

1 TEAM CENTRAL

TEAM
CENTRAL



2 TEAM PROCESS

- Facebook – One Stop Hub for all ICT tools & surveys

The image shows a central Facebook group page for "AEC Central Team 2012". The page includes a search bar, a group photo, and a "Group Info" section. A red circle highlights the "Group Info" section, which lists various ICT tools and their links. Arrows point from the logos of these tools (GoToMeeting, 3DICC, Skype, Box) to the group page. A screenshot of a Google Calendar is also shown at the bottom right.

Group Info

- Box - www.box.com
- GoToMeeting - www.gotomeeting.com
- Join - <https://www4.gotomeeting.com/join/6...>
- 3D ICC - <http://3dicc.com/>
- GoogleCal - <https://www.google.com/calendar/>
- GoogleDoc - <https://docs.google.com/>
- Skype - <http://www.skype.com/>
- Survey - <http://www.surveymonkey.com/s/SBYXH...>

Who else should be in this group?

Birthdays

- Theodora Cheung**
It's her birthday.
Say Happy Birthday

Team Central: "have fun and win"

3 TEAM PROCESS

TEAM
CENTRAL

- Documentation–Box
- Communication – Skype
 - Quick Reminders
 - Notifications
- Collaboration – GoToMeeting
- Coordination – Google Calendar
 - Team Deadlines and Milestones
- Task List – Integrated Project Delivery
 - Individual Work Transparent
 - List Individual Deadlines



Team Central: "have fun and win"

4 SITE LOCATION

TEAM
CENTRAL



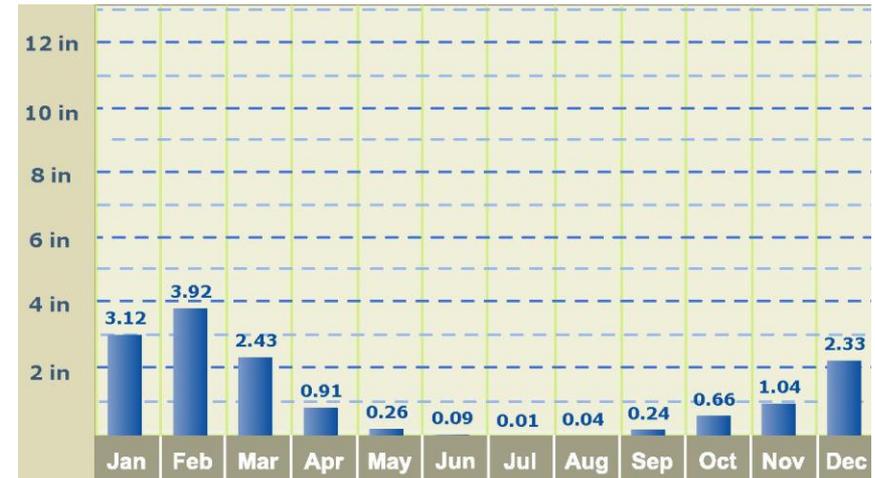
Team Central: "have fun and win"

LOS ANGELES CLIMATE

TEAM
CENTRAL

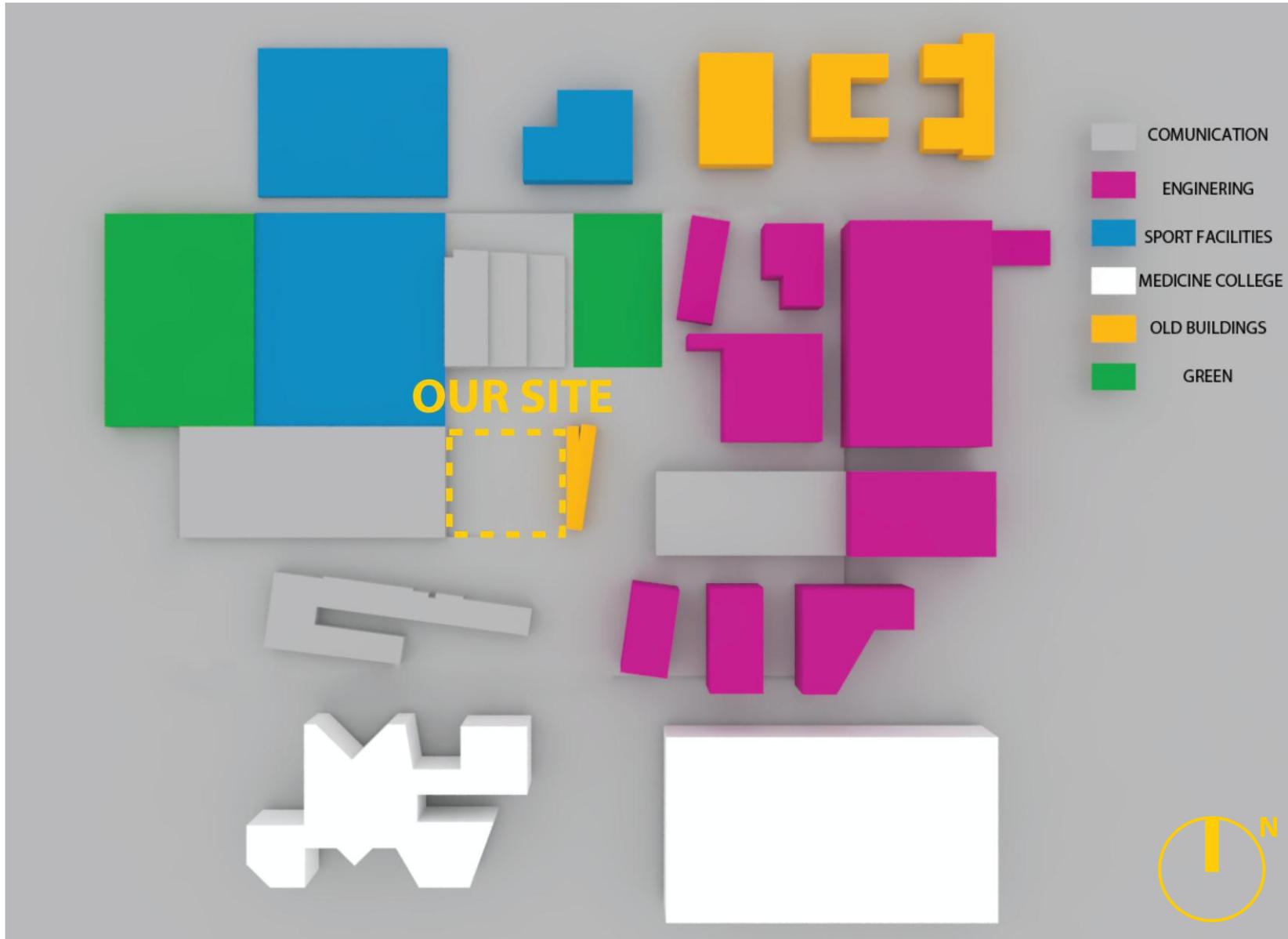


Good Construction Weather
 Low Threat of Weather Delay
 Water Management Required



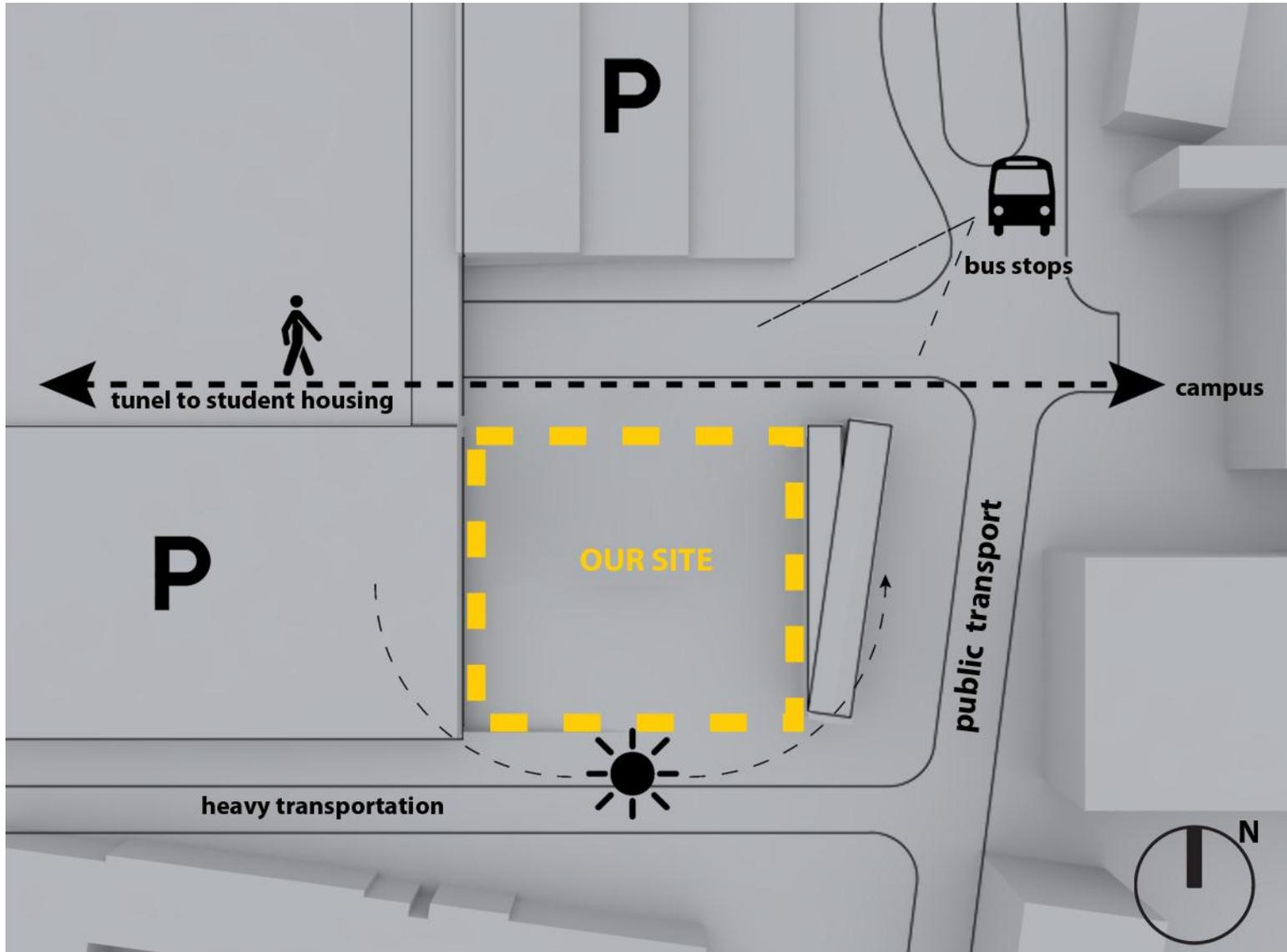
ENVIRONMENT: "CONCRETE DESERT"

TEAM
CENTRAL



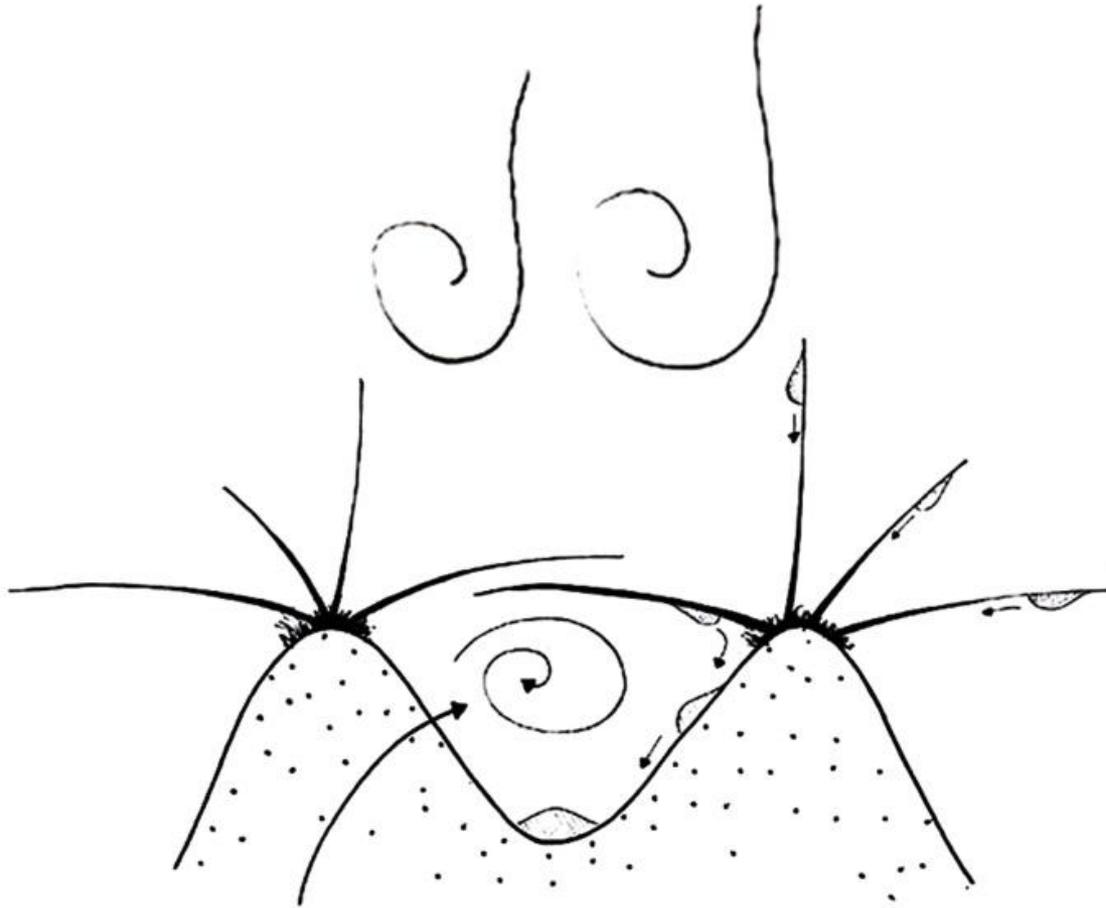
SITE TRAFFIC

TEAM
CENTRAL



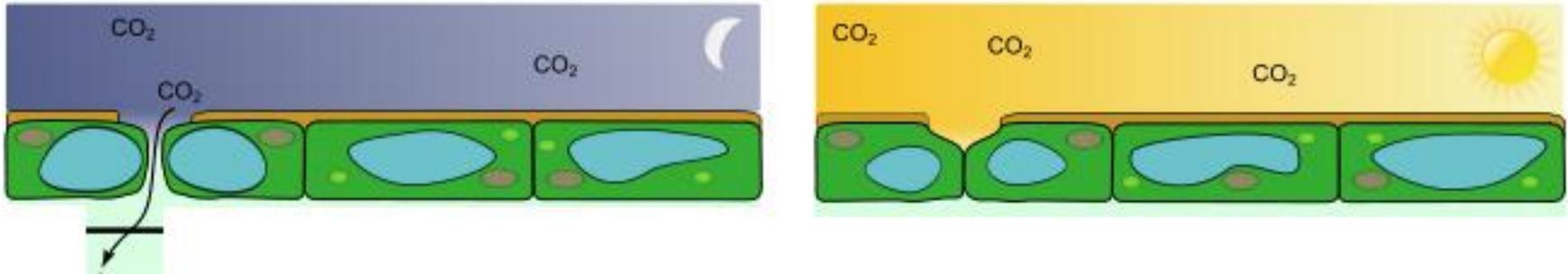
Team Central: "have fun and win"

BIG IDEA: CACTUS MICROCLIMATE

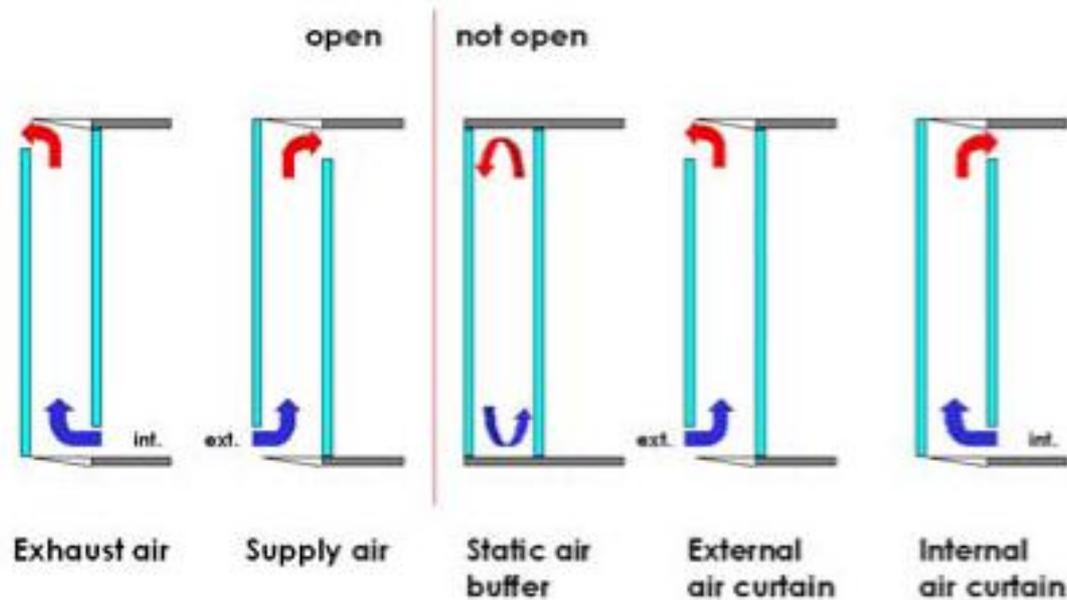


Niches Create Microclimate

BIG IDEA: THICK SKIN



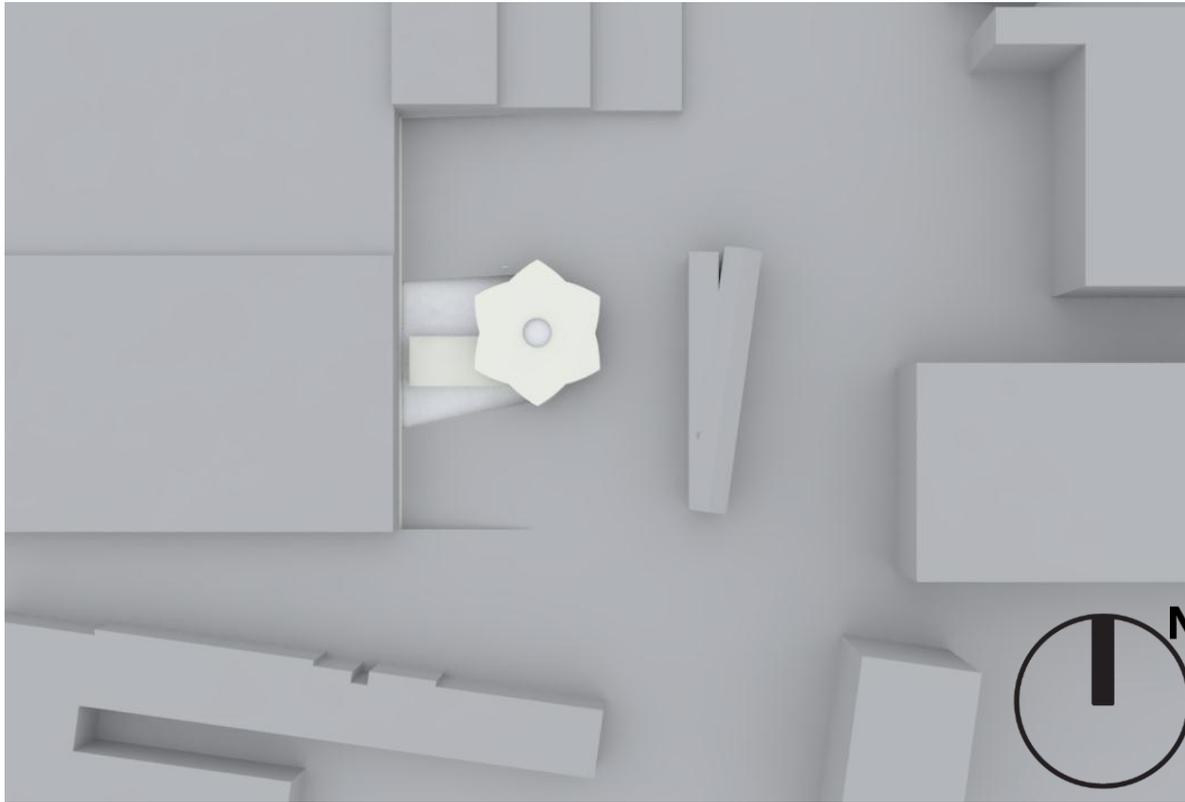
Glass "Clima" Fascade as Architecture Mimicry Solution



BUILDING LOCATION

A

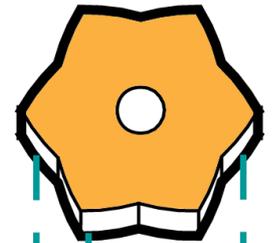
TEAM CENTRAL



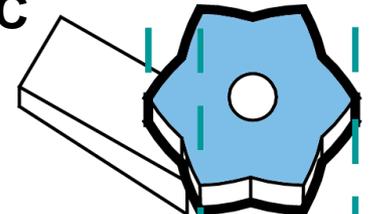
CIRCULATION



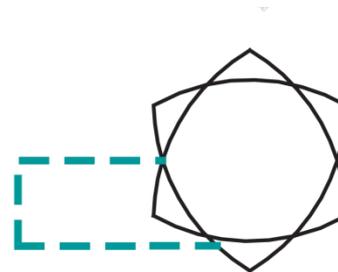
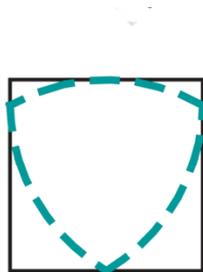
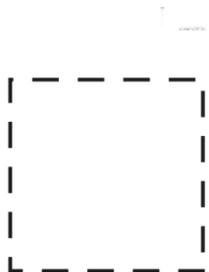
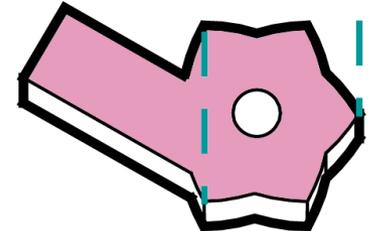
PRIVATE



PUBLIC



STUDY



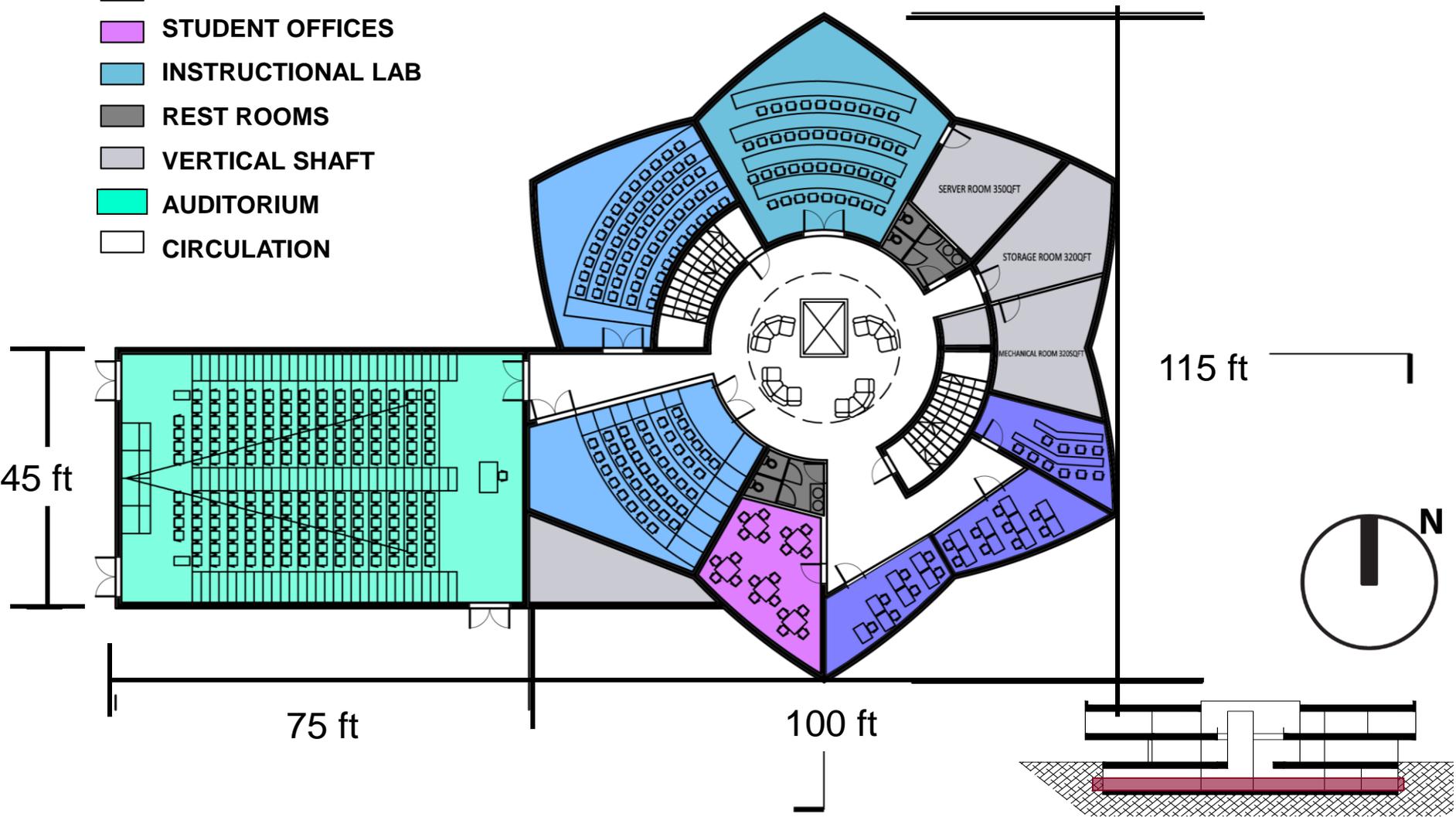
Team Central: "have fun and win"

BASEMENT FLOOR PLAN

A



- SEMINAR ROOMS
- LARGE CLASSROOMS
- STUDENT OFFICES
- INSTRUCTIONAL LAB
- REST ROOMS
- VERTICAL SHAFT
- AUDITORIUM
- CIRCULATION

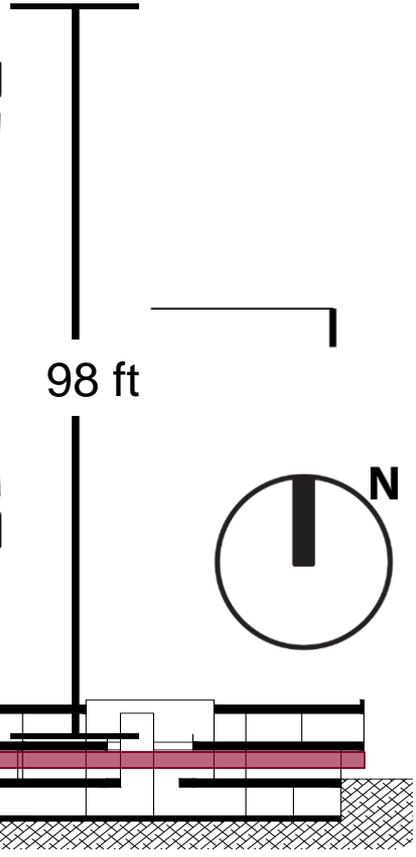
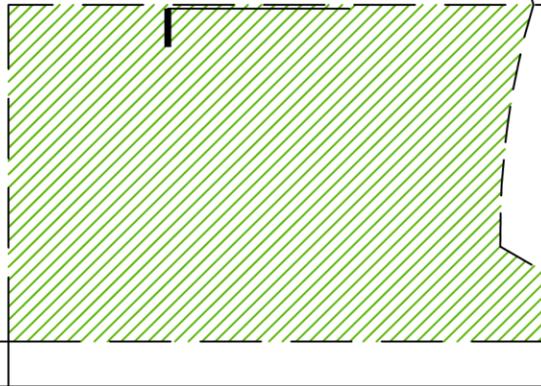
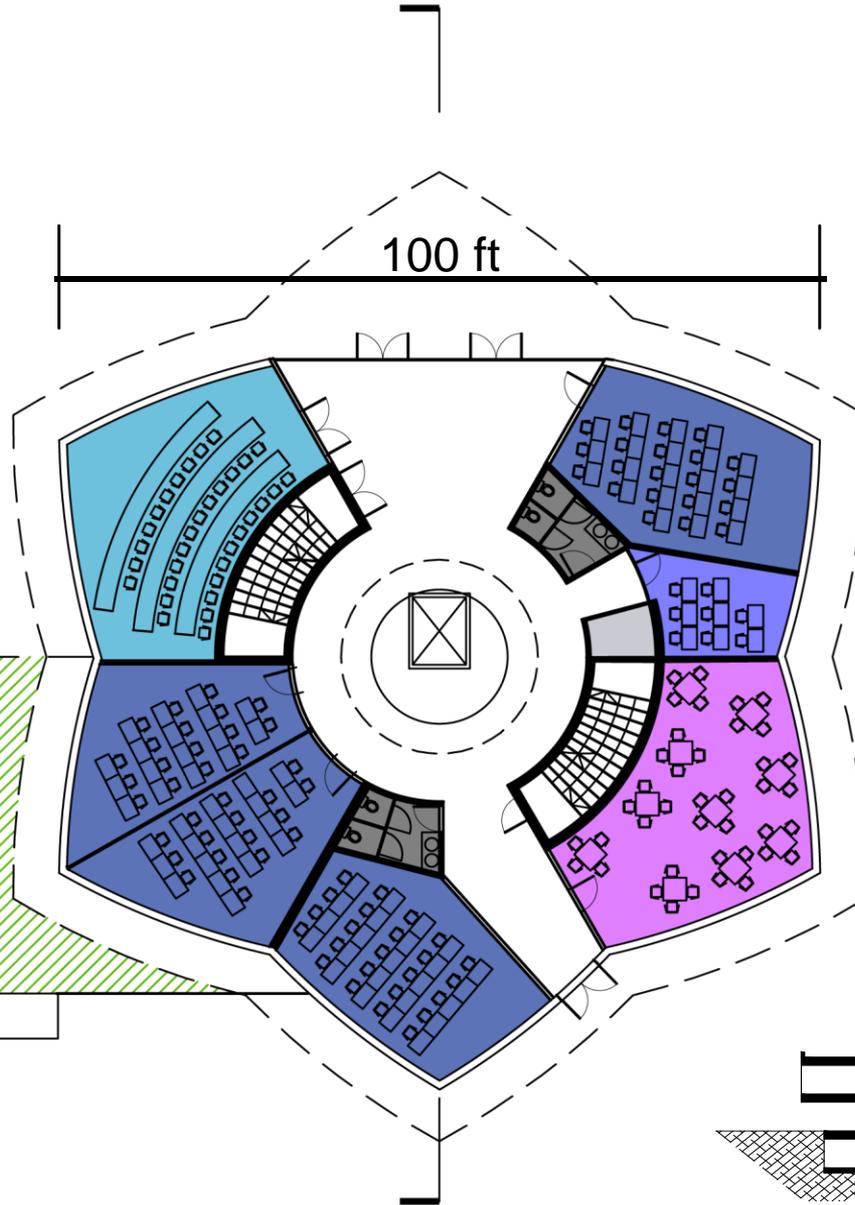


1st FLOOR PLAN

A

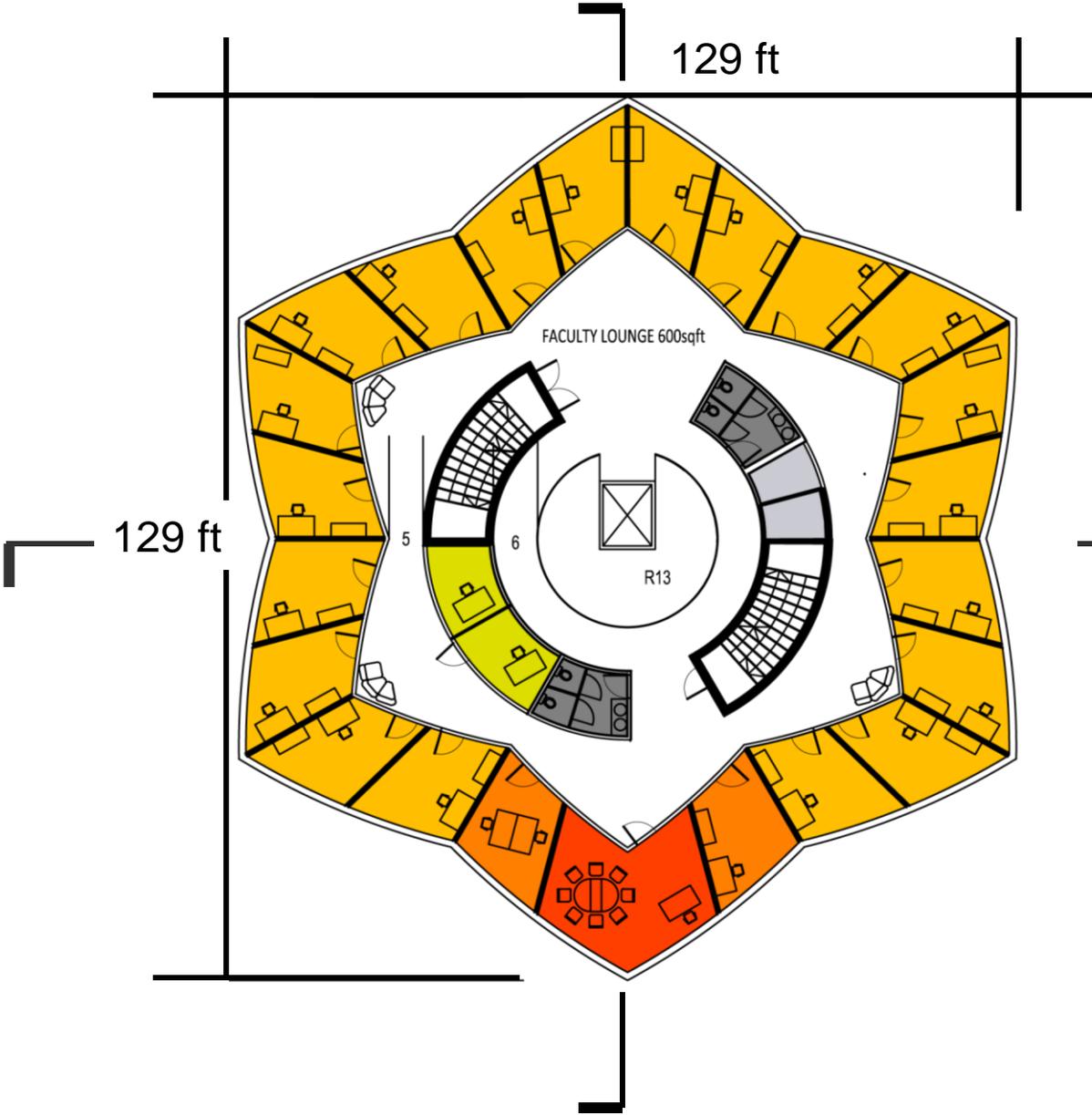


- SMALL CLASSROOM
- SEMINAR ROOMS
- STUDENT OFFICES
- INSTRUCTIONAL LAB
- REST ROOMS
- VERTICAL SHAFT
- GREEN ROOF
- CIRCULATION

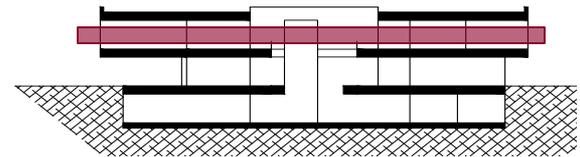


2nd FLOOR PLAN

A



-  DEAN'S OFFICE
-  SENIOR ADMINISTRATION
-  FACULTY OFFICES
-  ADMINISTRATION
-  VERTICAL SHAFT
-  RESTROOMS
-  CIRCULATION

