

RIVER TEAM

TEAM:



Charles
BOVET
[CM]



Mareike
DEURLOO
[LCFM]



Ronnie
HAAGENSEN
[MEP]



Danny
HALL
[SE]



Danielle
PETERSON
[SE]



Joanna
PIETRZYKOWSKA
[A]

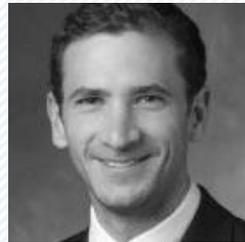


Sijie
ZHANG
[CM]

OWNERS:



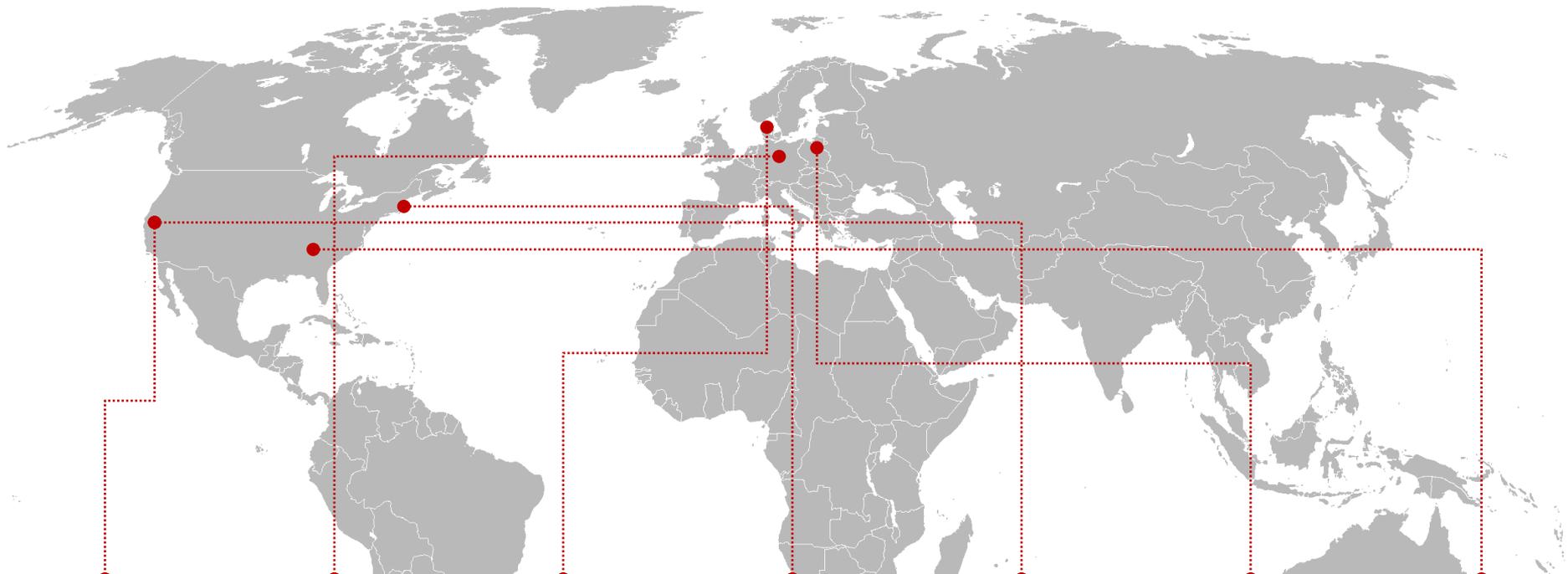
David
BOROWICZ



Fernando
CASTILLO



Zuzanna
KOŁTOWSKA



Charles
BOVET
[CM]
Stanford



Mareike
DEURLOO
[LCFM]
Bauhaus



Ronnie
HAAGENSEN
[MEP]
DTU



Danielle
PETERSON
[SE]
USMA



Danny
HALL
[SE]
Stanford



Joanna
PIETRZYKOWSKA
[A]
WUT



Sijie
ZHANG
[CM]
Georgia Tech

River Team Contract

General Rules

Rule #1: be polite , words like thanks and please will make the work easier

Rule #2: be transparent, how do you feel, what plans do you have for the next months

Rule #3: be available, its just as good to show that you are on the same step as your team members (give messages likes or comments)

Rule #4: Say AND, not BUT! (Give every idea a chance!)

Rule #5 : work and decide together

Rule #6: Decisions should come from the whole group and send on owner/renate

Rule #7: 24 hours before our official meeting the agenda should be fix so we can discuss all issues between the group before our official owner meeting starts. TRY to upload the files not too late. That everyone have a early access to the files to be prepared.

Rule #8: Please mute yourself if there is anybody else talking

Technology Implementation Plan

File sharing: We will use Box. Please download the "Box Sync" extension. You will have

Signature:

Charles Bovet

Sijie Zhang

Danny Hall

Ronnie Haagensen

Joanna Pietrzykowska

Danielle Peterson

Mareike Deurloo

Meeting Leader	Week #	Date
Danny	2	January 29 , 2013
Charles	3	February 5, 2013
Danielle	4	February 12, 2013
Ronnie	5	February 19, 2013
Sijie	6	February 26, 2013
Joanna	7	March 5, 2013
Mareike	7	March 8, 2013 (No Class)
Danny	8	March 11-14 (Dry Run #1)
Charles	8	March 11-14 (Dry Run #2)

“I wish, I like, How to...”

Description	Danny	Sijie	Danielle	Mareike	Joanna	Ronnie	Charles	Votes
Wish: More subgroup meeting	xx	x	x	x	x	x	x	8
Wish: have a party!	x	x	x	x	x	x	x	7
Howto: More productive but how?	x	x	x	x	x	x	x	7
Wish: This is the only class!		x	x		x	x	x	7
Like: Owners/Profs are very present. Available	x	x	x	x	x	x	x	7
Like: Great team spirit	x	x	x	x	x		x	6
Wish: more construction/industry experience with IPD and etc.		x	x	x	x		x	6
Wish: difference between team updates/presentation vs. discussion. Two type of meetings.	x	x	x	x	x	x	x	6
Wish: to integrate technology without being distraction		x	x	x	x	x	x	6
Wish: More quality time		x	x	x	x		x	5
Wish: leap frog idea for movable space	x	x	x	x	x			5
Howto: make concept clear for winter presentation	x	x	x	x	x	x		5
Wish: general team concept understanding. what is important?	x		x	x	x	x		5
How to make all of our work shown? how to integrate our the work clearly?	x	x	x		x	x		5
Like: big idea for the project			x	x	x	x	x	4
Like: understand everyone's workload		x	x	x	x		x	4
Like: presentation feedback from the crit, lesson learned.			x	x	x	x		4
Wish: could manage time better			x	x			x	3
Wish: more group meeting time	x		x		x		x	3
Wish: Less time difference	x		x			x		3
Wish/Howto: rsmeans, vico, revit model, a in bewteen method	x		x				x	3
Howto: work more efficiently with different concept	x		x			x		2

Solution

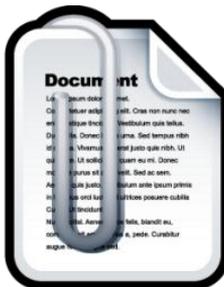
Before

After

Communication



Collaborate



Google Drive

Coordination



Basecamp
Project Collaboration

Here's what's been happening in your projects.

AEC River Project



Ronnie H. commented on [What's the BIG idea for our project?](#)

8:51pm

I have tried to elaborate on the big idea of "Connection" and what we have so far. I have tried narrow a lot of our work down to four con...

Feb 22

AEC River Project

11:03pm



Joanna P. forwarded an email: [AEC class - possible coaching session?](#)

Feb 21

AEC River Project



Sijie Z. completed a to-do: [Both CM Discuss risk list with LCFM](#)

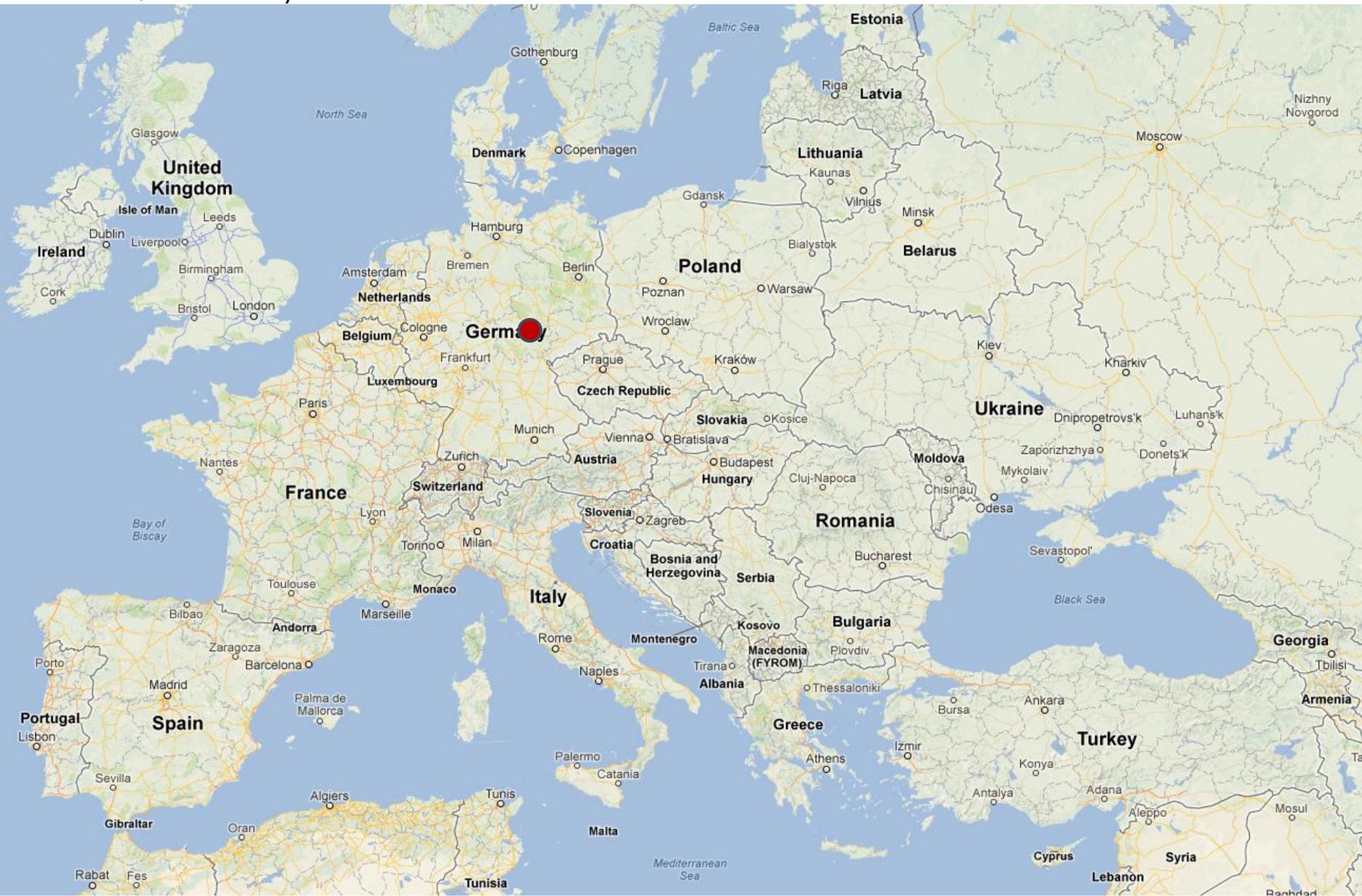
8:44pm



Sijie Z. completed a to-do: [Both CM Update site access #1 to make to feasible and verify with M...](#)

