- [Teaching Top](#) - Design New England (December 2017)
- [UMass-Amherst design building named for former Congressman John Oliver](#) - MassLive / Republican (10/30/2017)
- [A New Teacher on Campus](#) - Learning by Design (Fall 2017)
- [Leers Weinzapfel Associates Completes America's First Cross-Laminated Timber Academic Building](#) - Timber Design & Technology (June 2017)
- [Raising the roof with CLT](#) - World Architecture News (6/16/2017)
- [University of Massachusetts Amherst Design Building / Leers Weinzapfel Associates](#) - ArchDaily (5/25/2017)
- [Design Building at the University of Massachusetts Amherst](#) - World Architects (5/5/2017)
- [Leers Weinzapfel completes America's first cross-laminated timber academic building](#) - Dezeen (4/28/2017)
- [UMass Amherst completes cross-laminated timber Design Building for architecture, other programs](#) - Architects Newspaper (4/27/2017)
- [This Week in Tech: New England Gets Its Largest Modern Wood Structure](#) - Architect Magazine (4/27/2017)
- ["Most advanced" engineered wood building in the U.S. opens at UMass](#) - Woodworking Network (4/27/2017)
- [UMass Amherst is home to America's first CLT academic building](#) - Building Design & Construction (4/26/2017)
- [UMass opens largest engineered wood building in northeast US](#) - Construction Dive (4/26/2017)
- [Why UMass Amherst's newest building is made almost entirely of wood](#) - Boston Globe (4/25/2017)
- [UMass celebrating opening of modern, all-wood building](#) - WWLP (4/25/2017)
- [Photos: UMass Amherst opens new Design Building, largest modern wood structure in the Northeastern US](#) - MassLive/Republican (4/25/2017)
- [Into the Wood](#) - Architectural Record SNAP! (March/April 2017)
- [UMass Amherst Design Building Zipper Trusses](#) - Architecture Magazine (3/2/2017)
- [Game Changers](#) - Building Design + Construction (January 2017)
- [Not your grandfather's two-by-fours: A new exhibition showcases modern wood construction](#) - Architects Newspaper (1/13/2017)
- [Skyscrapers made of wood? NBM show argues for alternative to steel, concrete](#) - Washington Post (12/16/2016)
- [Tall Wooden Buildings, Will Building Codes Allow Them?](#) - MetaMiner (12/16/2016)
- ["Timber City" to Show Mass Timber's Potential for Construction, Job Creation](#) - Architect Magazine
- [UMass wood construction expertise has Canadian roots](#) - Daily Commercial News
- [We Can Turn Climate Change Around](#) - UMass Center for Agriculture, Food, and the Environment (CAFE) Newsletter
- [Leers Weinzapfel Associates designs timber architecture building for UMass Amherst](#) - Architects Newspaper (3/31/2016)
- [New Integrated Design Building incorporates sustainability, resilience and aesthetic](#) - The Daily Collegian
- [Design Building Progress](#) - UMass Amherst video
- [Leers Weinzapfel Associates: On Collaboration, Sustainable Buildings, and Timber Structures](#) - SketchUp Blog
- [Watch: High-tech timber erected at UMass](#) - Suffolk BuildSmart Blog (watch [video on YouTube](#))
- [UMass Amherst's Design Building, A Model of Sustainable Architecture](#) - UMass On The Move
- [Green Design: The Design Building gives sustainable research, education, and construction high visibility](#) - UMass ResearchNext
- [UMass celebrates groundbreaking of new \\$52 million Design Building](#) - Daily Collegian
- [Innovative UMass Design Building 'designed by designers for designers to teach design'](#) - MassLive
- [UMass celebrates construction of Design Building using engineered timber instead of structural steel](#) - Hampshire Gazette
- [Campus Celebrates Construction of Sustainable Design Building](#) - UMass Media (watch [video on YouTube](#))
- [Wood construction resurges at UMass](#) - Suffolk BuildSmart Blog
- [Timber's Transformation: An Old Building Material is Reborn](#) - Metropolis Magazine



STUDY IN BCT

- MAJOR IN BCT (BS)
- MINOR IN BCT
- PROFESSIONAL MS
- RESEARCH MS AND PHD
- CONTINUING EDUCATION

BCT NEWS

475's Oliver Klein lectures on materials for passive house construction

Design Building at UMass Amherst Named for Former U.S. Rep. John W. Oliver

Alumni & Friends: Join BCT at ABX / GreenBuild on 11/9

Bring your Resumed: BCT is Hosting Fall Job Fair on October 20th

BCT's "False Color" Exhibit is Open!

Give to BCT

Read all about it

https://bct.eco.umass.edu/about-us/the-design-building-at-umass-amherst/design-building-press-review/

UMass Design Building

A Firsthand Account from Design through Owner Occupancy

THANK YOU!

Tom S. Chung, AIA LEED BD+C, Principal, Leers Weinzapfel Associates

Peggi L. Clouston, PEng, MAsc, PhD, University of Massachusetts

QUESTIONS?

**This concludes The American Institute of Architects
Continuing Education Systems Course**

Tom S. Chung, AIA LEED BD+C, Principal, Leers Weinzapfel Associates

Peggi L. Clouston, PEng, MAsc, PhD, University of Massachusetts