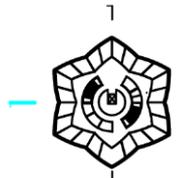
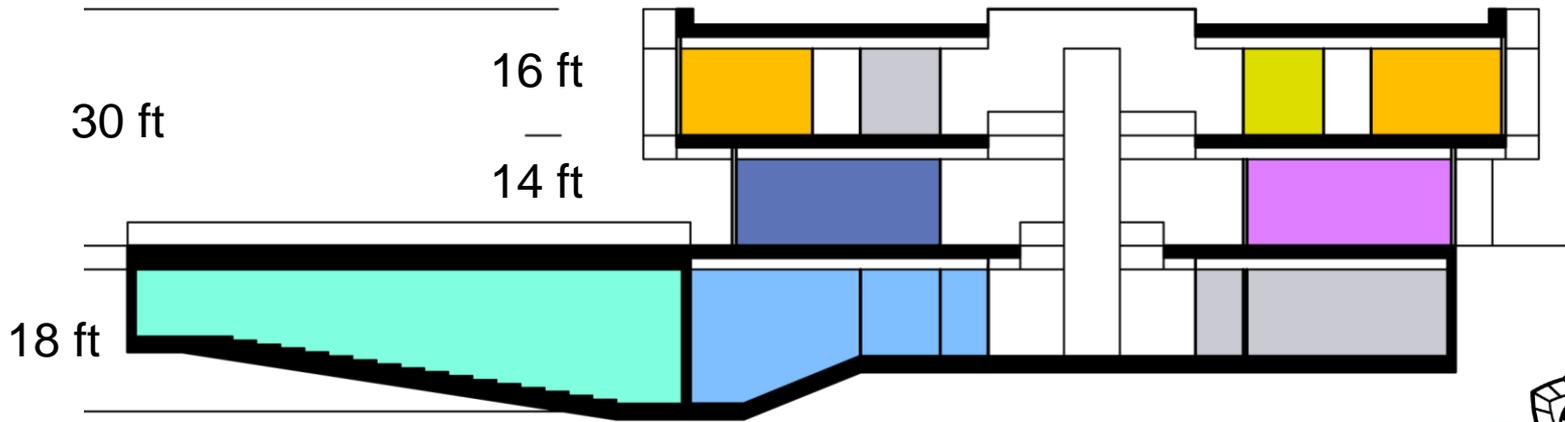
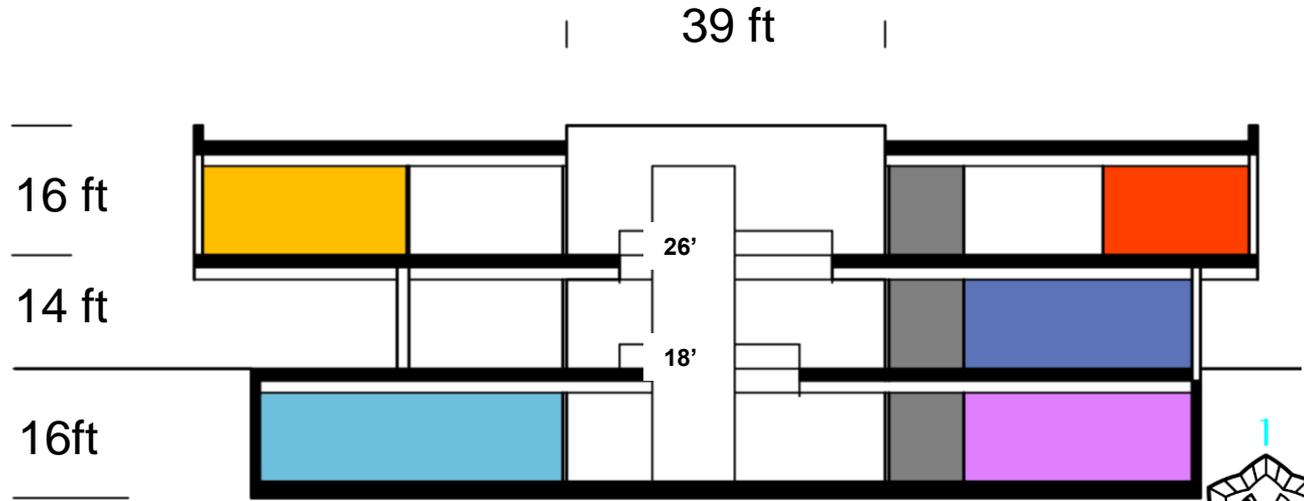


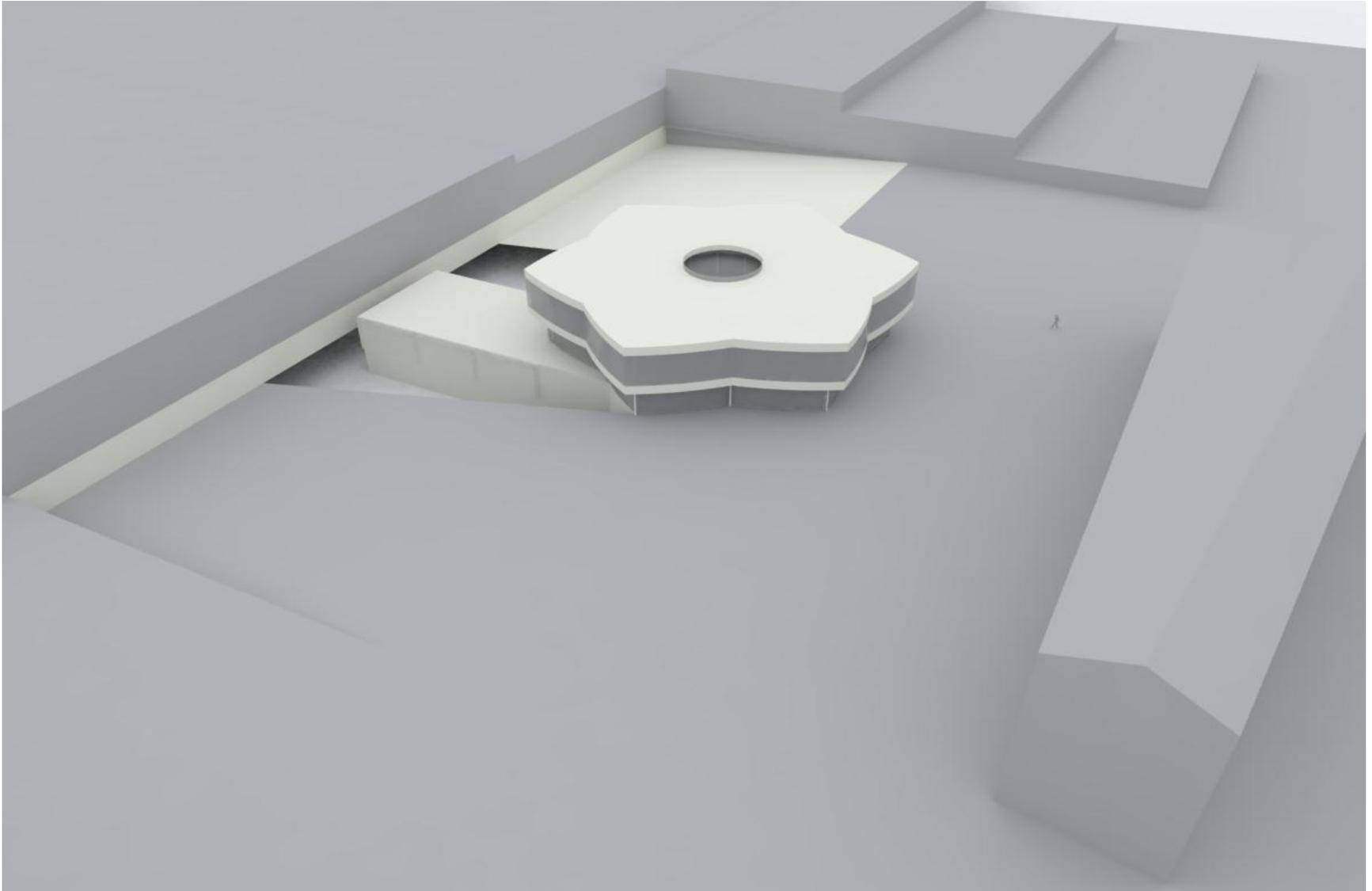
SECTIONS

A



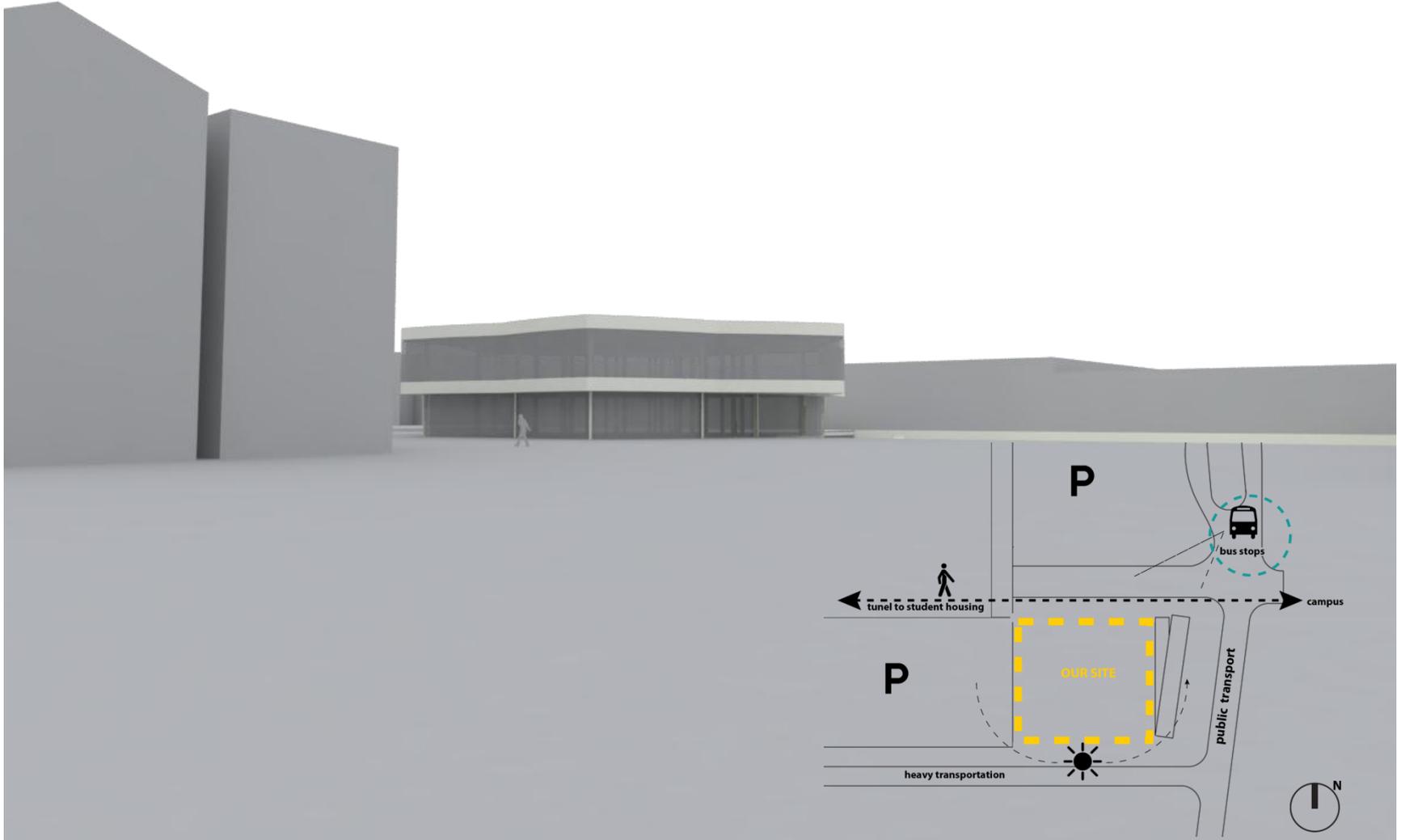
- SMALL CLASSROOM
- LARGE CLASSROOM
- INSTRUCTIONAL LAB
- STUDENT OFFICES
- FACULTY OFFICERS
- ADMINISTRATION
- VERTICAL SHAFTS
- AUDITORIUM
- CIRCULATION
- FACULTY OFFICES





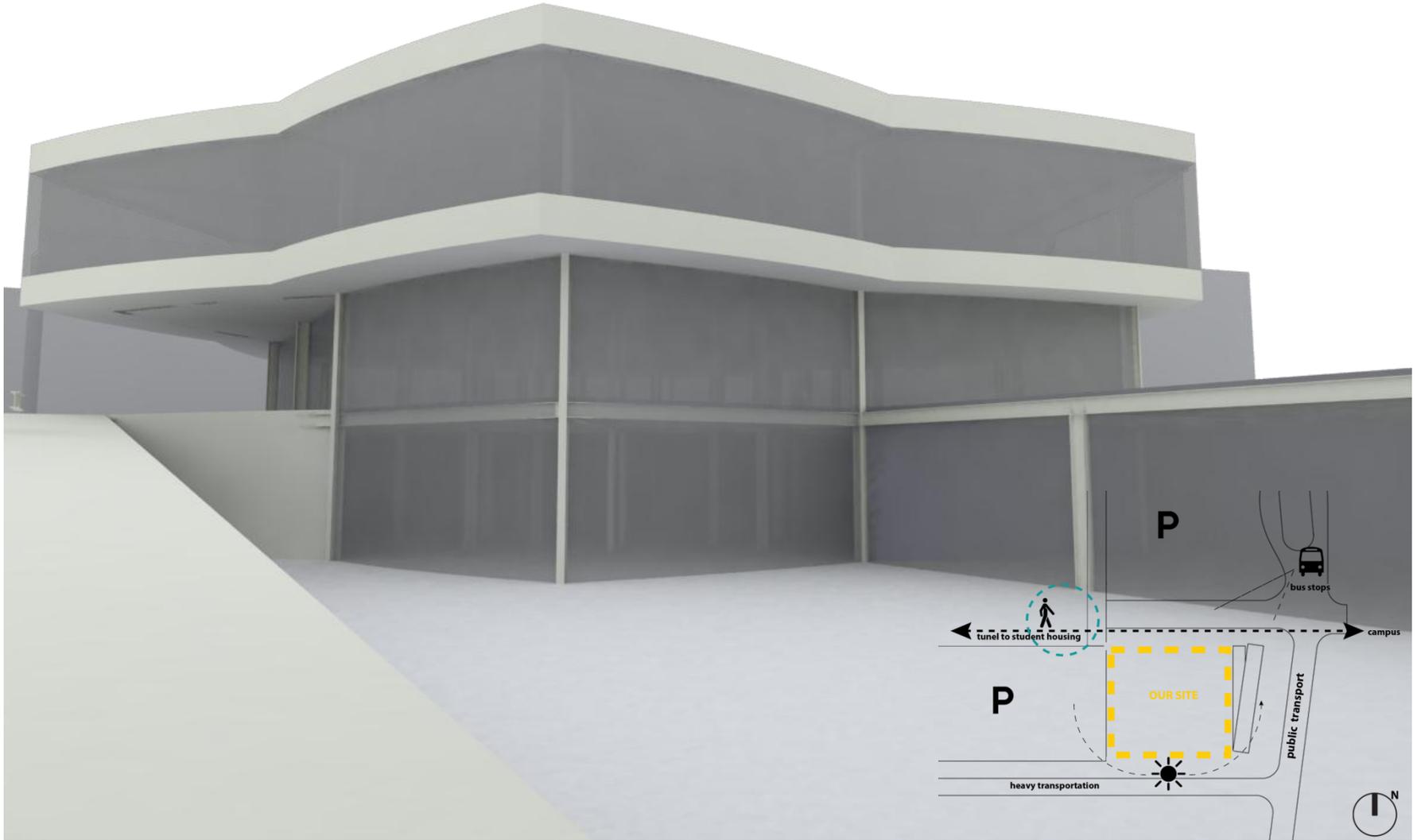
VIEW FROM BUS STOP

A



VIEW FROM THE TUNNEL

A



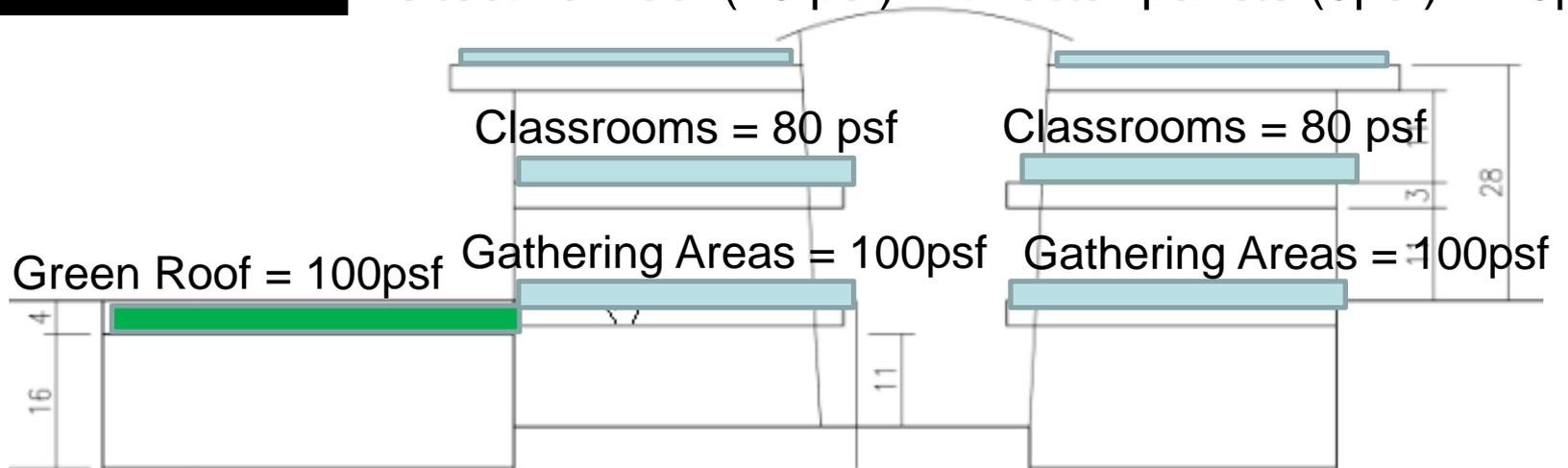


DEAD LOADS	PSF
Floor Covering	1
Partitions/Walls	15
Ceiling	5
Mechanical	3
Total	24

Excludes self weight of beams, metal decking (5" slab-35 psf), and concrete slabs (150pcf~8")

LIVE LOADS

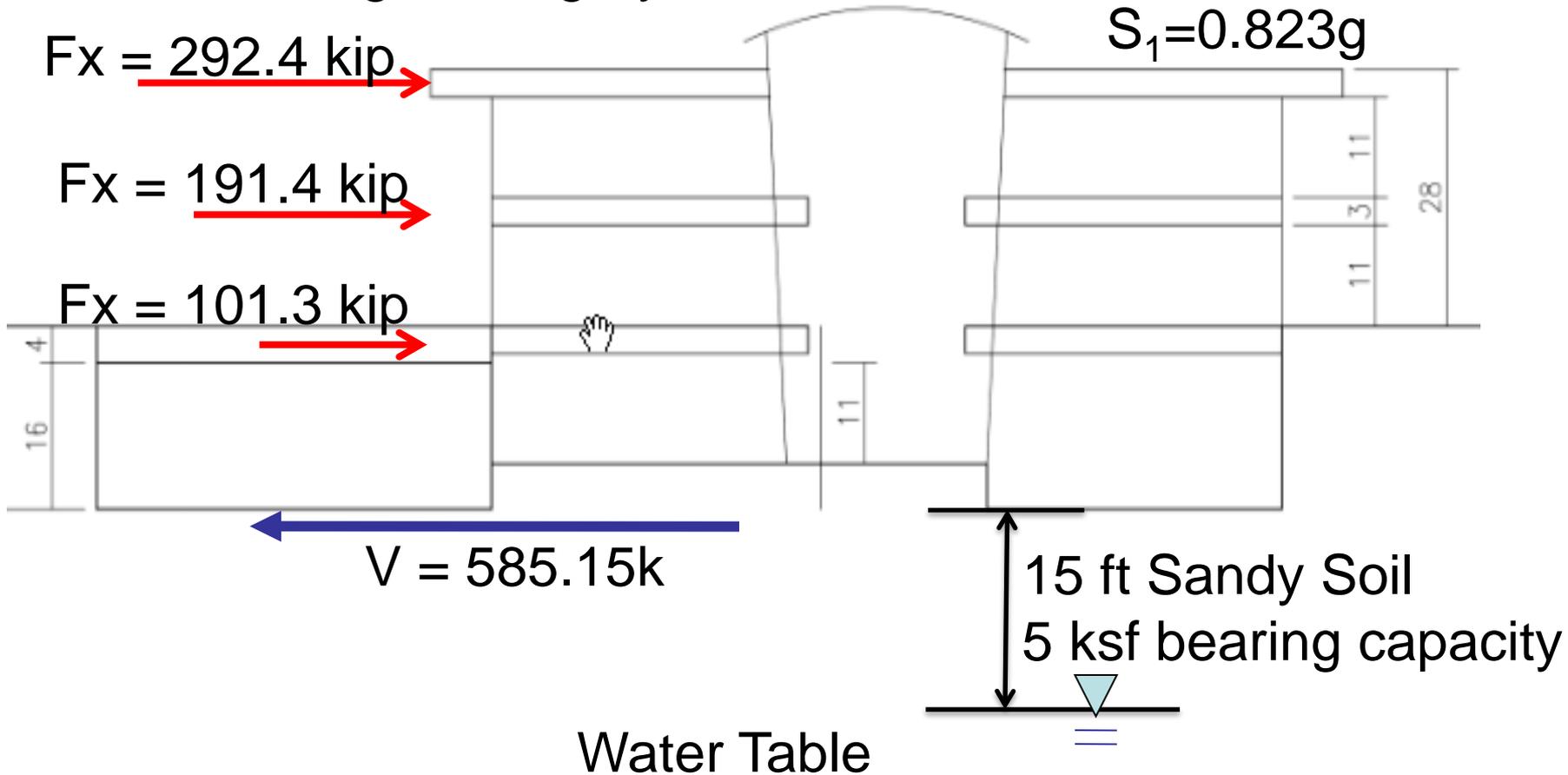
Reflective Roof (20 psf) with solar panels (3psf) = 23psf





Risk Category III
Seismic Design Category D

$S_s = 2.256g$
 $S_1 = 0.823g$





	Expected behavior during strong earthquake	Post EQ Repair	Post EQ Repair Cost	Non-linear lateral drift	Cyclic Behavior	Energy Dissipation
Special Moment Frame	Plastic hinges form at reduced beam sections	Potential Extensive Repair	Medium to High	Medium to Large	Stable to Semi-Stable	Medium
Eccentrically Braced Frame	Permanent deformation and structural damage to shear link	Moderate Repair	Low to Medium	Low to Medium	Stable	Medium to High
Buckling Restrained Braced Frame	Inelastic deformation in steel core	Minimum to Adequate Repair	Low to Medium	Low to Medium	Stable	Medium to High
Concrete Special Moment Frame	Plastic hinges form at the end of beams	N/A	Medium to High	Medium to Large	Stable to Semi-Stable	Medium
Cast-in-Place Concrete Structural Wall	Ductile flexural yielding at base of wall, without shear failure (for slender walls, $h_w/l_w > 2$)	Moderate Repair	Medium to High	Medium	Stable to Unstable	Medium to High
Precast Concrete Shear Walls	Yielding in slotted bolt connection -- connection slip and dissipates energy through friction	Minimum Repair	Low	Low to Medium	Stable	Medium to High

Main Sources:

FEMA 454

NEHRP Technical Briefs

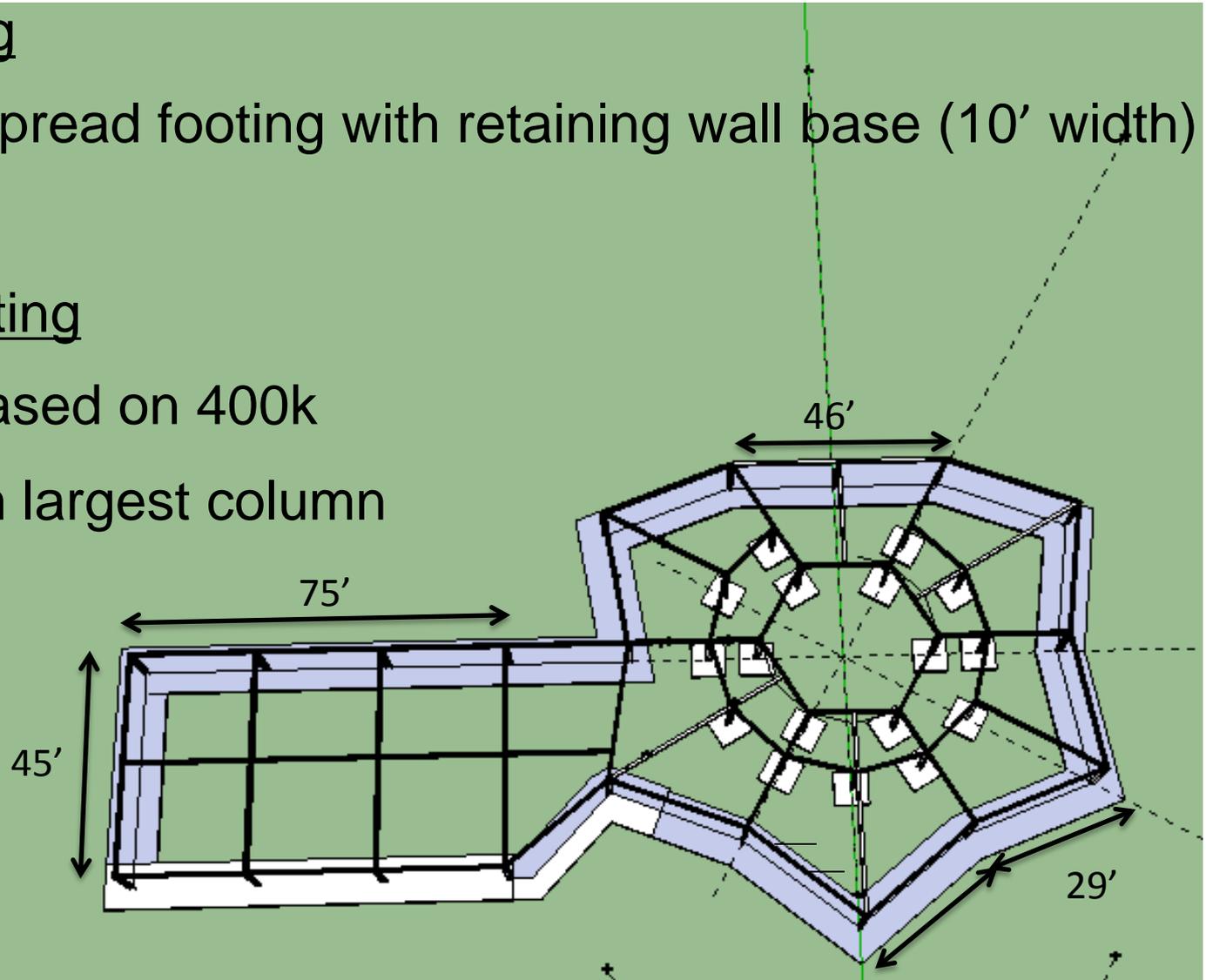


Strip Footing

- Connects spread footing with retaining wall base (10' width)
- 15" thick

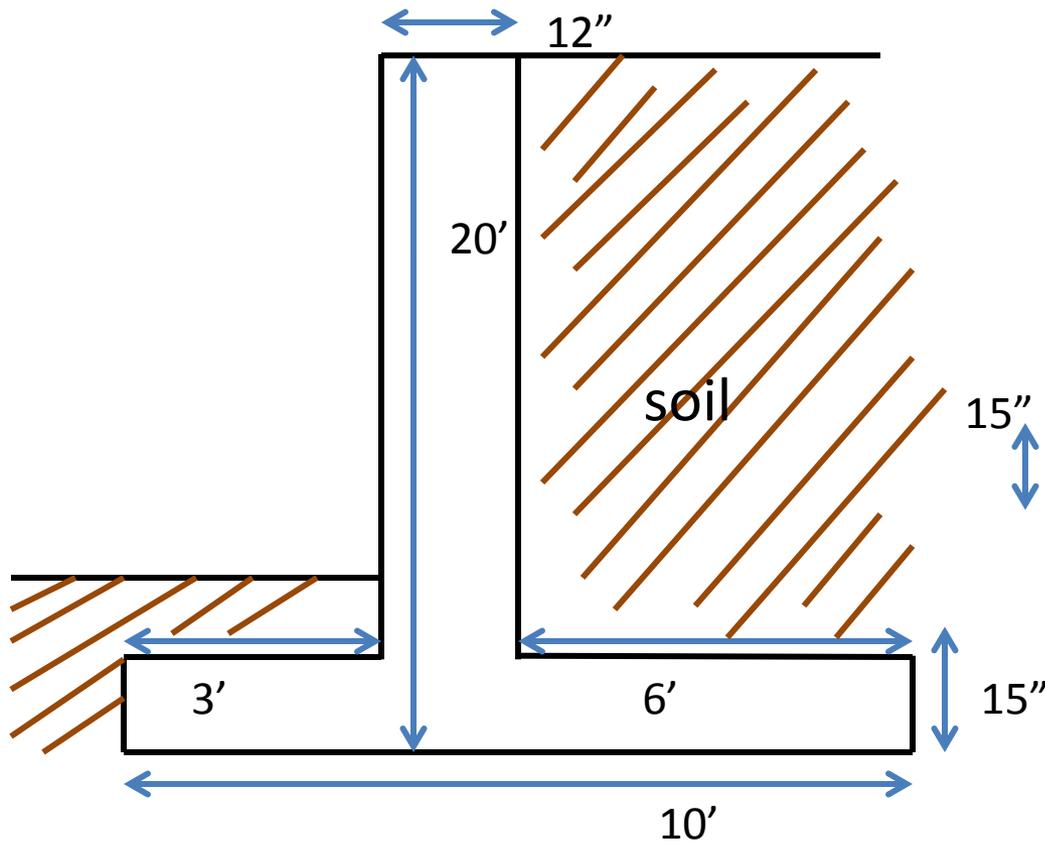
Spread Footing

- 15" thick based on 400k applied from largest column
- 9'x9'

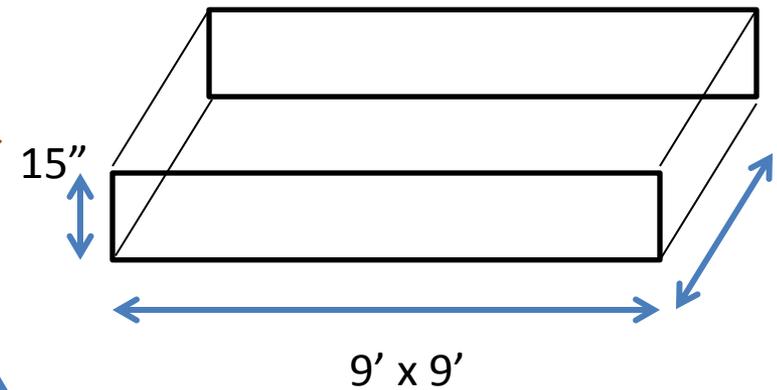




Retaining Wall



Spread Footing

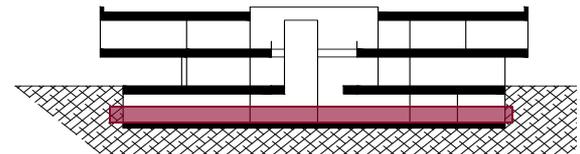
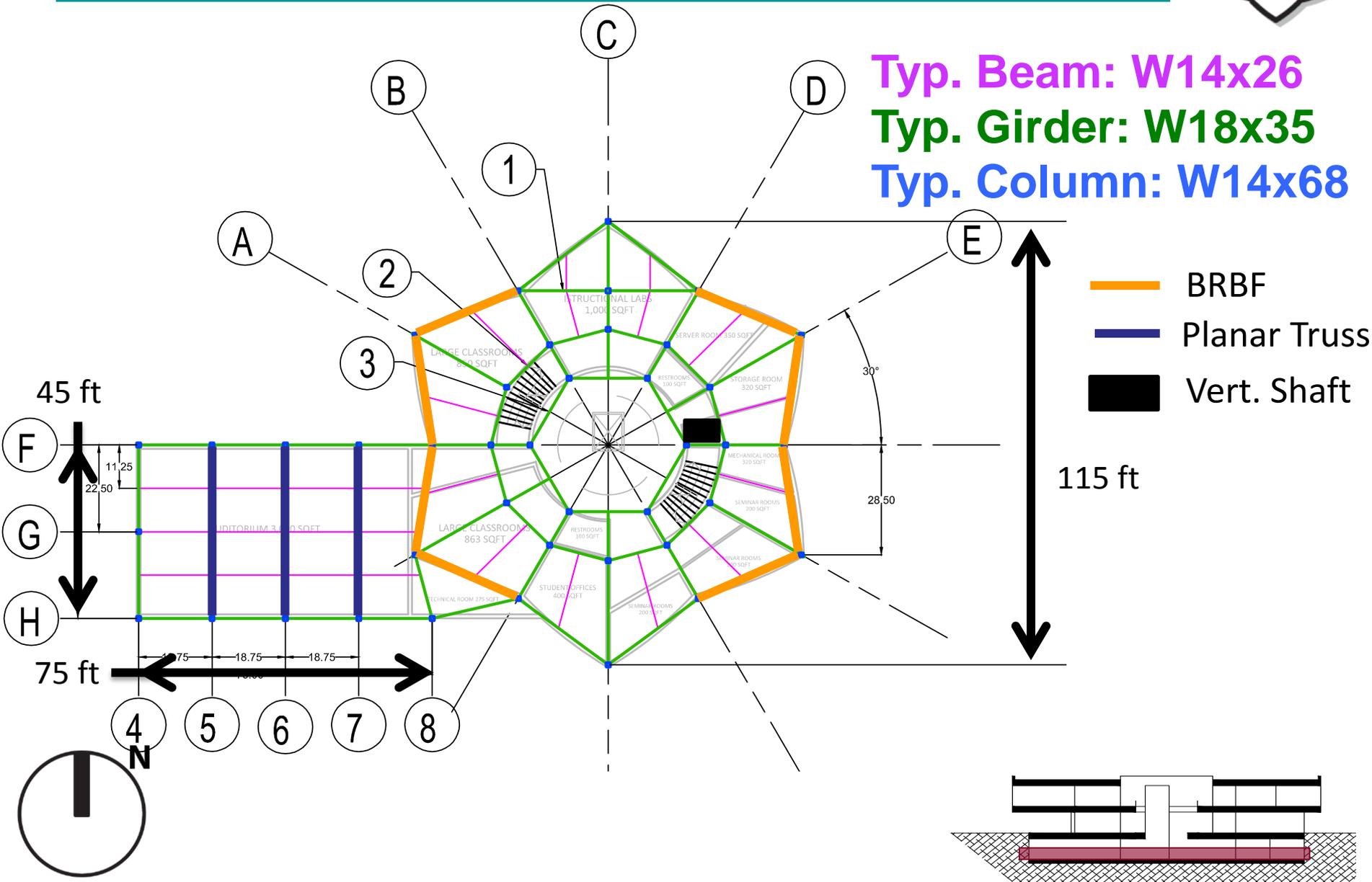