8:44pm

WEIMAR, Germany



A

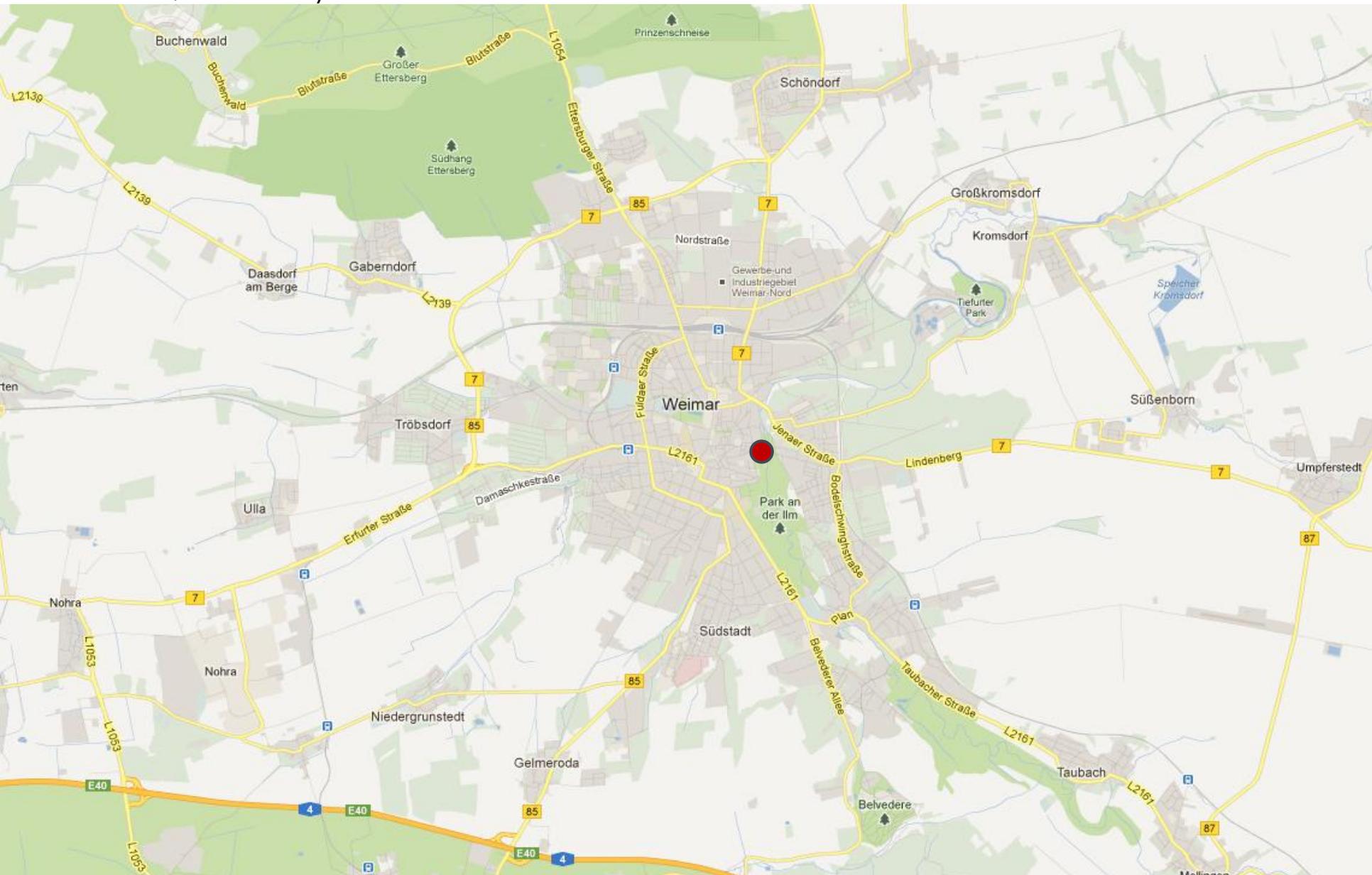
MEP

SE

CM

LCFM

WEIMAR, Germany



A

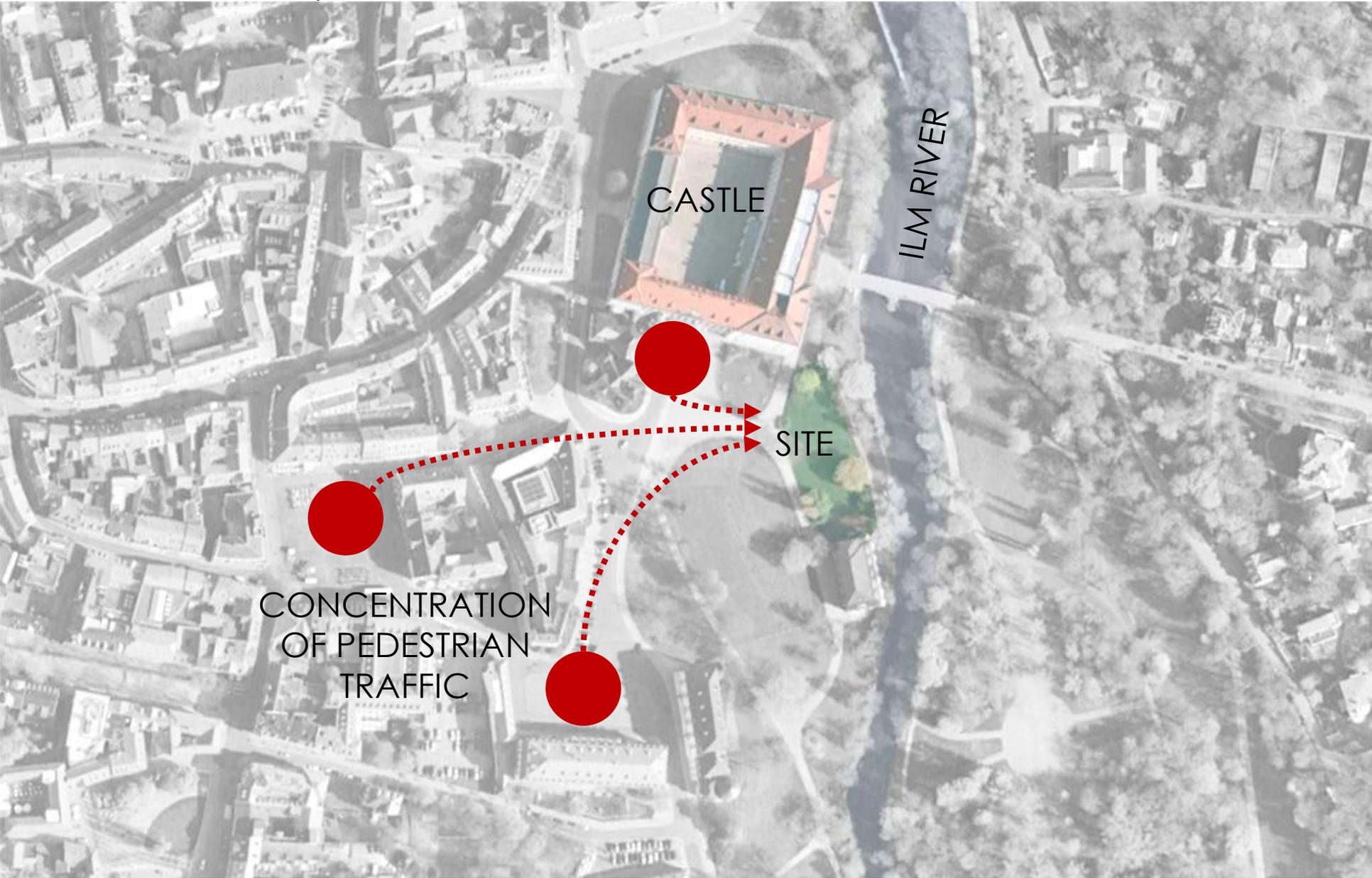
MEP

SE

CM

LCFM

WEIMAR, Germany

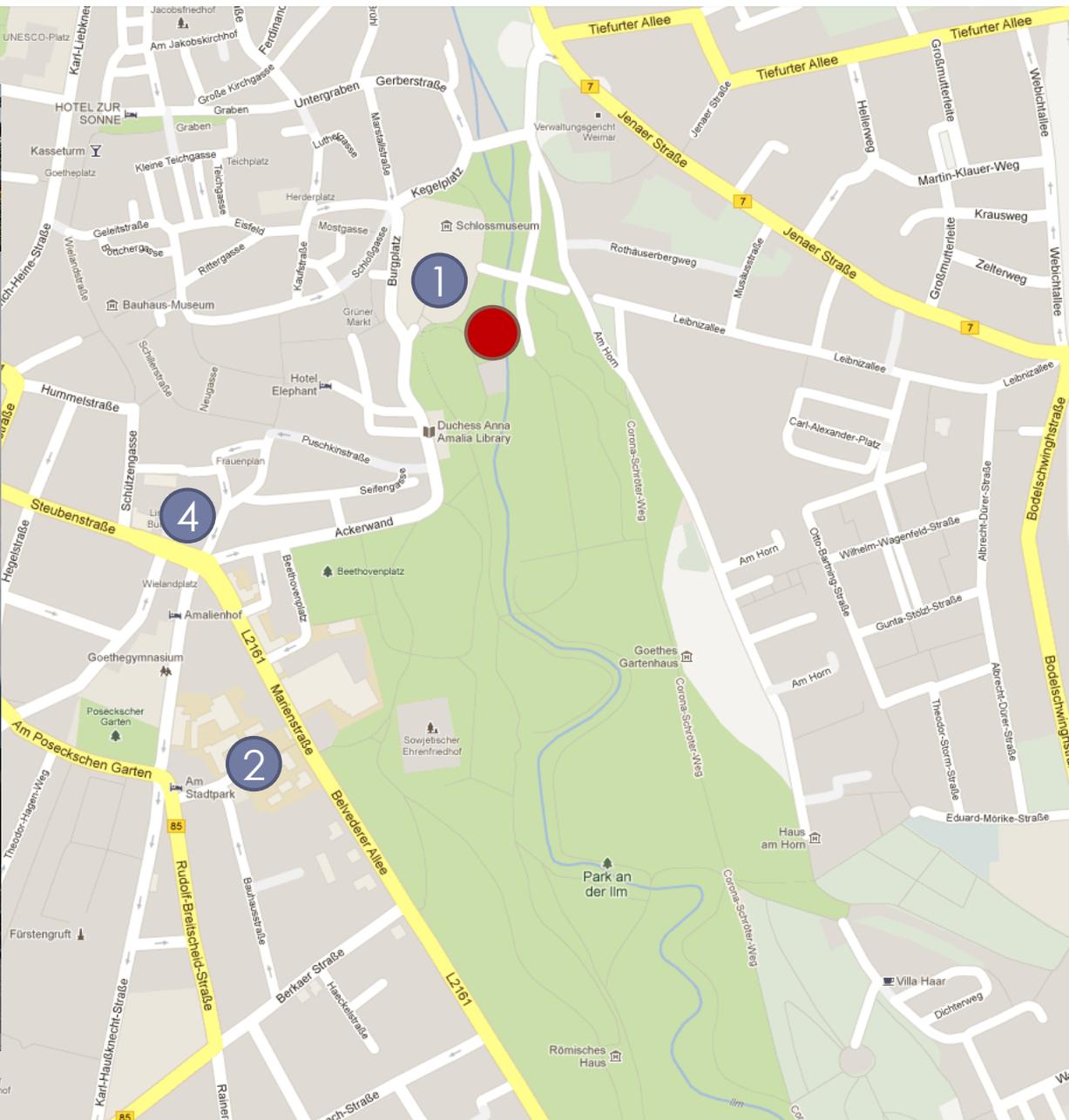


CASTLE

ILM RIVER

SITE

CONCENTRATION
OF PEDESTRIAN
TRAFFIC



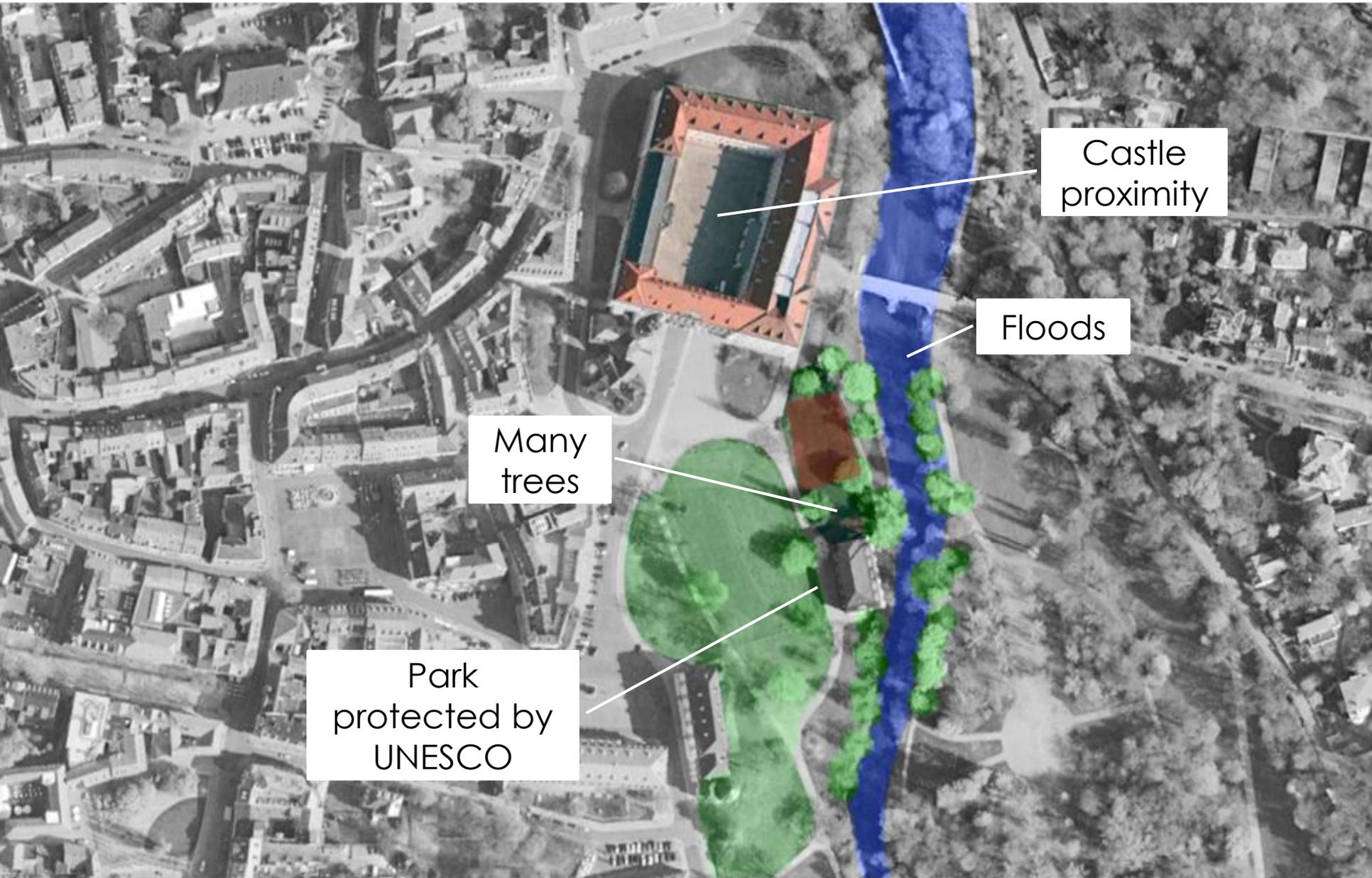
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MEP

SE

CM

LCFM



Castle proximity

Floods

Many trees

Park protected by UNESCO

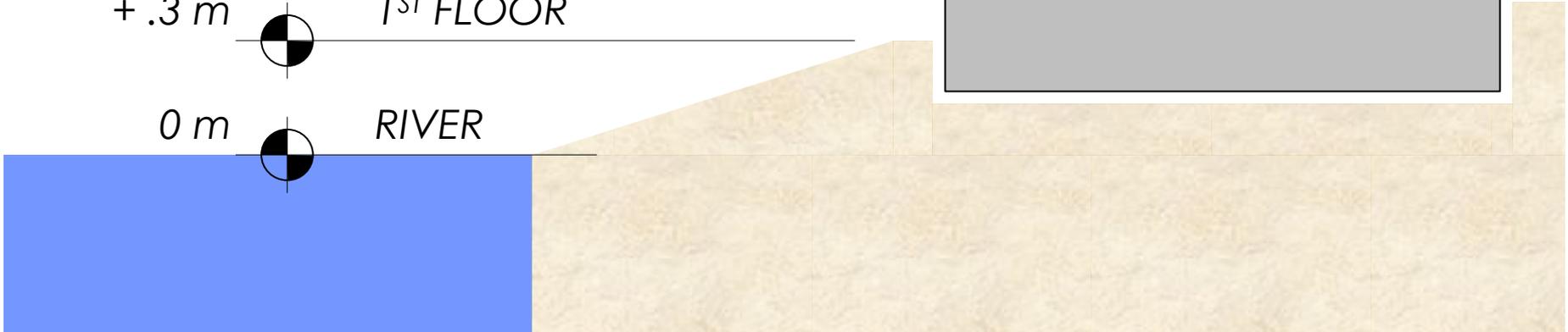
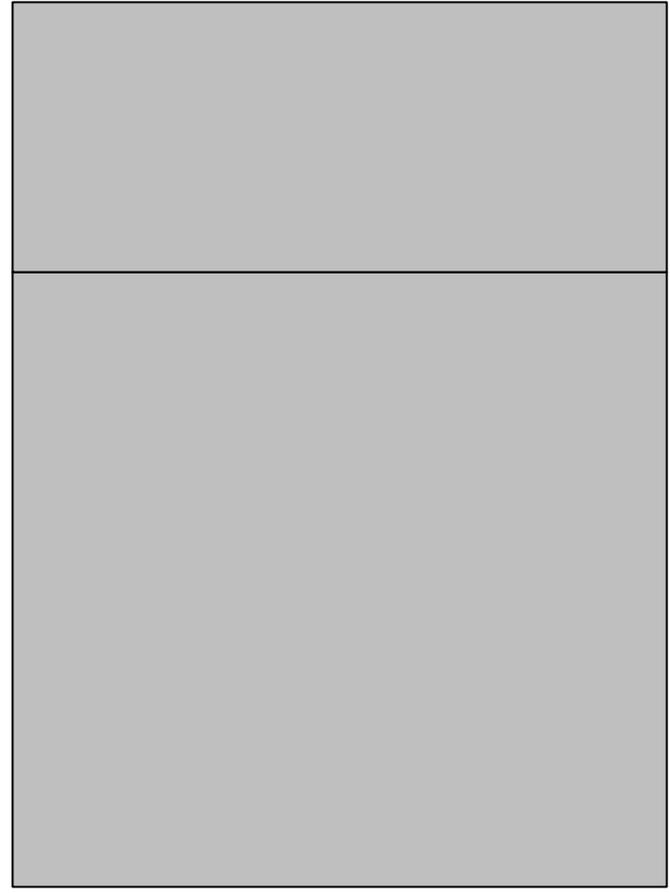
+ 3.3 m 2ND FLOOR

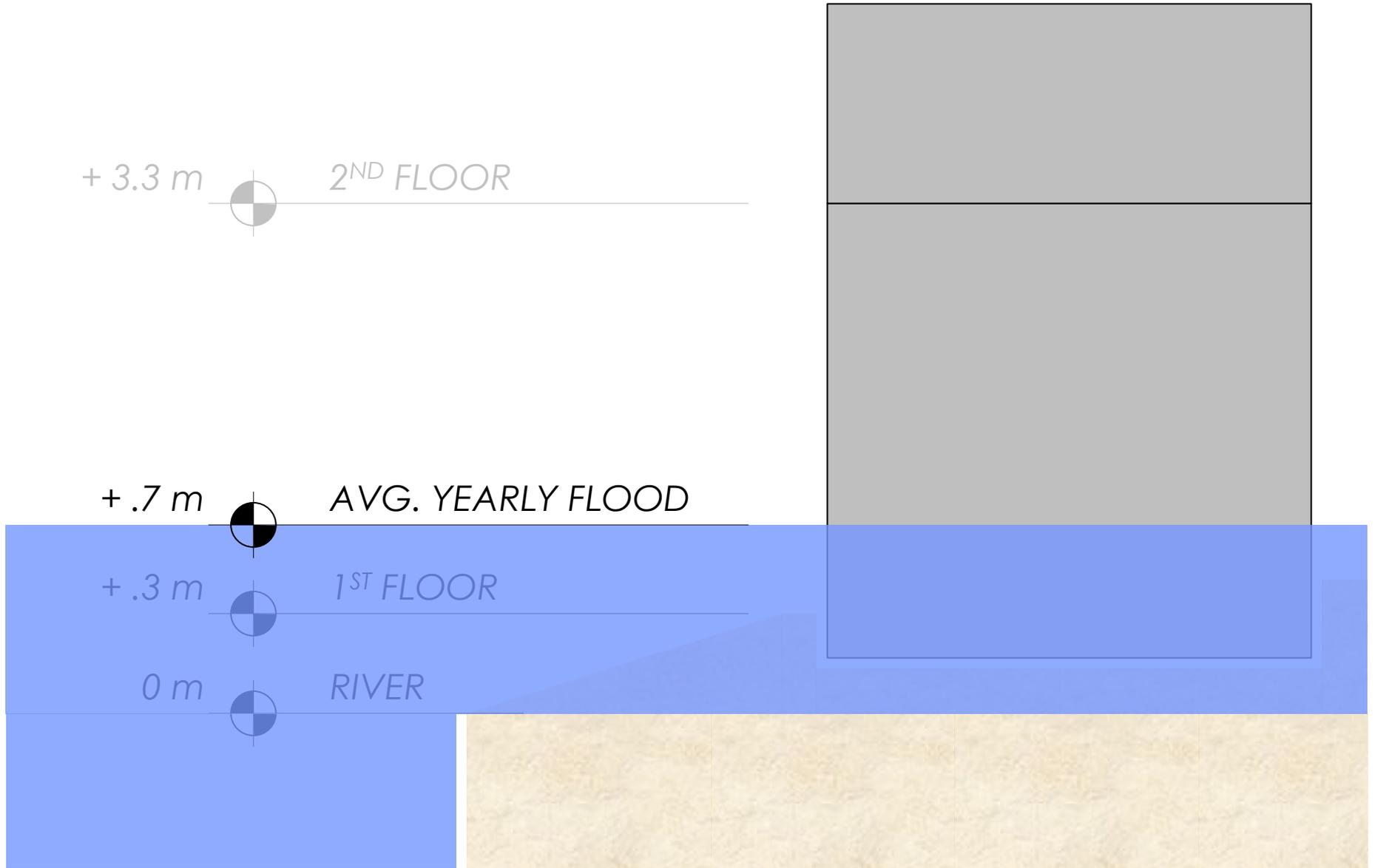
A horizontal line with a circular symbol in the center, divided vertically into a white left half and a black right half. A vertical line passes through the center of the circle.

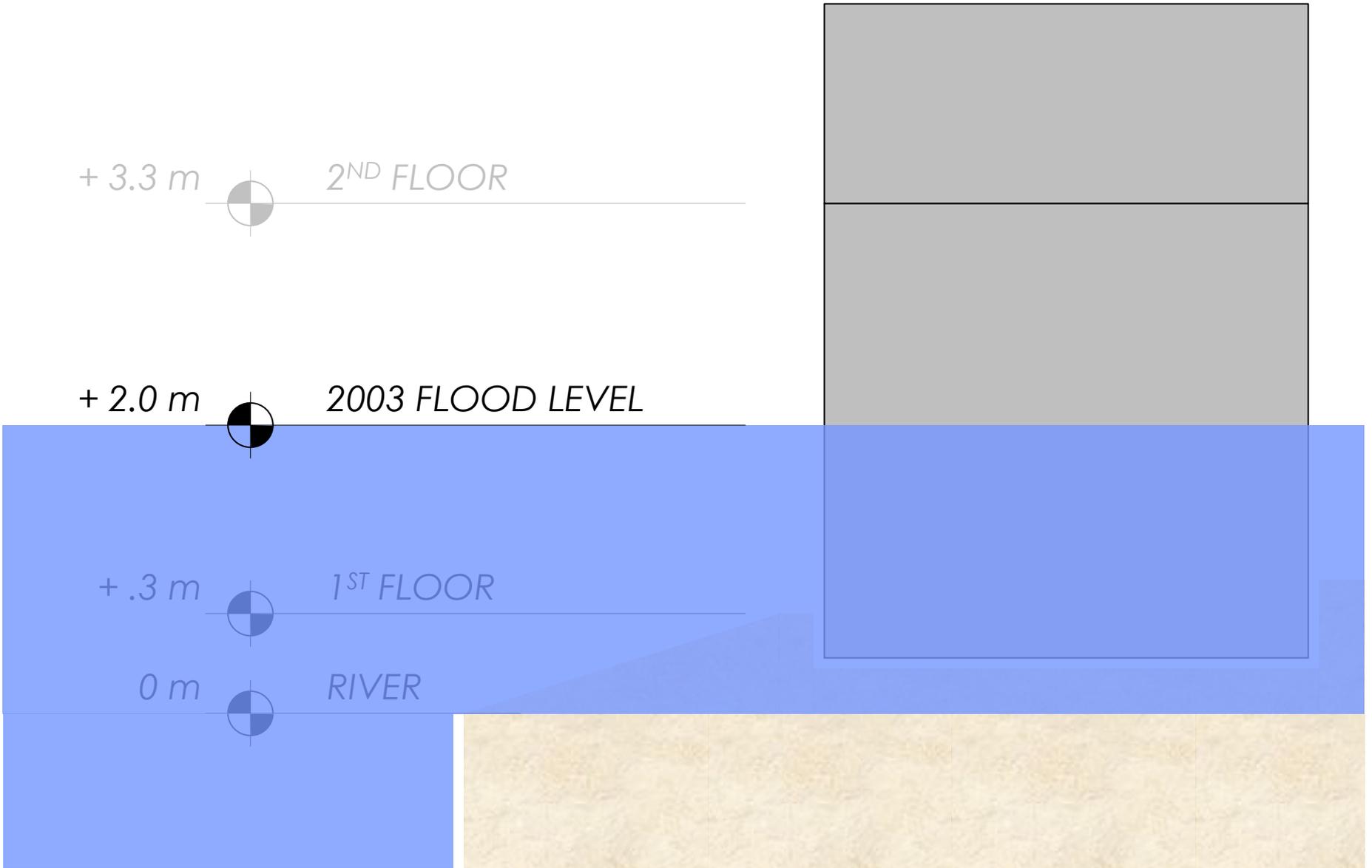
+ .3 m 1ST FLOOR

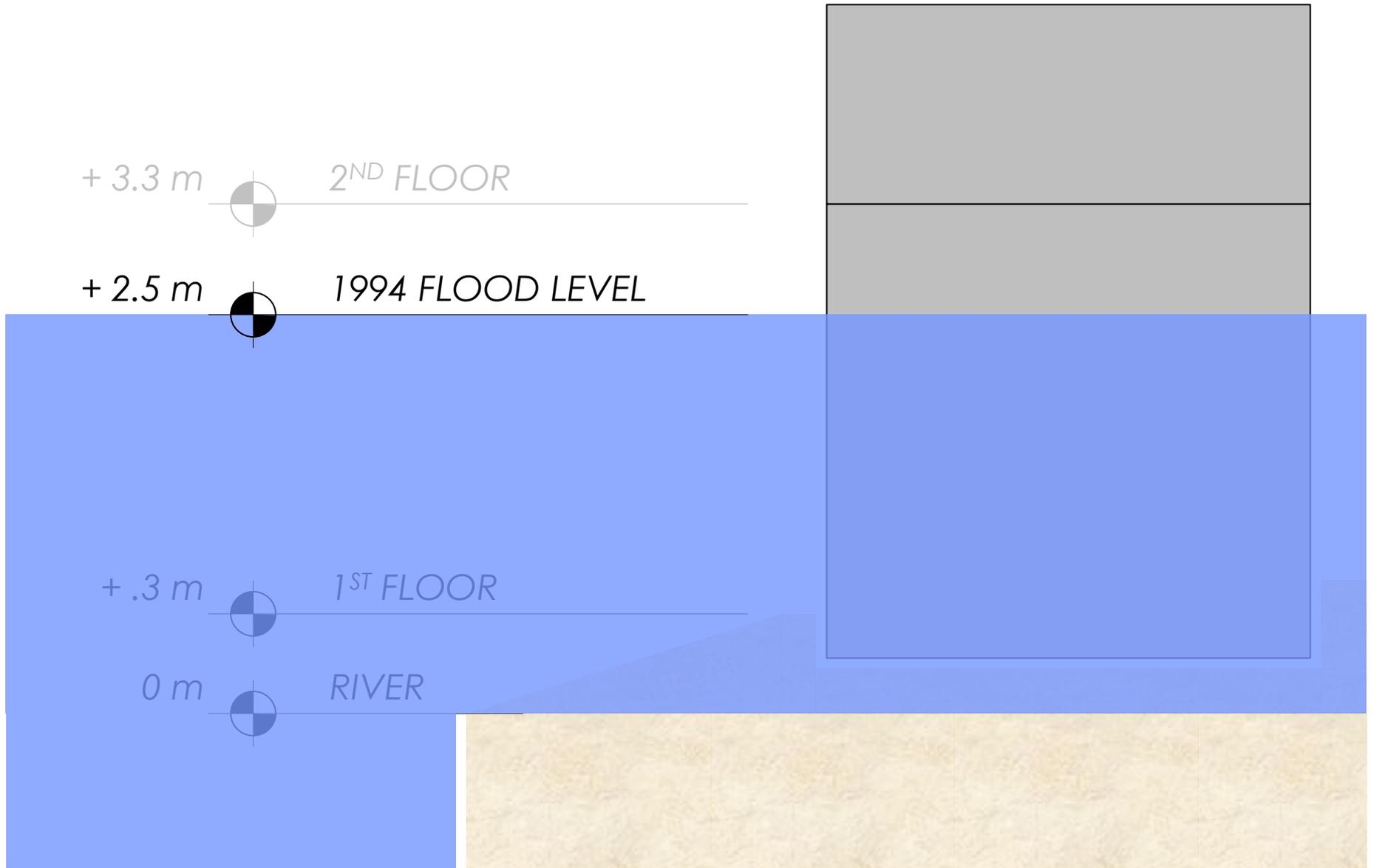
A horizontal line with a circular symbol in the center, divided vertically into a white left half and a black right half. A vertical line passes through the center of the circle.