STEEL: BASEMENT

SE



Typ. Beam: W14x26
 Typ. Girder: W18x35
 Typ. Column: W14x68

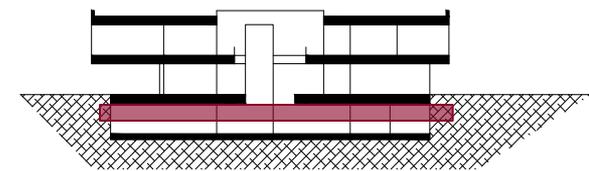
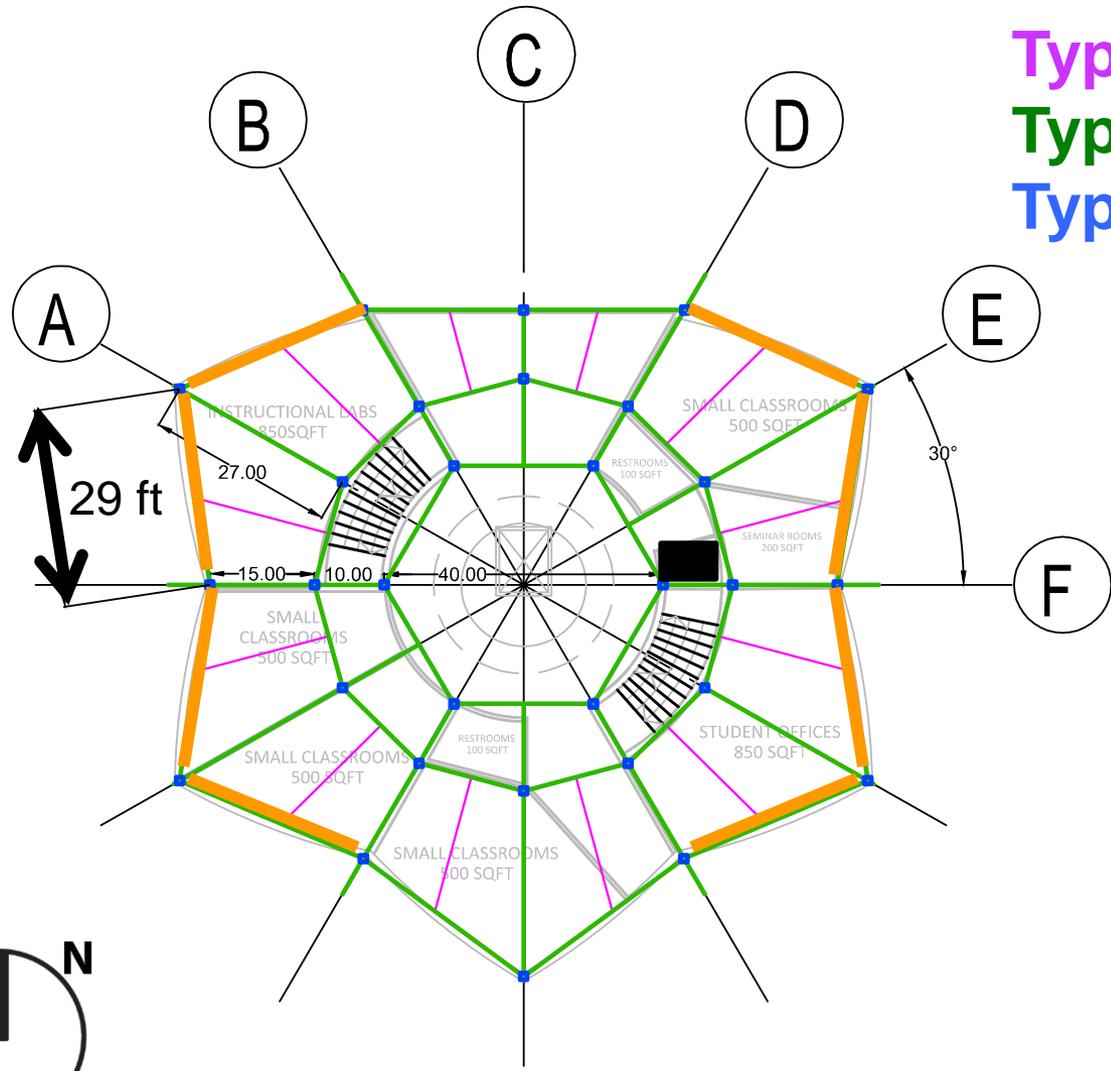


STEEL: 1ST FLOOR



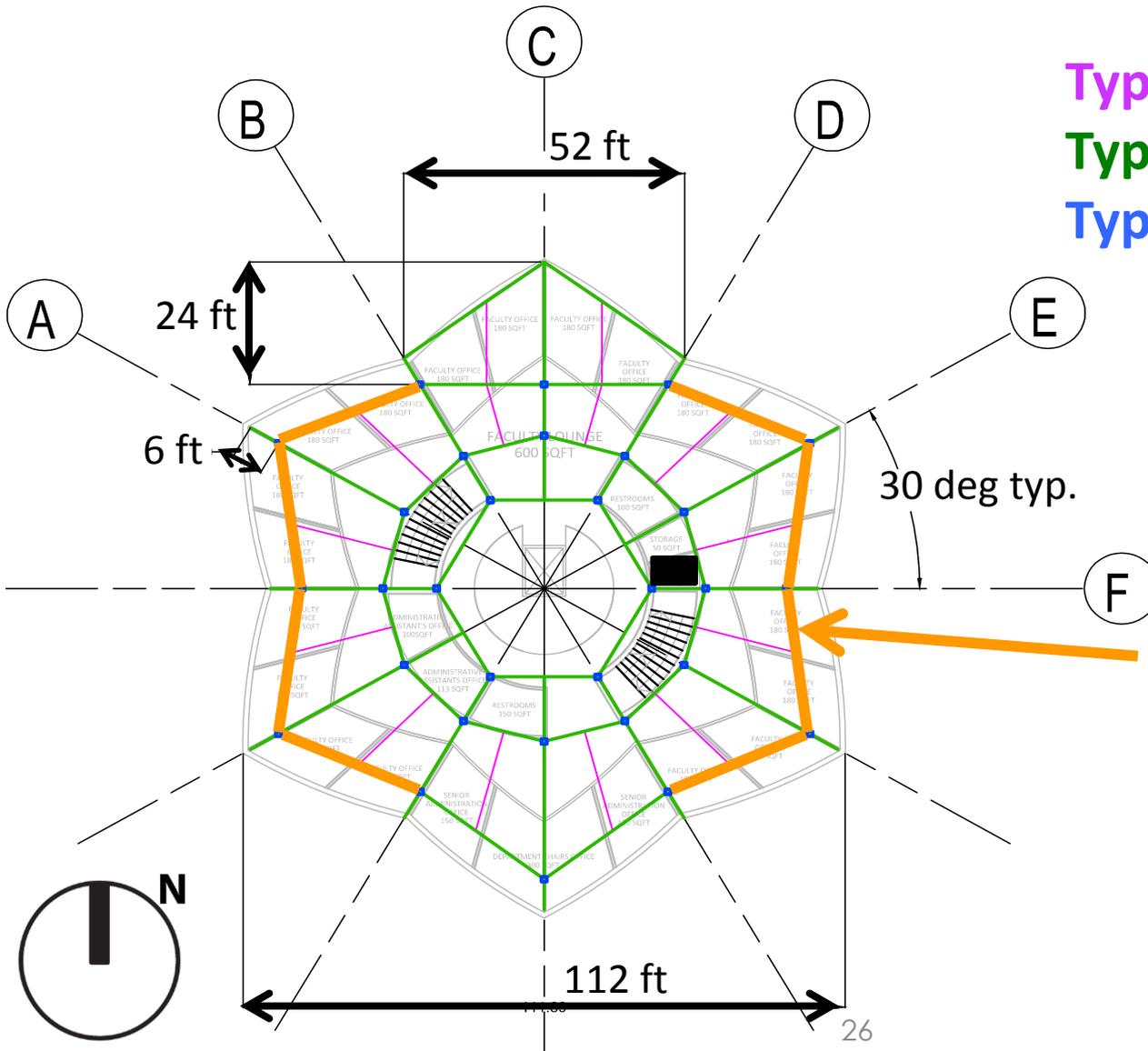
Typ. Beam: W14x26
 Typ. Girder: W18x35
 Typ. Column: W14x68

 BRBF
 Vert. Shaft



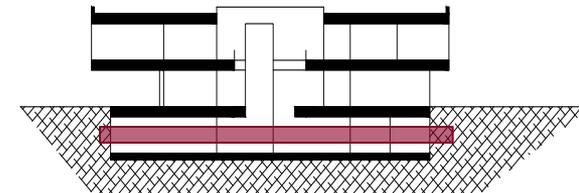
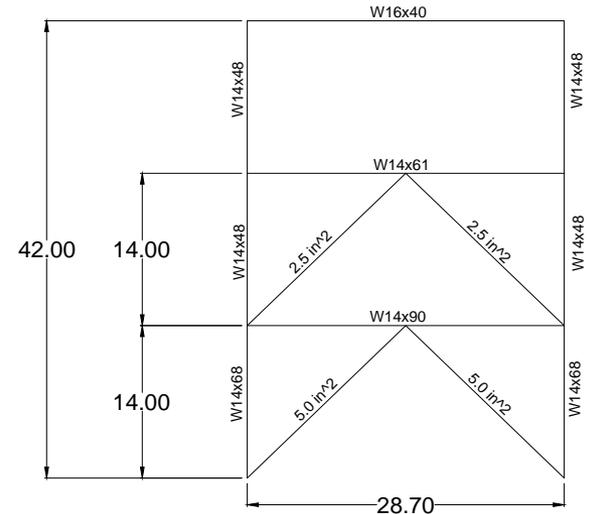
STEEL: 2ND FLOOR

SE



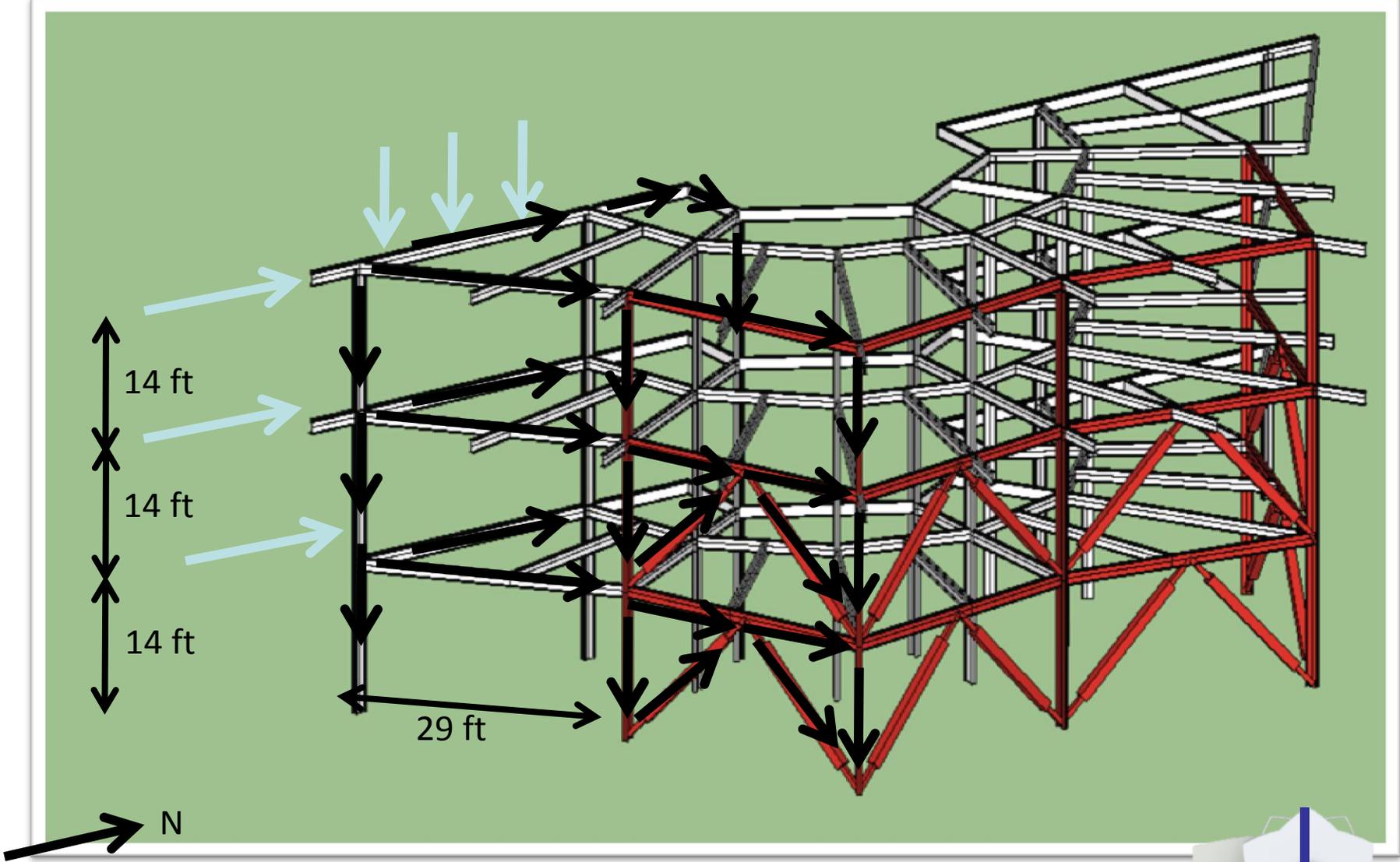
Typ. Beam: W14x16
 Typ. Girder: W18x44
 Typ. Column: W14x48

 SMF
 Vert. Shaft



LOAD PATH

SE



CONCRETE: BASEMENT & AUDITORIUM

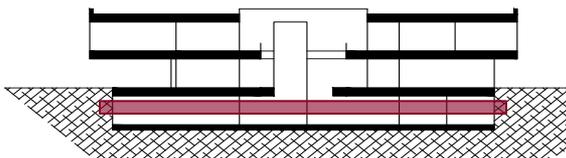
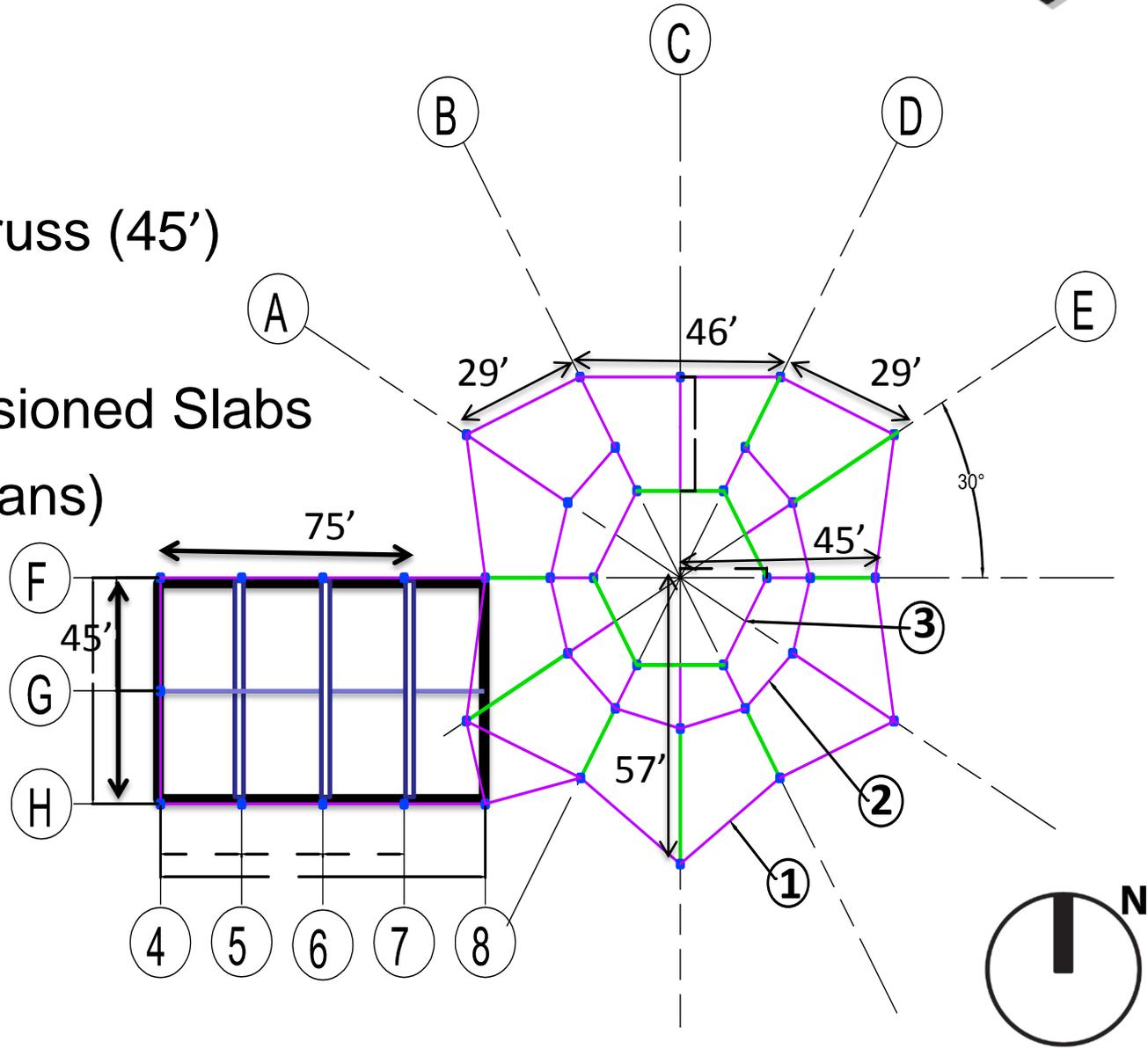


Auditorium

•45'x75'

— Steel Truss (45')

•1 Way Post Tensioned Slabs
(22.5' span, 2 spans)



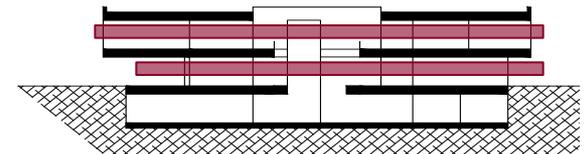
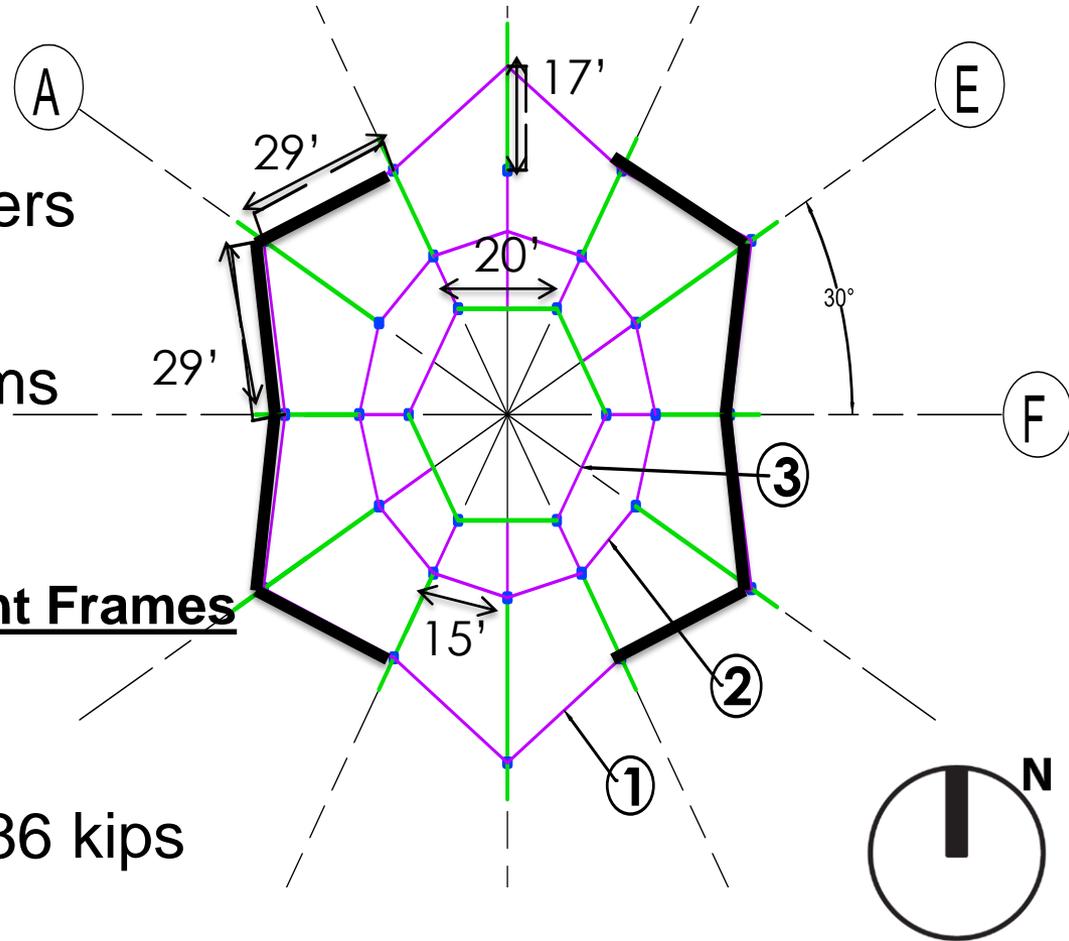
CONCRETE: 1ST & 2ND FLOOR

SE



-  14"x14" Columns
-  Post Tensioned Girders
16" Depth
-  Post Tensioned Beams
12" Depth
-  Special Concrete Moment Frames

- $R = 8$
- Resist Base Shear = 586 kips
- Bay Length ~ 29'





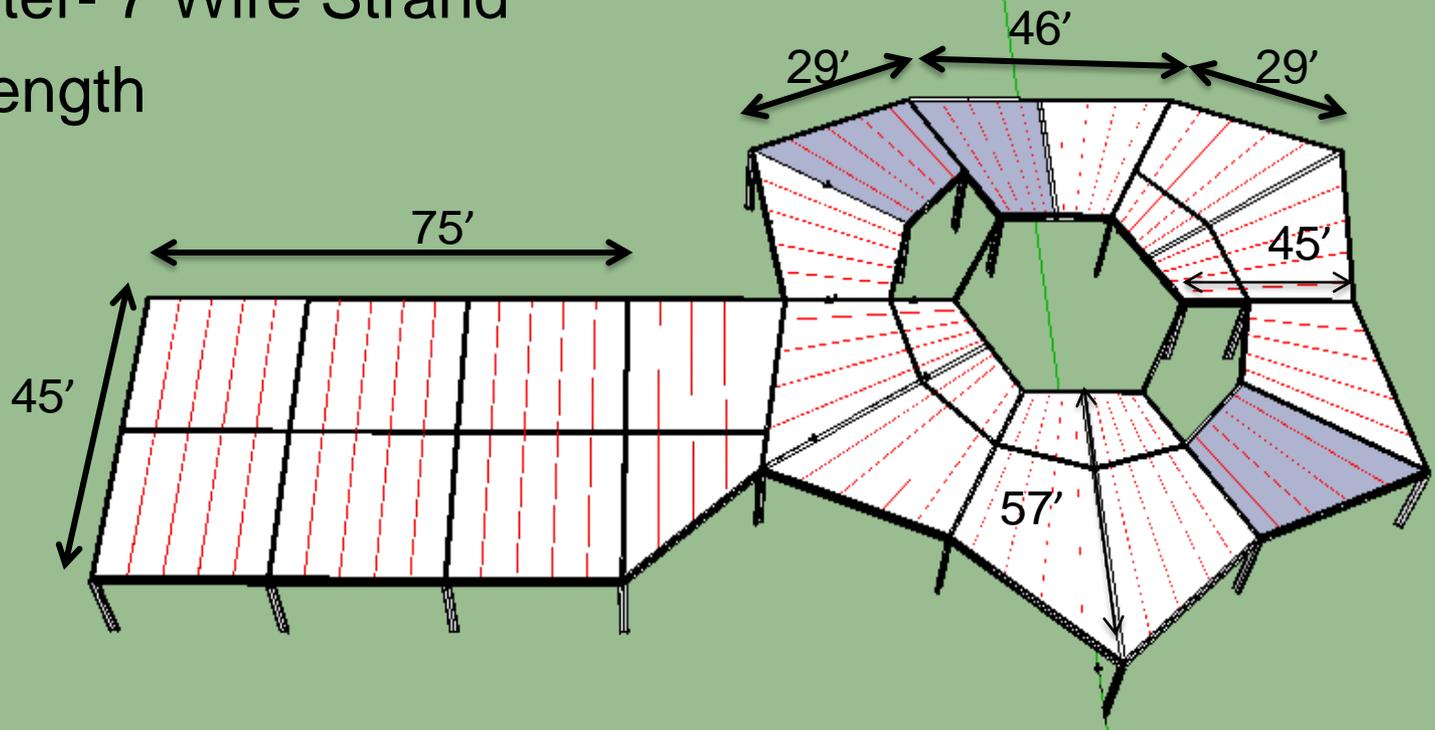
1-Way Post Tensioned Slabs

Span (Typ ~ 24 ft) – 9" Thick

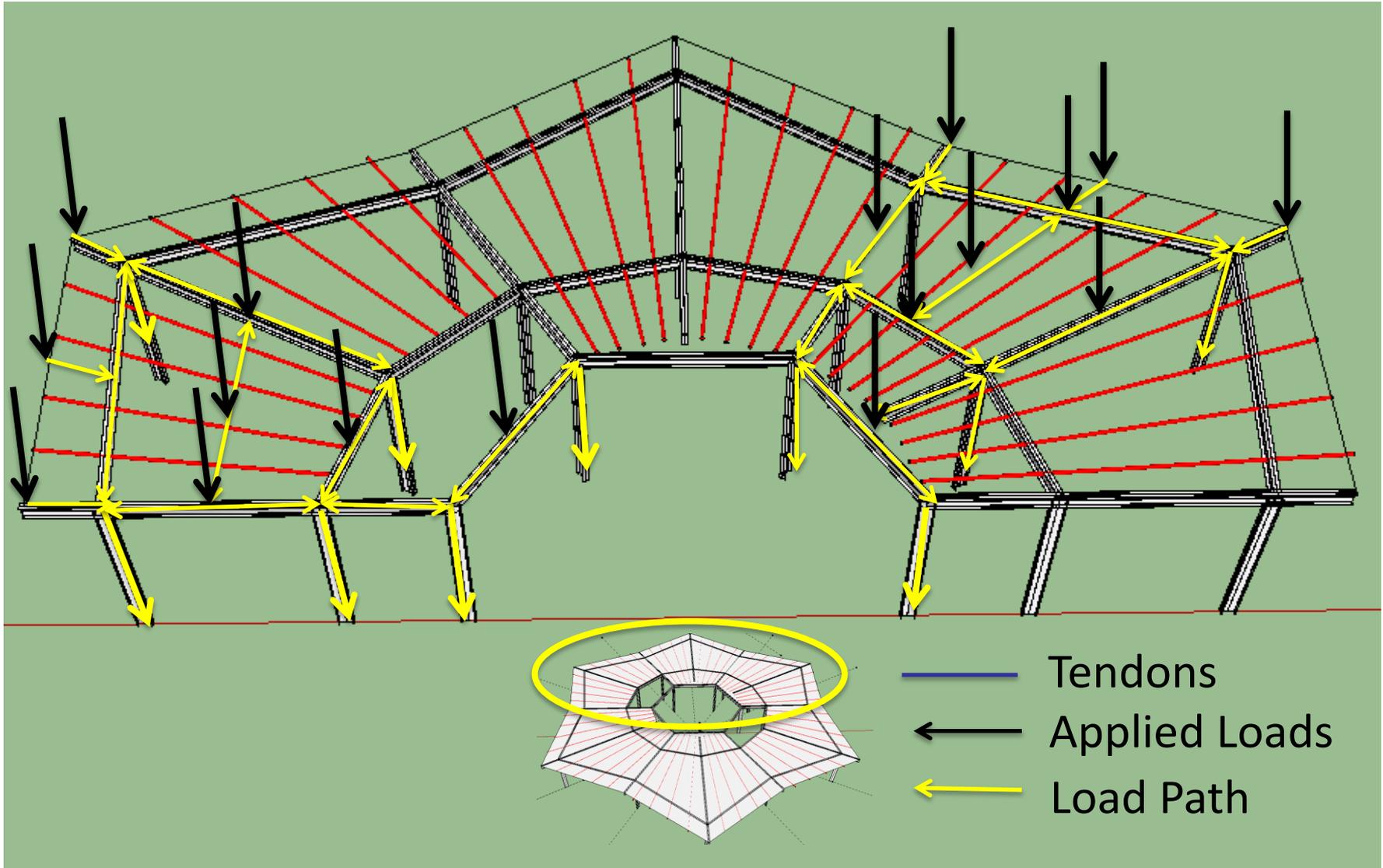
Tendons

0.5" Diameter- 7 Wire Strand

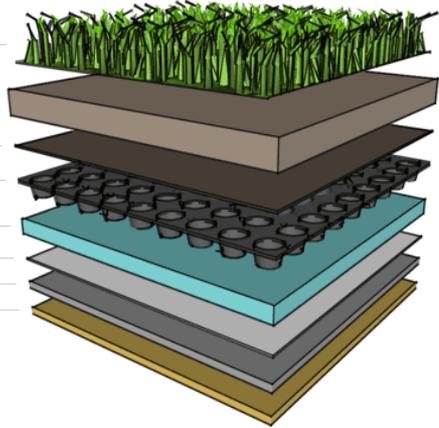
270 ksi Strength



CONCRETE: GRAVITY LOAD PATH

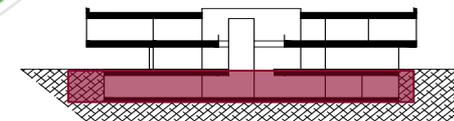
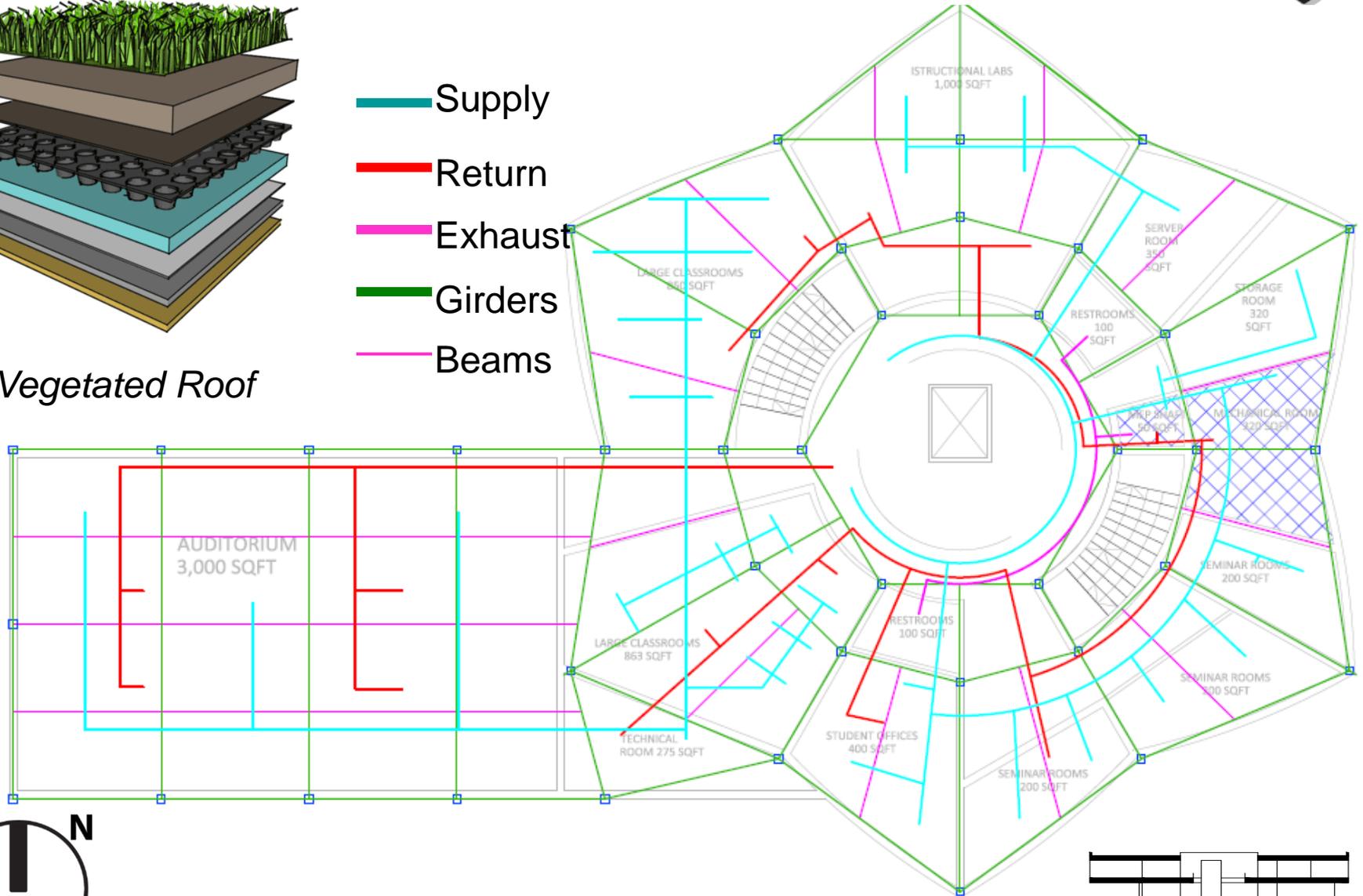


BASEMENT HVAC



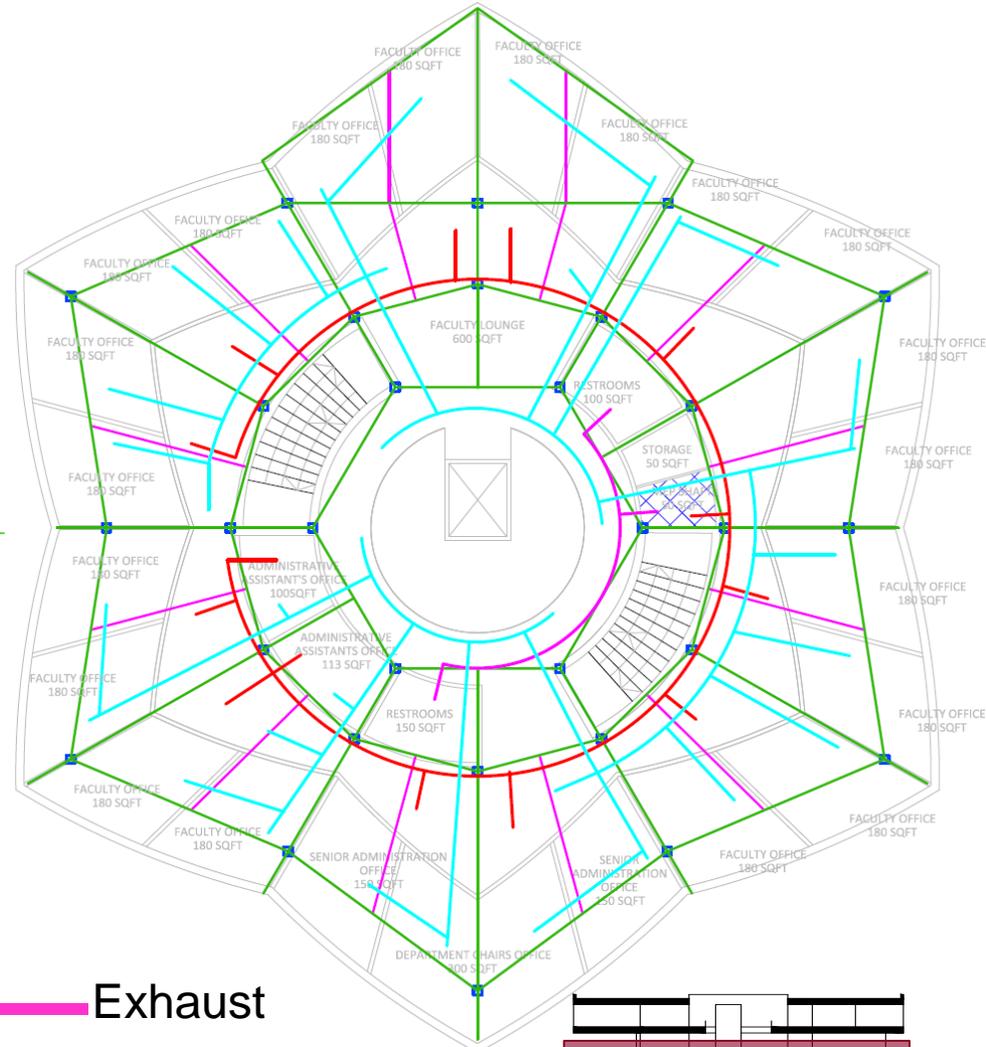
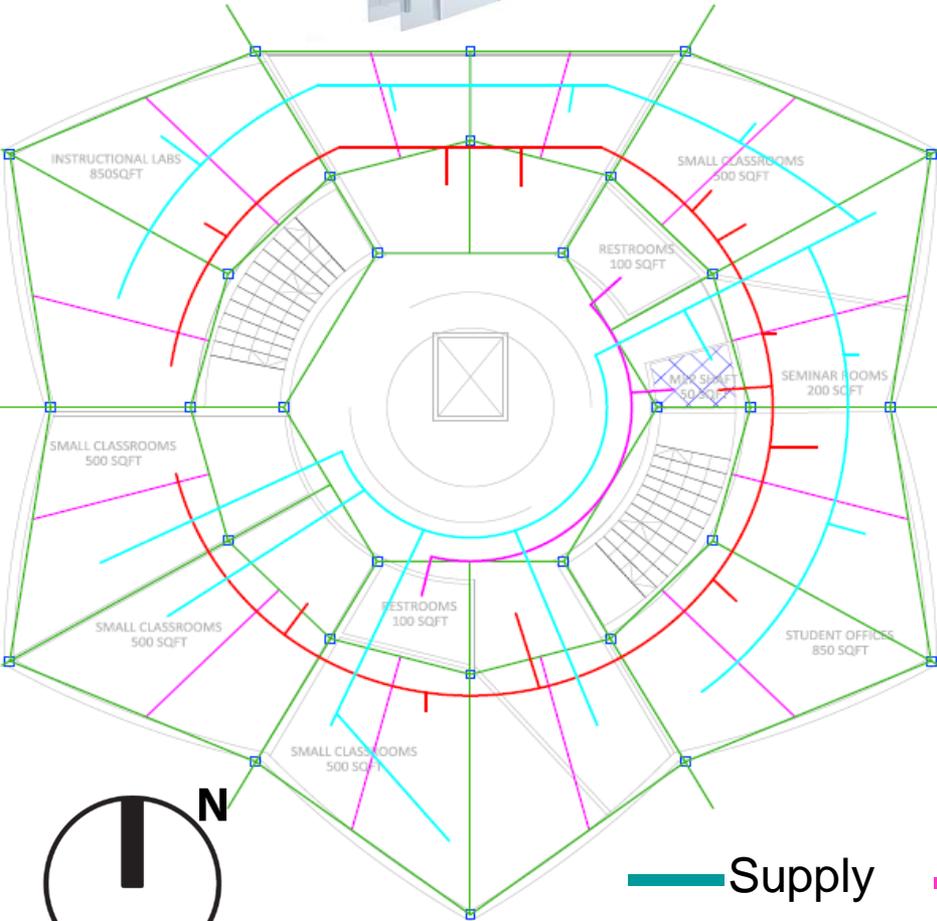
Vegetated Roof