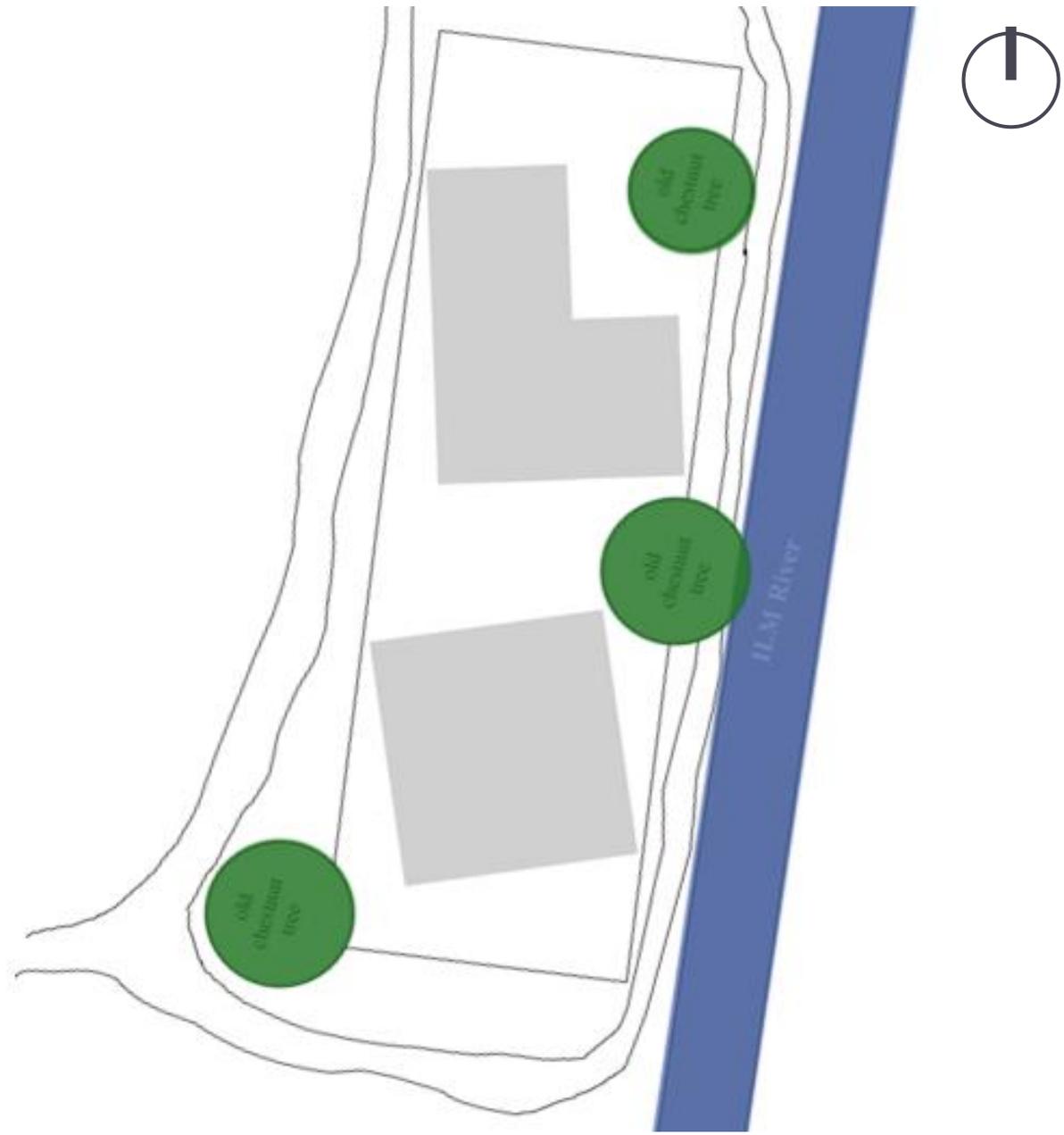
0 m RIVER

A horizontal line with a circular symbol in the center, divided vertically into a white left half and a black right half. A vertical line passes through the center of the circle.









A

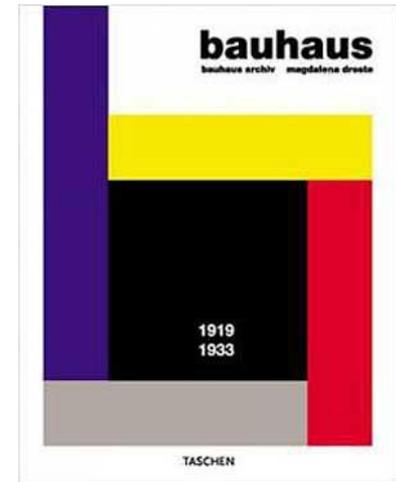
MEP

SE

CM

LCFM

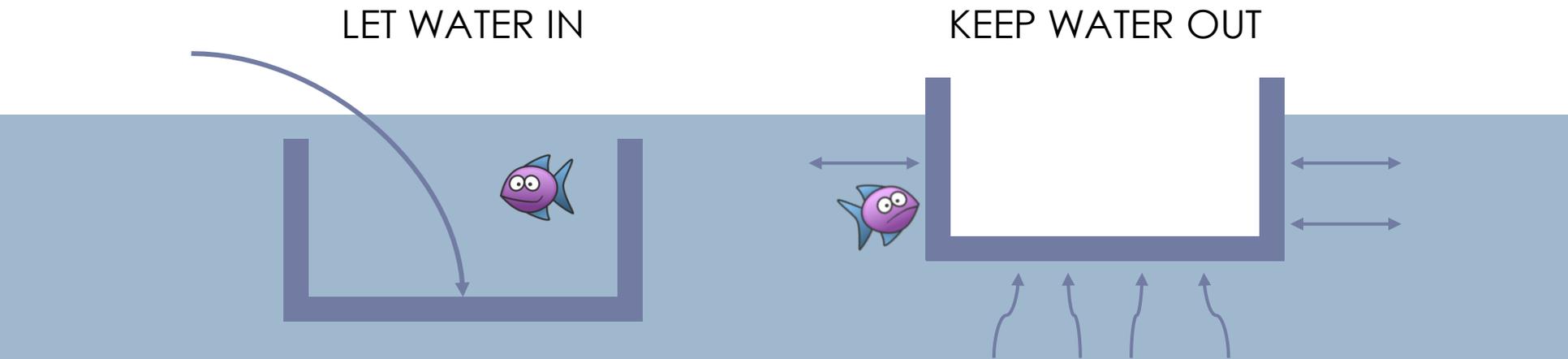
ARCHITECTURE + DESIGN + STRUCTURE



CHALLENGE:



SOLUTIONS:



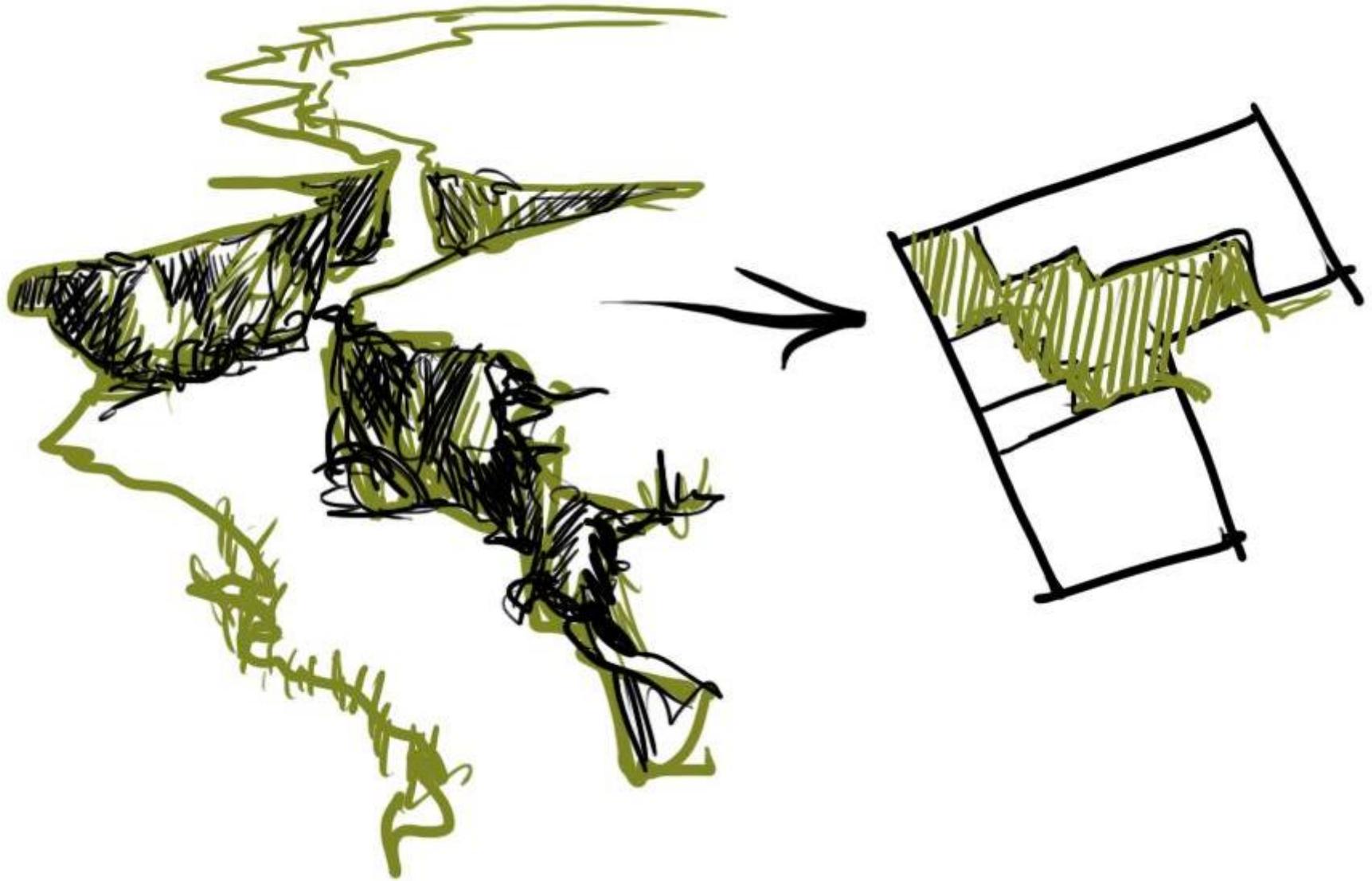
A

MEP

SE

CM

LCFM



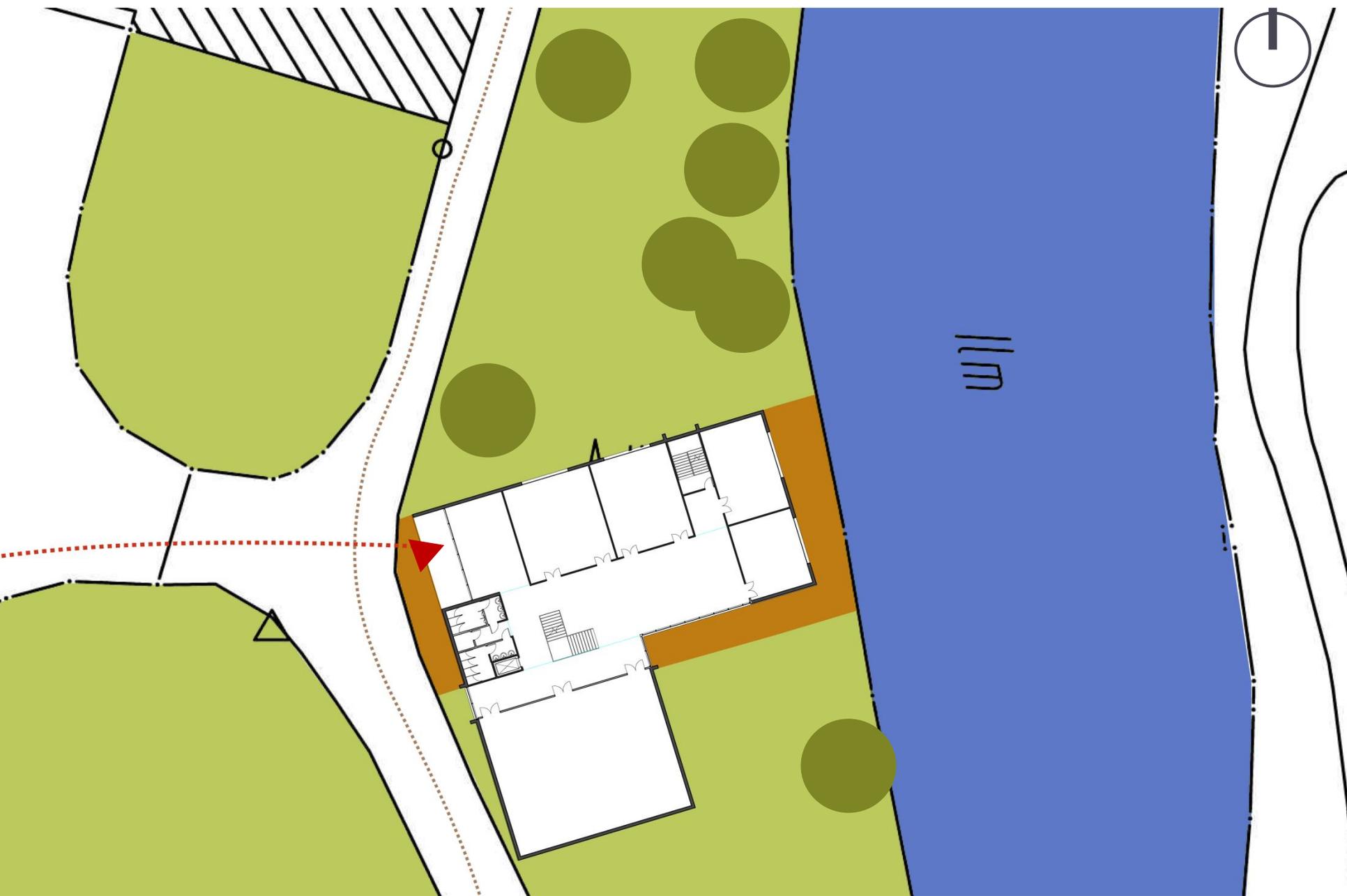
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MEP

SE

CM

LCFM



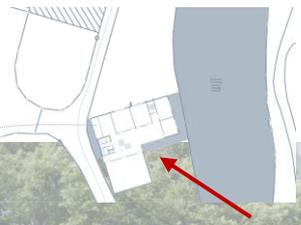
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MEP

SE

CM

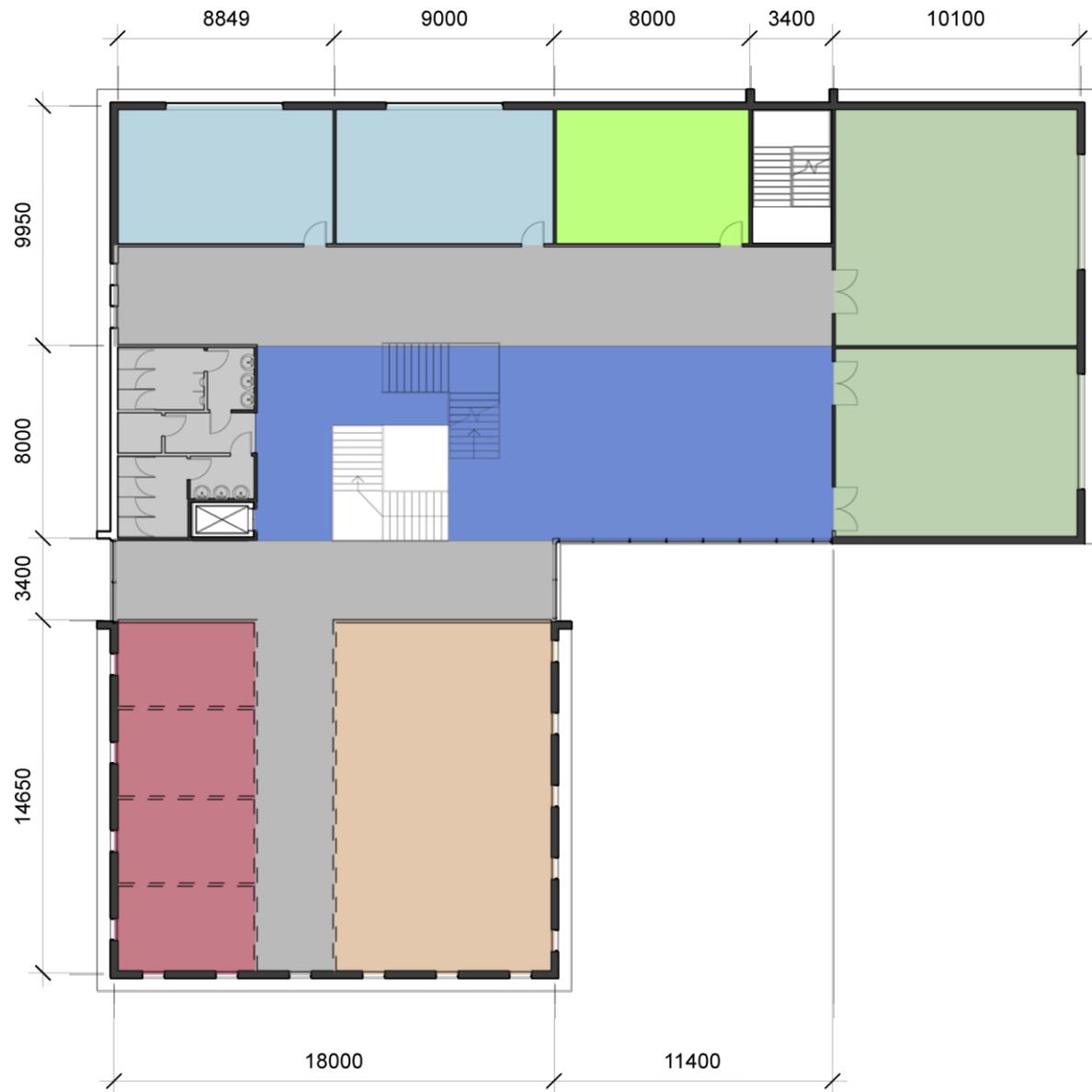
LCFM



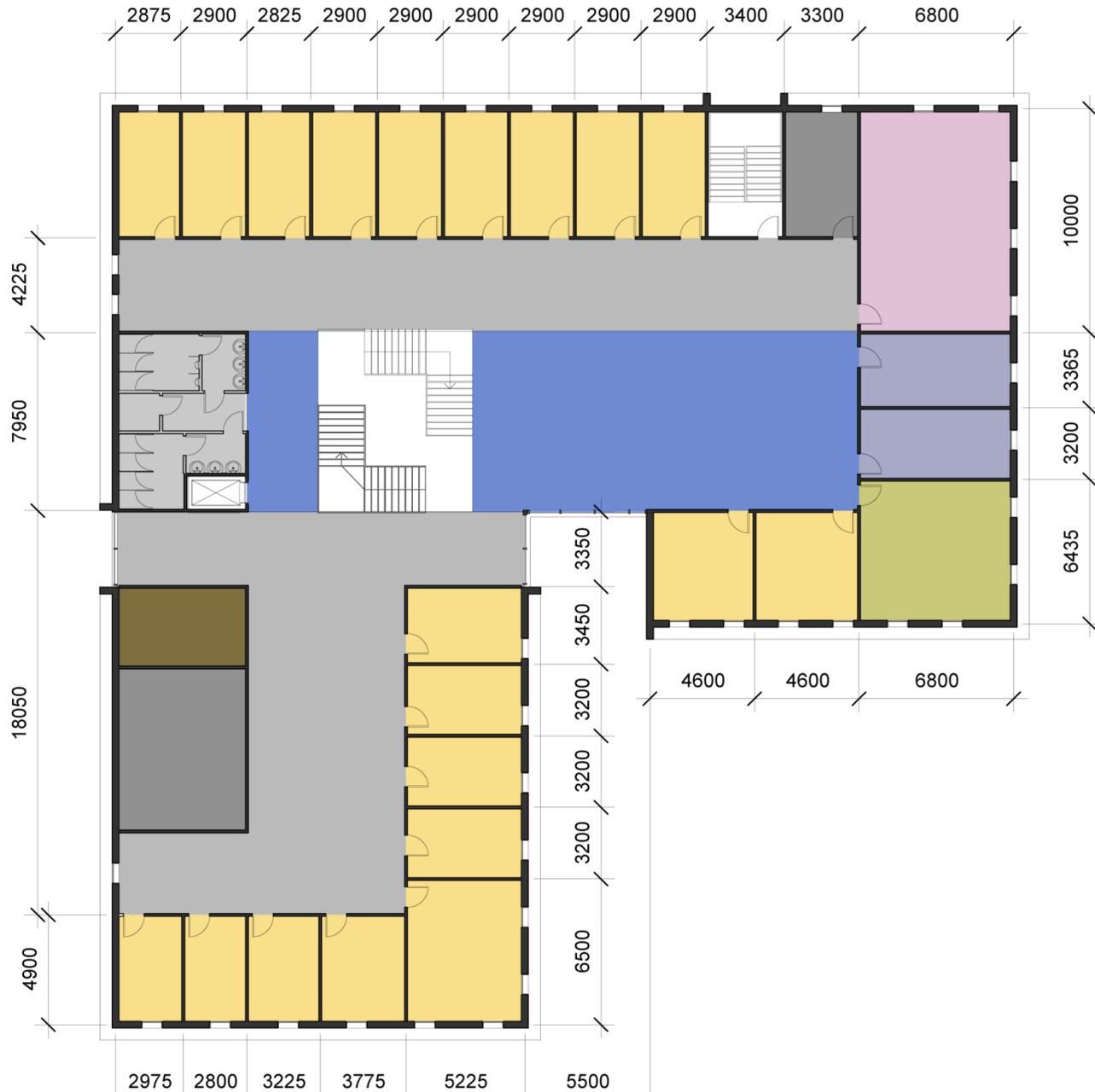
- circulation
- entrance hall
- auditorium
- large classroom
- small classroom
- restrooms
- lounge
- instructional lab
- server room
- student offices
- seminar room
- faculty office
- department's chair office
- senior administration office
- administrative assistants
- storage

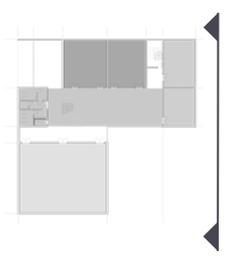


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- department's chair office
- senior administration office
- administrative assistants
- storage





Level 4
9900

Level 3
6600

Level 2
3300

Level 1
0



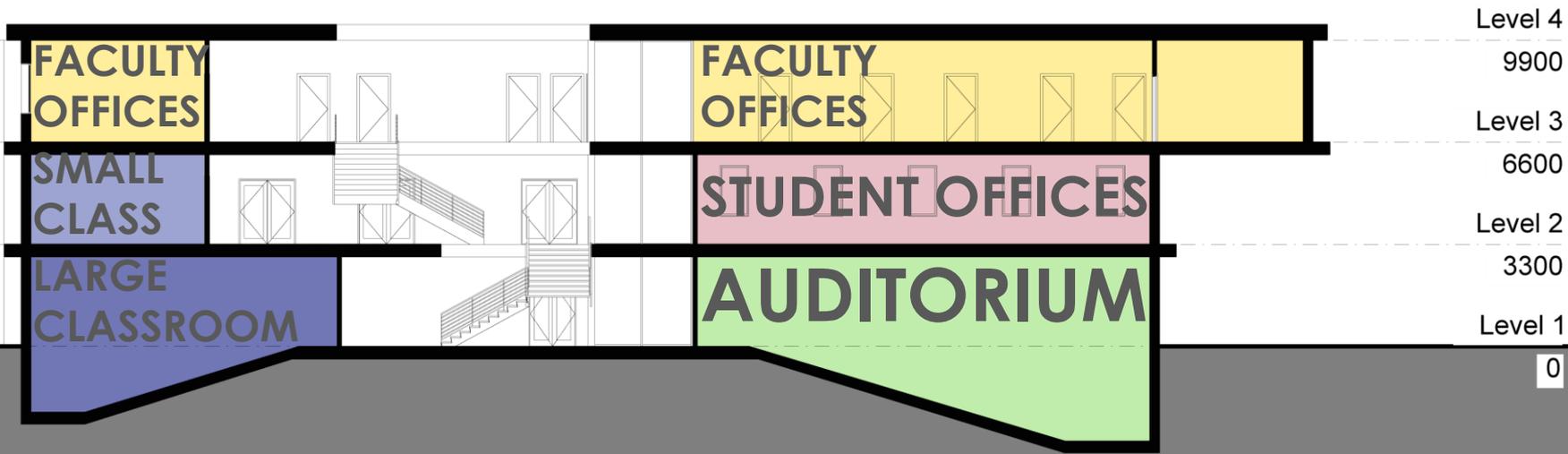
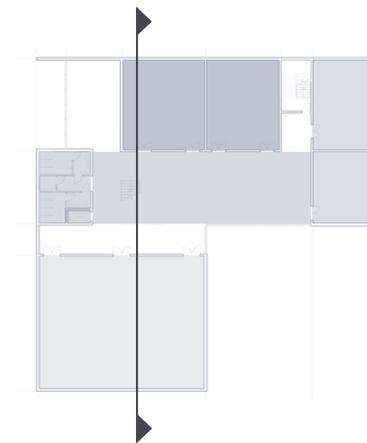
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MEP

SE

CM

LCFM



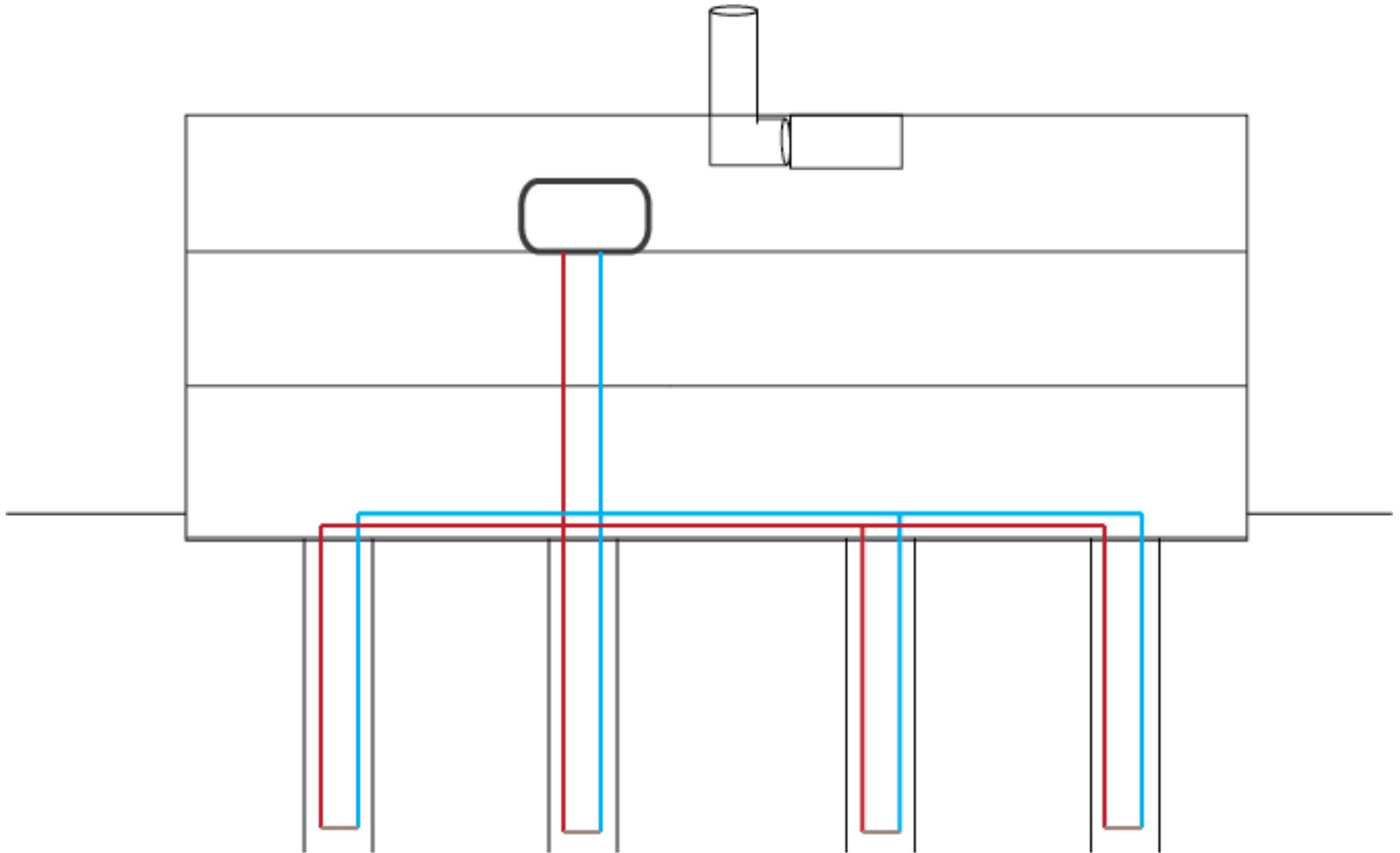
A

MEP

SE

CM

LCFM



A

MEP

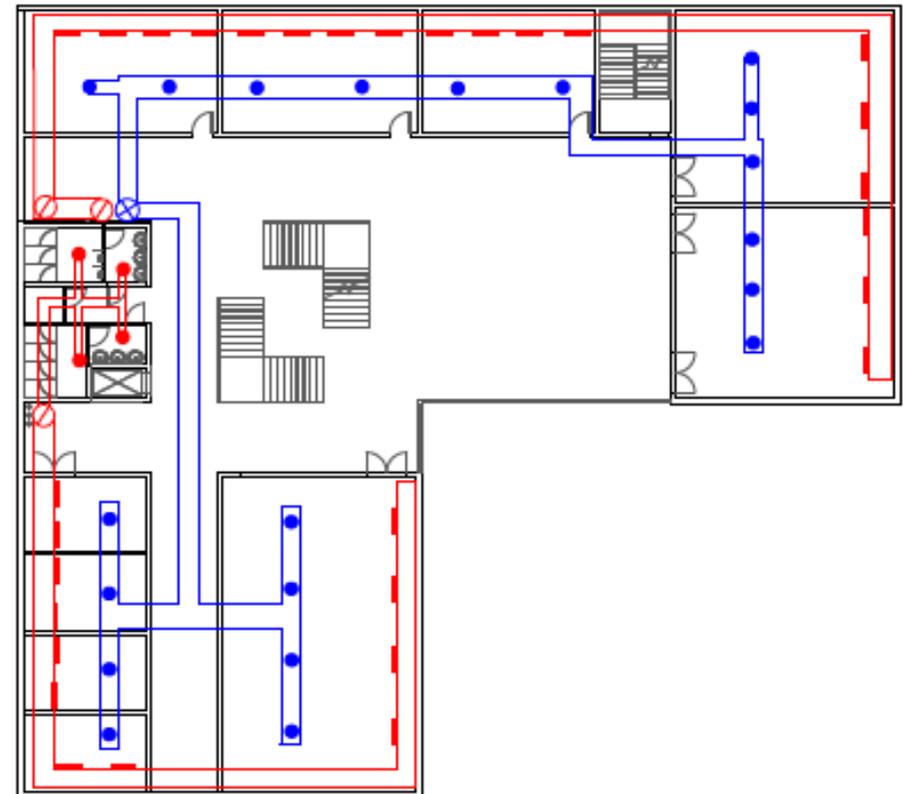
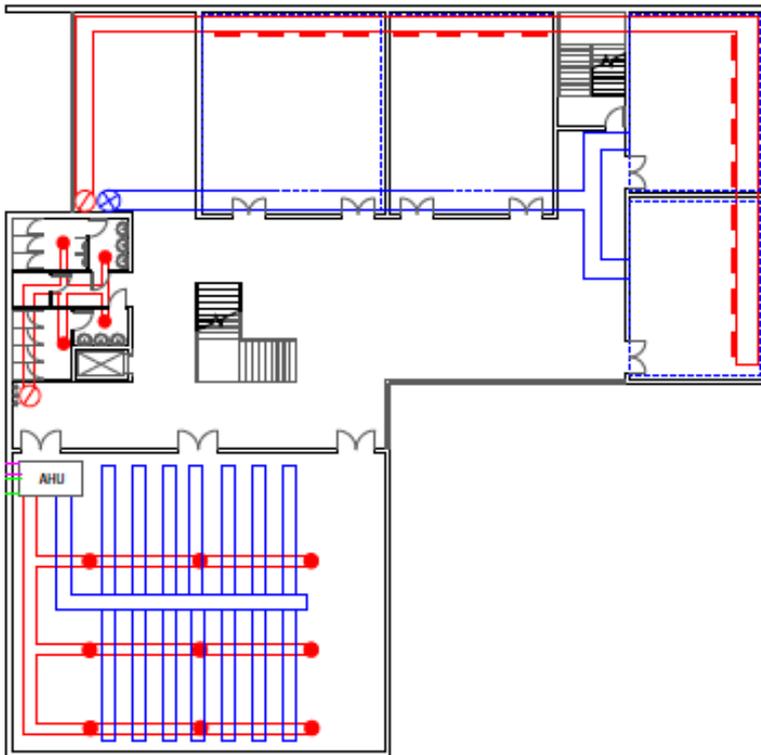
SE

CM

LCFM

1ST FLOOR

2ND FLOOR

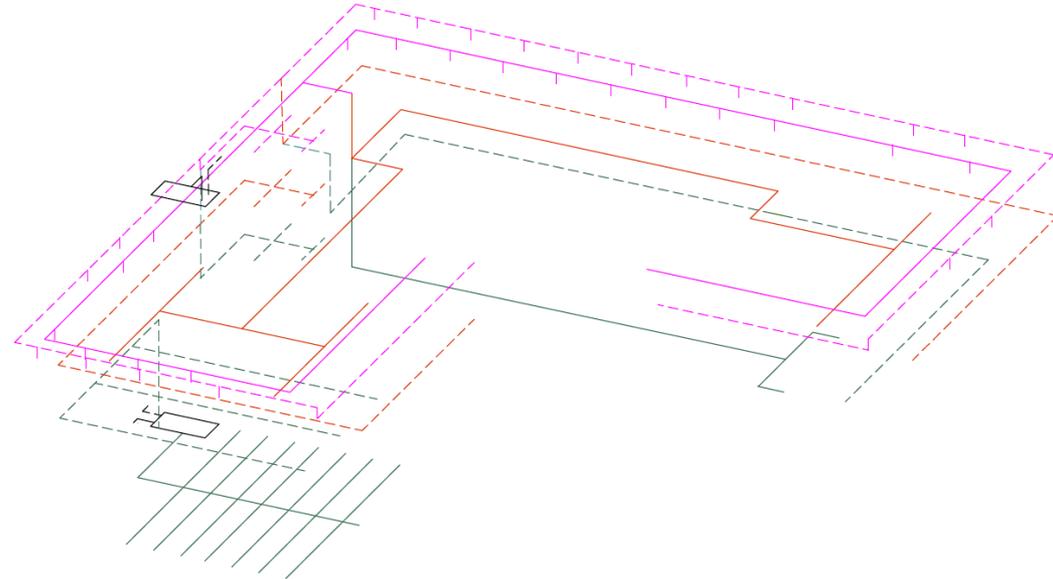


- Outline of UFAD plenum
- Return grill
- Supply diffuser
- Supply ducting
- Ceiling return diffuser
- Return ducting
- Supply ducting (vertical)
- Return ducting (vertical)
- Ceiling level supply ducting
- Ceiling level return ducting
- Inlet ducting (vertical)
- Outlet ducting (vertical)
- Utility pipes

3RD FLOOR

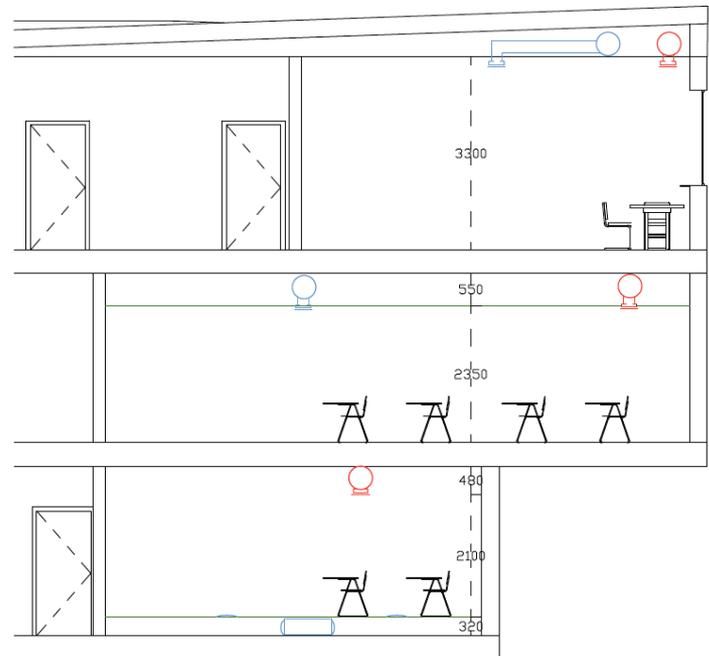
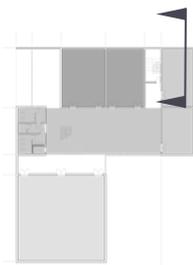
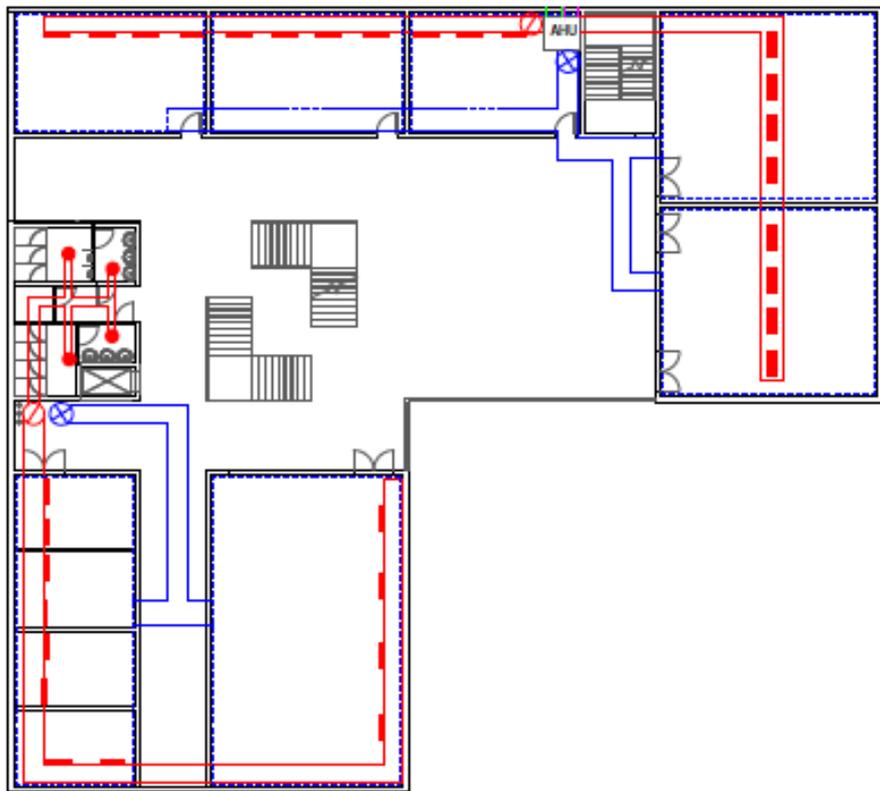


3D NETWORK

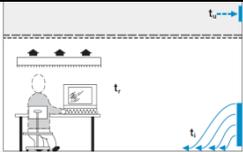
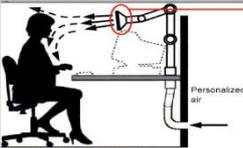


- | | | | |
|-------------------------|----------------|------------------------------|------------------------------|
| Outline of UFAD plenum | Return grill | Supply ducting (vertical) | Ceiling level return ducting |
| Supply diffuser | Supply ducting | Return ducting (vertical) | Inlet ducting (vertical) |
| Ceiling return diffuser | Return ducting | Ceiling level supply ducting | Outlet ducting (vertical) |
| | | Utility pipes | |

ALTERNATE LAYOUT

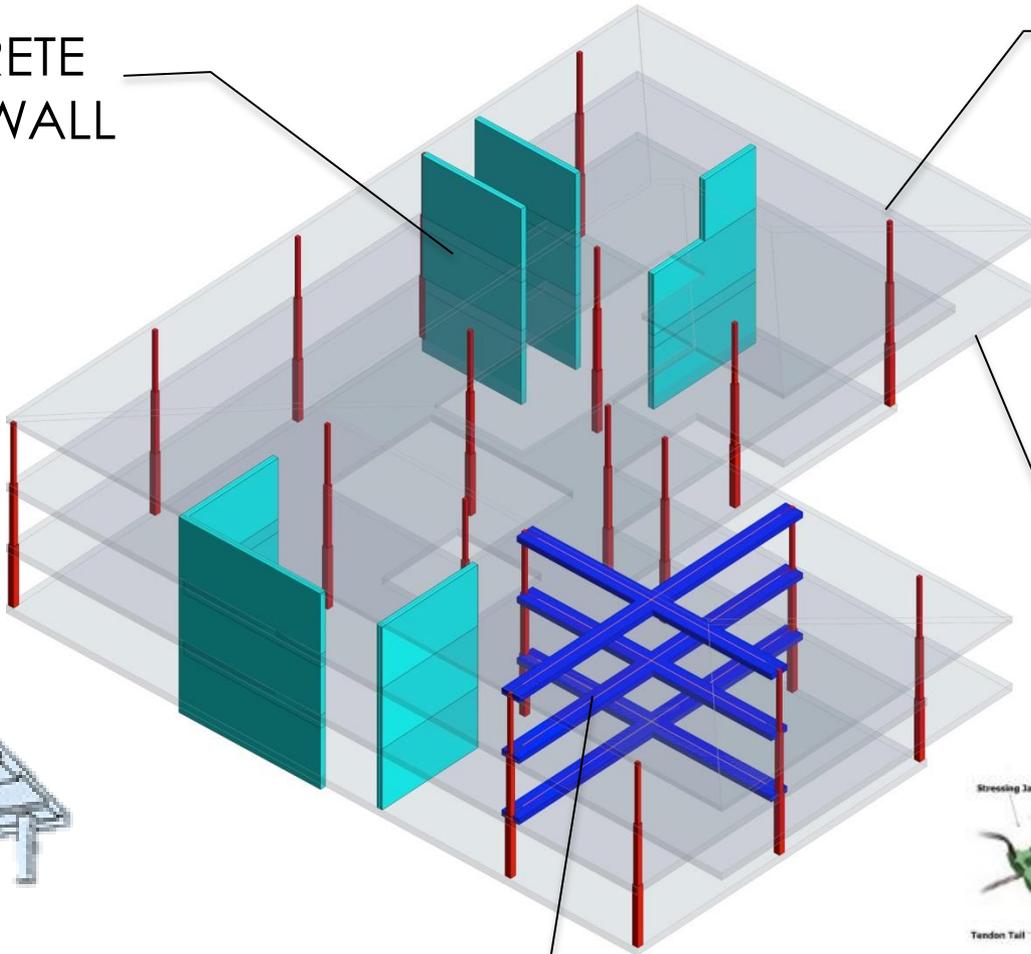


- | | | | |
|-------------------------|----------------|------------------------------|------------------------------|
| Outline of UFAD plenum | Return grill | Supply ducting (vertical) | Ceiling level return ducting |
| Supply diffuser | Supply ducting | Return ducting (vertical) | Inlet ducting (vertical) |
| Ceiling return diffuser | Return ducting | Ceiling level supply ducting | Outlet ducting (vertical) |
| | | Utility pipes | |