- Supply
- Return
- Exhaust
- Girders
- Beams





Double Glazed Facade



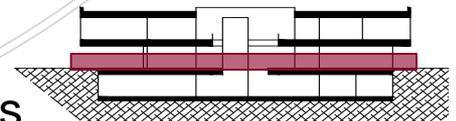
Supply

Exhaust

Return

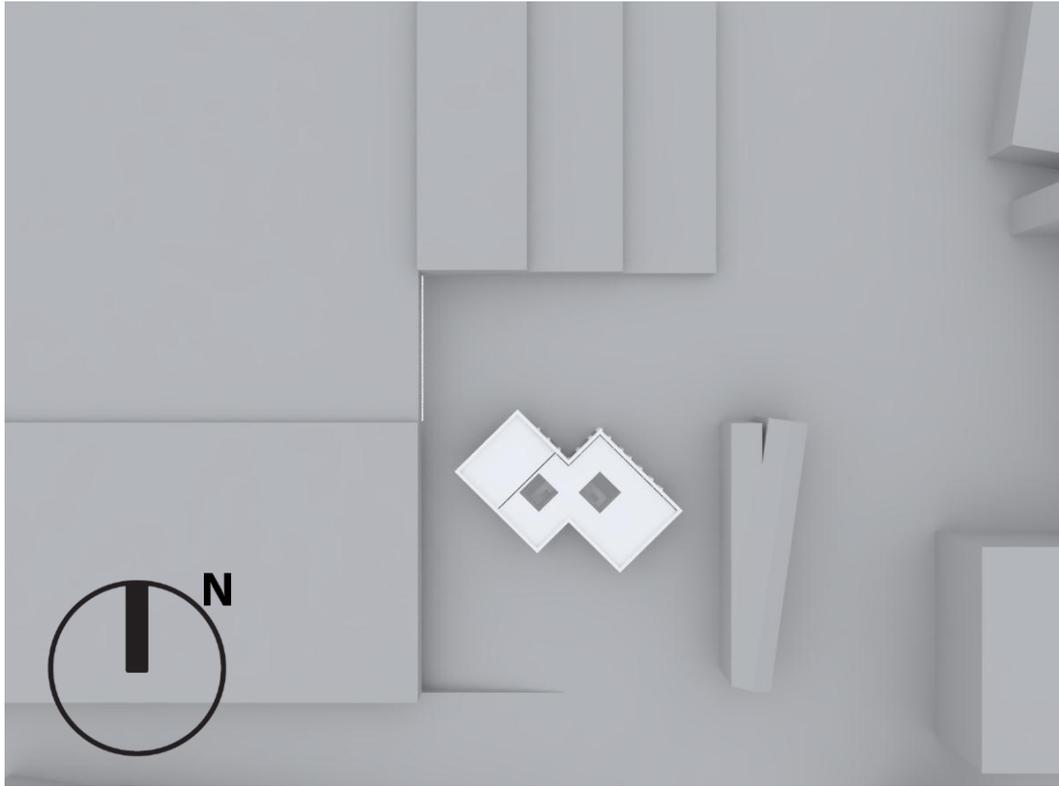
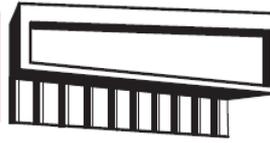
Girders

Beams

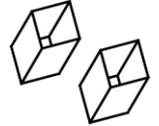


BUILDING LOCATION

A



CIRCULATION

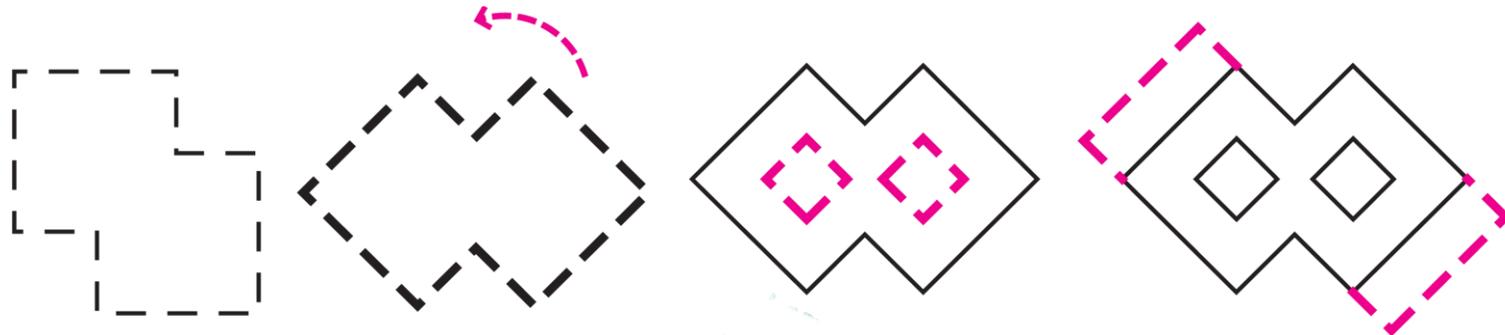
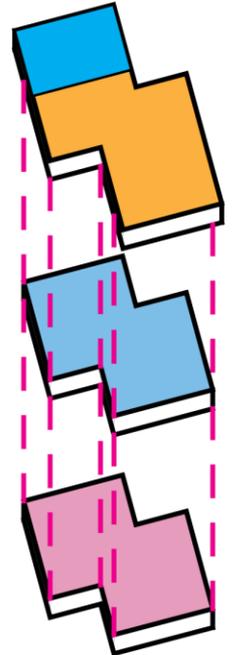


PRIVATE



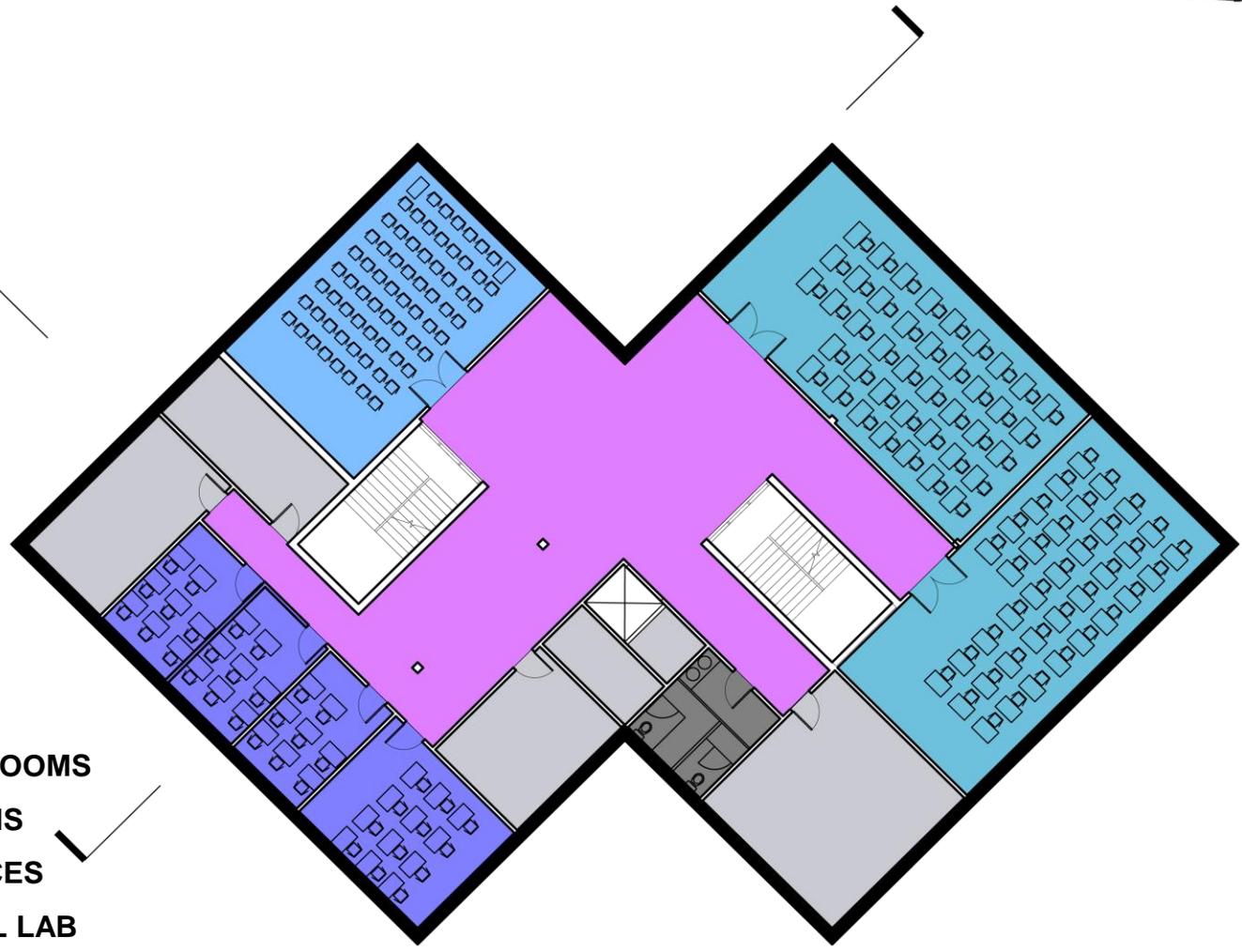
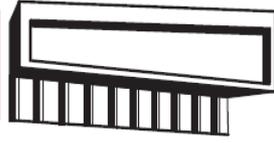
PUBLIC

STUDY

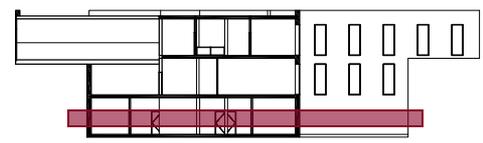


BASEMENT FLOOR PLAN

A

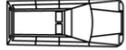
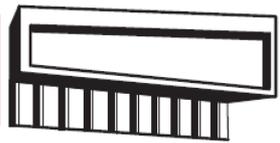


- LARGE CLASSROOMS
- SEMINAR ROOMS
- STUDENT OFFICES
- INSTRUCTIONAL LAB
- REST ROOMS
- VERTICAL SHAFT
- CIRCULATION

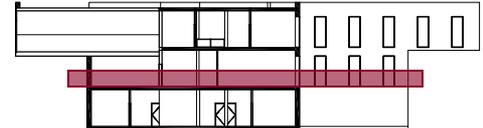


1st FLOOR PLAN

A

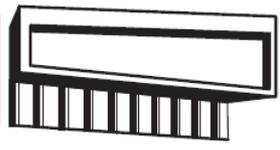


-  SMALL CLASSROOM
-  STUDENT OFFICES
-  LARGE CLASSROOM
-  REST ROOMS
-  VERTICAL SHAFT
-  CAFE
-  CIRCULATION
-  FACULTY OFFICES

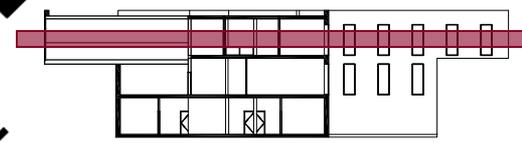


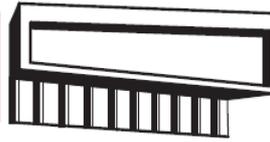
2nd FLOOR PLAN

A

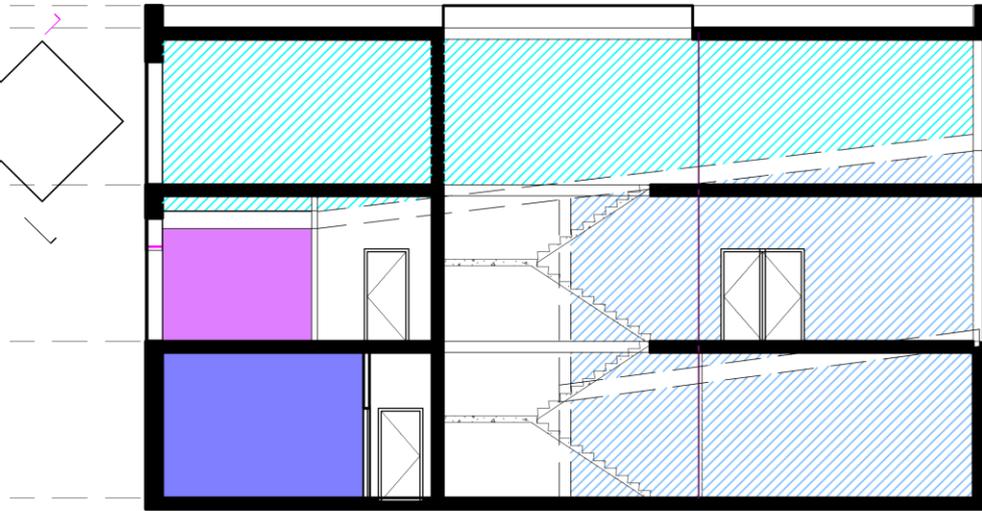
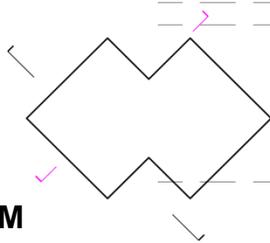


- DEAN'S OFFICE
- SENIOR ADMINISTRATION
- FACULTY OFFICES
- VERTICAL SHAFT
- RESTROOMS
- AUDITORIUM
- CIRCULATION





- SEMINAR ROOM
- LARGE CLASSROOM
- STUDENT OFFICES
- FACULTY OFFICERS
- ADMINISTRATION
- VERTICAL SHAFTS
- AUDITORIUM
- CIRCULATION

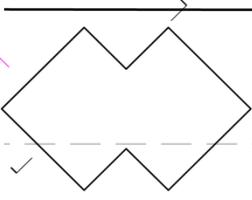
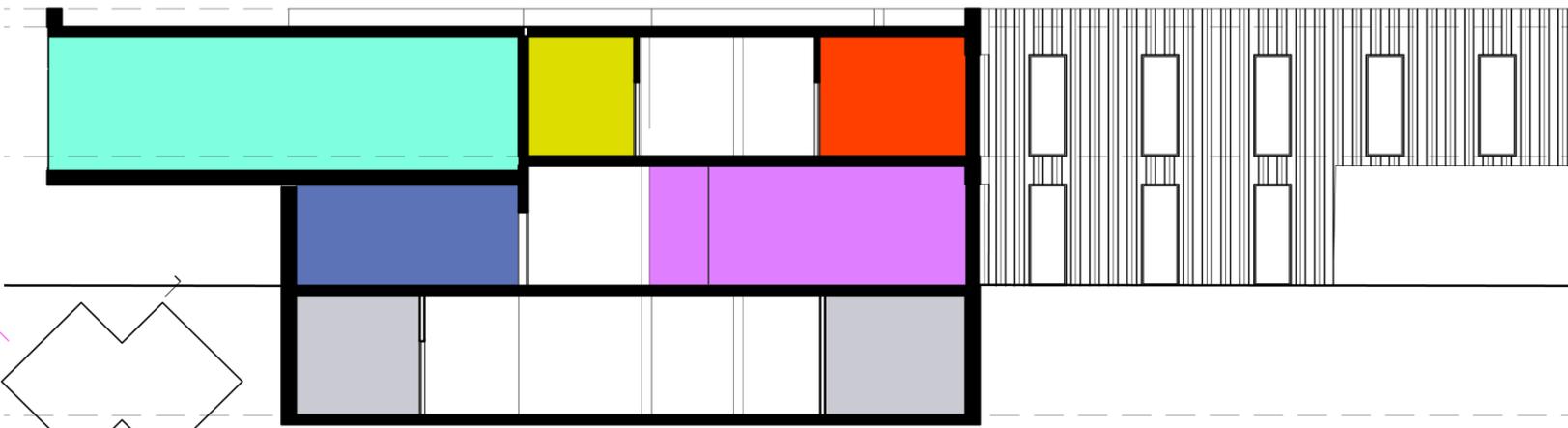


Max
30'-0"
28'-0"

2
14'-0"

1
0'-0"

Basement
-14'-0"



Max
34'-0"
28'-0"

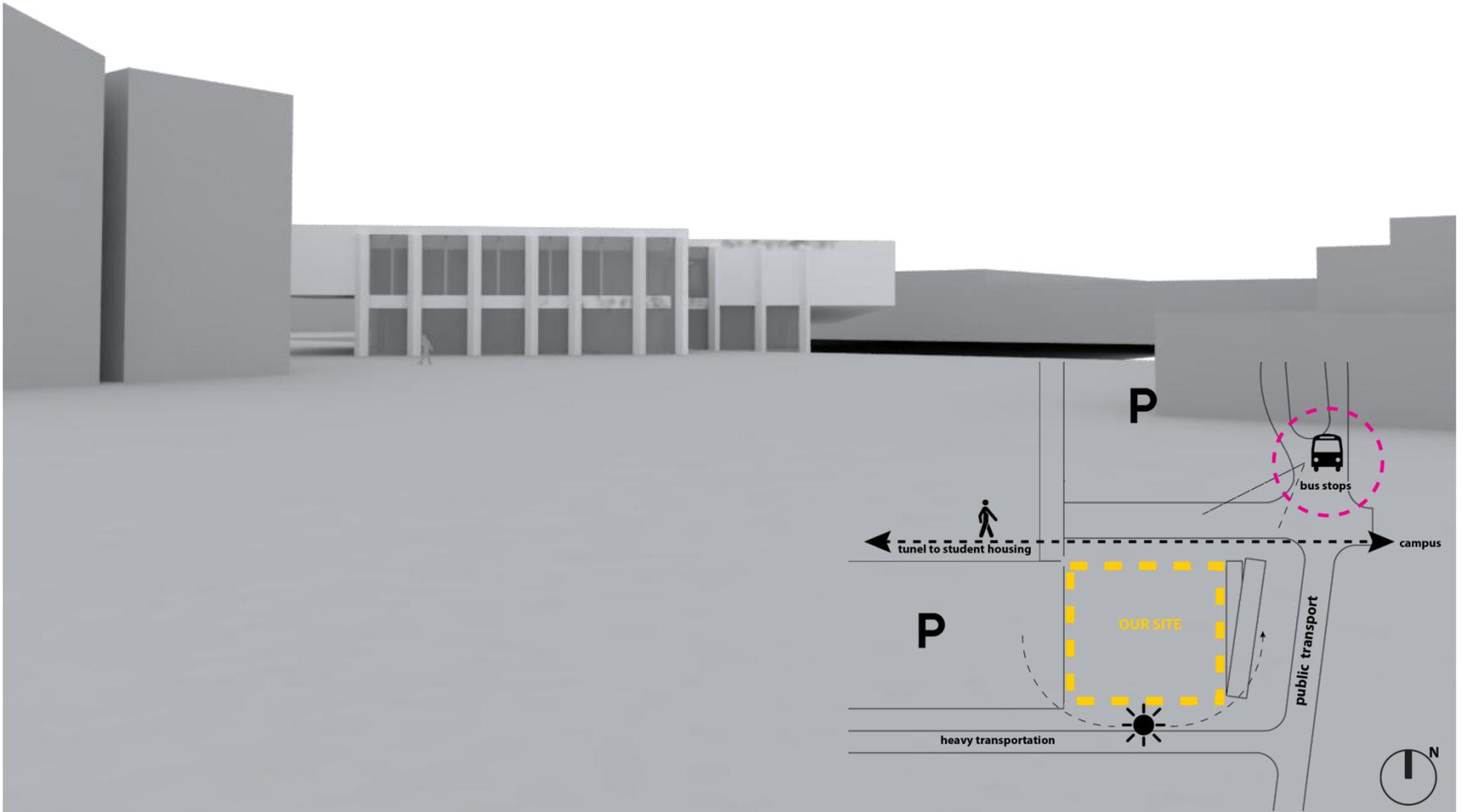
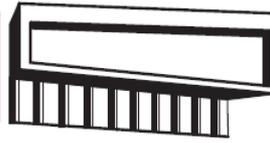
2
14'-0"

1
0'-0"

Basement
-14'-0"

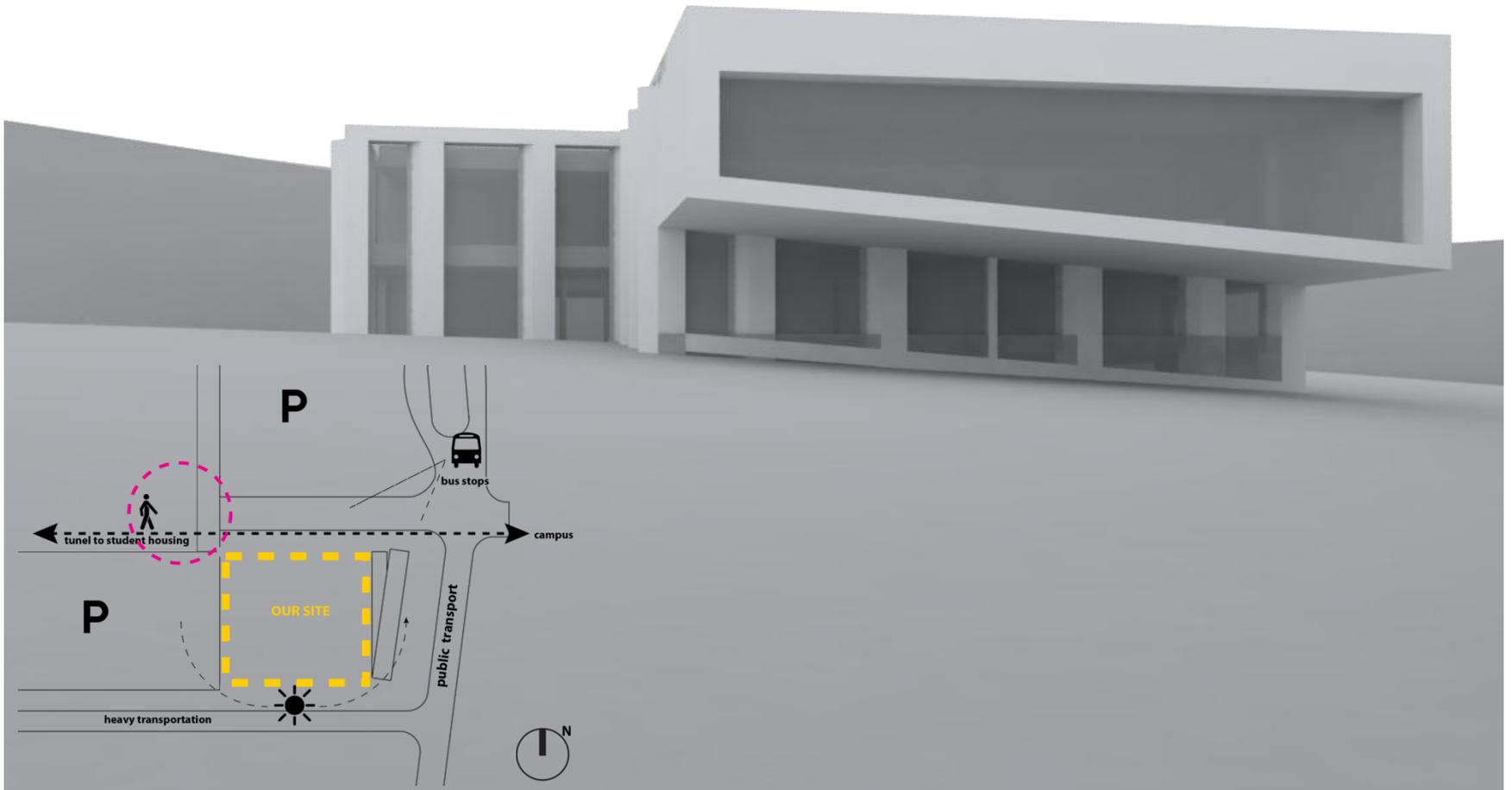
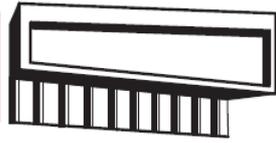
VIEW FROM BUS STOP

A



VIEW FROM THE TUNNEL

A



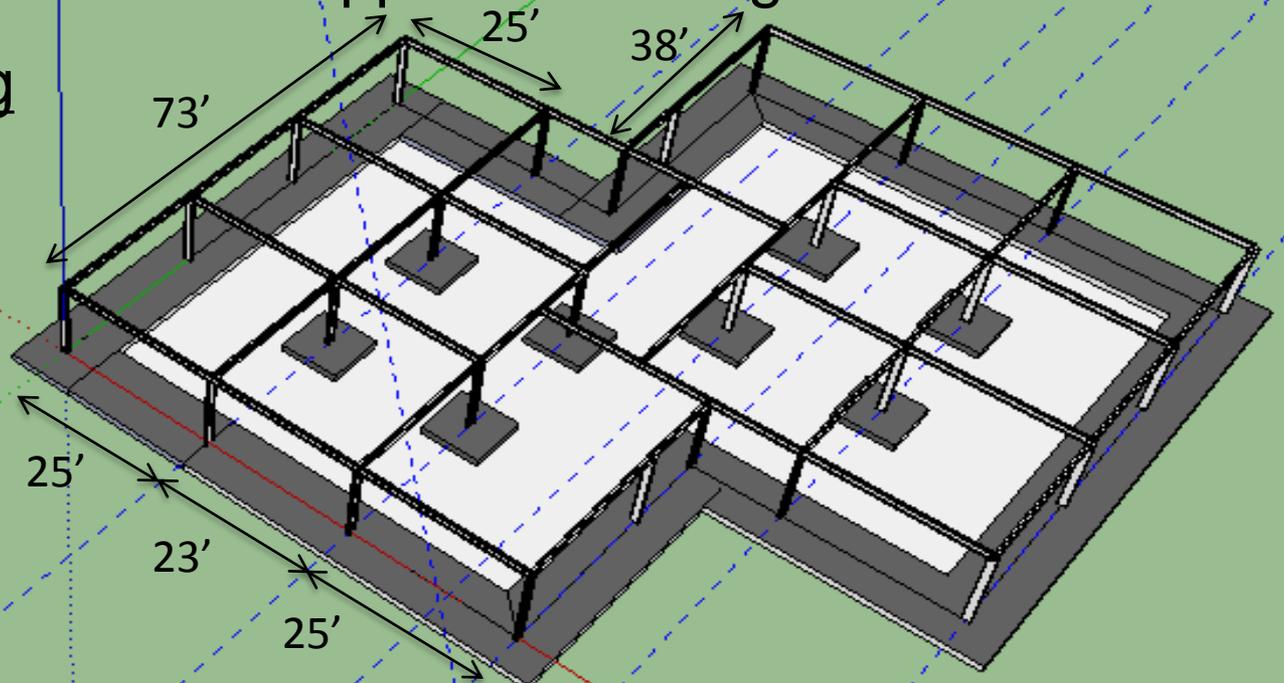


Strip Footing

- Connects spread footing with retaining wall base (10' width)
- 15" thick based on 400k applied from largest column

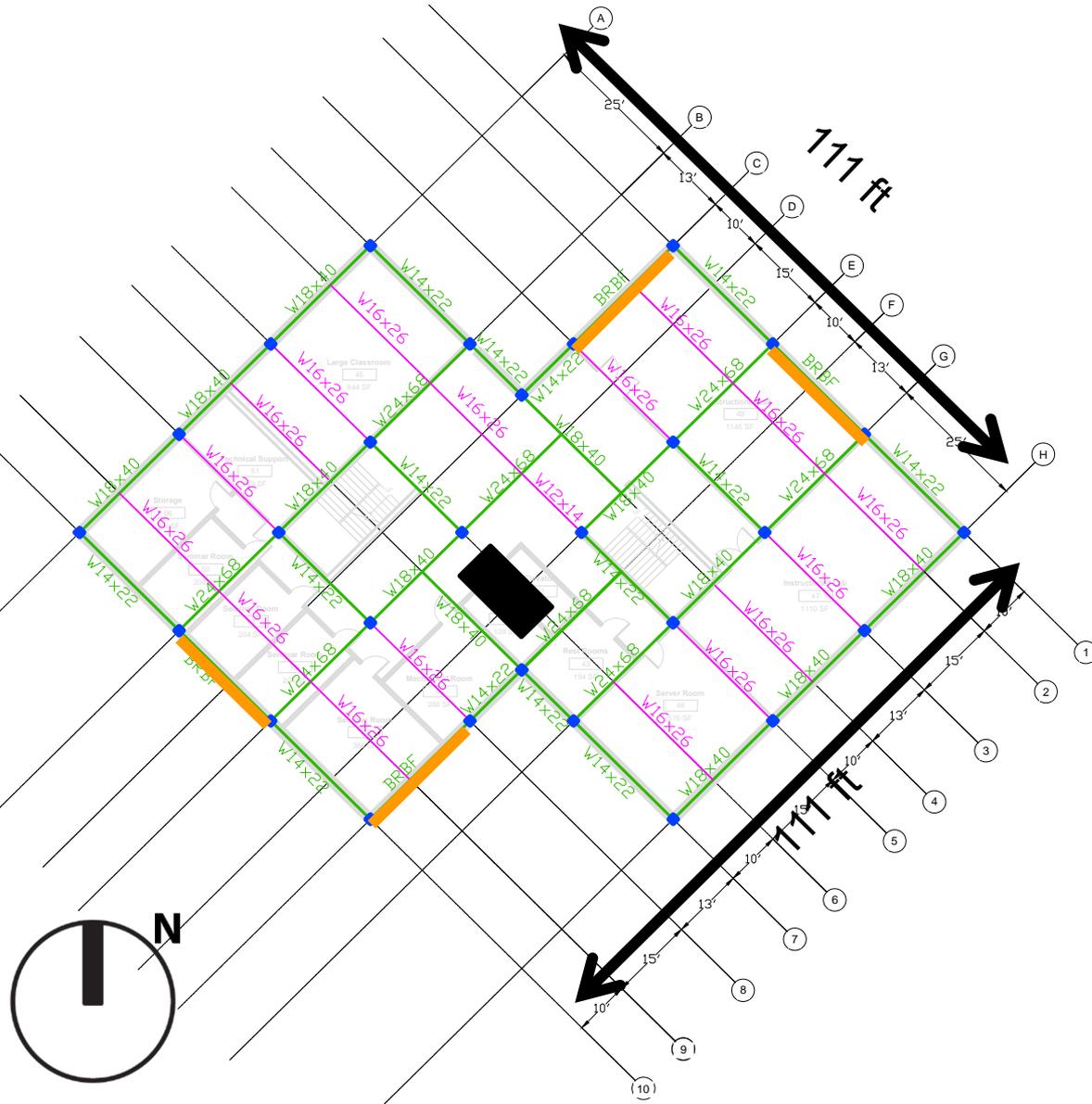
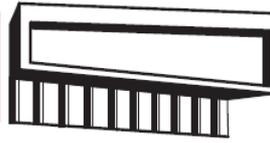
Spread Footing

- 15" thick
- 8'x8'



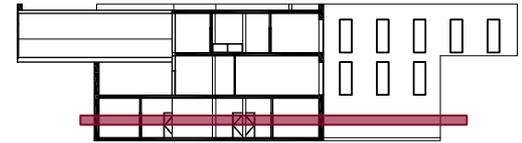
STEEL: BASEMENT

SE



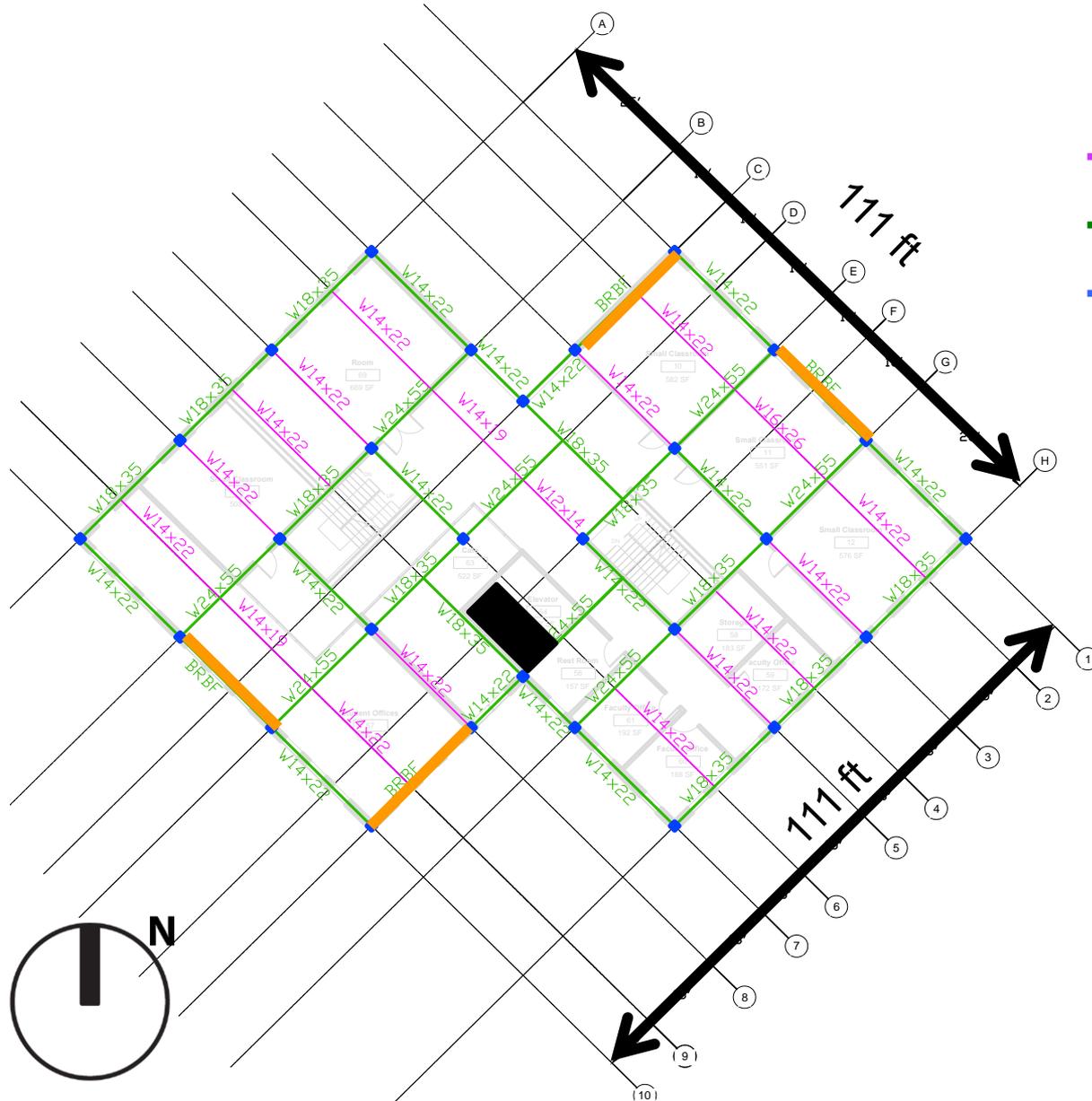
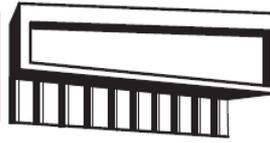
Typ. Beam: W16x26
 Typ. Girder: W18x40
 Typ. Column: W14x68