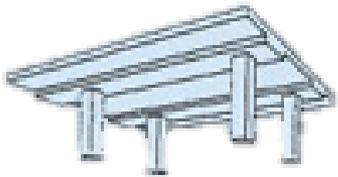
		INSTALLATION COST	ANNUAL ENERGY COST	25 YEARS COST	STV DELTA
AUDITORIUM VENTILATION		\$37.8k	\$2.0k	\$162.7k	
		\$30.6k	\$1.3k	<u>\$121.6k</u>	
# OF AHUS		\$49.0k	\$2.8k	<u>\$217.5k</u>	
		\$60.0k	\$3.0k	\$253.1k	
HEATING SYSTEM		\$56.9k	\$2.6k	\$216.8k	
		\$22.9k	\$4.8k	\$211.2k	- 1 % points

CONCRETE SHEAR WALL

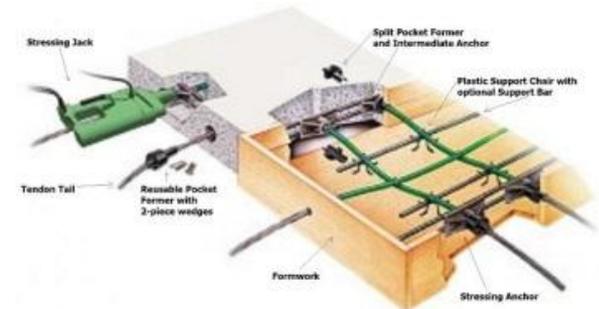
STRUCTURAL COLUMN



POST TENSION SLAB SYSTEM



BANDED FLAT SLAB





2ND FLOOR

COLUMNS

320x320 mm

BANDED SLAB

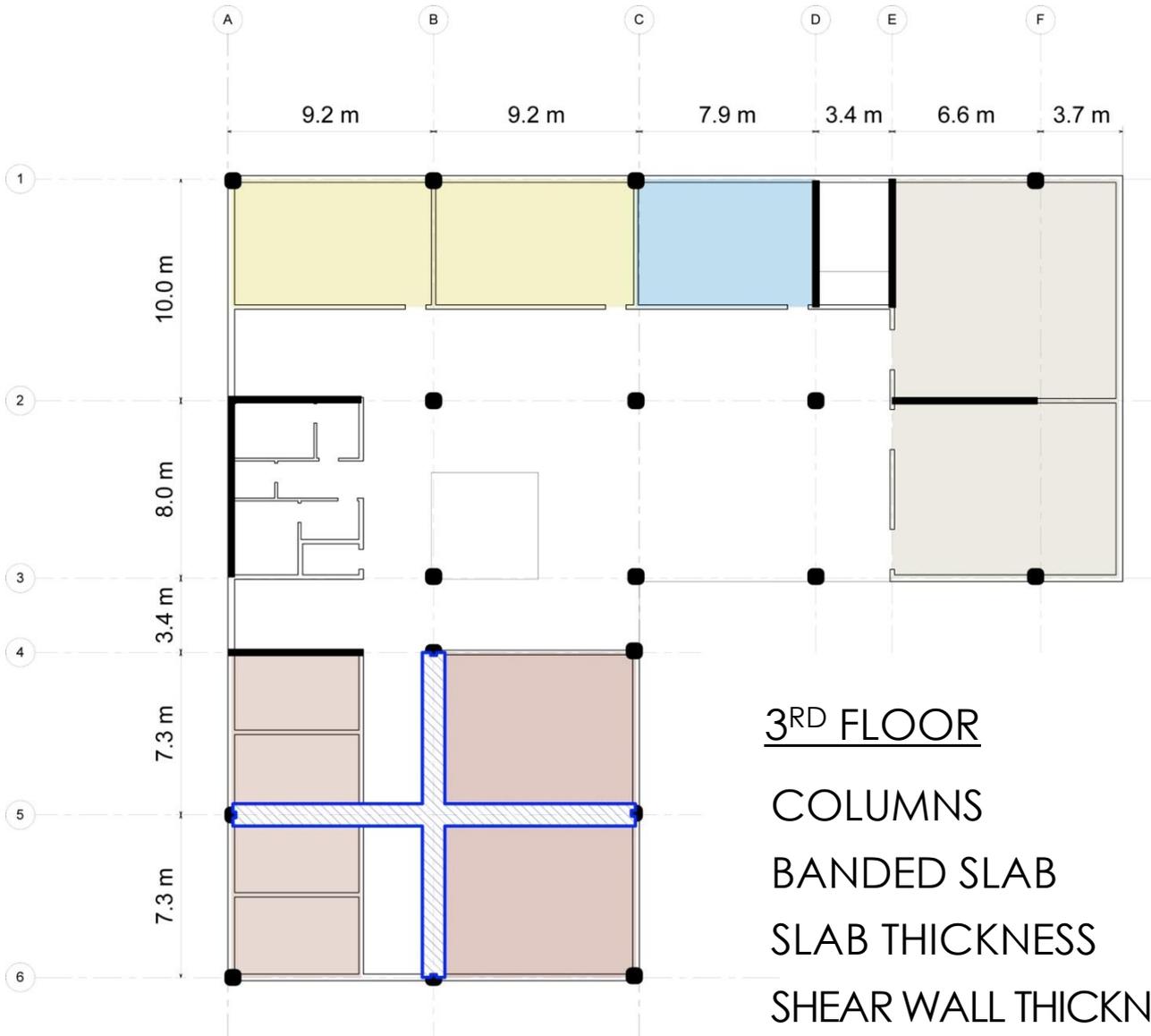
600x400 mm

SLAB THICKNESS

250 mm

SHEAR WALL THICKNESS

220 mm



3RD FLOOR

COLUMNS

260x260 mm

BANDED SLAB

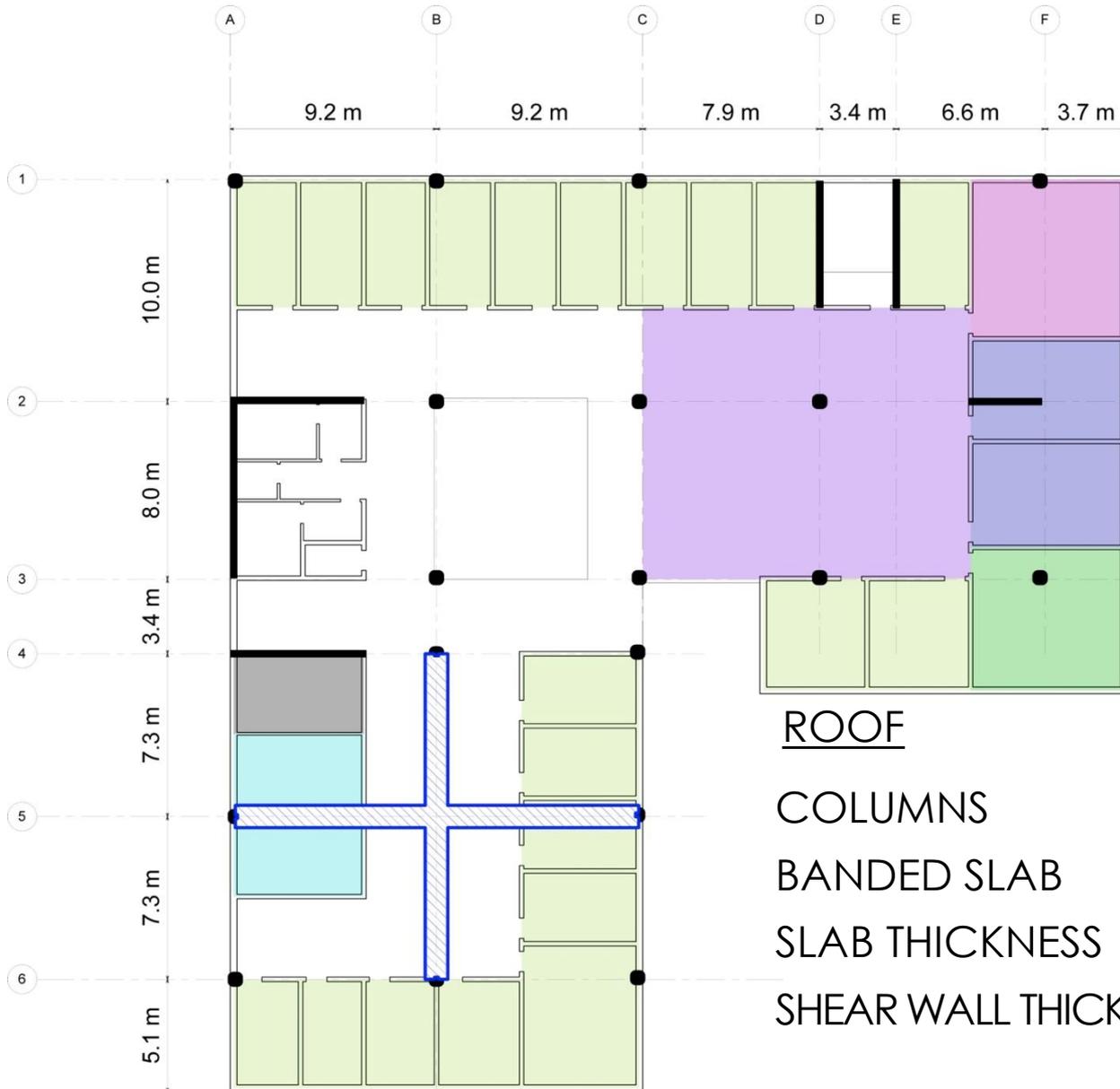
600x400 mm

SLAB THICKNESS

210 mm

SHEAR WALL THICKNESS

220 mm



ROOF

COLUMNS

180x180 mm

BANDED SLAB

600x400 mm

SLAB THICKNESS

250 mm

SHEAR WALL THICKNESS

200 mm

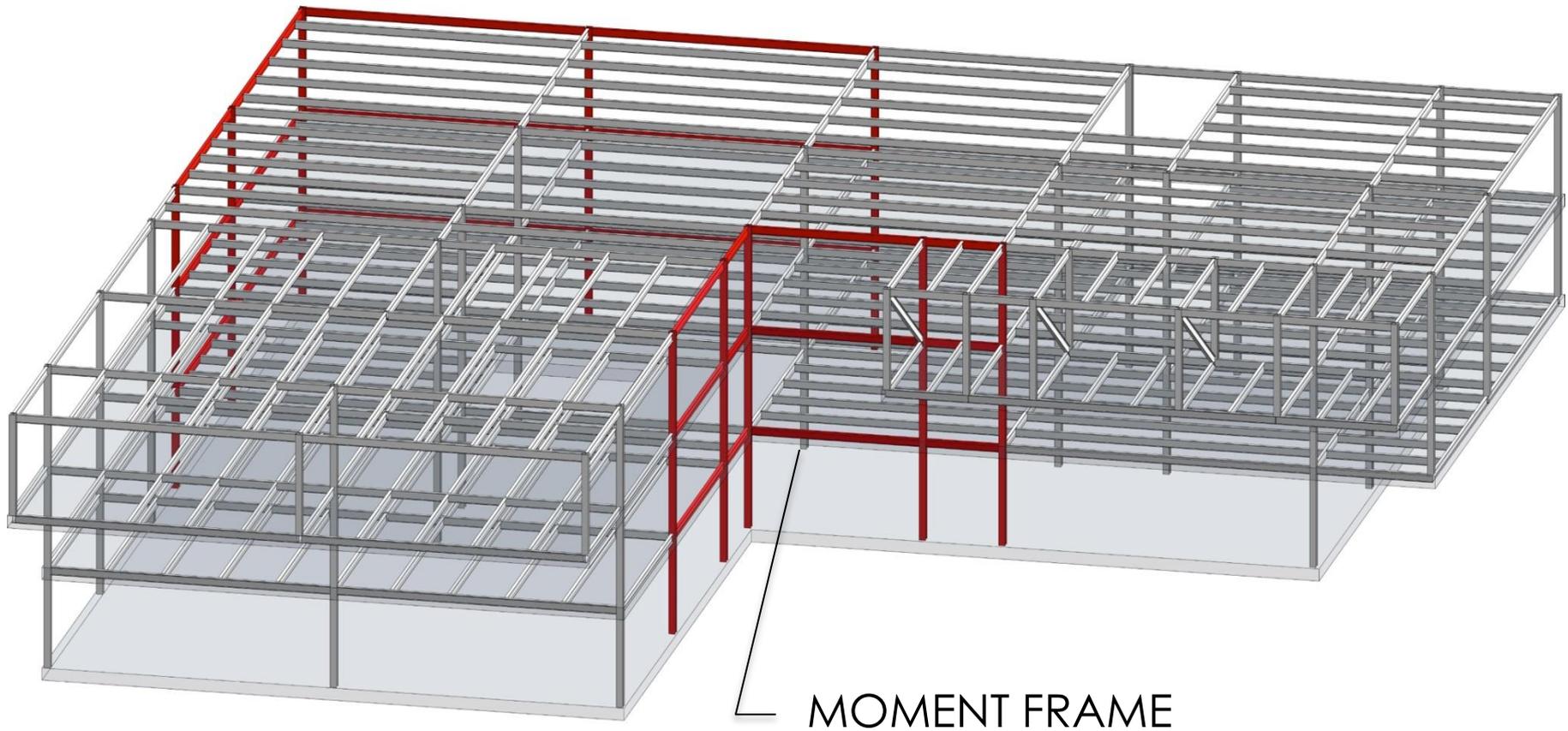
A

MEPZ

SE

CM

LCFM



2ND Floor

Columns:

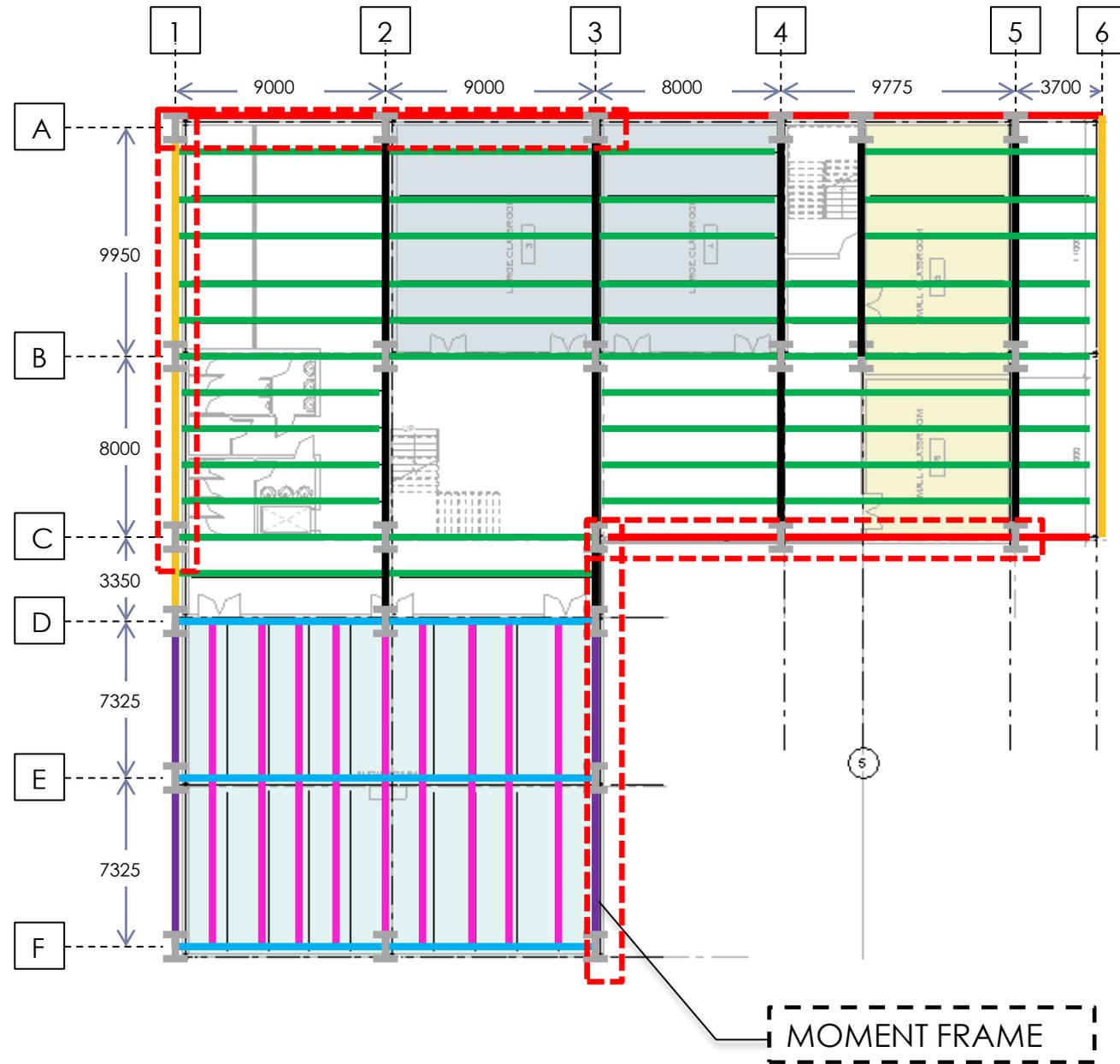
Interior W12x96
Exterior W12x58

Typical Member Sizes:

Ext. FB W8x58
Int. FB W14x61
Ext. FG W24x55
Int. FG W33x130

Auditorium Members:

Ext. FB W10x33
Int. FB W10x39
Ext. FG W16x40
Int. FG W44x262



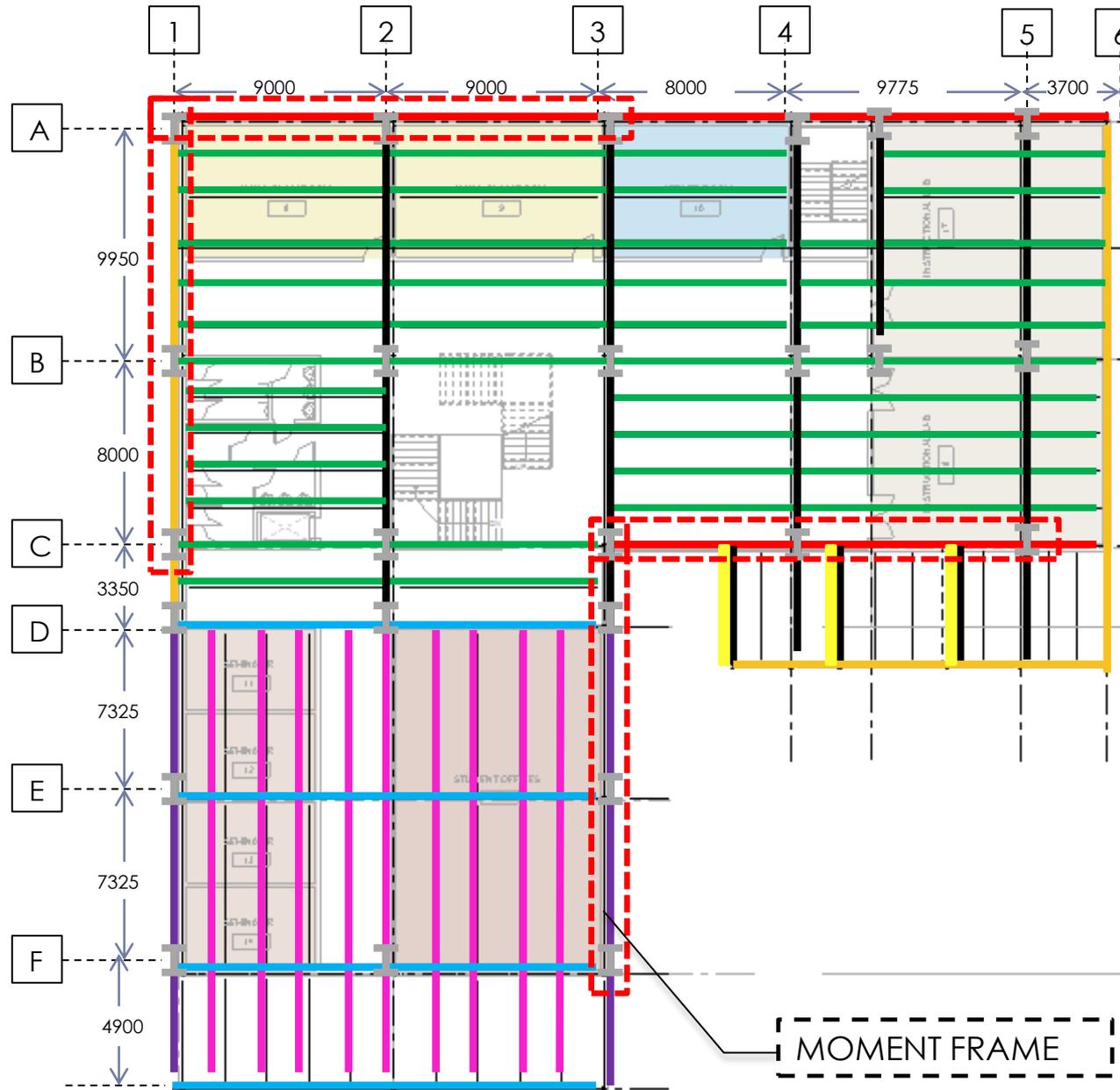
3RD Floor

Typical Member Sizes:

- Ext. FB** **W8x58**
- Int. FB** **W14x61**
- Ext. FG** **W24x55**
- Int. FG** **W33x130**

Auditorium Members:

- Ext. FB** **W10x33**
- Int. FB** **W10x39**
- Ext. FG** **W16x40**
- Int. FG** **W44x262**



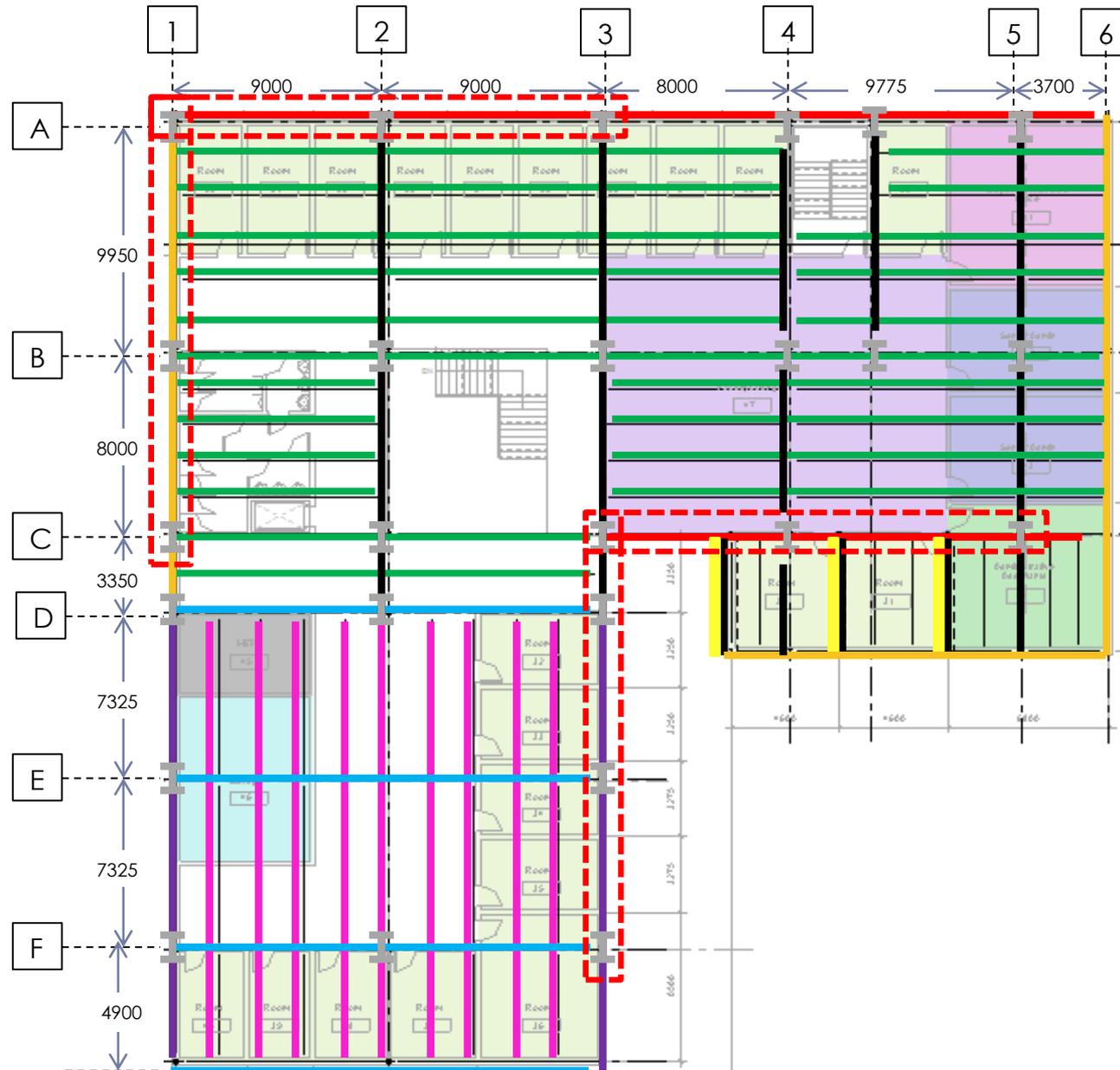
Roof

Typical Member Sizes:

- Ext. RB** **W8x58**
- Int. RB** **W8x58**
- Ext. RG** **W21x44**
- Int. RG** **W30x108**

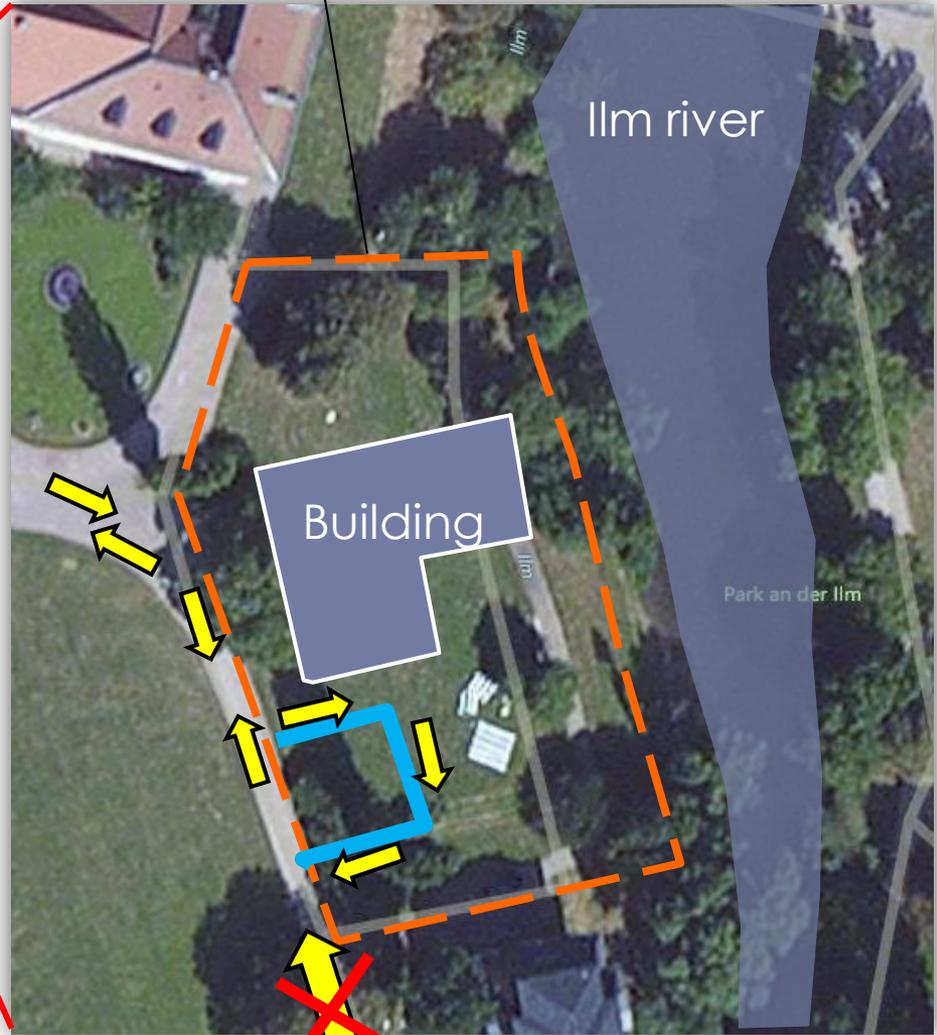
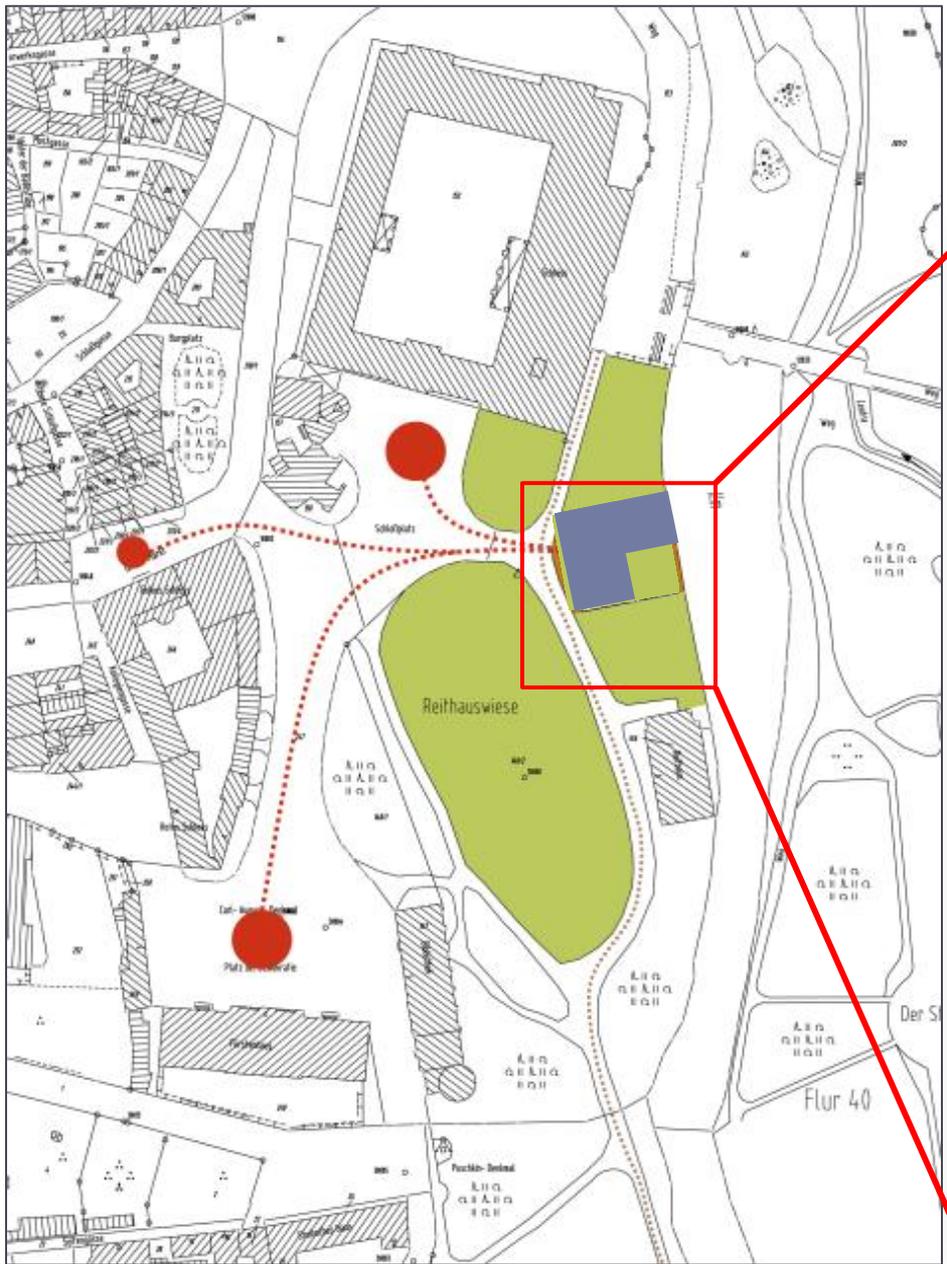
Auditorium Members:

- Ext. RB** **W10x33**
- Int. RB** **W10x33**
- Ext. RG** **W14x34**
- Int. RG** **W40x215**





Construction Site



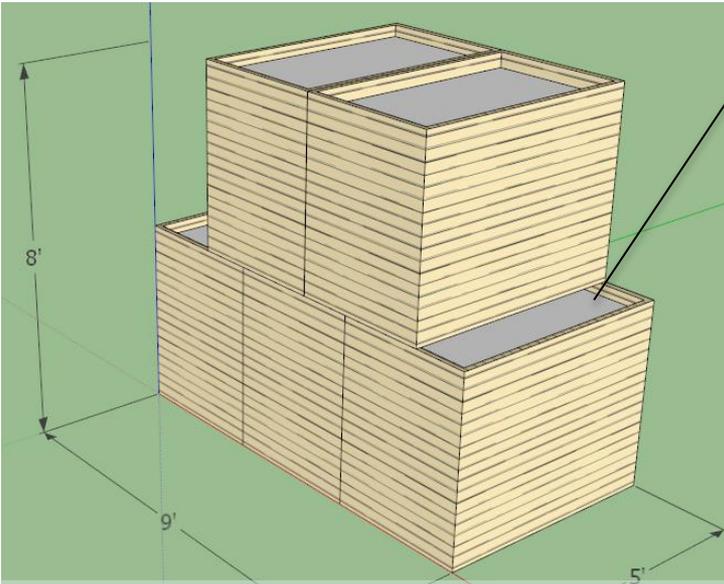
A

MEP

SE

CM

LCFM



HESCO CONCERTAINER UNITS

SAND FILL

WITH FLOOD



- LENGTH: 125M
- HEIGHT: 2.44 M
- 4 HOUR TO INSTALL



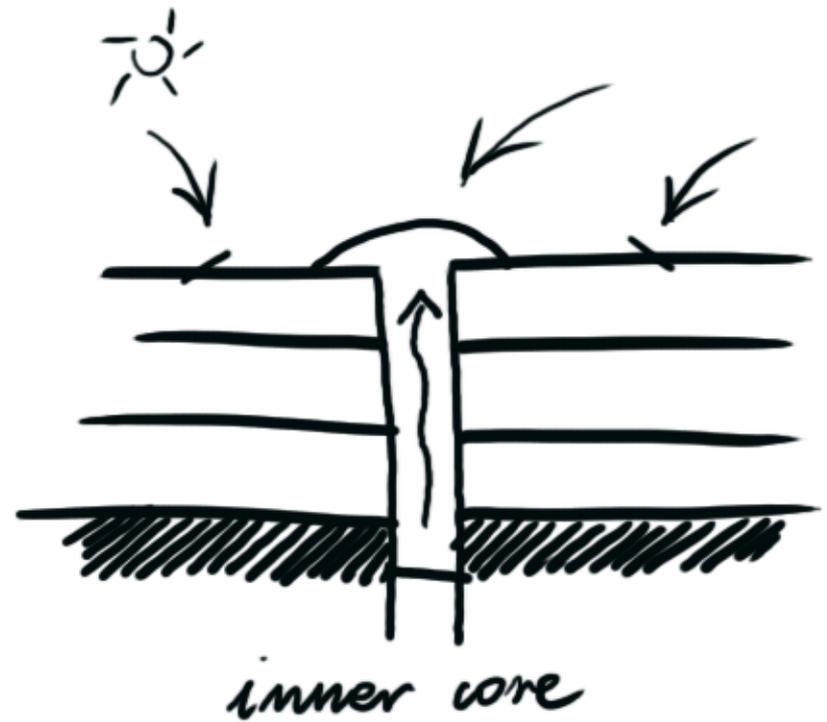
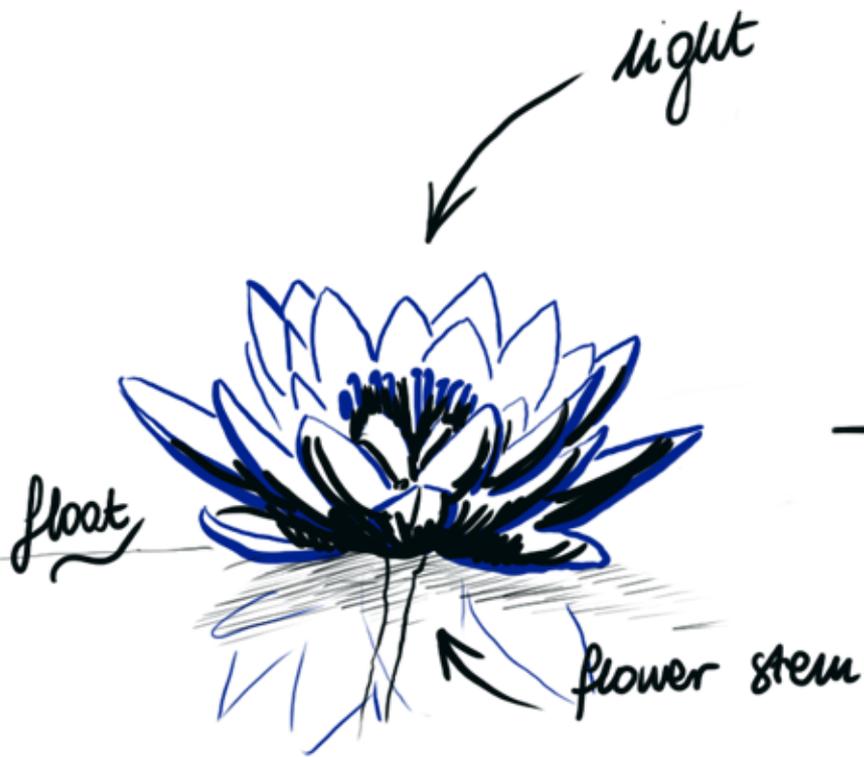
STORE IN BASEMENT

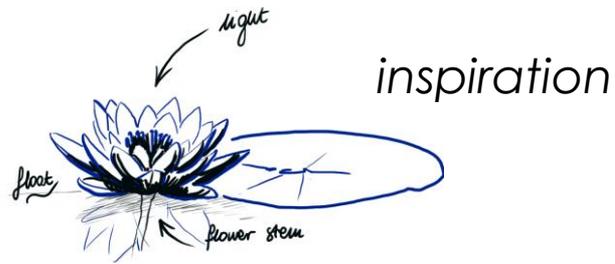


Complete Flood Protection Wall

- Concrete - thomas-gruppe 2.6km ●
- Precast concrete - Betonwerk Streichardt 2.9km ●
- Steel – Stahlwerke Thüringen 54km ●
- Construction equipment - zeppelin-rental 19km ●
- Stone socket - Hauschild Michael 3.2km ●







Buoyant Foundation Project
New Orleans, LA, USA
Dr. Elizabeth English
Univ. of Waterloo



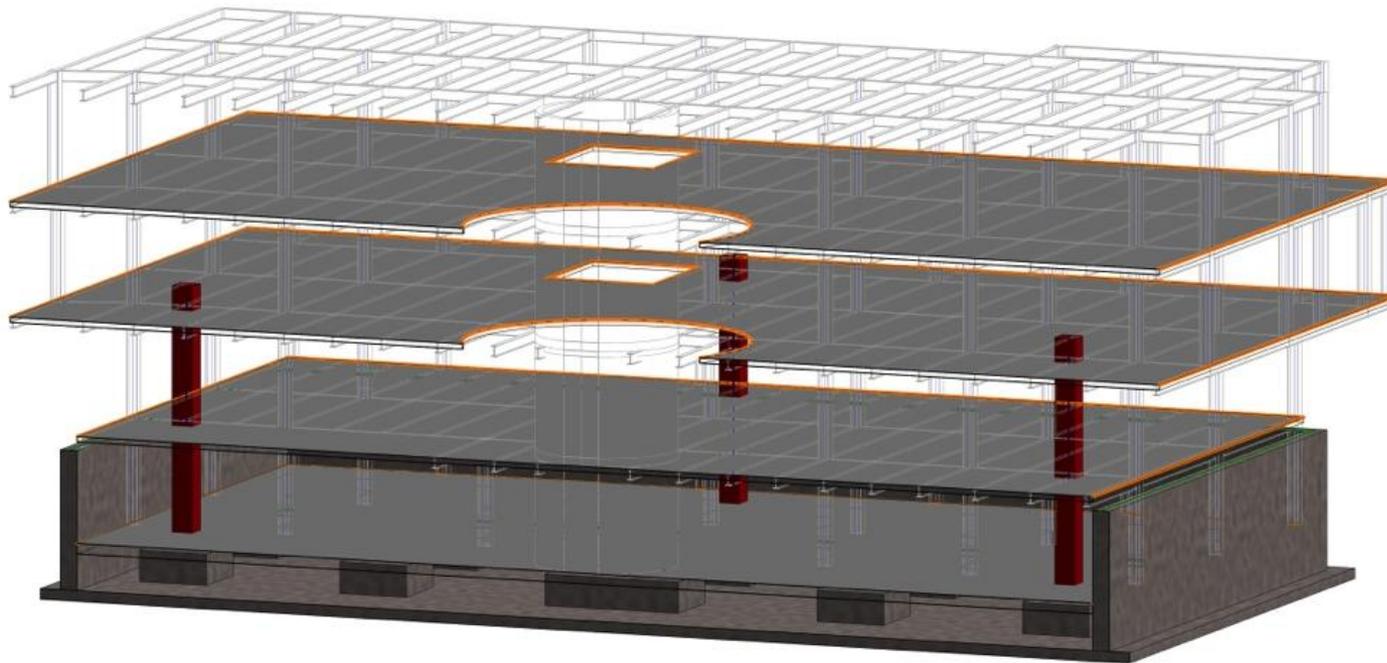
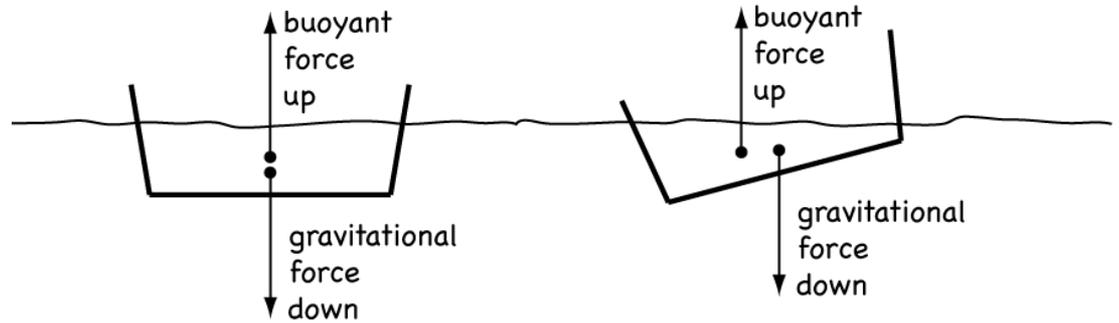
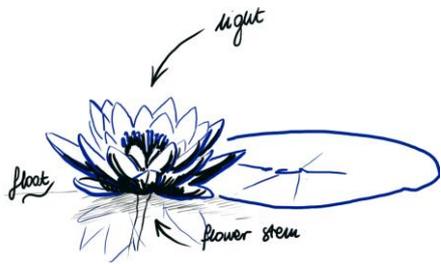
FLOAT house
New Orleans, LA, USA
Make It Right Foundation
Morphosis Architects
UCLA School of Architecture