-  BRBF
-  Vert. Shaft



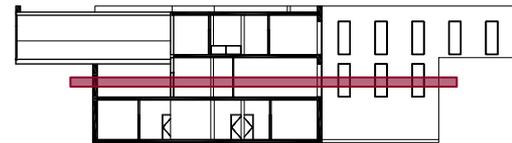
STEEL: 1ST FLOOR

SE



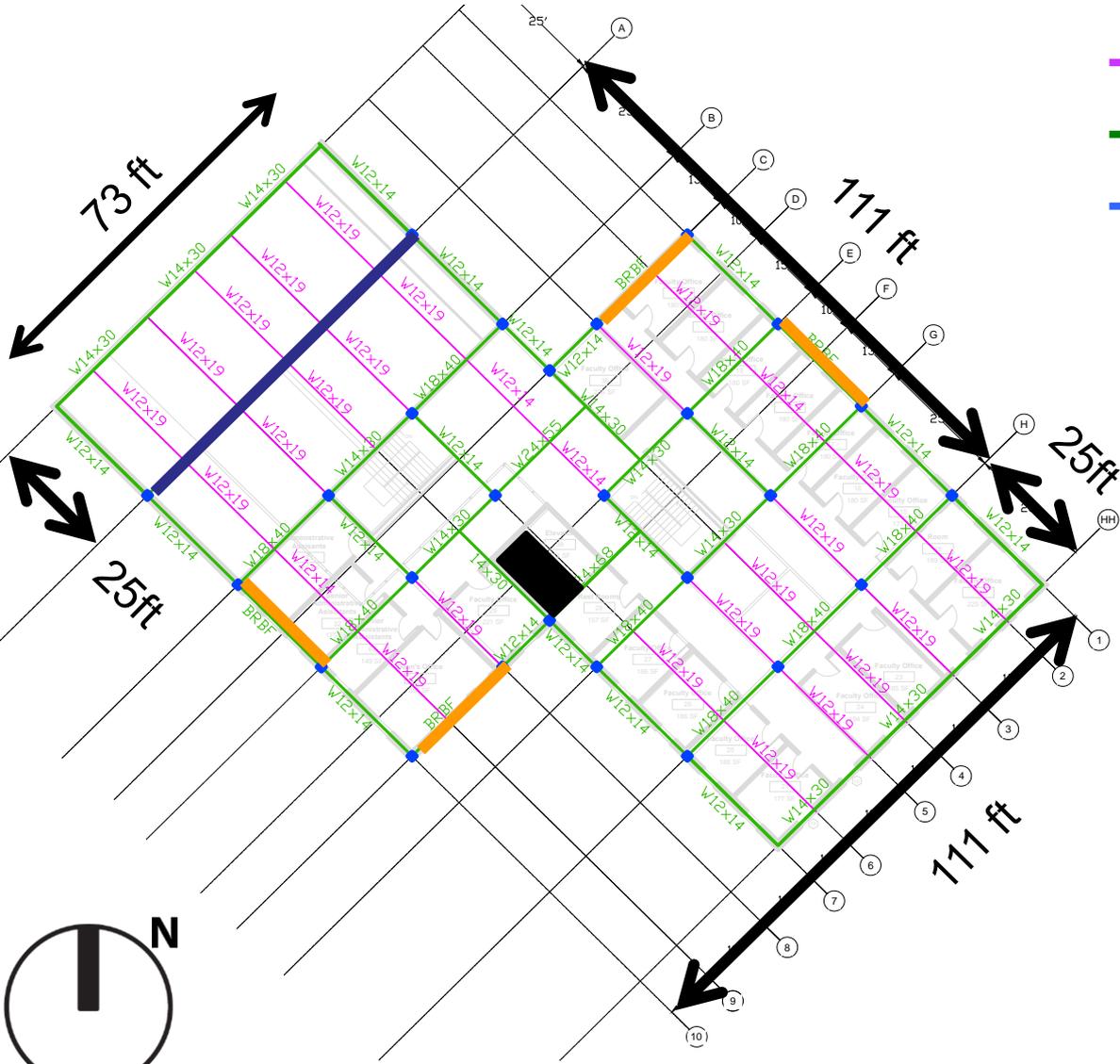
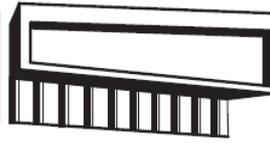
Typ. Beam: W14x22
 Typ. Girder: W18x35
 Typ. Column: W14x48

-  BRBF
-  Vert. Shaft



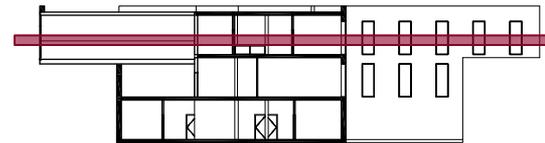
STEEL: 2ND FLOOR

SE



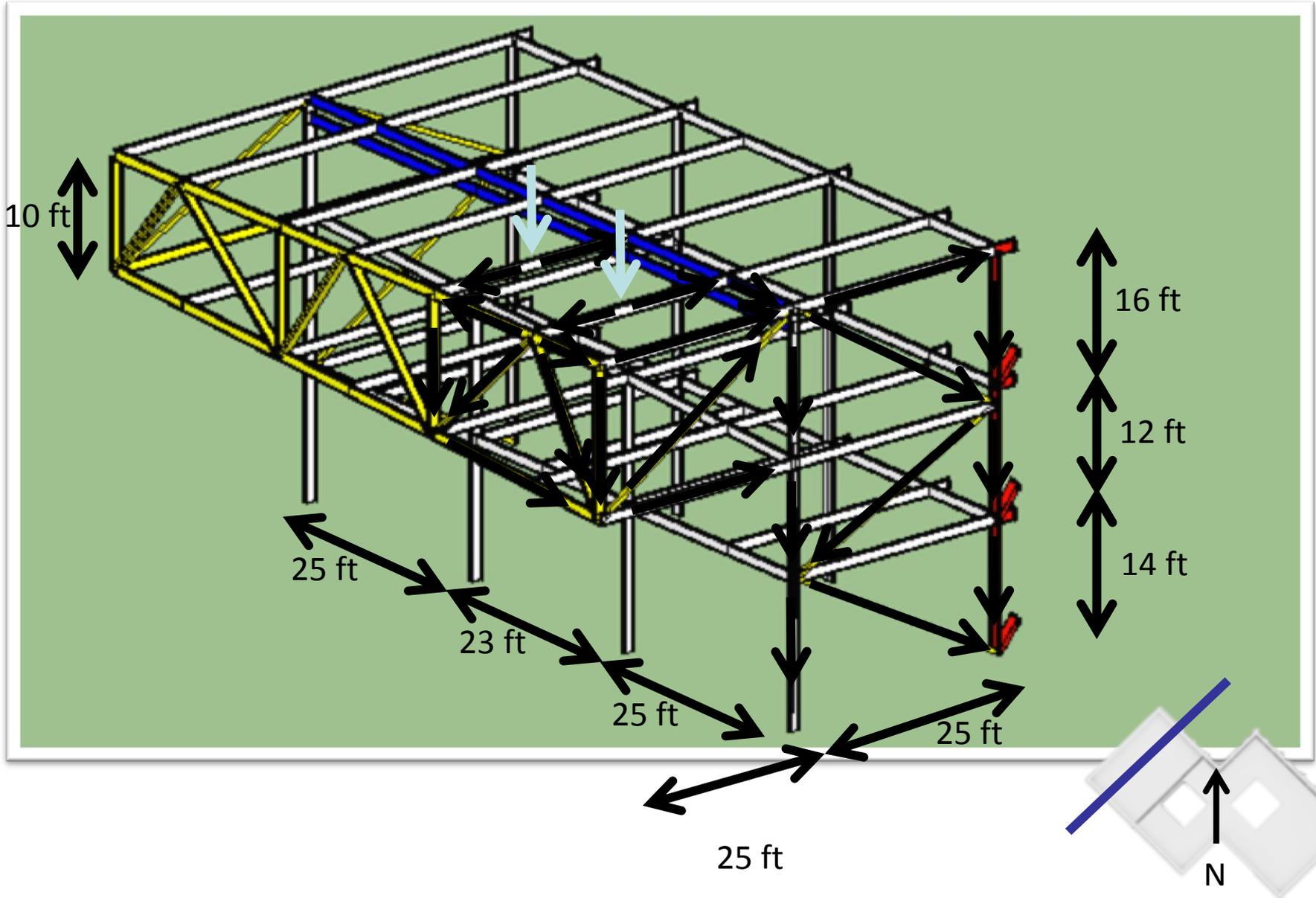
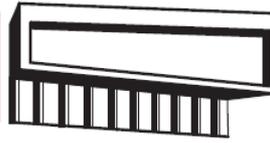
Typ. Beam: W12x19
 Typ. Girder: W14x30
 Typ. Column: W14x48

-  BRBF
-  Vert. Shaft
-  Planar Truss



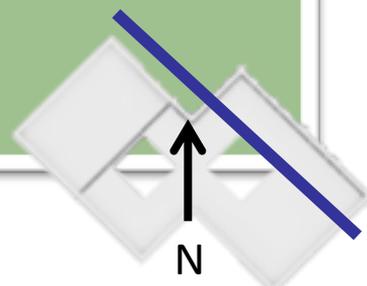
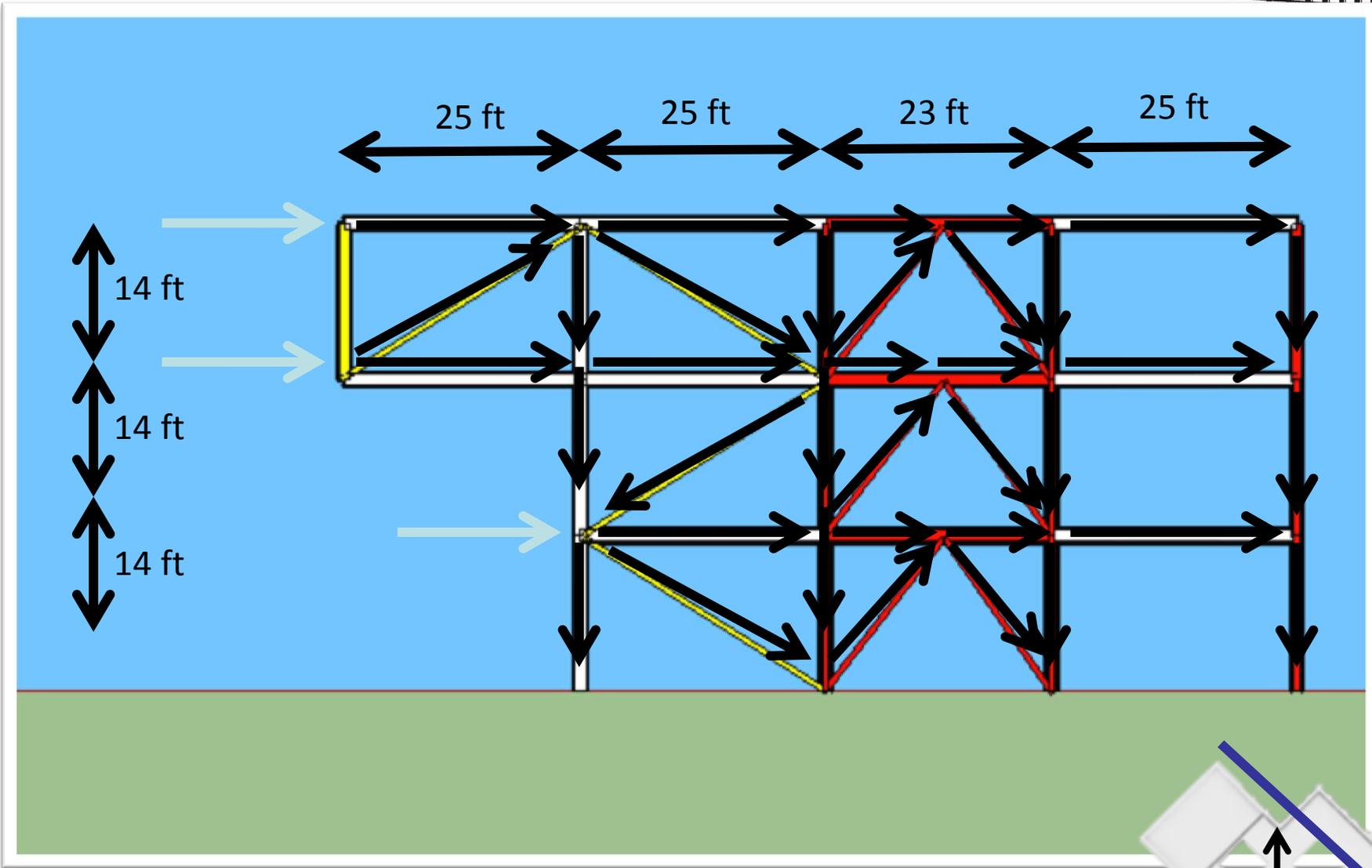
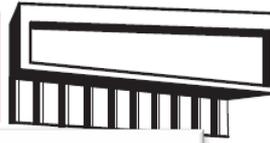
STEEL: GRAVITY LOAD PATH

SE



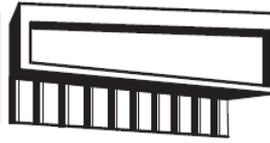
STEEL: LATERAL LOAD PATH

SE



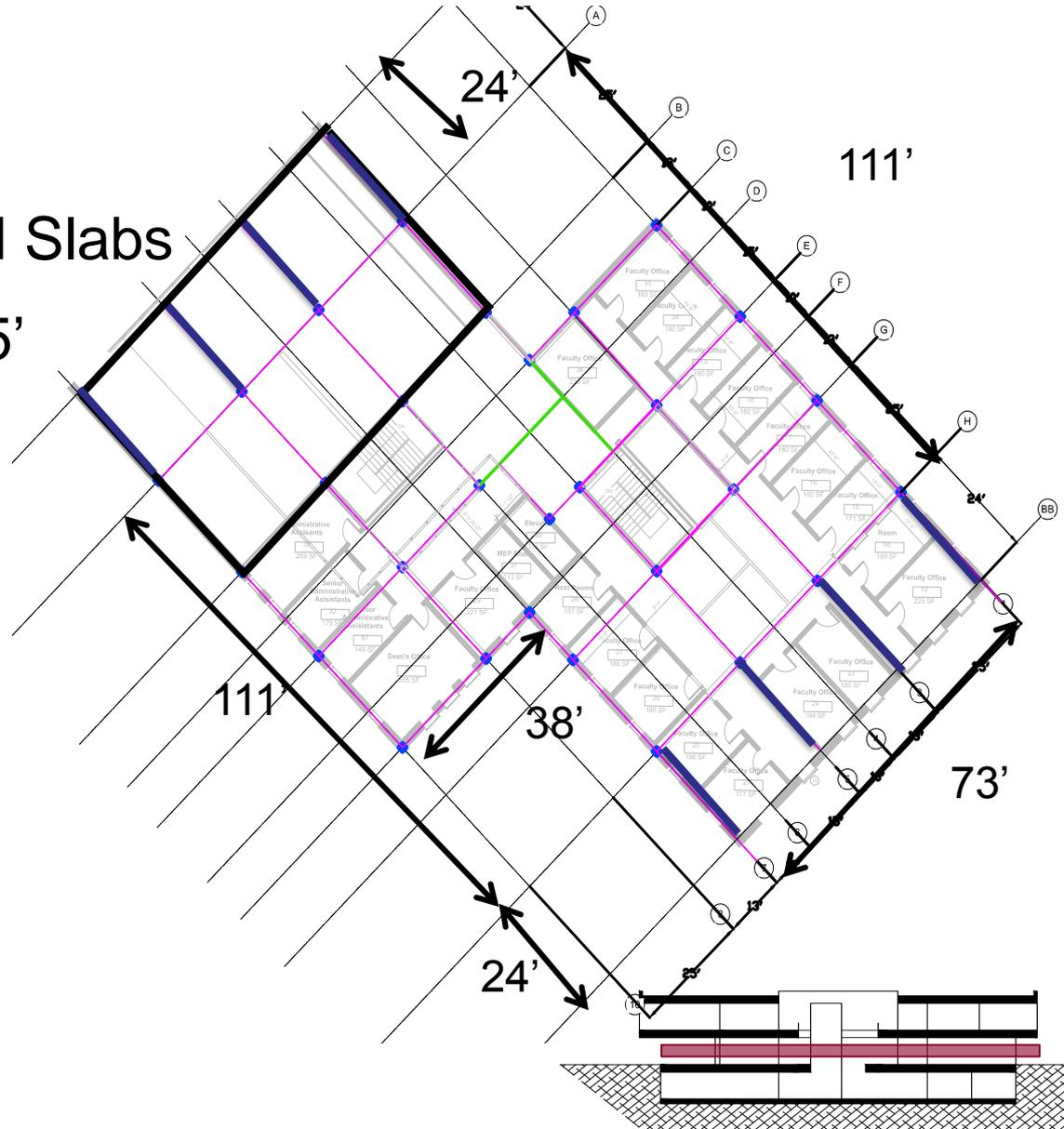
CONCRETE: 1ST FLOOR

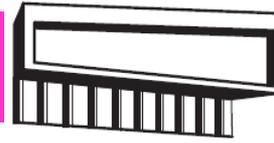
SE



Auditorium

- 49'x73'
- 1 Way Post Tensioned Slabs
 - 3 spans: 25'-23'-25'
 - 8" thickness
- 24' PT Cantilevers
 - 16"/20" Depth





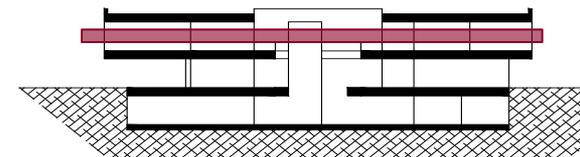
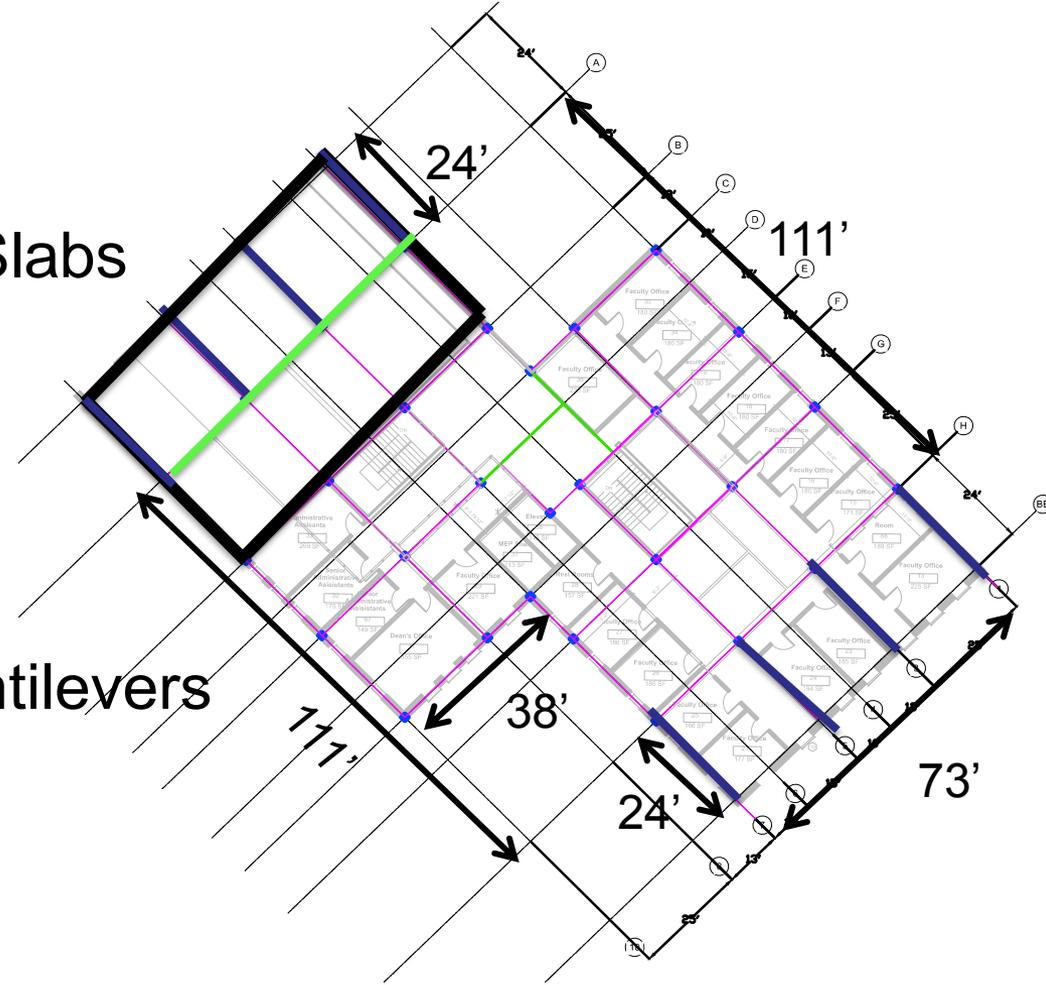
Auditorium Roof

- 49'x73'
- 1 Way Post Tensioned Slabs
 - 3 spans: 25'-23'-25'
 - 8" thick

 75' Steel Truss

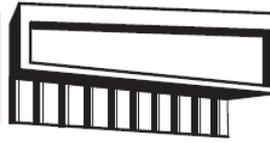
Supported by 24' PT Cantilevers

 16"/20" Depth



CONCRETE: LATERAL SYSTEM

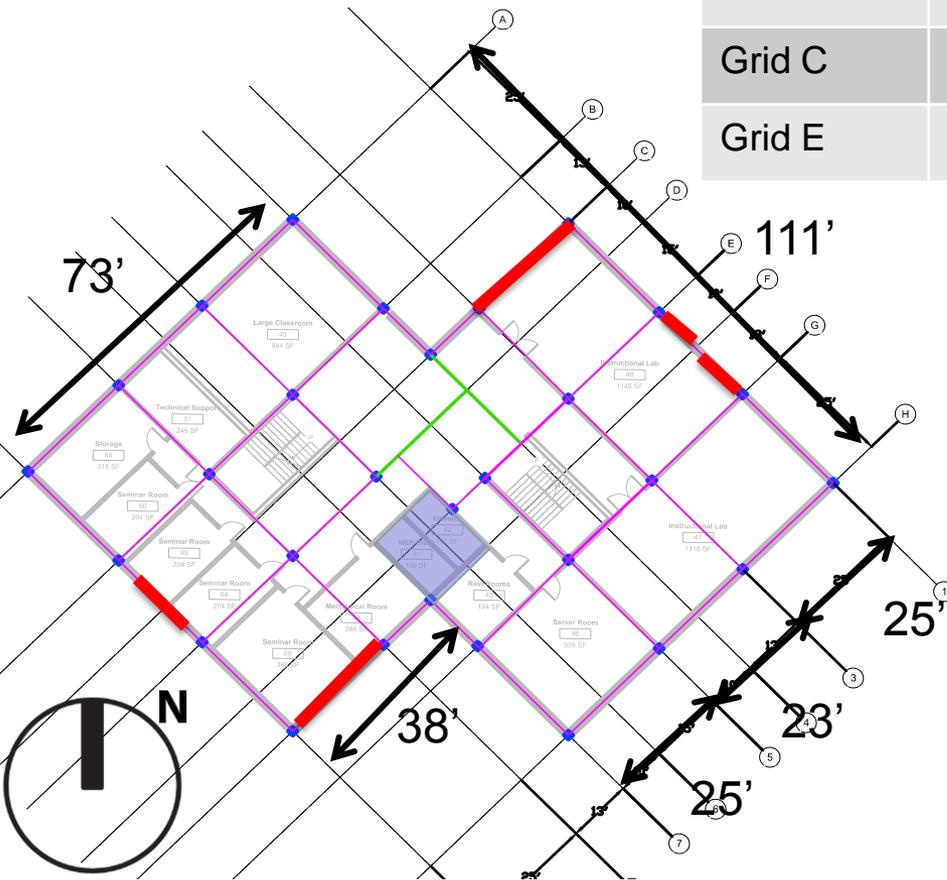
SE



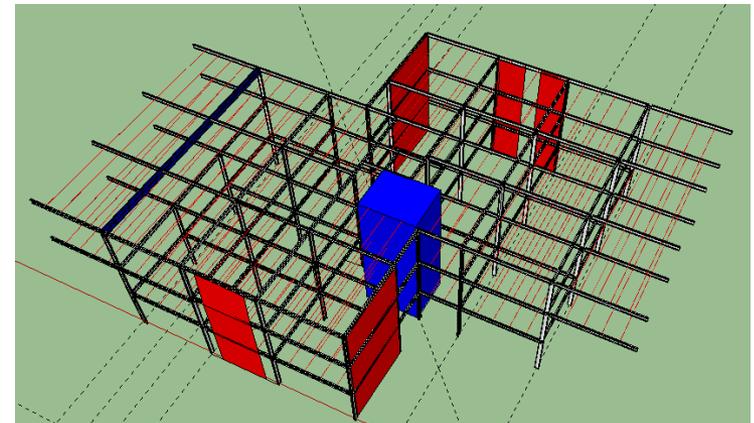
— Precast Shear Walls

- Base Shear = 936 kips
- $R = 5$

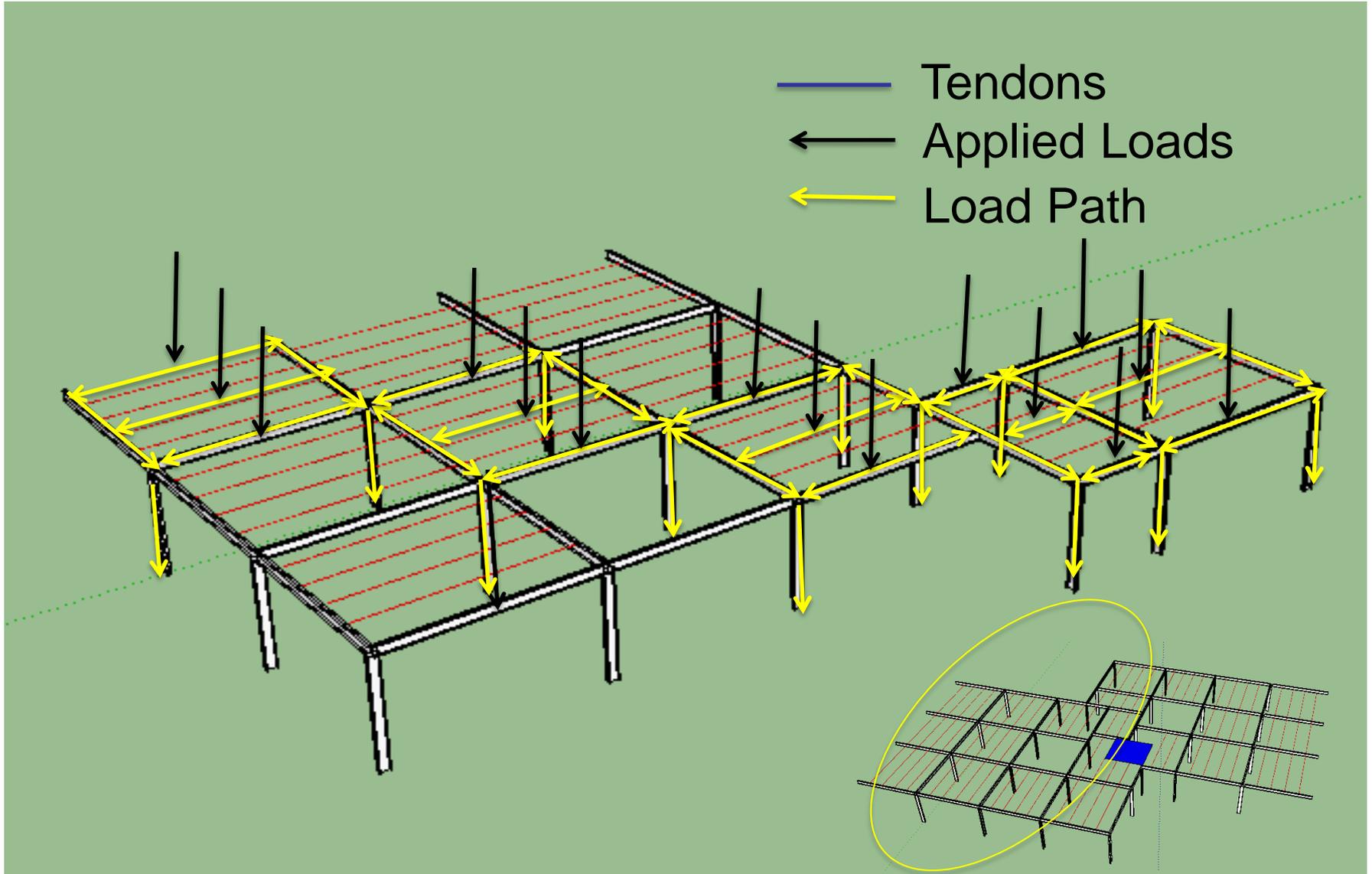
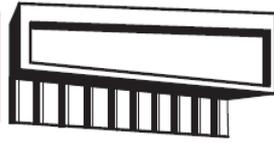
Location	Type	Length	Thickness
Grid 1	Coupled Shear Wall	9'-4"-9'	14"
Grid 10	Shear Wall	15'	14"
Grid C	Shear Wall	25'	14"
Grid E	Shear Wall	25'	14"

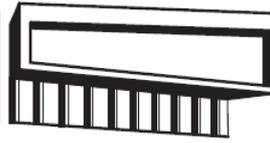


- Shear Walls
- Mechanical Shaft



CONCRETE: GRAVITY LOAD PATH



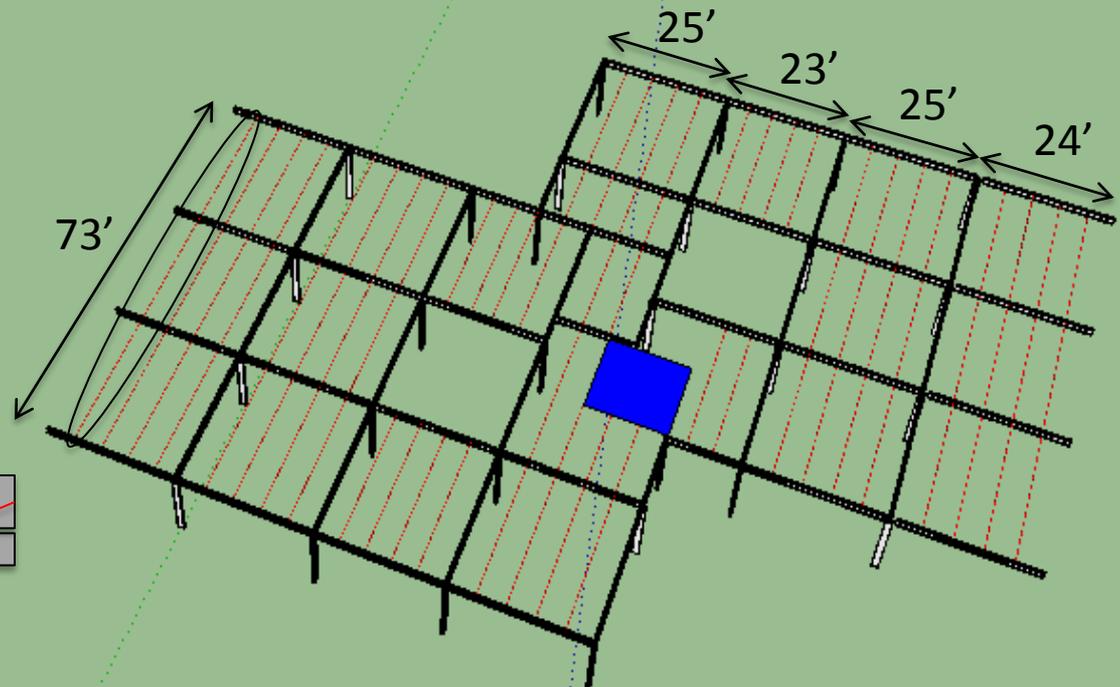


1-Way Post Tensioned Slabs

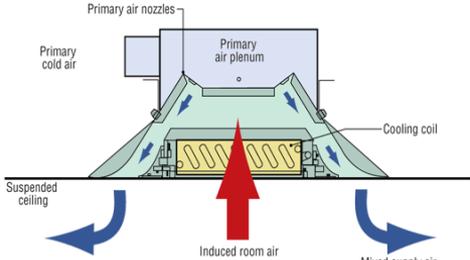
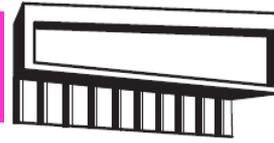
- Spans typically 25' long – 8" thick
- Better transition from slab to shear walls
- Increased floor to ceiling height

Tendons
 0.5" Diameter
 7 Wire Bundle
 270 ksi Strength

Tendon Profile

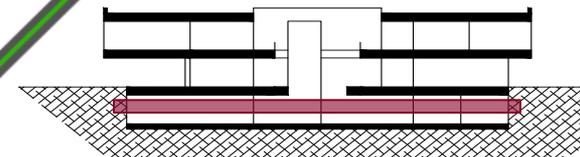
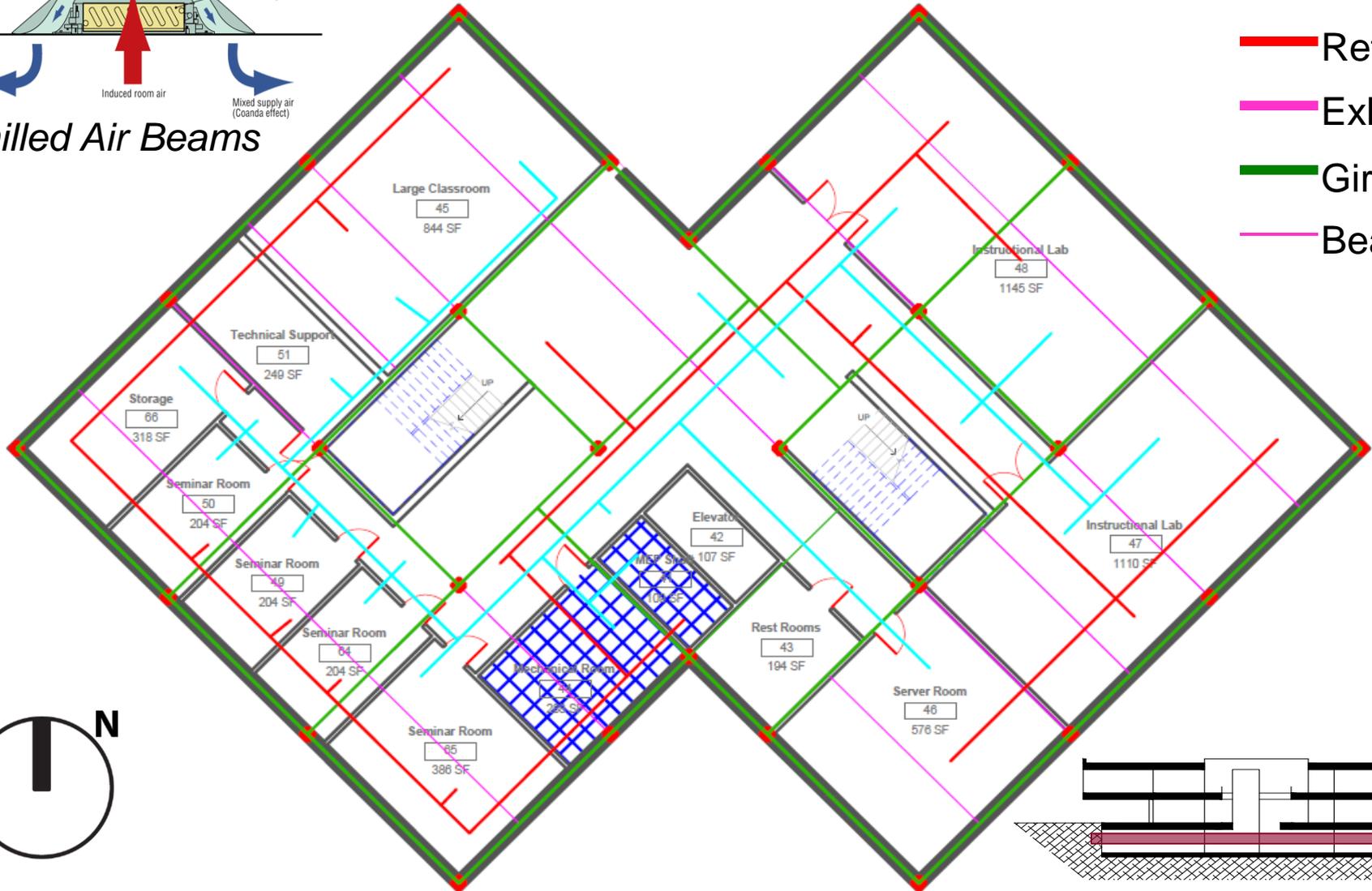


BASEMENT HVAC



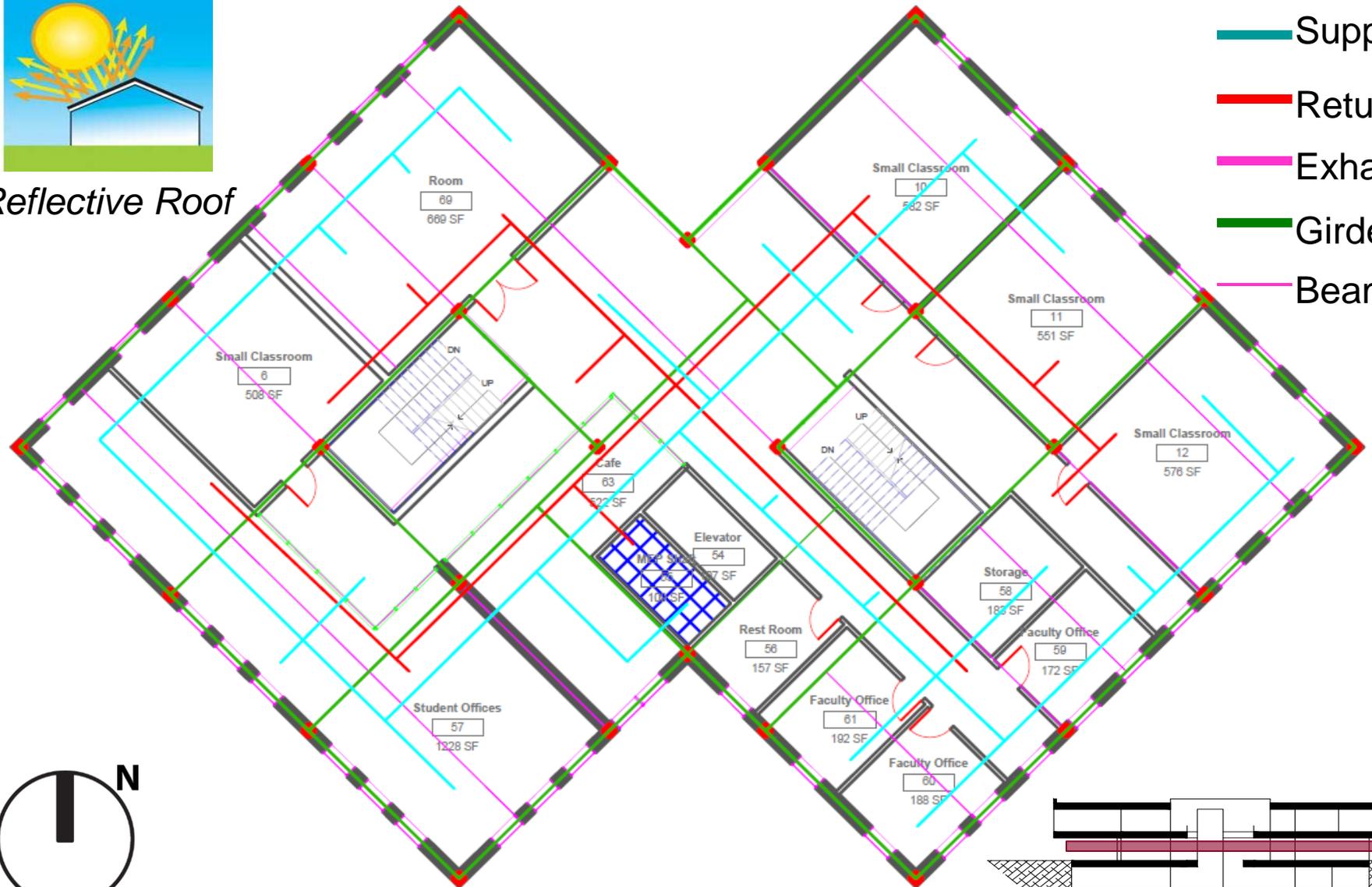
- Supply
- Return
- Exhaust
- Girders
- Beams

Chilled Air Beams

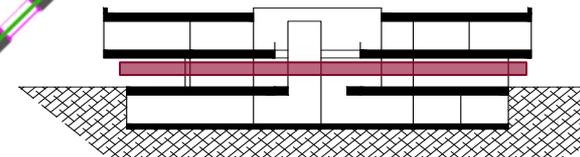




Reflective Roof

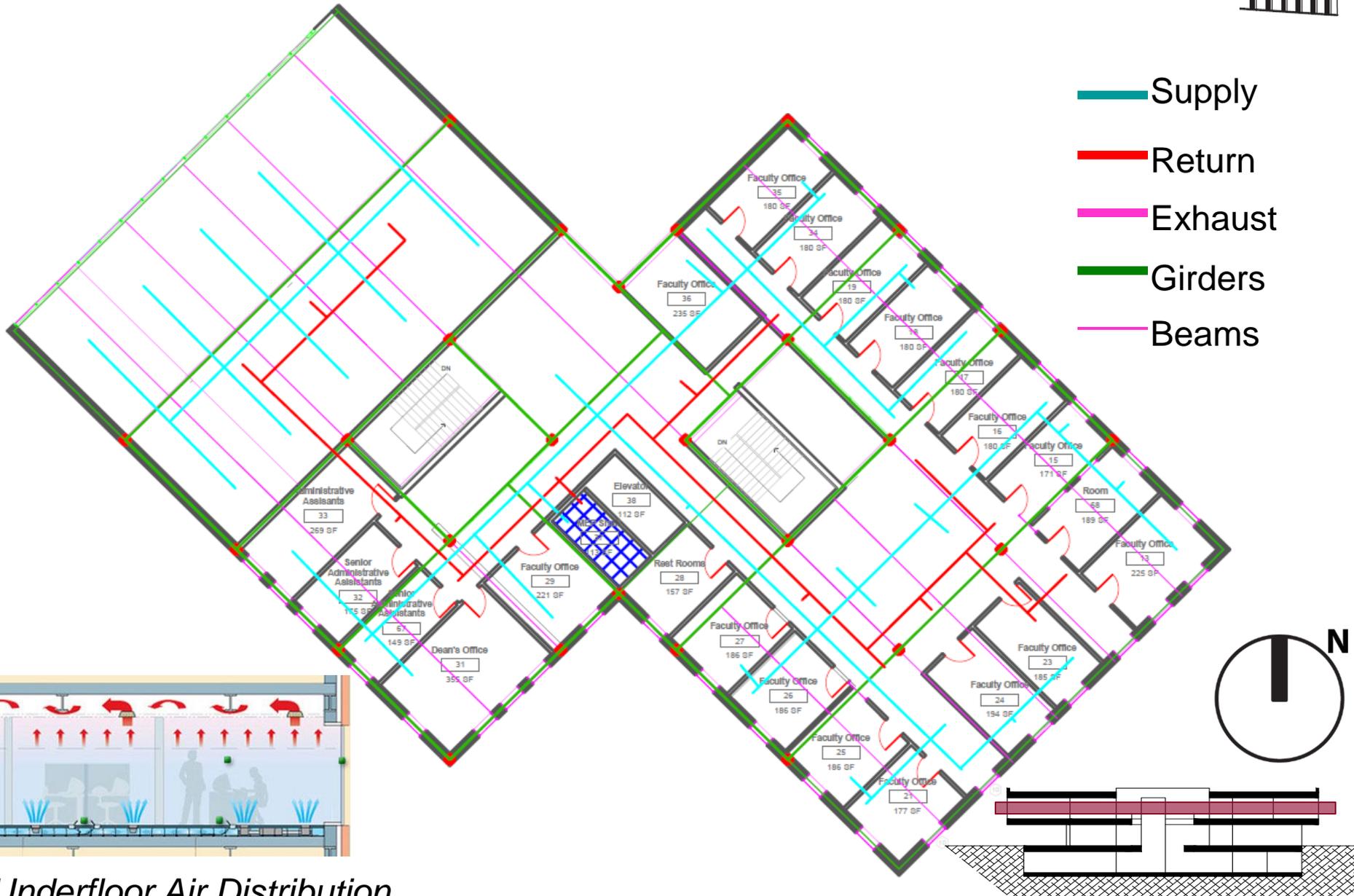
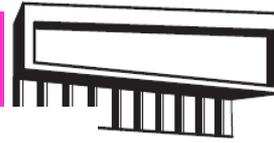


- Supply
- Return
- Exhaust
- Girders
- Beams



2ND FLOOR HVAC

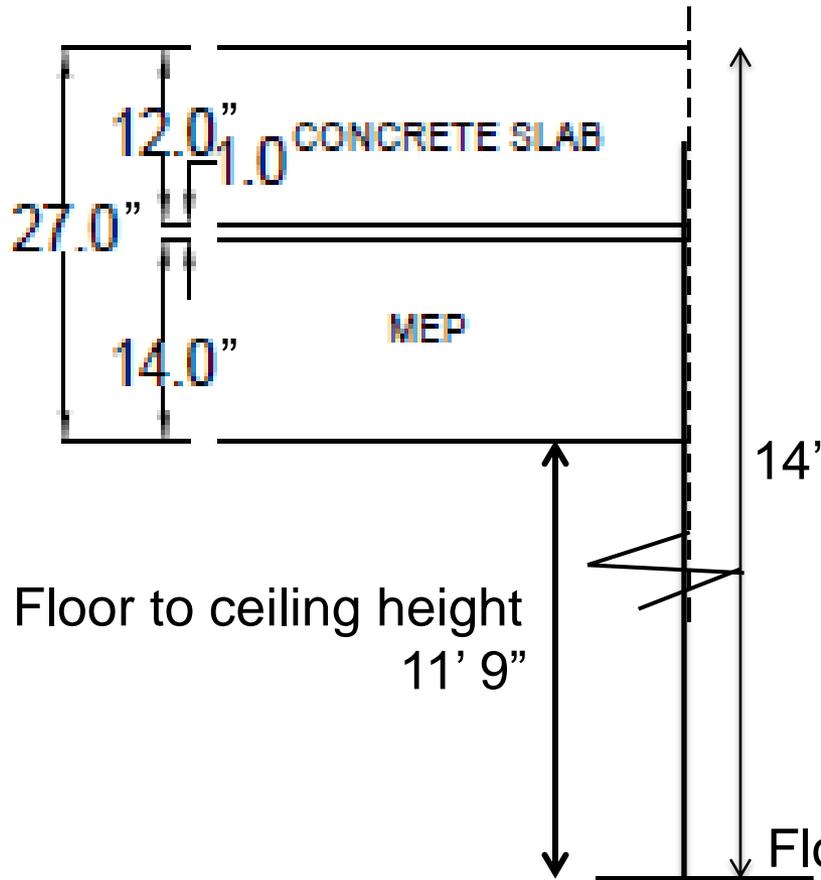
CM



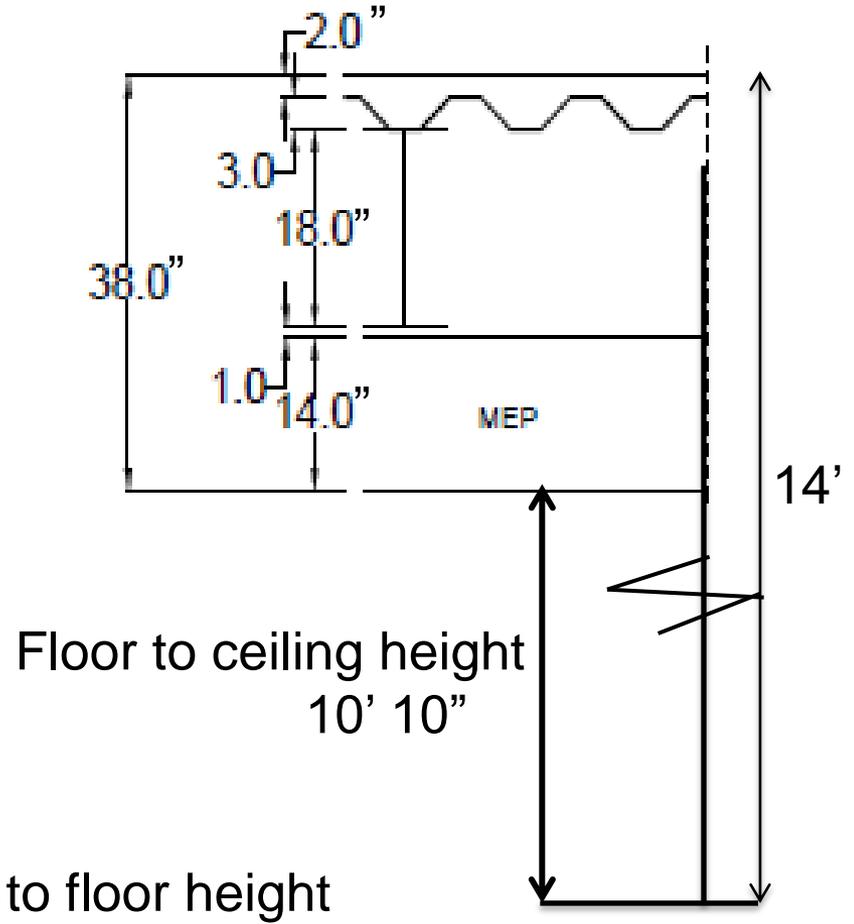
Underfloor Air Distribution



Concrete Option



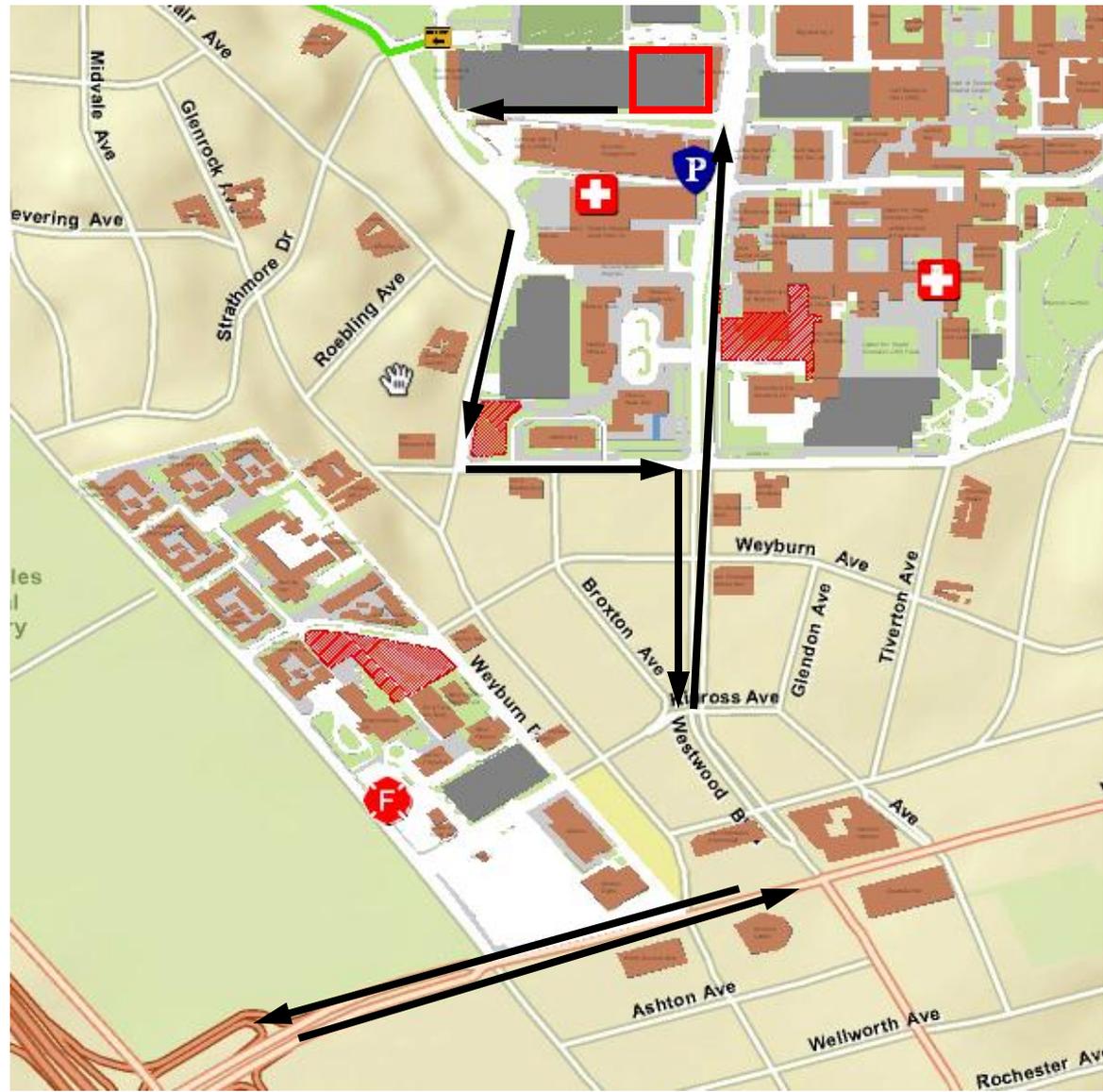
Steel Option



SITE ACCESS

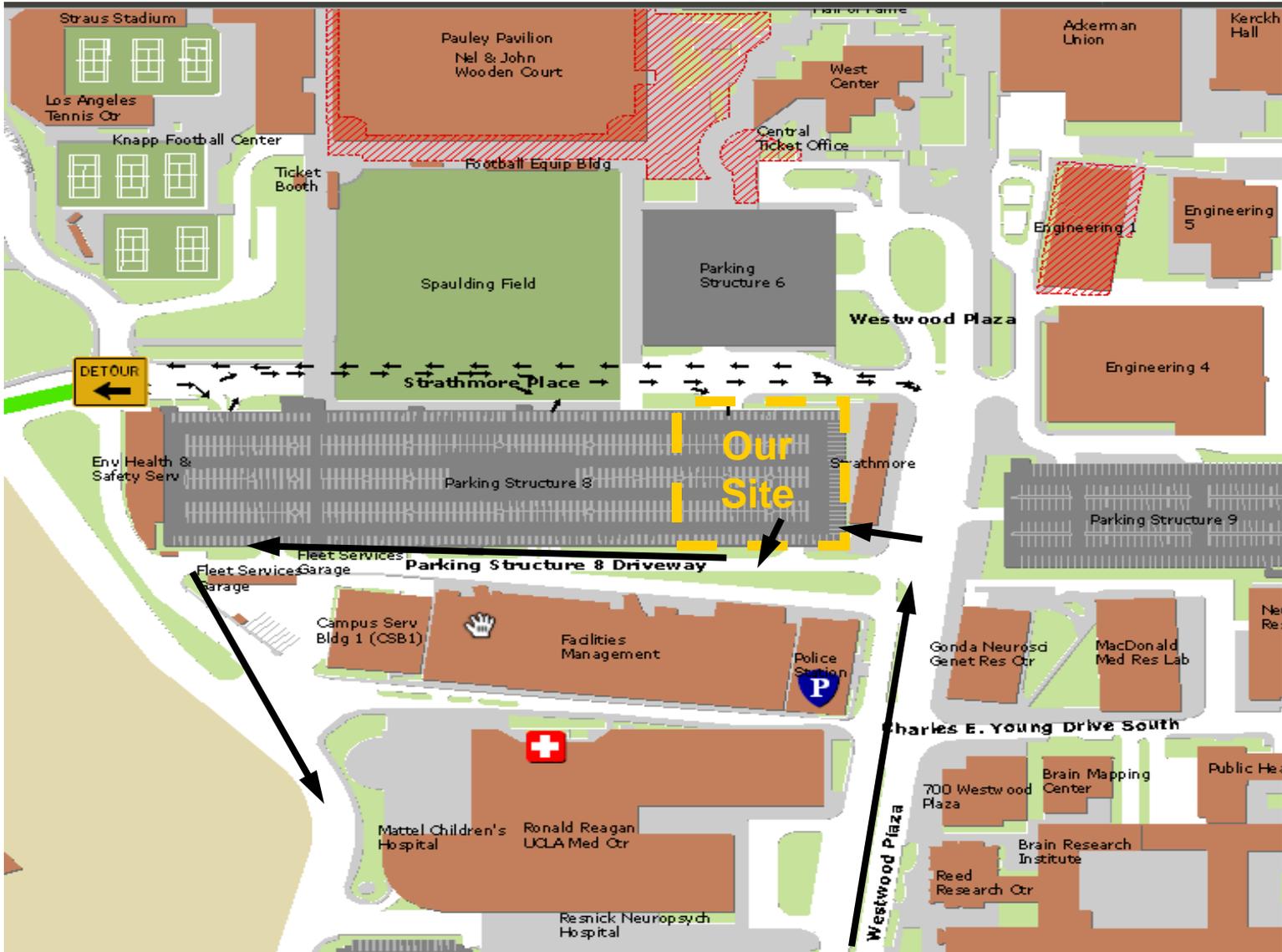
CM

TEAM
CENTRAL

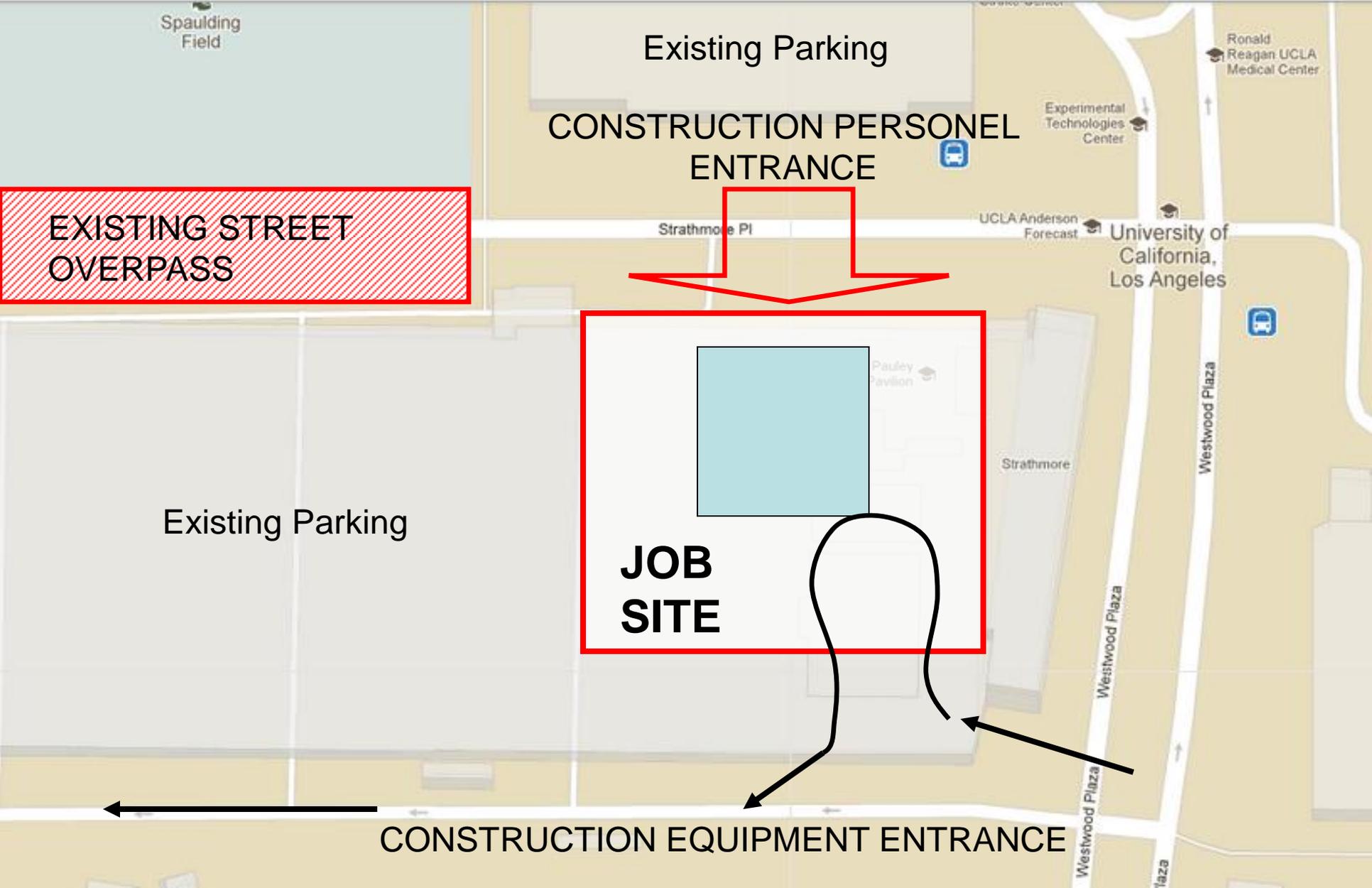


Team Central: "have fun and win"

SITE ACCESS



Team Central: "have fun and win"



EXISTING STREET OVERPASS

Existing Parking

CONSTRUCTION PERSONNEL ENTRANCE

Strathmore Pl

Experimental Technologies Center

Ronald Reagan UCLA Medical Center

UCLA Anderson Forecast

University of California, Los Angeles

Existing Parking

JOB SITE

Pauley Pavilion

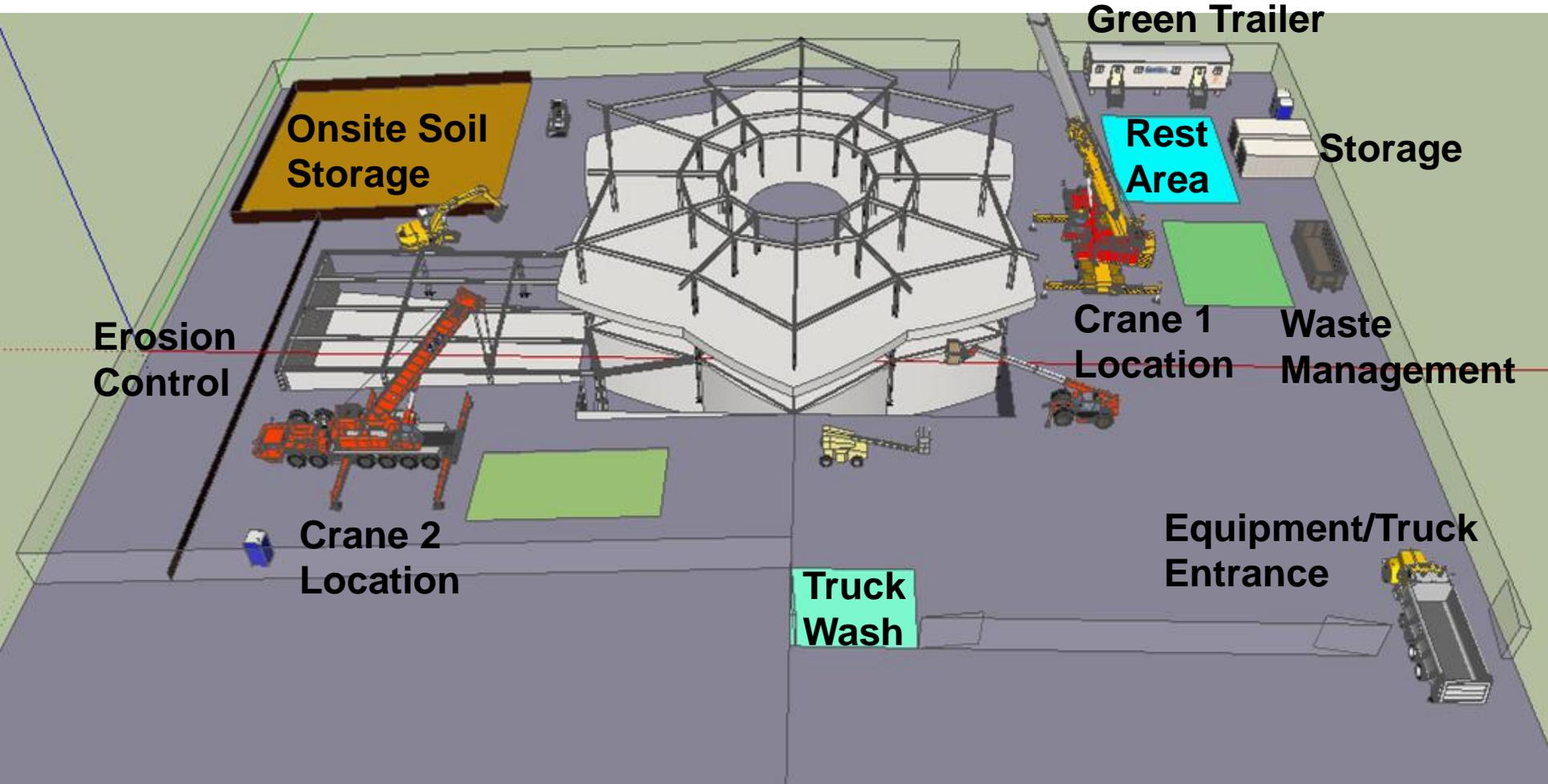
Strathmore

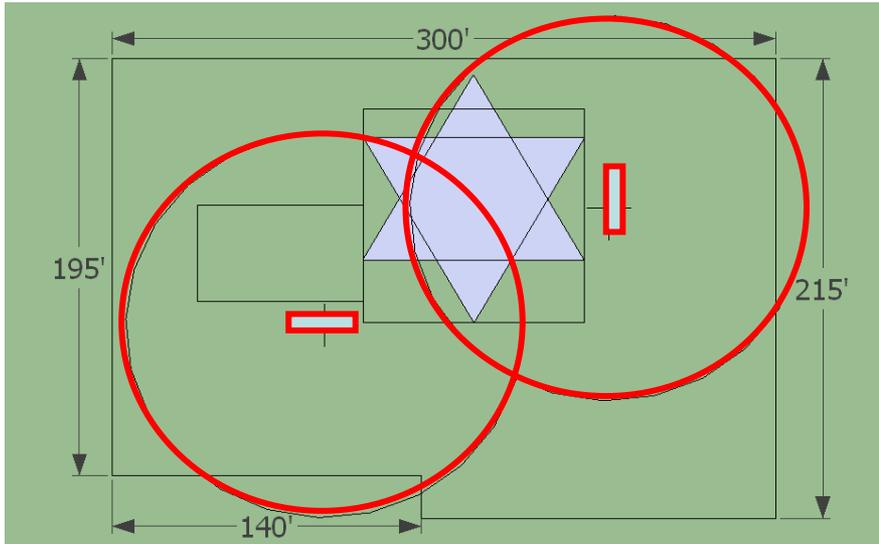
Westwood Plaza

Westwood Plaza

Westwood Plaza

CONSTRUCTION EQUIPMENT ENTRANCE

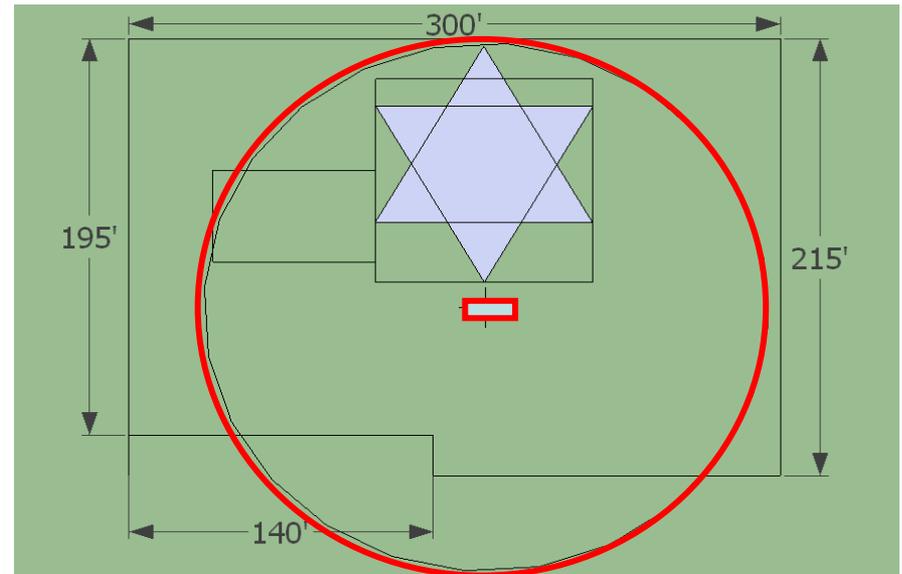


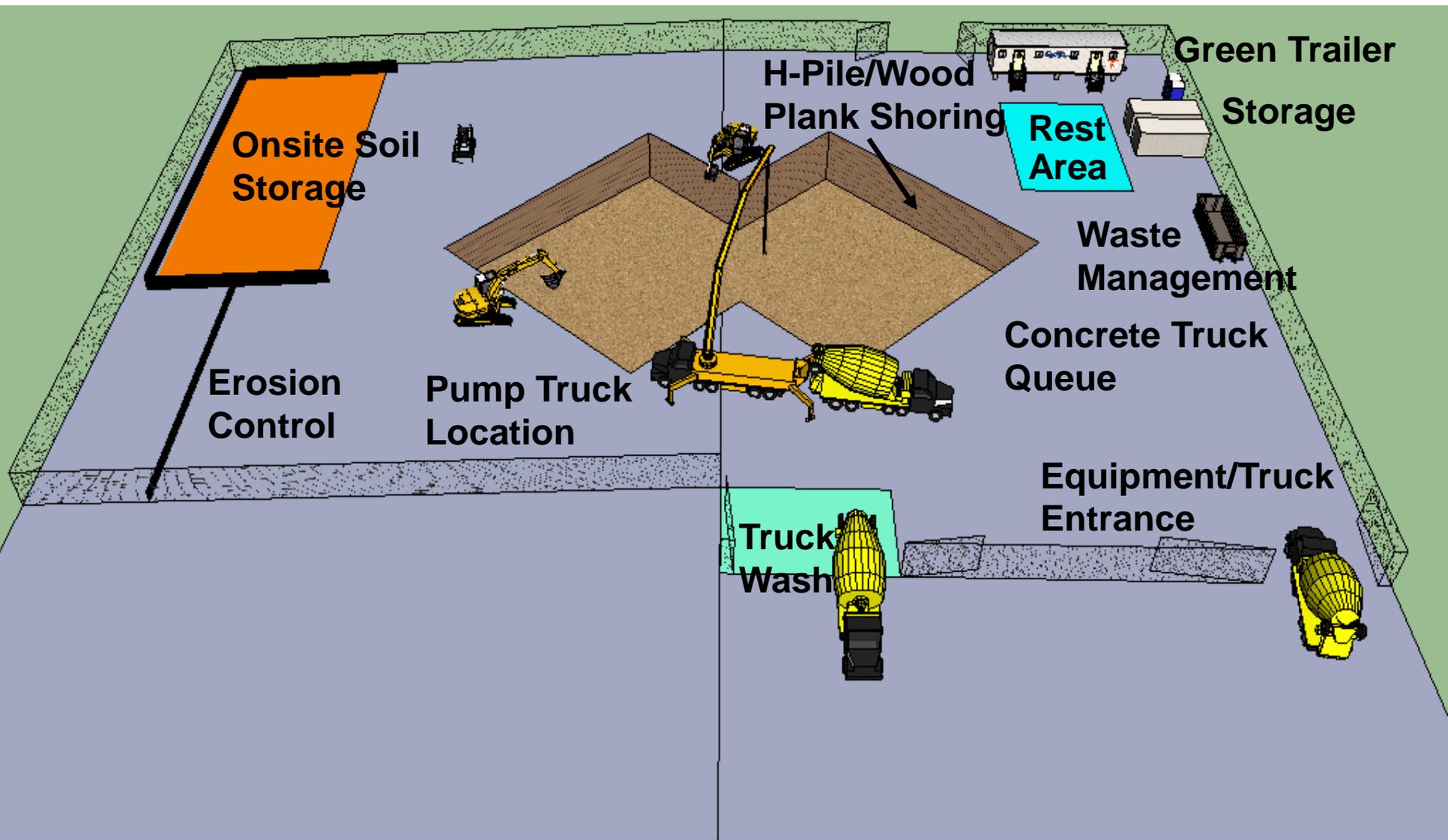
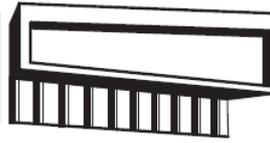