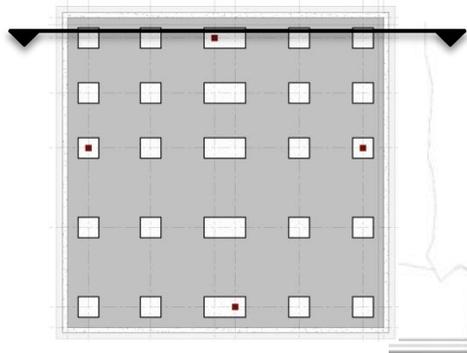


Amphibious Houses
Maasbommel, NL
DuraVermeer

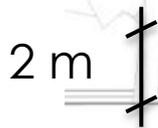
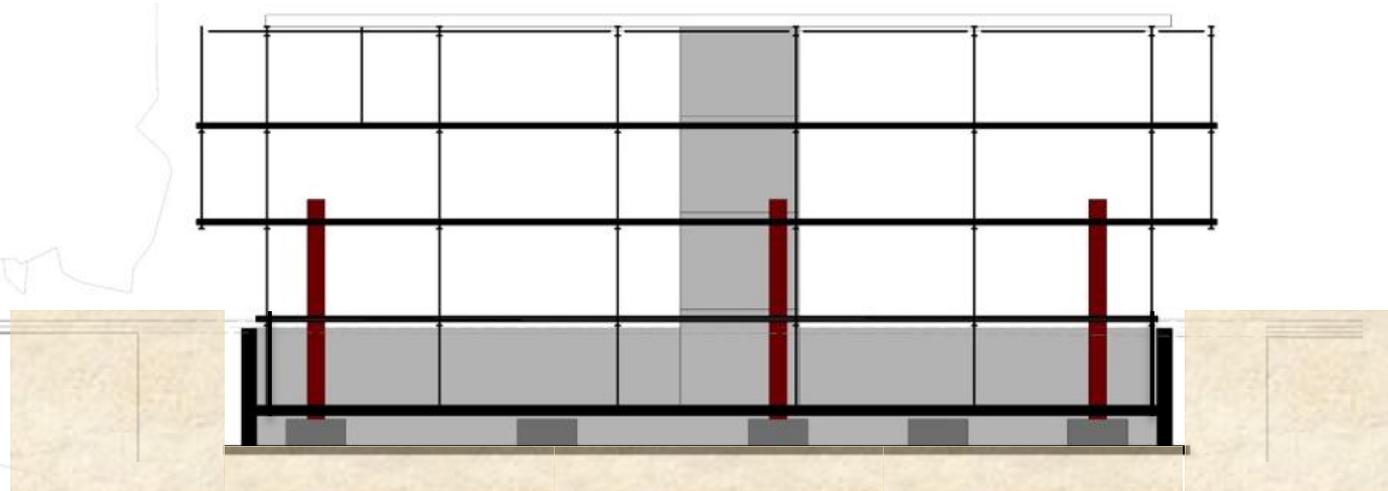


UK Amphibious home
London, UK
BACA Architects

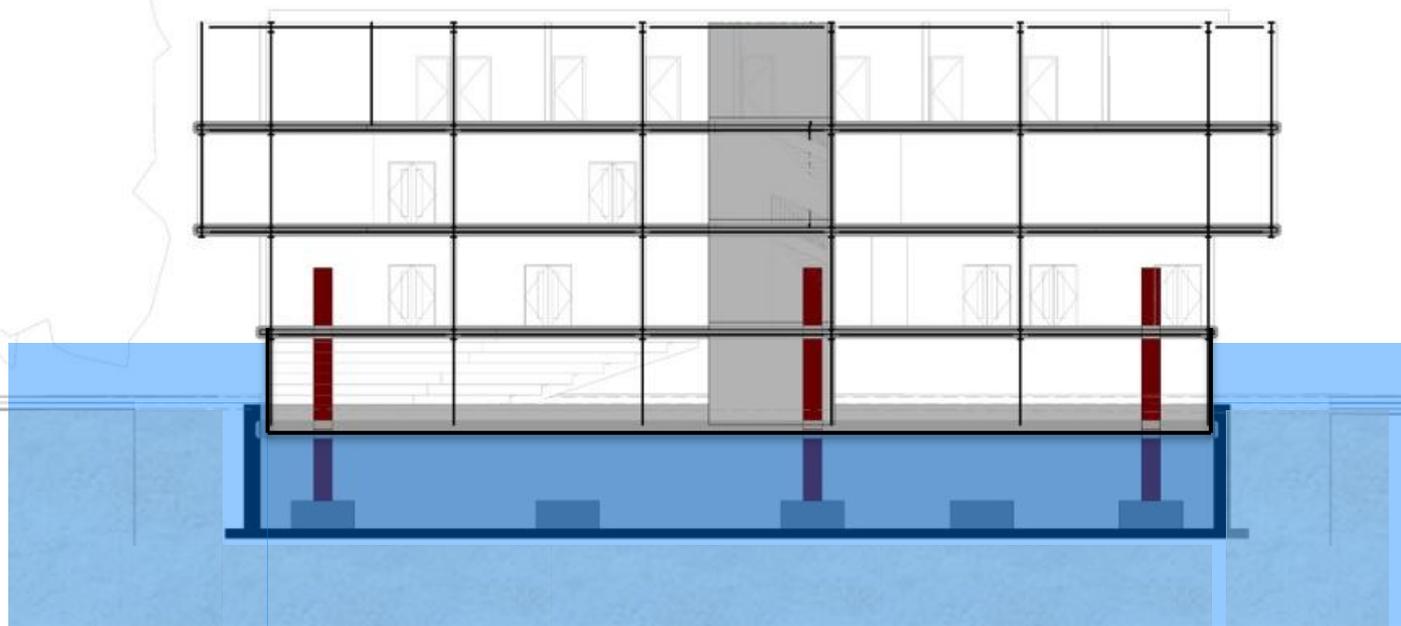




Resting Position



Flood Position



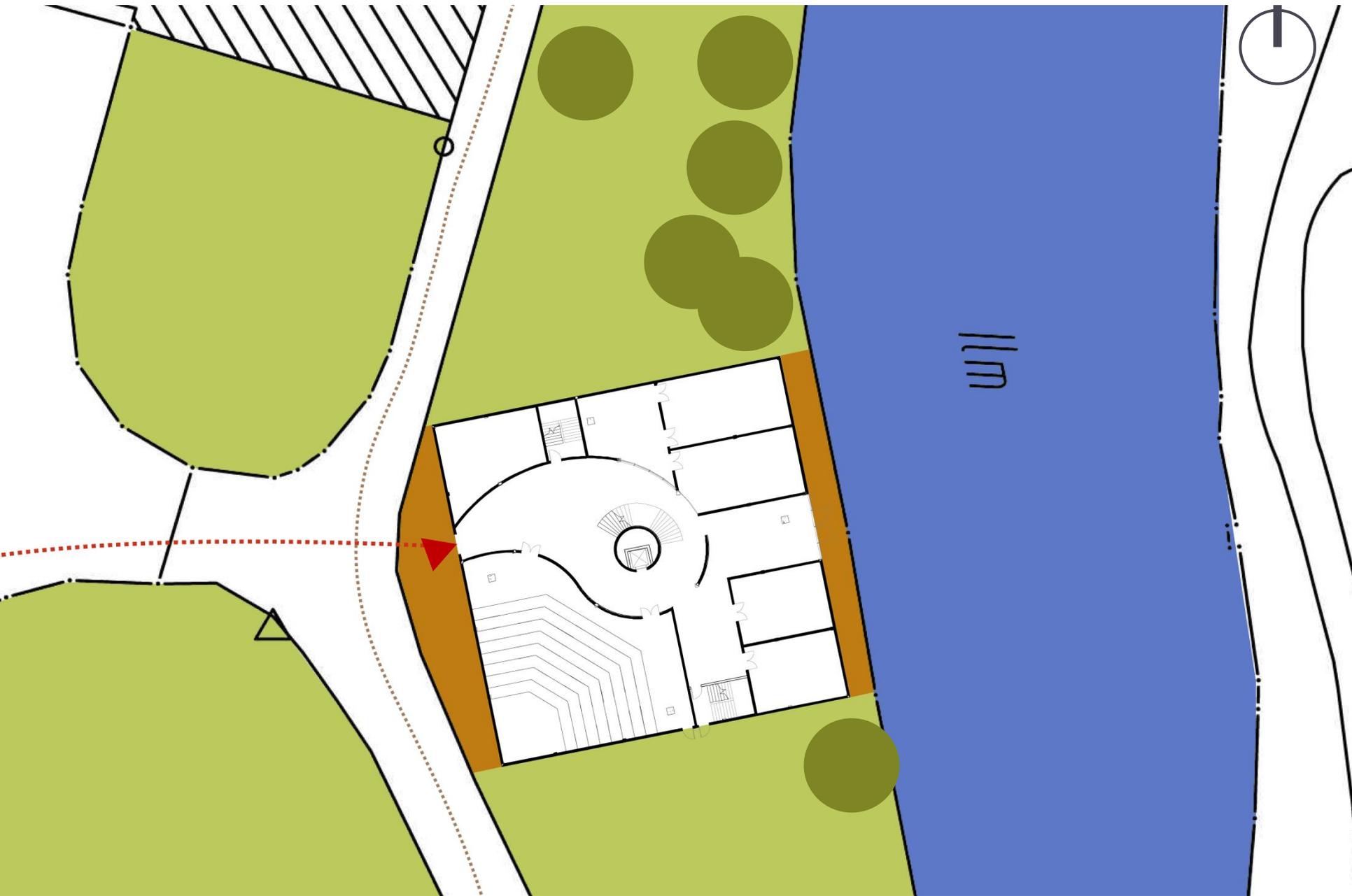
A

MEP

SE

CM

LCFM



A

MEP

SE

CM

LCFM



A

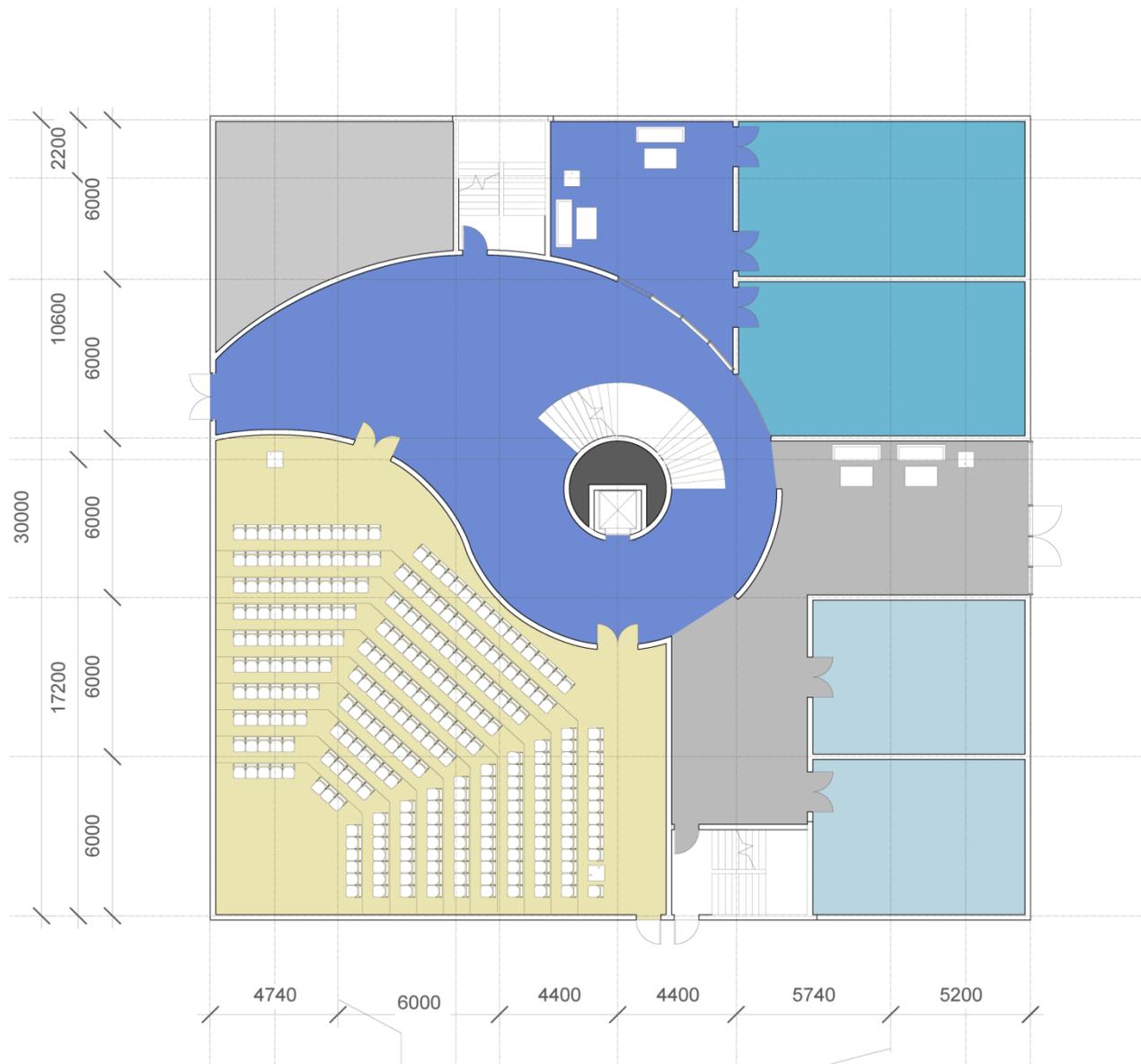
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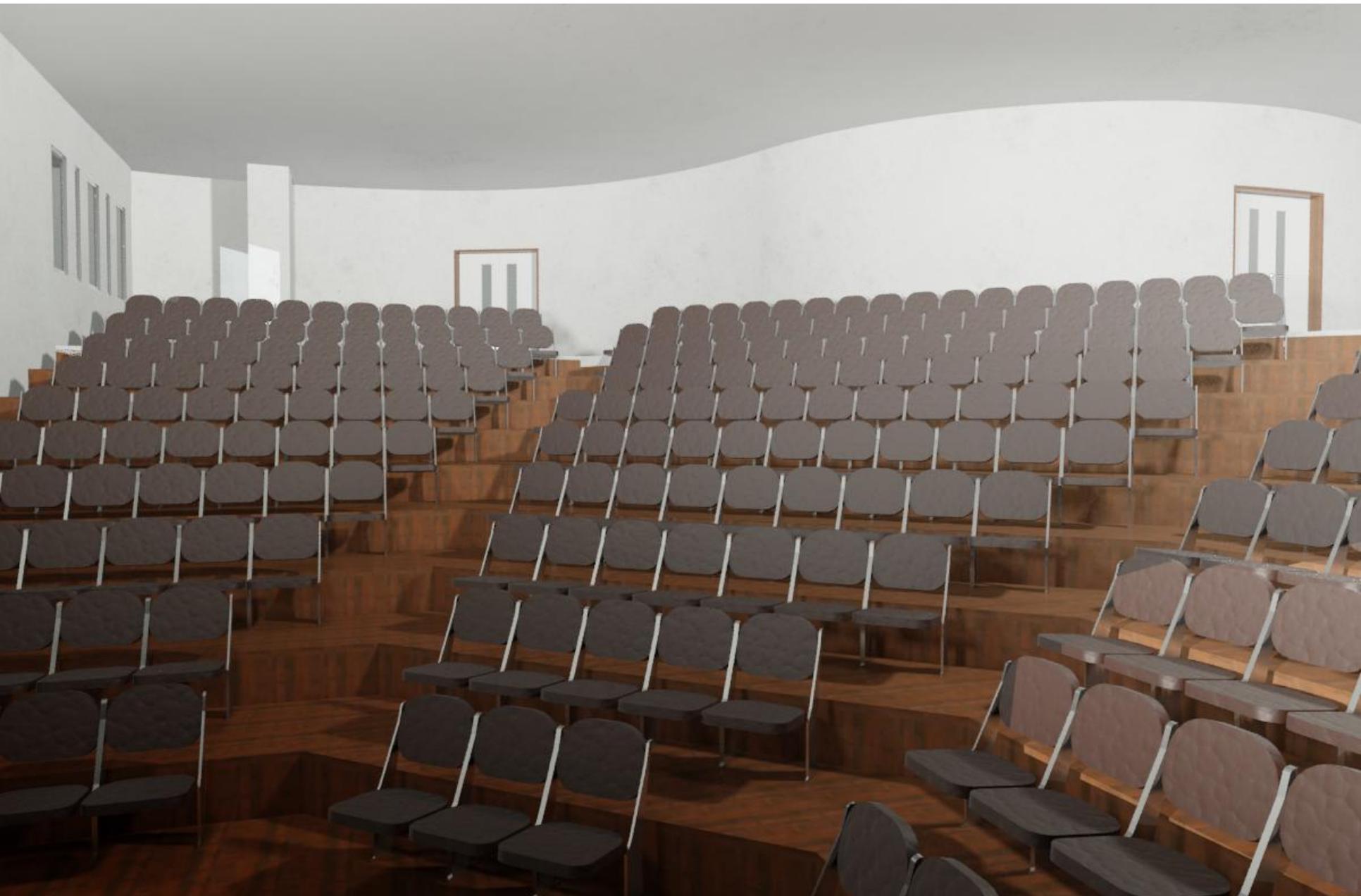
SE