Mobile Crane Positioning



Concrete Pump Truck Positioning





Onsite Soil Storage

Erosion Control

Pump Truck Location

H-Pile/Wood Plank Shoring

Rest Area

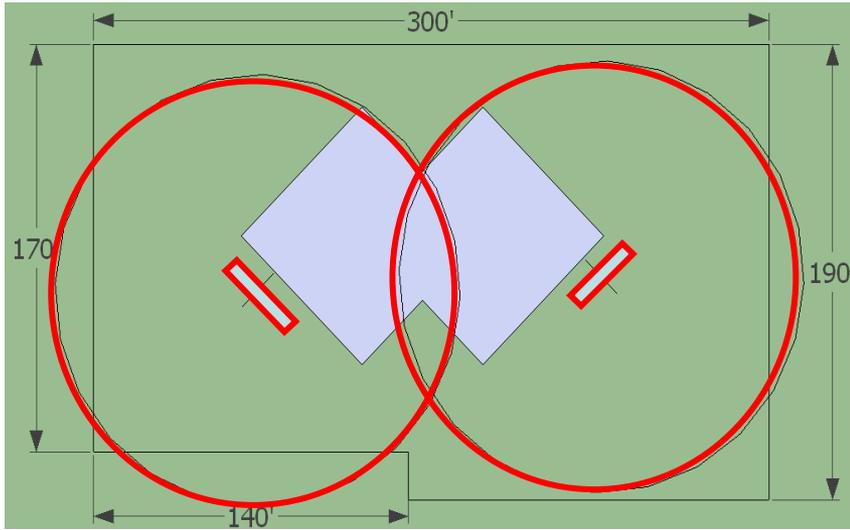
Green Trailer Storage

Waste Management

Concrete Truck Queue

Equipment/Truck Entrance

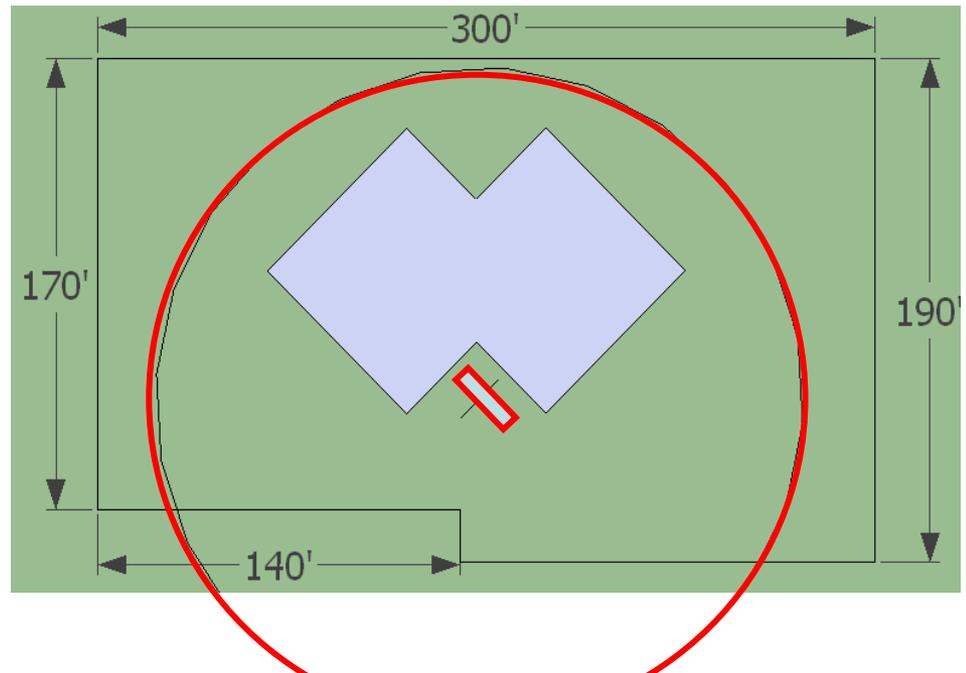
Truck Wash



Mobile Crane Positioning



Concrete Pump Truck Positioning





Putzmeister 47Z-Meter
128' Horizontal Reach
19.4 cu. Ft. Hopper



John Deere 330 LC
2.3 cu. Ft. Bucket
26.5' Max Dig Depth



Grove RT530E-2
30 UST Capacity
29ft-95ft Boom Length



Lull 1044C-54
38' Reach, 54' Lift
10,000 lb Capacity

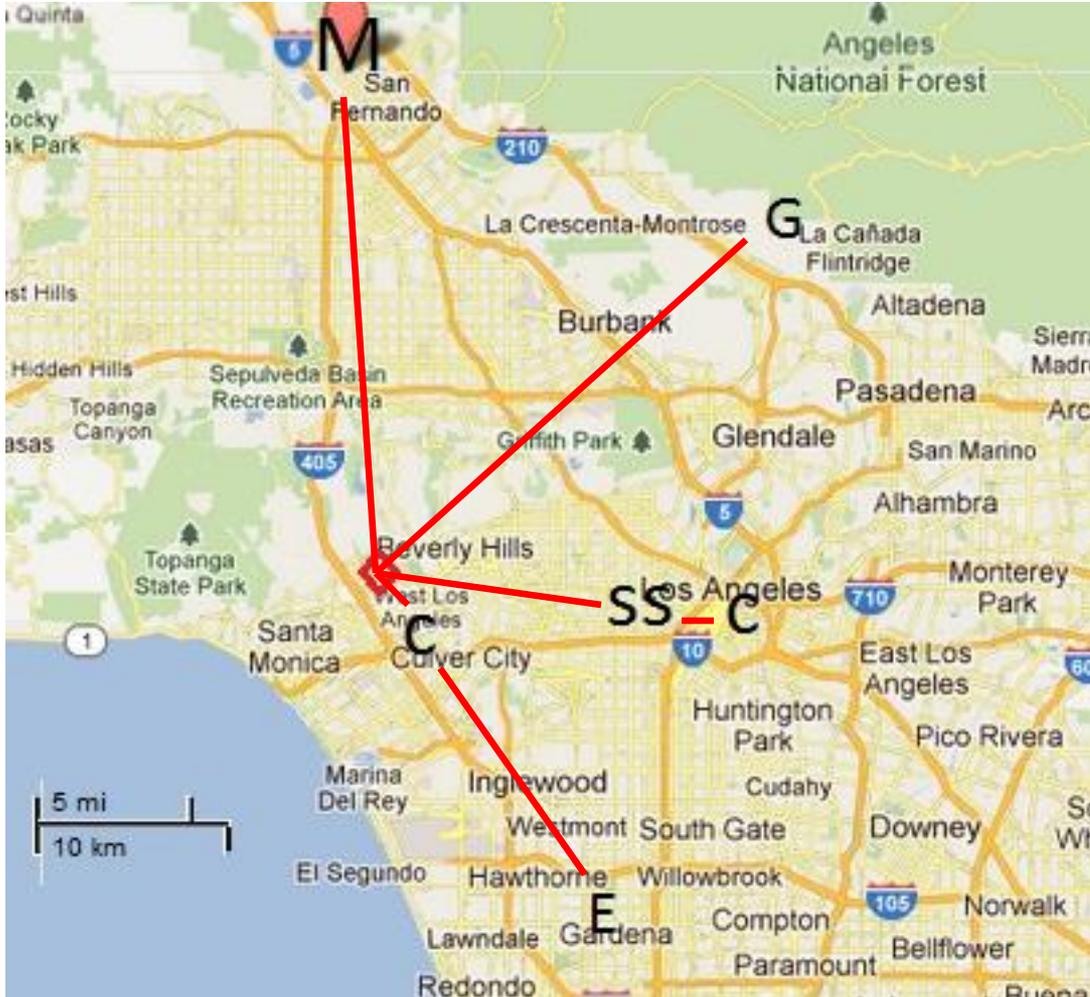


Bobcat 763
1,500 lb Capacity
46 HP

LOCAL RESOURCES

CM

TEAM
CENTRAL



13.5 mi
Equipment



12.5 mi
Concrete



17.5 mi
Mechanical



2.5 mi
Concrete
Contractor



21.0 mi
Steel
Fabricator



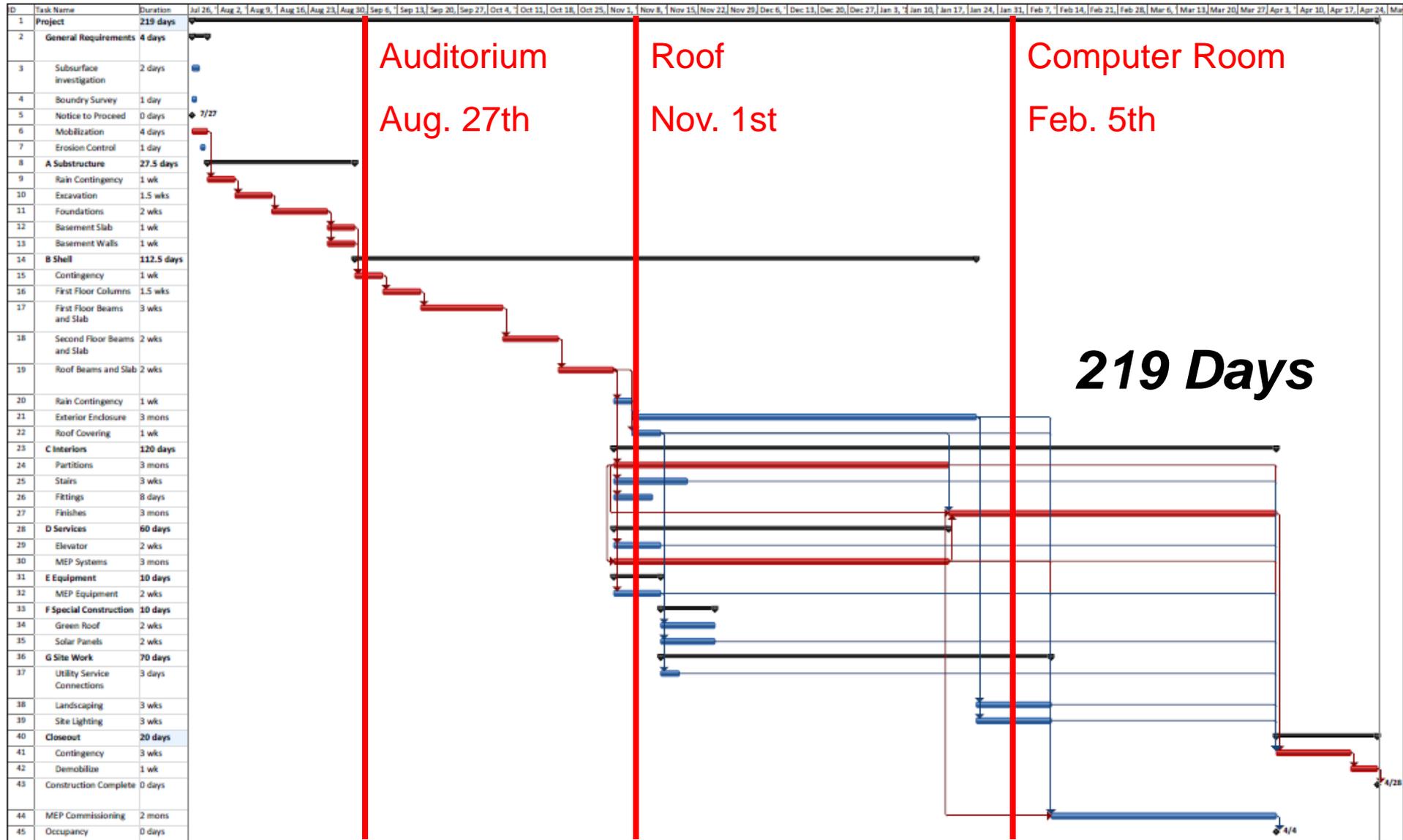
15.0 mi
Glazing

Team Central: "have fun and win"

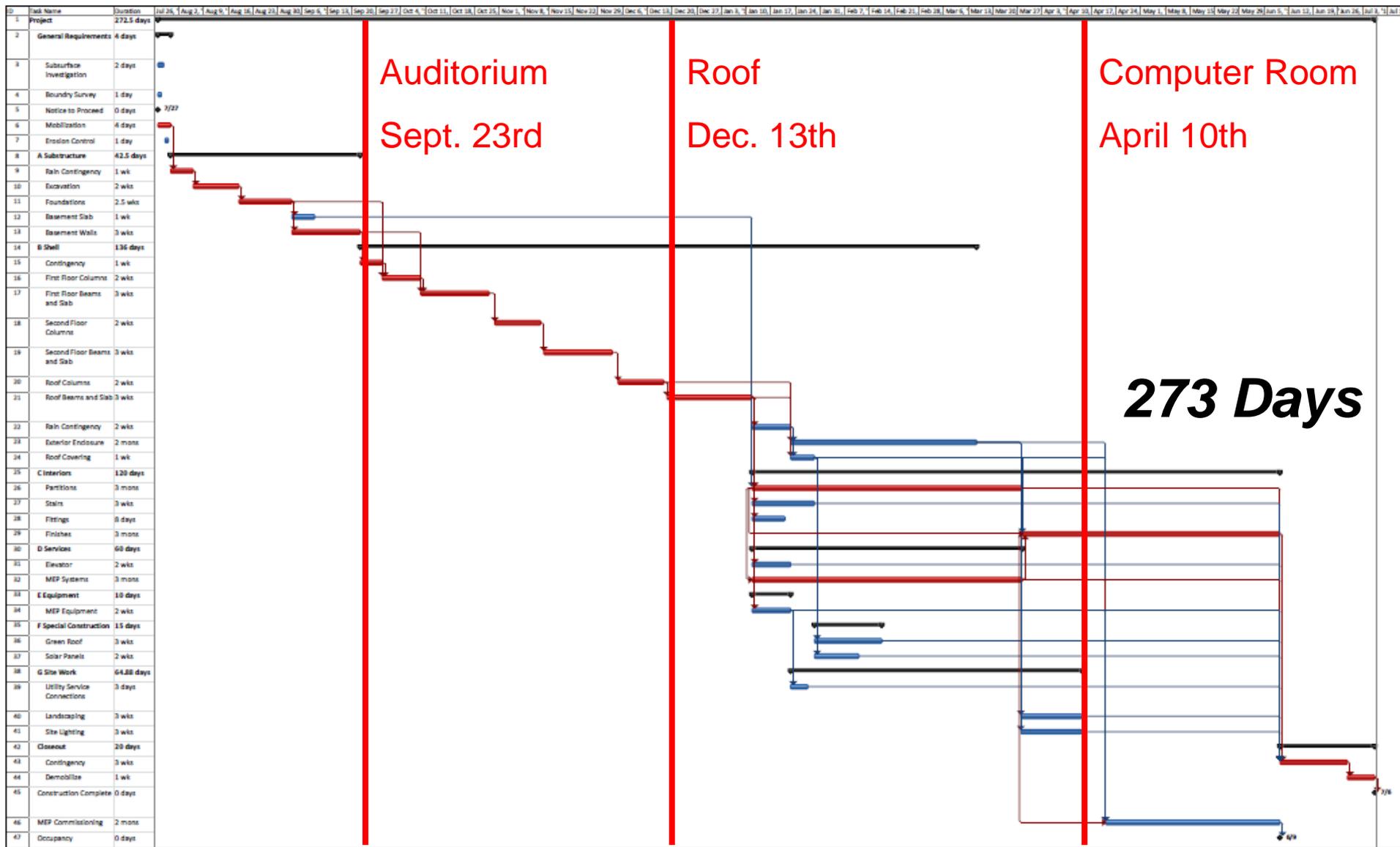
1. Roof Ready for Specialty Covering
 - Green Roof
 - Solar Panels
2. Large Spanning Members in Auditorium
 - Site Coordination
3. Computer Rooms Enclosed and Finished

DON'T MISS
THE DEADLINE!

SCHEDULE: STEEL



SCHEDULE: CONCRETE



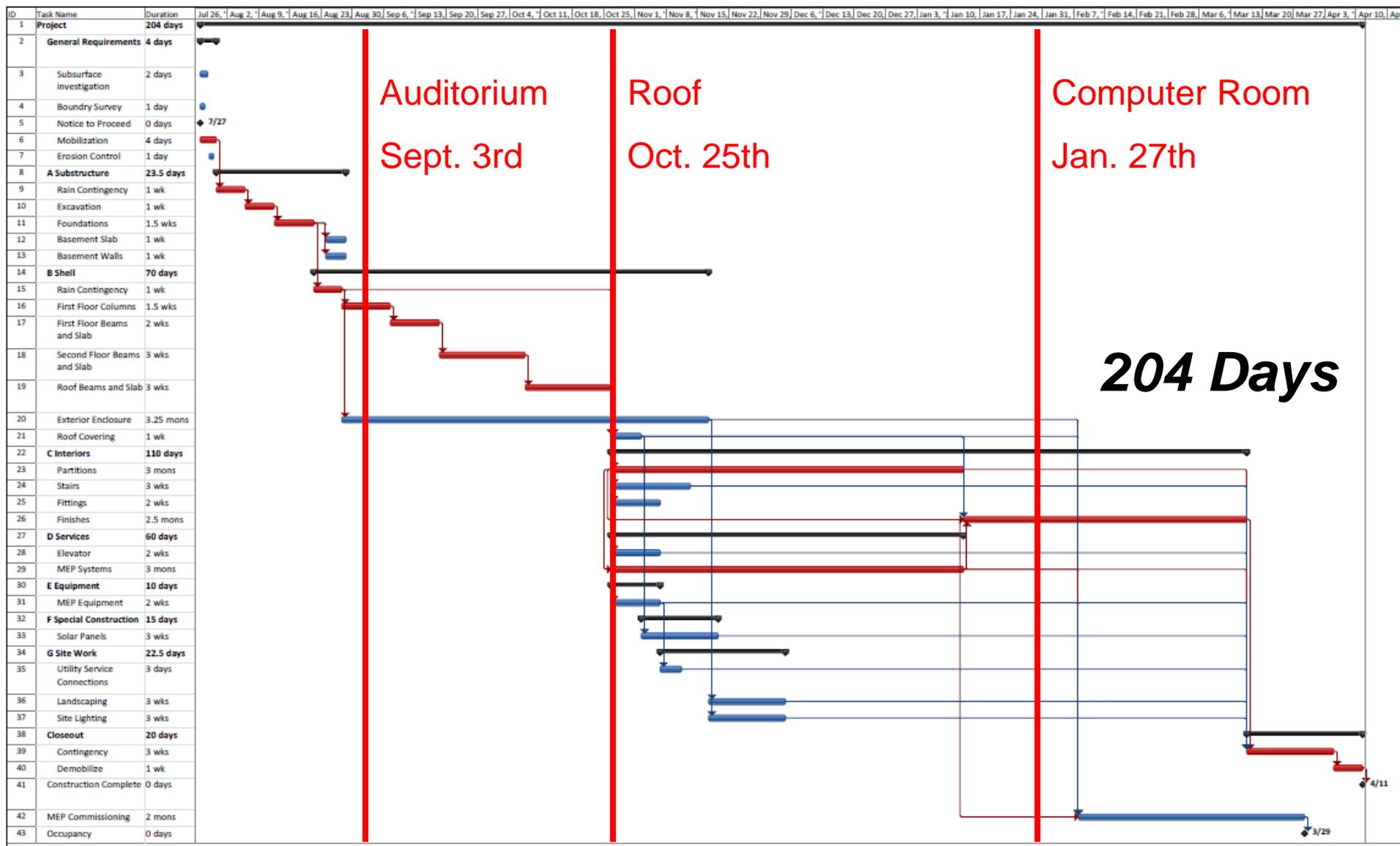
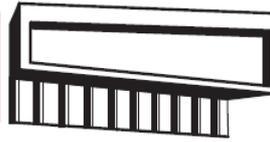
Auditorium
Sept. 23rd

Roof
Dec. 13th

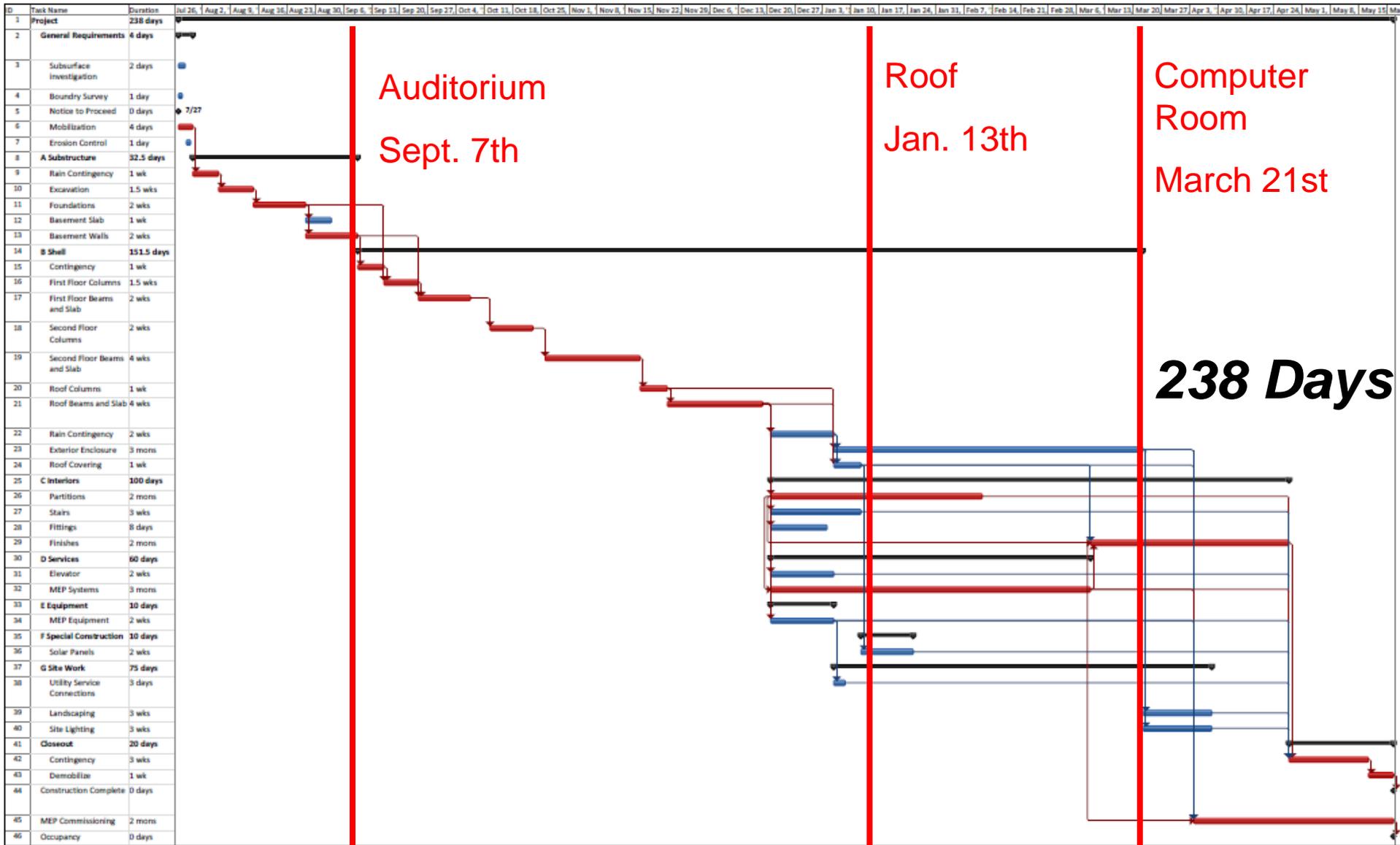
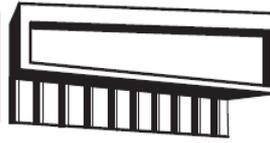
Computer Room
April 10th

273 Days

SCHEDULE: STEEL



SCHEDULE: CONCRETE



- Start Date:

Monday, July 27th, 2015



- Construction Complete Date:

- | | |
|----------------------------|------------------|
| – Flower Steel: | April 28th, 2016 |
| – Flower Concrete: | July 6th, 2016 |
| – Double Diamond Steel: | April 11th, 2016 |
| – Double Diamond Concrete: | May 23rd, 2016 |

CONSTRUCTION ESTIMATE

CM

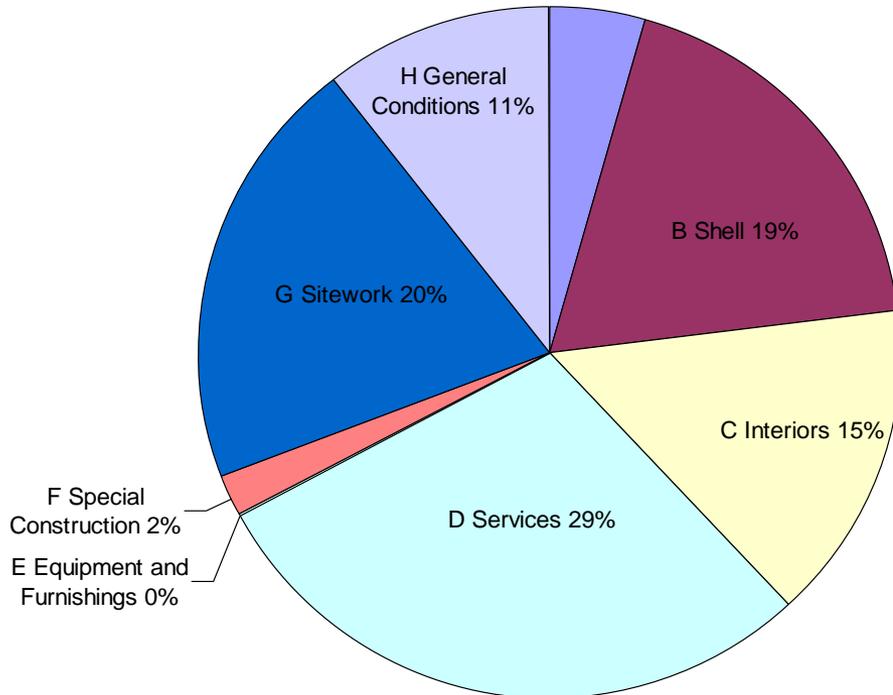


STEEL: \$7,750,000

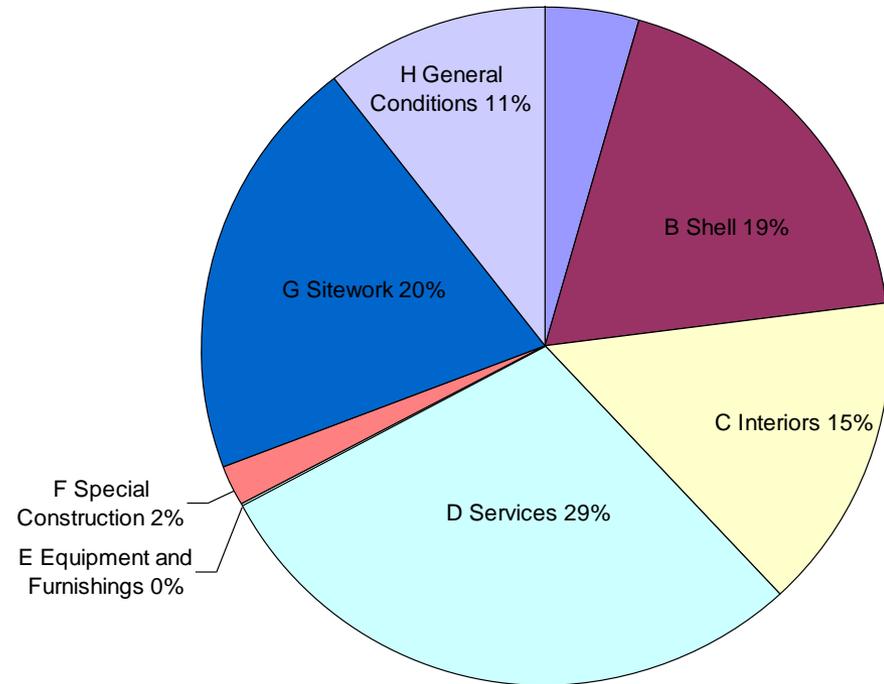
CONCRETE: \$7,567,000

STEEL				CONCRETE			
A Substructure	\$ 335,000.00	4.3%	\$ 11.51	A Substructure	\$ 322,000.00	4.3%	\$ 11.07
B Shell	\$ 1,460,000.00	18.8%	\$ 50.17	B Shell	\$ 1,290,000.00	17.0%	\$ 44.33
C Interiors	\$ 1,160,000.00	15.0%	\$ 39.86	C Interiors	\$ 1,160,000.00	15.3%	\$ 39.86
D Services	\$ 2,250,000.00	29.0%	\$ 77.32	D Services	\$ 2,250,000.00	29.7%	\$ 77.32
E Equipment and Furnishings	\$ -	0.0%	\$ -	E Equipment and Furnishings	\$ -	0.0%	\$ -
F Special Construction	\$ 165,000.00	2.1%	\$ 5.67	F Special Construction	\$ 165,000.00	2.2%	\$ 5.67
G Sitework	\$ 1,560,000.00	20.1%	\$ 53.61	G Sitework	\$ 1,560,000.00	20.6%	\$ 53.61
H General Conditions	\$ 820,000.00	10.6%	\$ 28.18	H General Conditions	\$ 820,000.00	10.8%	\$ 28.18
Building Total	\$ 7,750,000.00	/SF=	\$ 266.32	Building Total	\$ 7,567,000.00	/SF=	\$ 260.03

A Substructure 4%



A Substructure 4%



CONSTRUCTION ESTIMATE

CM



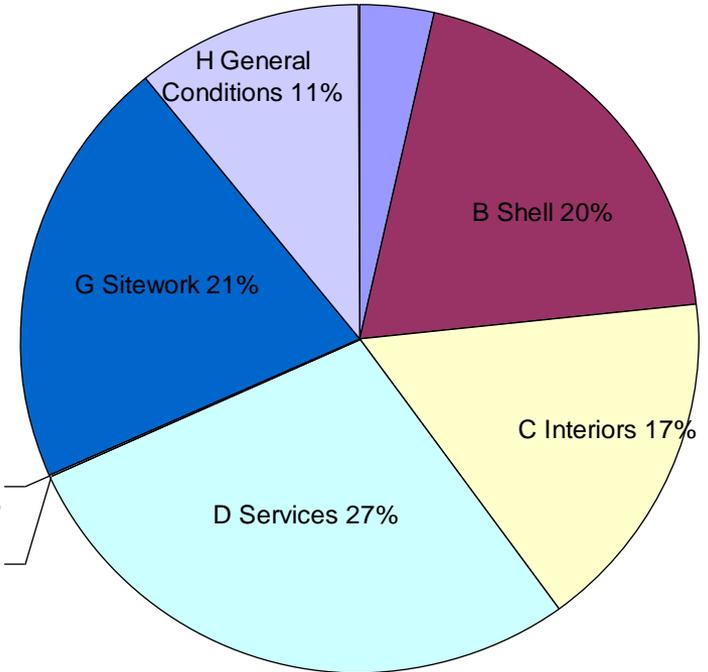
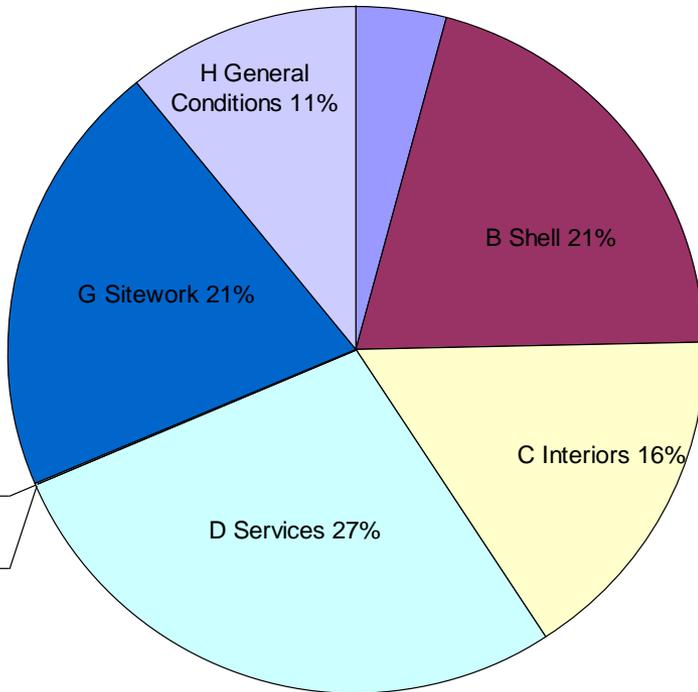
STEEL: \$7,640,000

CONCRETE: \$7,538,000

STEEL				CONCRETE			
A Substructure	\$ 310,000.00	4.1%	\$ 9.39	A Substructure	\$ 278,000.00	3.7%	\$ 8.42
B Shell	\$ 1,570,000.00	20.5%	\$ 47.58	B Shell	\$ 1,480,000.00	19.6%	\$ 44.85
C Interiors	\$ 1,240,000.00	16.2%	\$ 37.58	C Interiors	\$ 1,260,000.00	16.7%	\$ 38.18
D Services	\$ 2,130,000.00	27.9%	\$ 64.55	D Services	\$ 2,130,000.00	28.3%	\$ 64.55
E Equipment and Furnishings	\$ -	0.0%	\$ -	E Equipment and Furnishings	\$ -	0.0%	\$ -
F Special Construction	\$ -	0.0%	\$ -	F Special Construction	\$ -	0.0%	\$ -
G Sitework	\$ 1,570,000.00	20.5%	\$ 47.58	G Sitework	\$ 1,570,000.00	20.8%	\$ 47.58
H General Conditions	\$ 820,000.00	10.7%	\$ 24.85	H General Conditions	\$ 820,000.00	10.9%	\$ 24.85
Building Total	\$ 7,640,000.00	/SF=	\$ 231.52	Building Total	\$ 7,538,000.00	/SF=	\$ 228.42

A Substructure 4%

A Substructure 4%



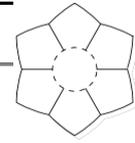
F Special Construction 0%
E Equipment and Furnishings 0%

F Special Construction 0%
E Equipment and Furnishings 0%

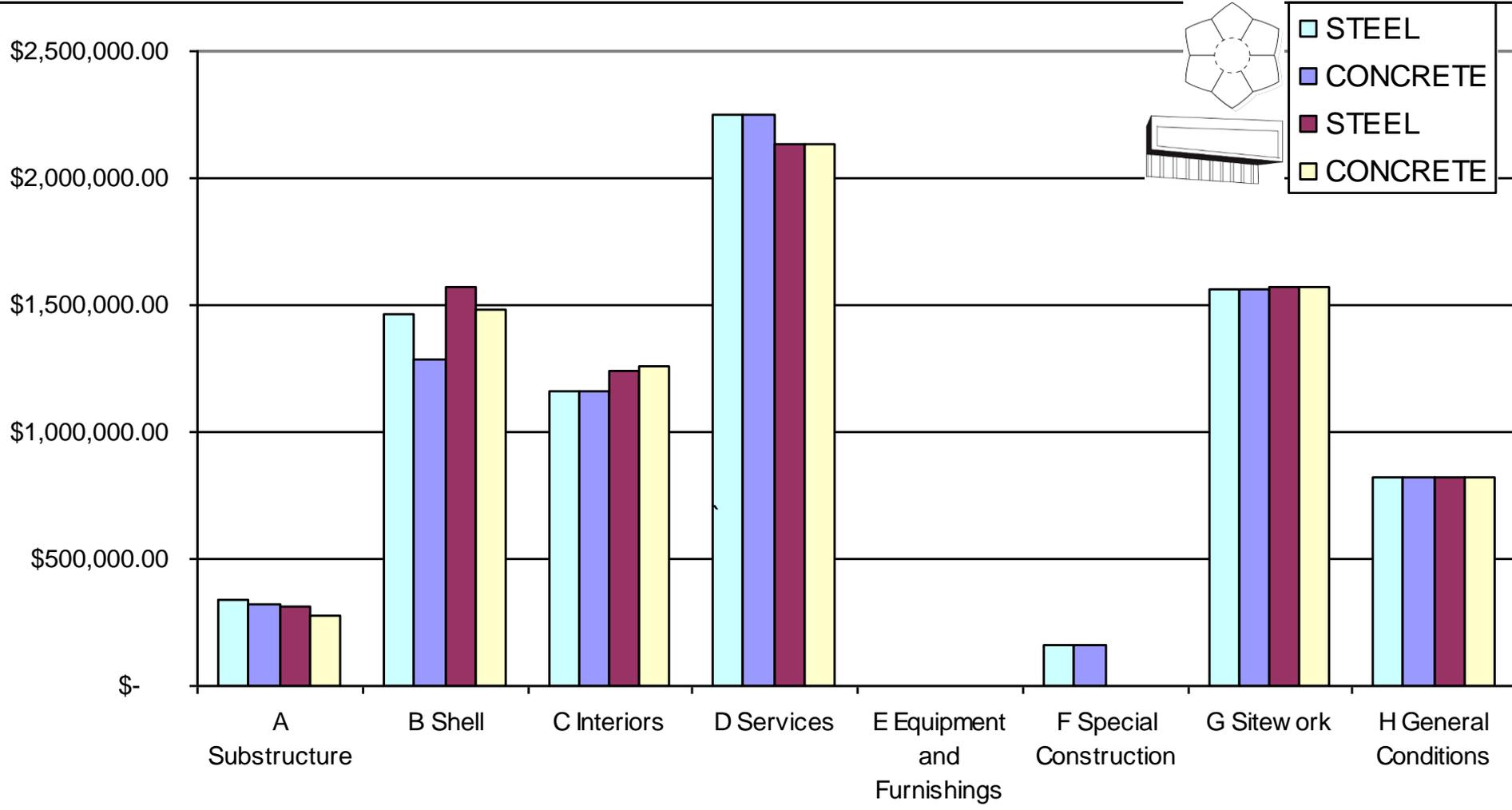
CONCEPT COST COMPARISON

CM

TEAM CENTRAL

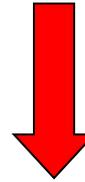


	STEEL
	CONCRETE
	STEEL
	CONCRETE

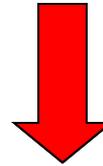


Team Central: "have fun and win"

Total Project Cost = \$8.5M



Construction Budget = \$7.5M = \$6.86M (2012)



Contingency = 4%



Target Cost = \$6.6M

TARGET VALUE COST

CM

TEAM
CENTRAL

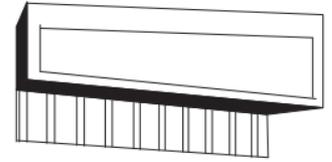
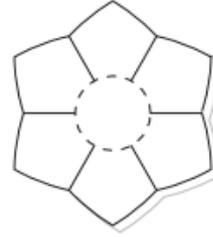
Target Value = \$6.6M		
A Substructure	\$647,656	10%
B Shell	\$1,750,126	27%
C Interiors	\$740,055	11%
D Services	\$1,911,346	29%
E Equipment & Furnishings	\$398,487	6%
F Special Construction	\$468,813	7%
G Building Sitework	\$350,010	5%
H General Conditions	\$333,507	5%
SUM	\$6,600,000	100%

SPACE ALLOCATION PERFORMANCE

TEAM
CENTRAL

Square footage:

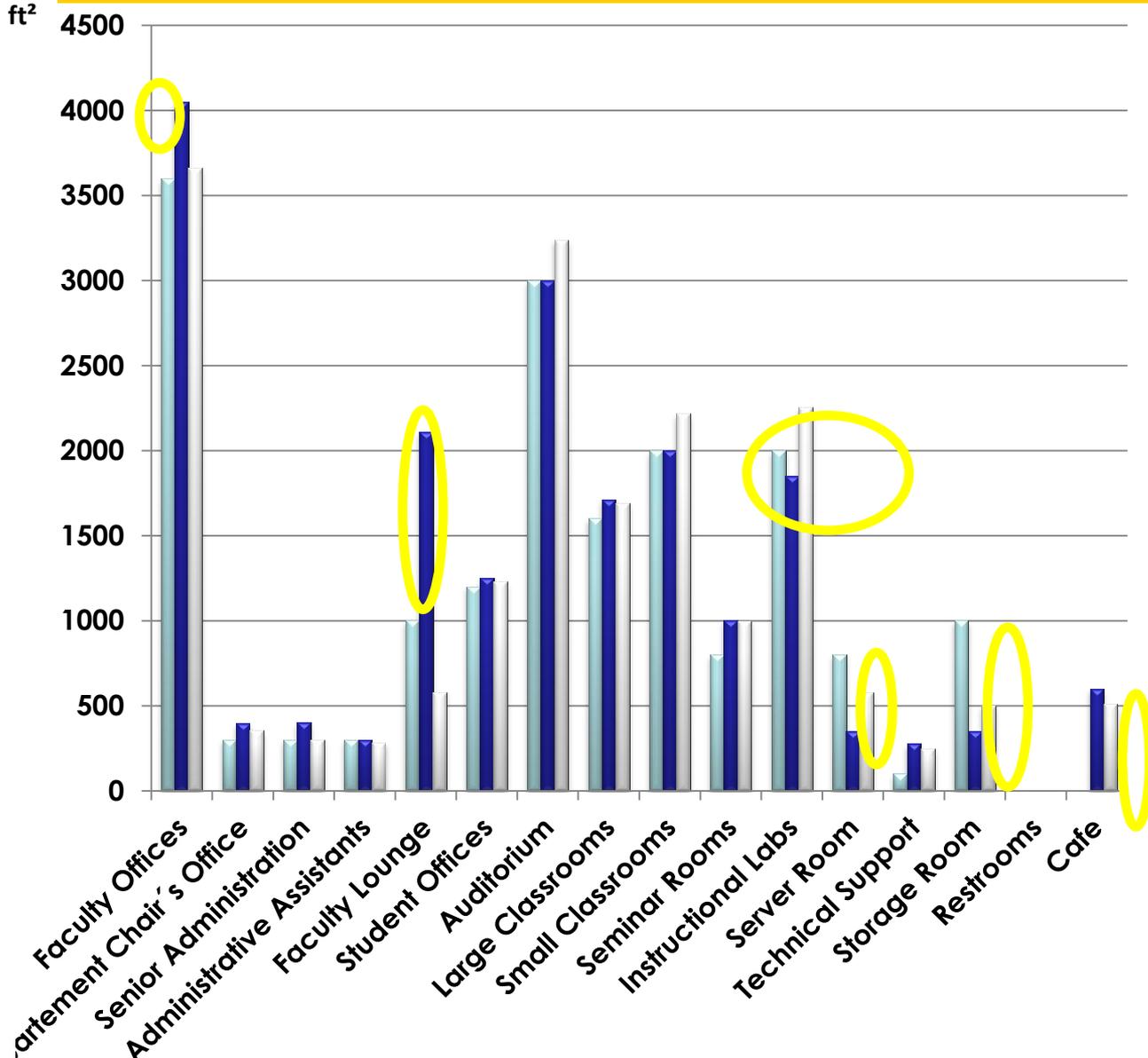
GFA	29,206 ft ²	33,018 ft ²
Structural area	4,965 ft ²	6,716 ft ²
Useable area	24,241 ft ²	26,302 ft ²
Assignable area	19,053 ft ²	18,672 ft ²
Non-assignable area	5,188 ft ²	763 ft ²
Restrooms	600 ft ²	508 ft ²
Mechanical rooms	475 ft ²	618 ft ²
Circulation area	4,113 ft ²	6,504 ft ²



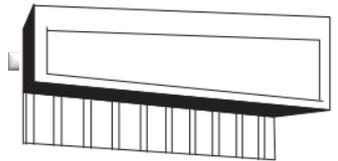
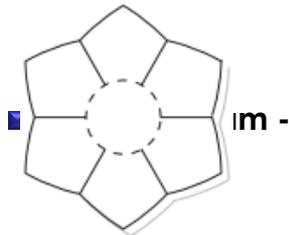
SPACE PERFORMANCE

LCFM

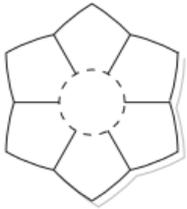
TEAM CENTRAL



Owners requirements



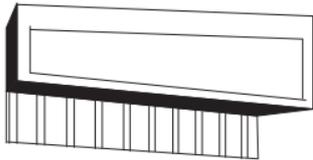
Team Central: "have fun and win"



Required ft² Actual ft² Difference in %

19,826 1,826 110%

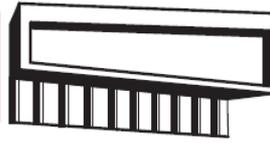
18,000



19,511 1,511 108%



Gross Floor Area			
29206 ft²			
Useable area			Structural area
24241 ft²			4965 ft²
Assignable area	Non-assignable area		
19053 ft²	5188 ft²		
	Restrooms	Mechanical rooms	Circulation area
	600 ft²	475 ft²	4113 ft²

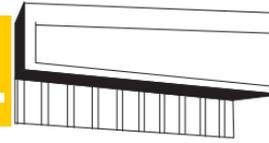


Gross Floor Area			
33018 ft²			
Useable area			Structural area
26302 ft²			6716 ft²
Assignable area	Non-assignable area		
18672 ft²	7630 ft²		
	Restrooms	Mechanical rooms	Circulation area
	508 ft²	618 ft²	6504 ft²

AREA RATIOS:



VS.



LCFM

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CONCEPT 1

	<u>Ratio</u>	<u>Coefficient</u>	<u>Goal</u>	<u>Result</u>
R A T I O S	<i>Useable area/GFA</i>	0.8300	max.	[Green]
	<i>Assignable area/useable area</i>	0.7860	max.	
	<i>Assignable area/GFA</i>	0.6524	>0.6	
	<i>Non-assignable area/assignable area</i>	0.2723	min.	
	<i>Circulation area/useable area</i>	0.1697	min.	
	<i>Circulation area/assignable area</i>	0.2159	min.	

CONCEPT 2

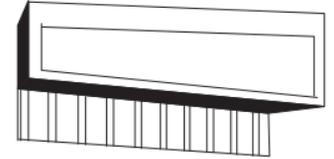
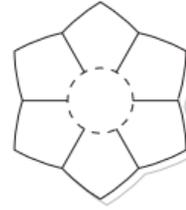
	<u>Ratio</u>	<u>Coefficient</u>	<u>Goal</u>	<u>Result</u>
R A T I O S	<i>Useable area/GFA</i>	0.7966	max.	[Green]
	<i>Assignable area/useable area</i>	0.7099	max.	[Green]
	<i>Assignable area/GFA</i>	0.5655	>0.6	[Red]
	<i>Non-assignable area/assignable area</i>	0.4086	min.	[Light Green]
	<i>Circulation area/useable area</i>	0.2473	min.	[Green]
	<i>Circulation area/assignable area</i>	0.3483	min.	[Light Green]

Very Good, Good, OK, Bad

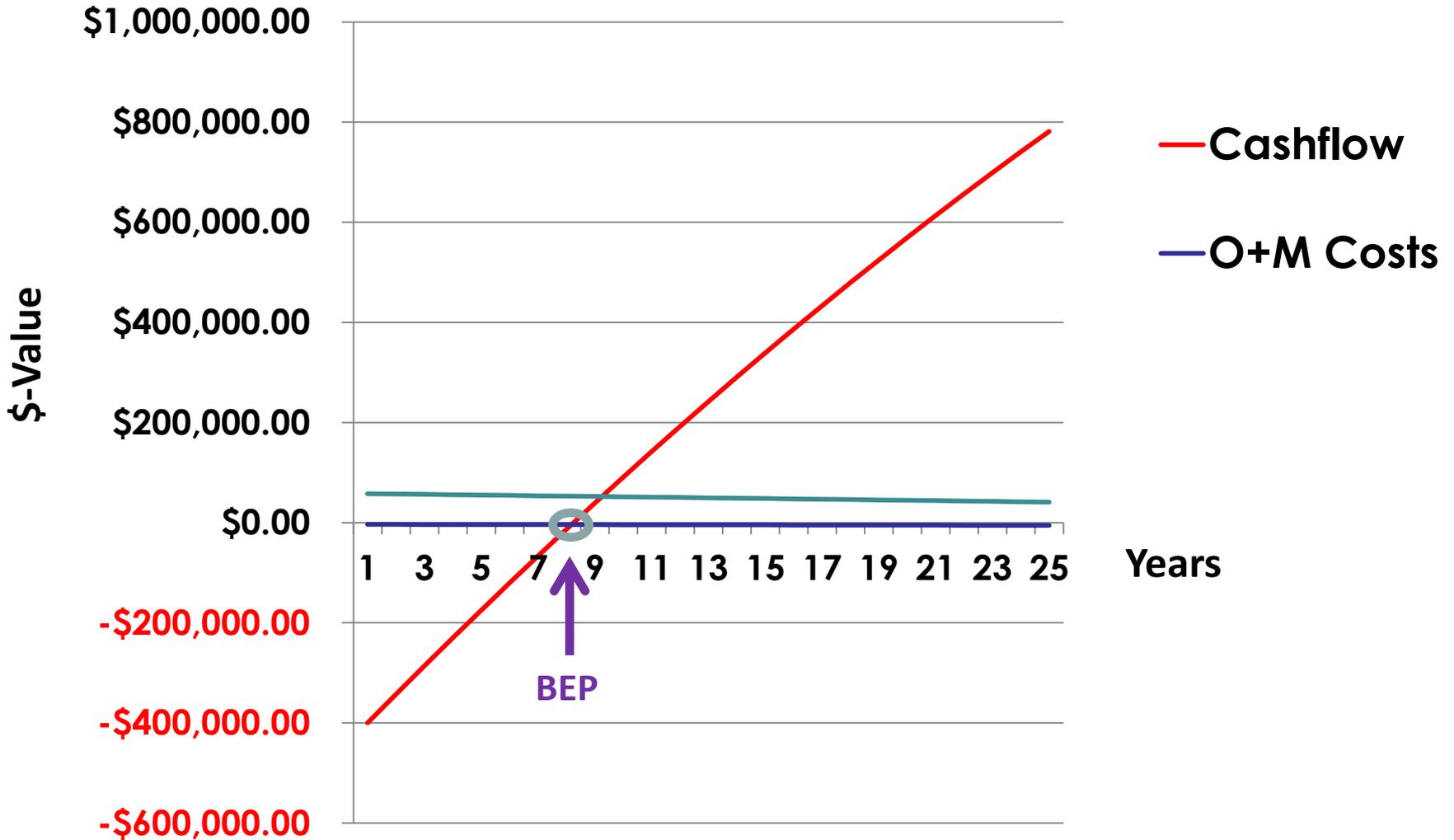
Team Central: "have fun and win"

PHOTOVOLTAIC (PV) SYSTEMS LCFM

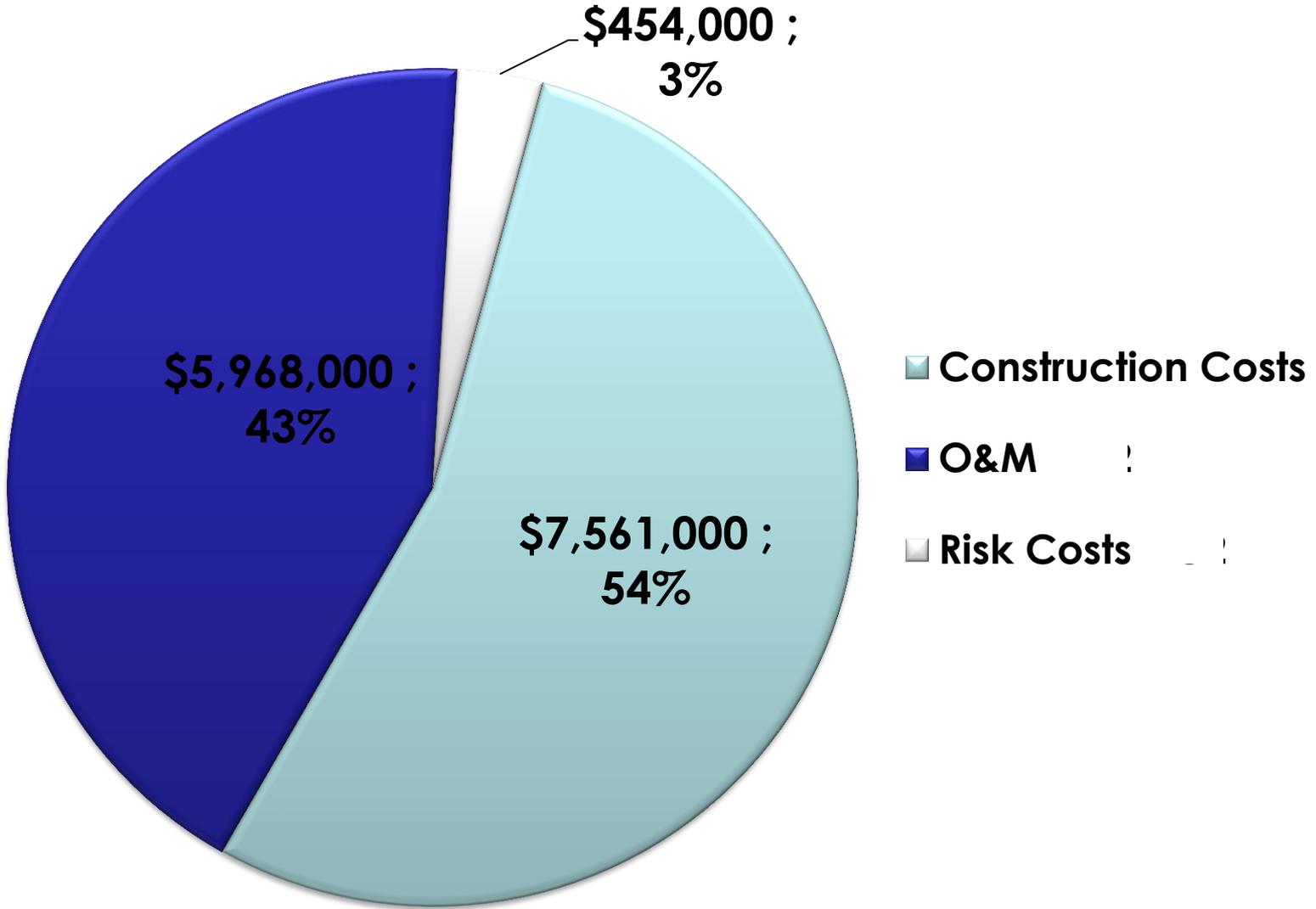
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Effective Solar Panel	449 Piece	362 Piece
Solar energy per year	241,337.5 kWh	194,575 kWh
PV initial costs	\$538,800	\$434,400
Government incentives	\$80,820	\$65,160
Final PV initial costs	\$457,980	\$369,240
TOTAL O+M Cost	-\$112,177	-\$90,441
TOTAL Income	\$1,327,356	\$1,070,163
TOTAL Net operating income	\$1,215,180	\$979,722
TOTAL Cash flow	\$5,581,160	\$4,499,733
Break-Even-Point (BEP)	<u>After 8 years</u>	<u>After 8 years</u>



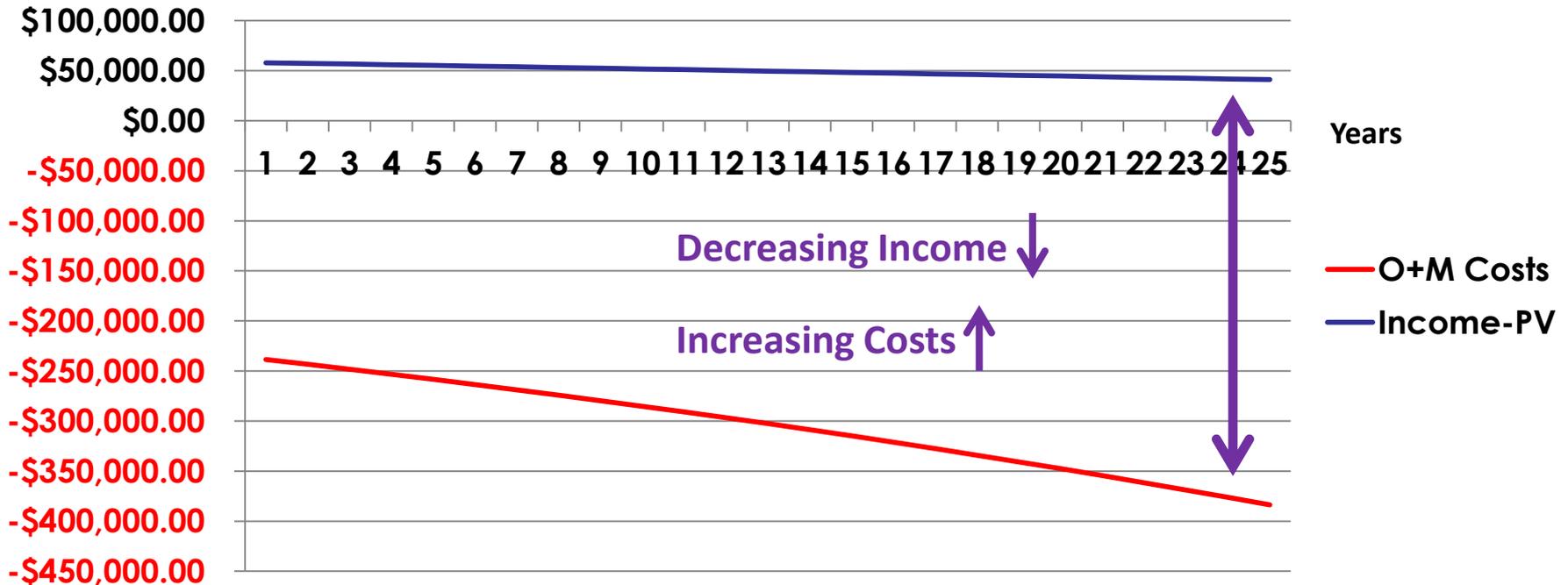
CONCRETE LIFE CYCLE COSTS LCFM

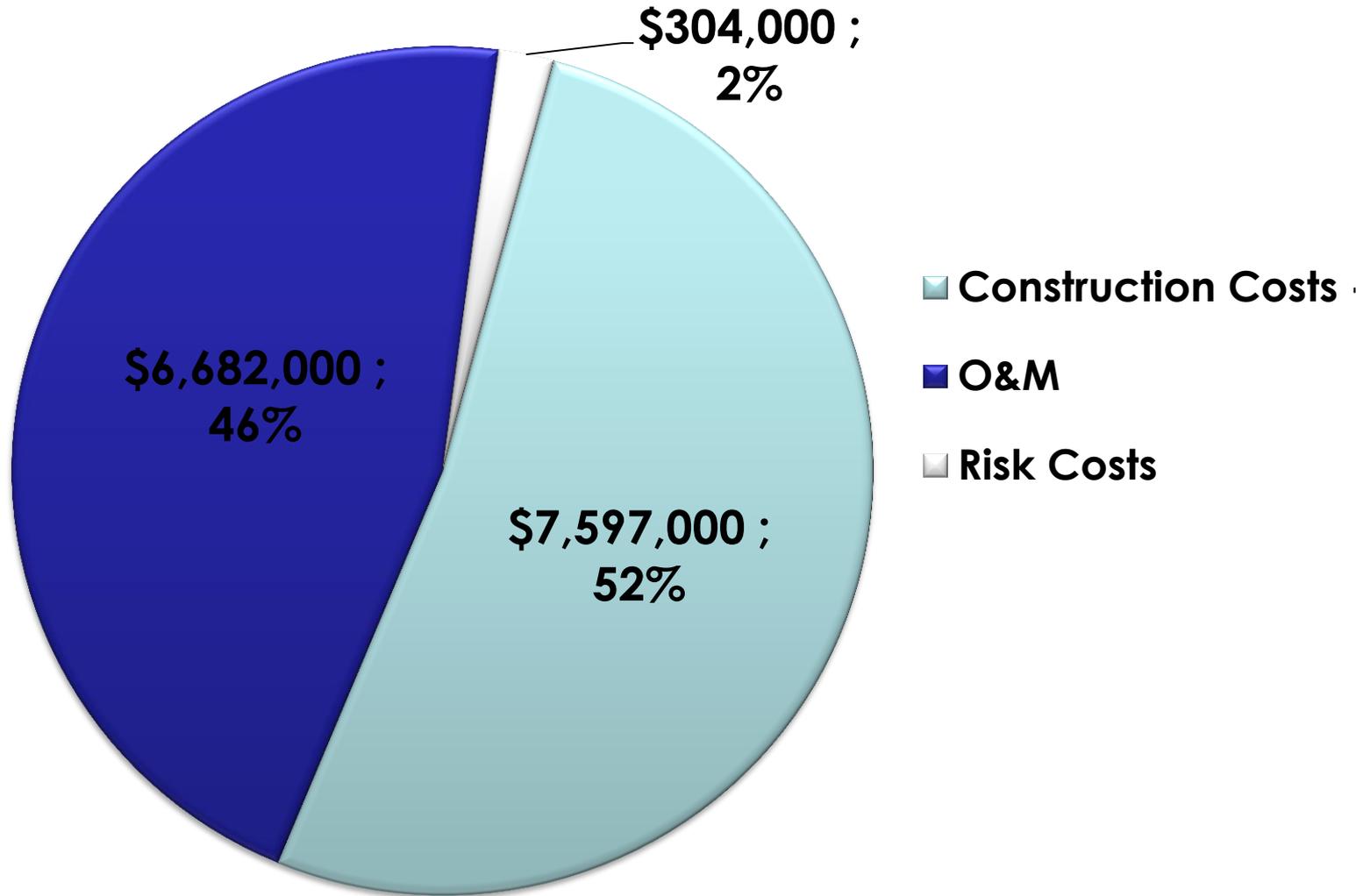
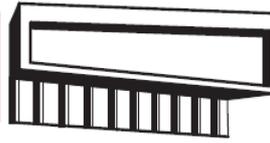


RENT CALCULATION



Index	2%				
Year	0	1	2	3	4
	2013	2014	2015	2016	2017
O+M Cost		-\$239,000	-\$243,000	-\$248.280,04	-\$253.245,64
CC-C1-Concrete	-7,561,000	-\$302,000	-\$302,000	-\$302,000	-\$302,000
Income PV-Present Value		\$58,000	\$57,000	\$57,000	\$56,000
Current Rent		-\$483,000	-\$489,000	-\$495,000	-\$450,000
Current Rent per Month		-\$40,000	-\$41,000	-\$41,000	-\$42,000

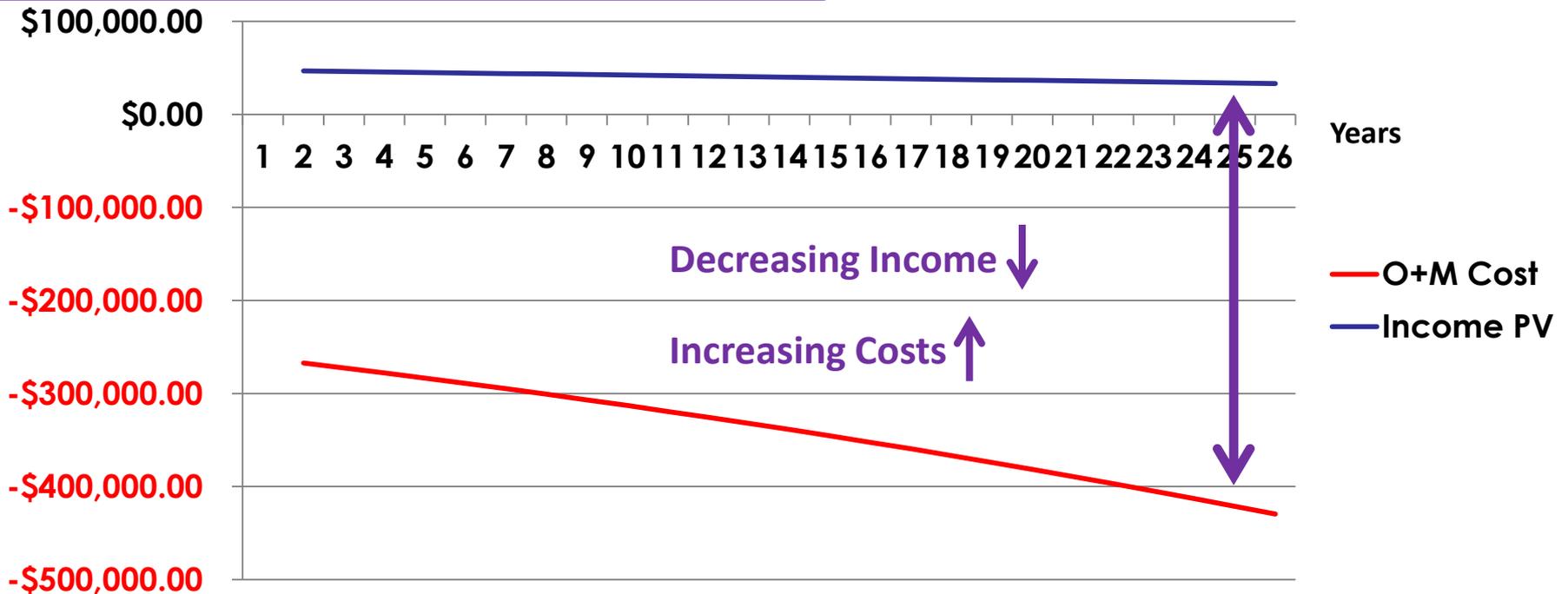




RENT CALCULATION



Index	2%				
Year	0	1	2	3	4
	2013	2014	2015	2016	2017
O+M Cost		-\$267,000	-\$272,000	-\$278,000	-\$283,000
CC-C2-Steel	-7,597,000	-\$304,000	-\$304,000	-\$304,000	-\$304,000
Income PV-Present Value		\$47,000	\$46,000	\$46,000	-\$45,000
Current Rent		-\$524,000	-\$530,000	-\$536,000	-\$542,000
Current Rent per Month		-\$44,000	-\$44,000	-\$45,000	-\$45,000



Required: Silver



LEED Total Score: 69 Points

- Platinum: 52-69 Points
- Gold: 39-51 Points
- Silver: 33-38 Points
- Certified: 26-32 Points



Technology:

- Solar Panels
- Waste Management
- Green Roof
- Thermal Comfort
- Low Flush Fixtures
- Water Reuse

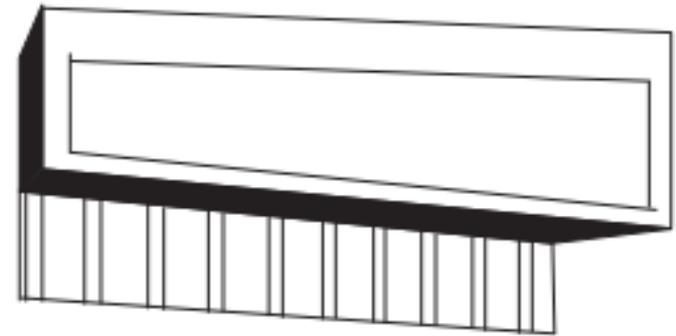
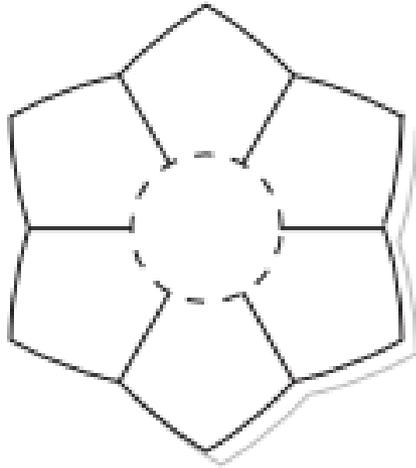


GO for

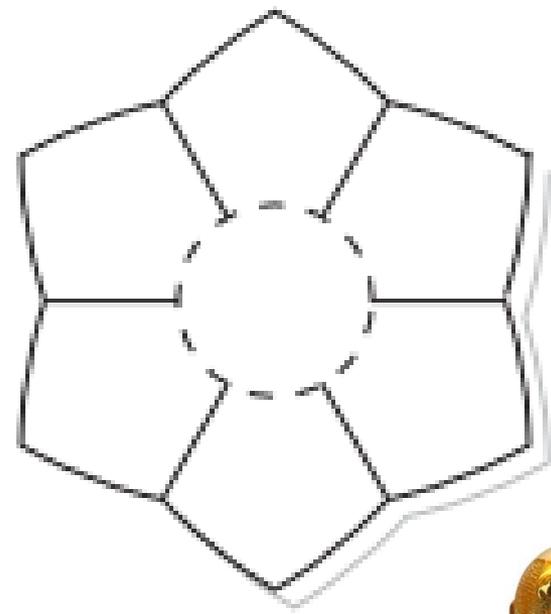


Yes	?	No		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Innovation & Design Process	5 Points
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Credit 1.1 Innovation in Design: Provide Specific Title	1

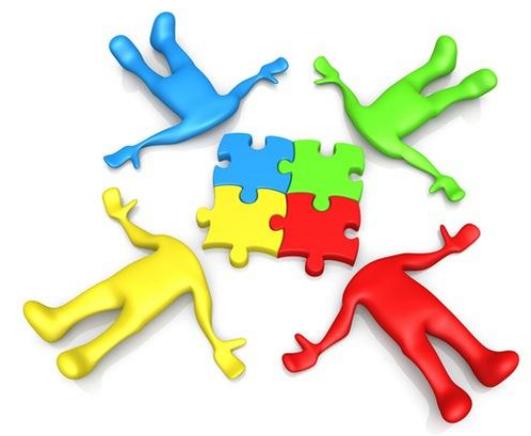
Construction Costs
Life Cycle Costs
Constructability
Design
Space efficiency
Thermal comfort
Resource consumption
Public accessibility
Feasibility of Conversion
Fire Protection
Operability of building services
Durability/ Adaptation of the selected building products, systems and structures of the planned useful life
Aesthetics
Uniqueness
Natural Light
Spatial distribution
Quality of spaces
Interior atmosphere
Public quality



Concrete	Steel	Concrete	Steel
85,67%	85,03%	85,08%	85,33%



Concrete



Team Central: "have fun and win"

Special Thanks to:

- Renate Fruchter – *Organizer*
- Joanna Huey and Dimitra Ioannidou – *Owners*
- Discipline Mentors