CM

LCFM

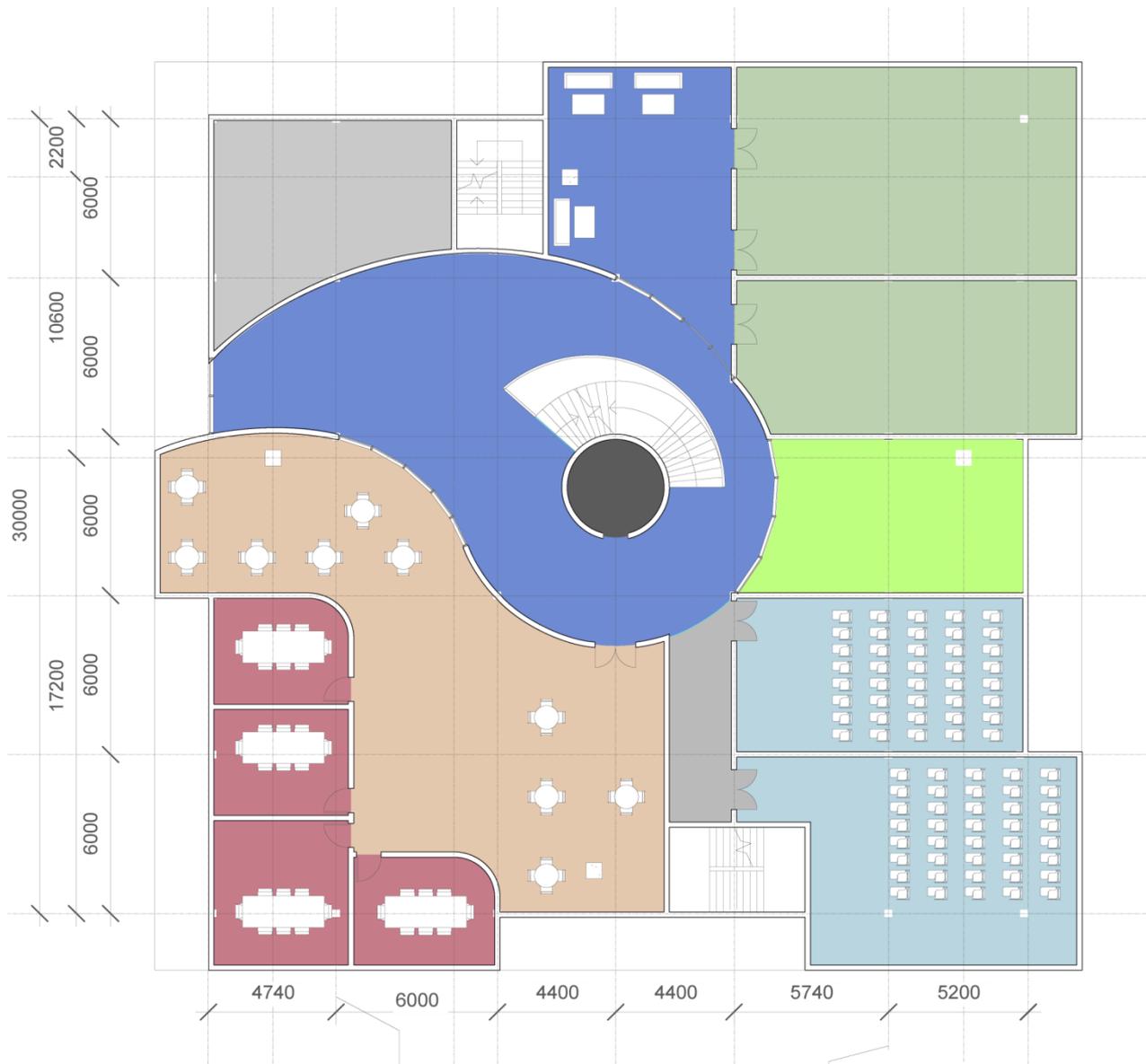
- circulation
- entrance hall
- auditorium
- large classroom
- small classroom
- restrooms
- lounge
- instructional lab
- server room
- student offices
- seminar room
- faculty office
- department's chair office
- senior administration office
- administrative assistants
- storage

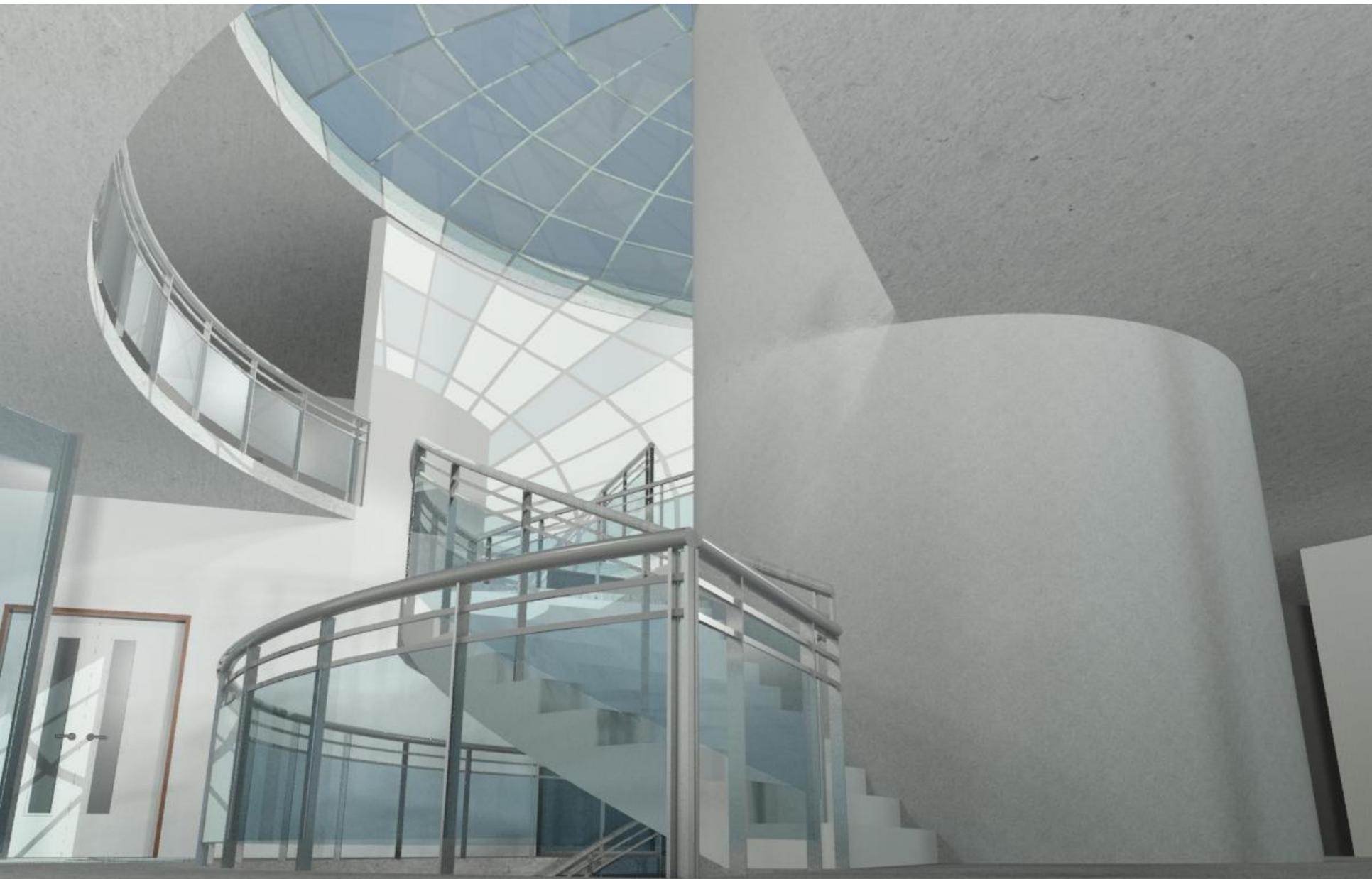






- circulation
- entrance hall
- auditorium
- large classroom
- small classroom
- restrooms
- lounge
- instructional lab
- server room
- student offices
- seminar room
- faculty office
- department's chair office
- senior administration office
- administrative assistants
- storage





A

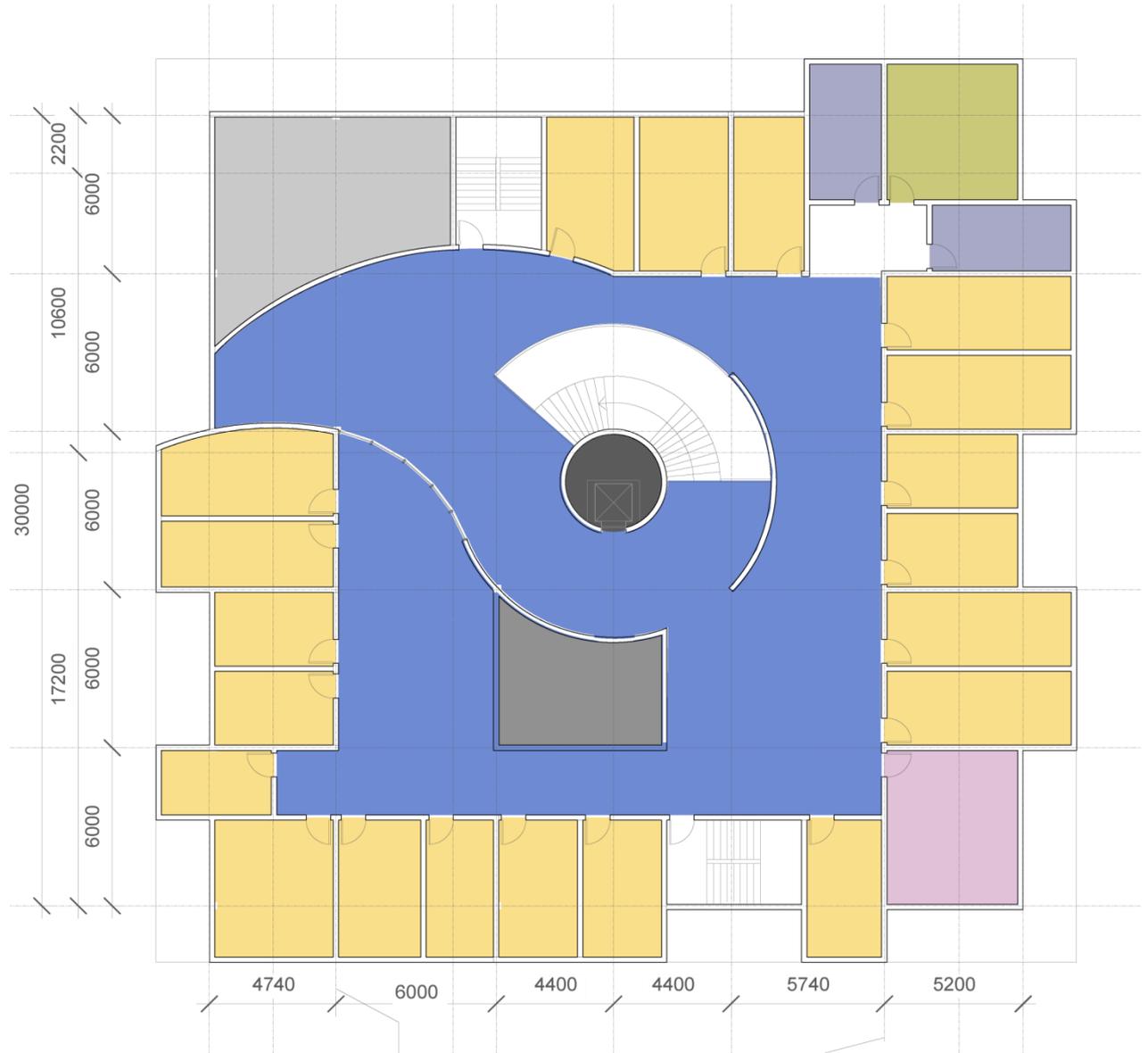
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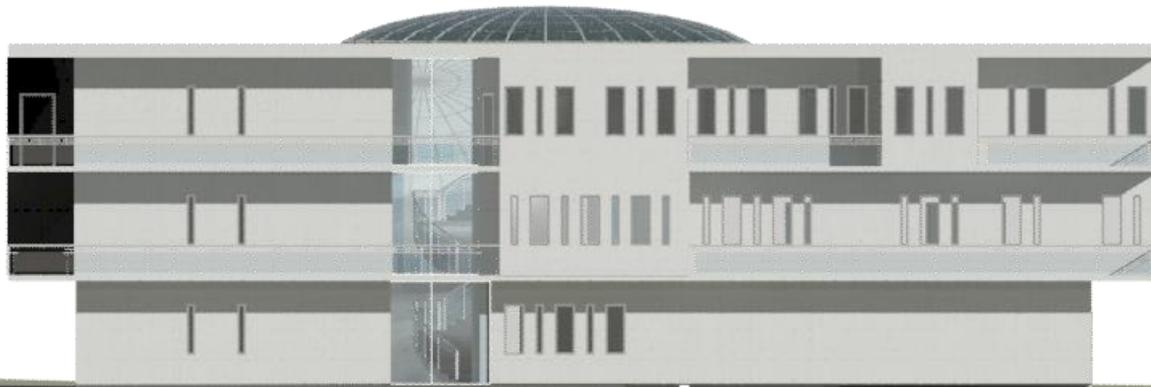
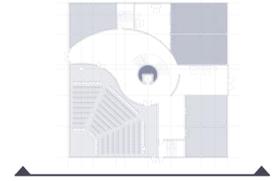
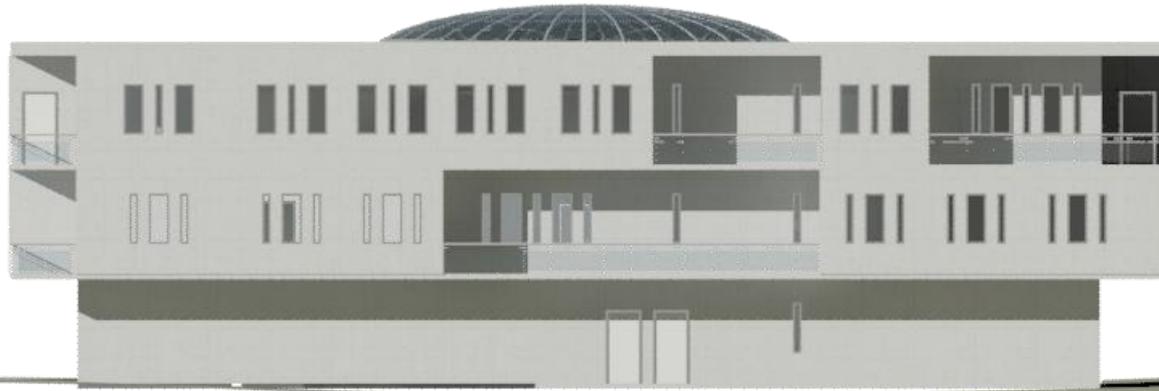
SE

CM

LCFM

- circulation
- entrance hall
- auditorium
- large classroom
- small classroom
- restrooms
- lounge
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- server room
- student offices
- seminar room
- faculty office
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- administrative assistants
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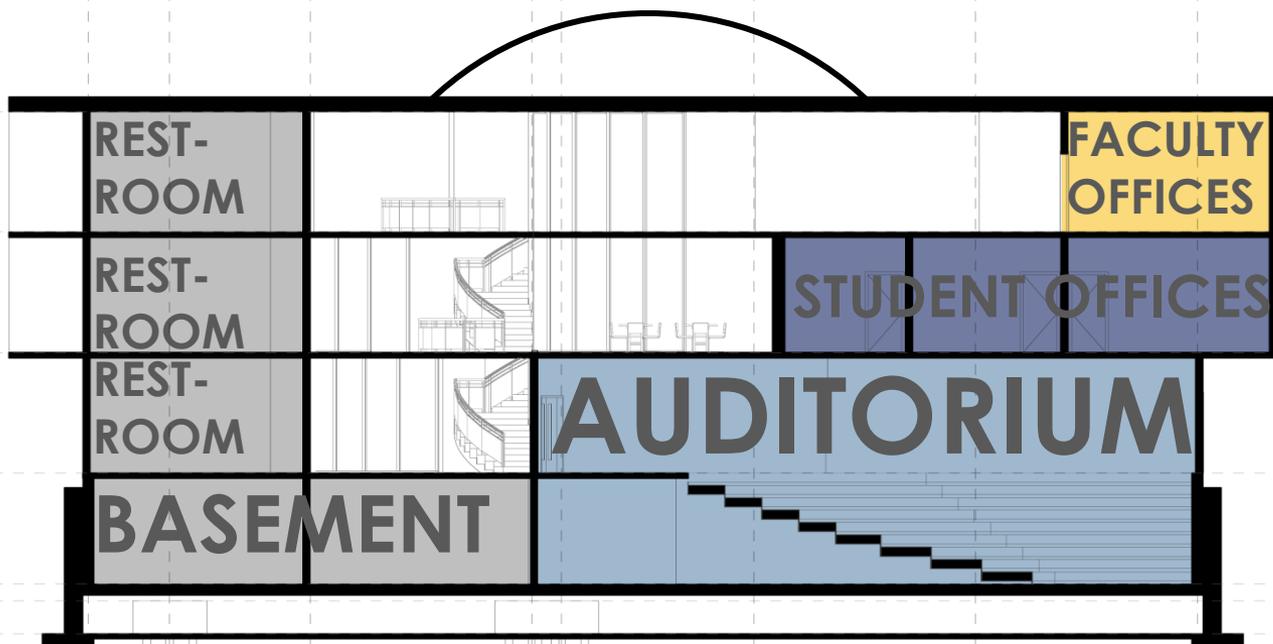
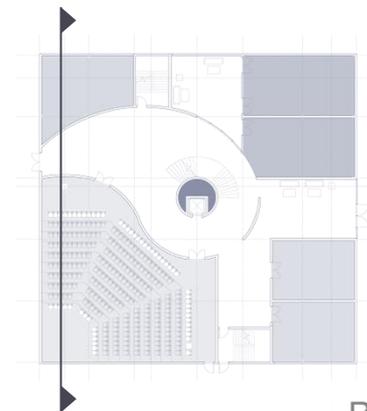
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MEP

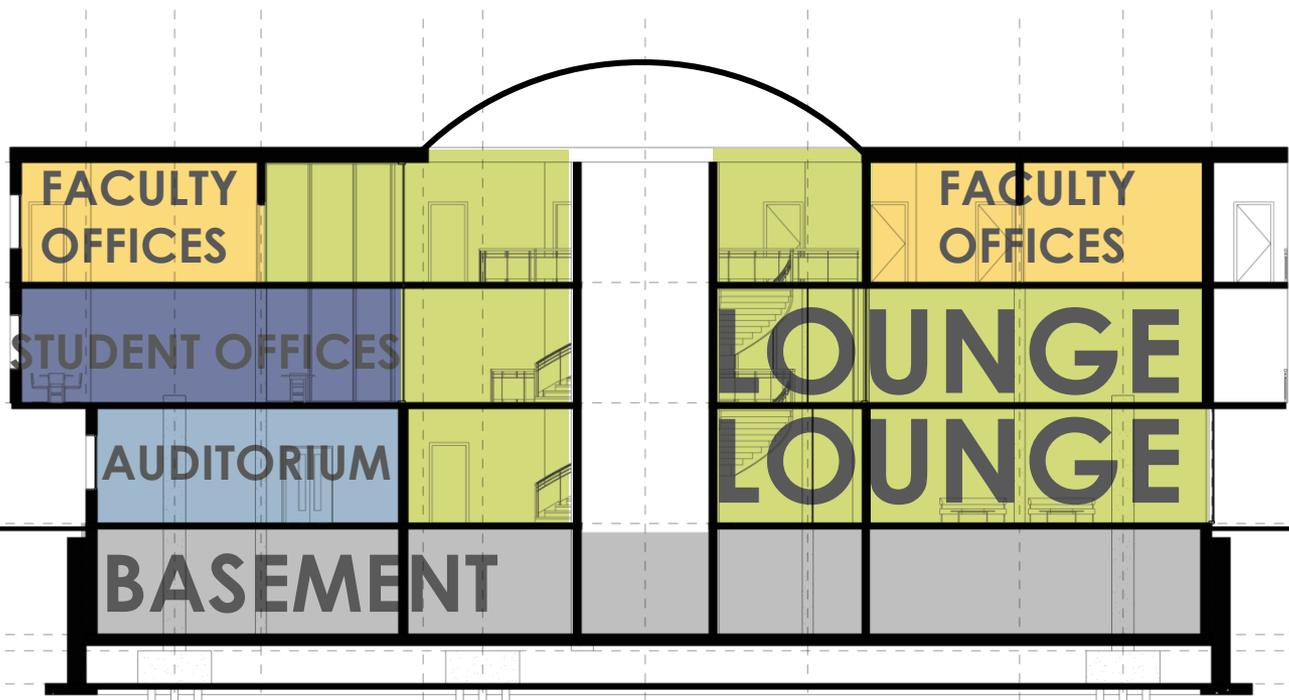
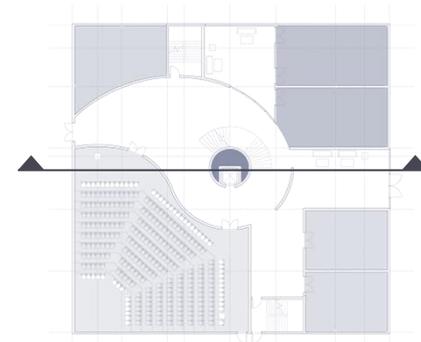
SE

CM

LCFM



- Roof 9900
- 3rd Floor 6600
- 2nd Floor 3300
- 1st Floor 0
- Basement -3048



Roof

9900

3rd Floor

6600

2nd Floor

3300

1st Floor

0

Basement

-3048

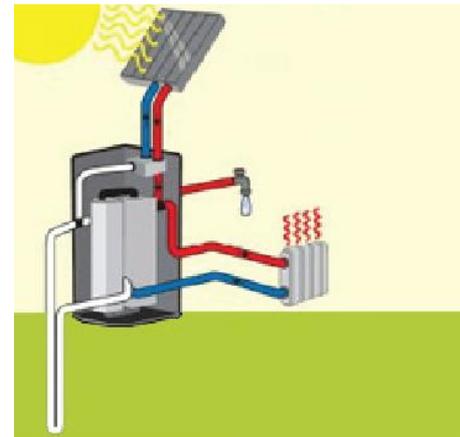
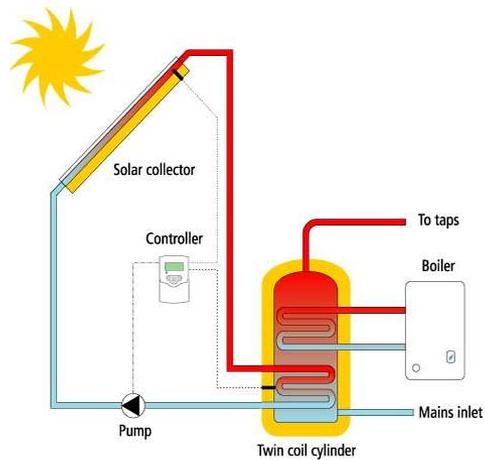
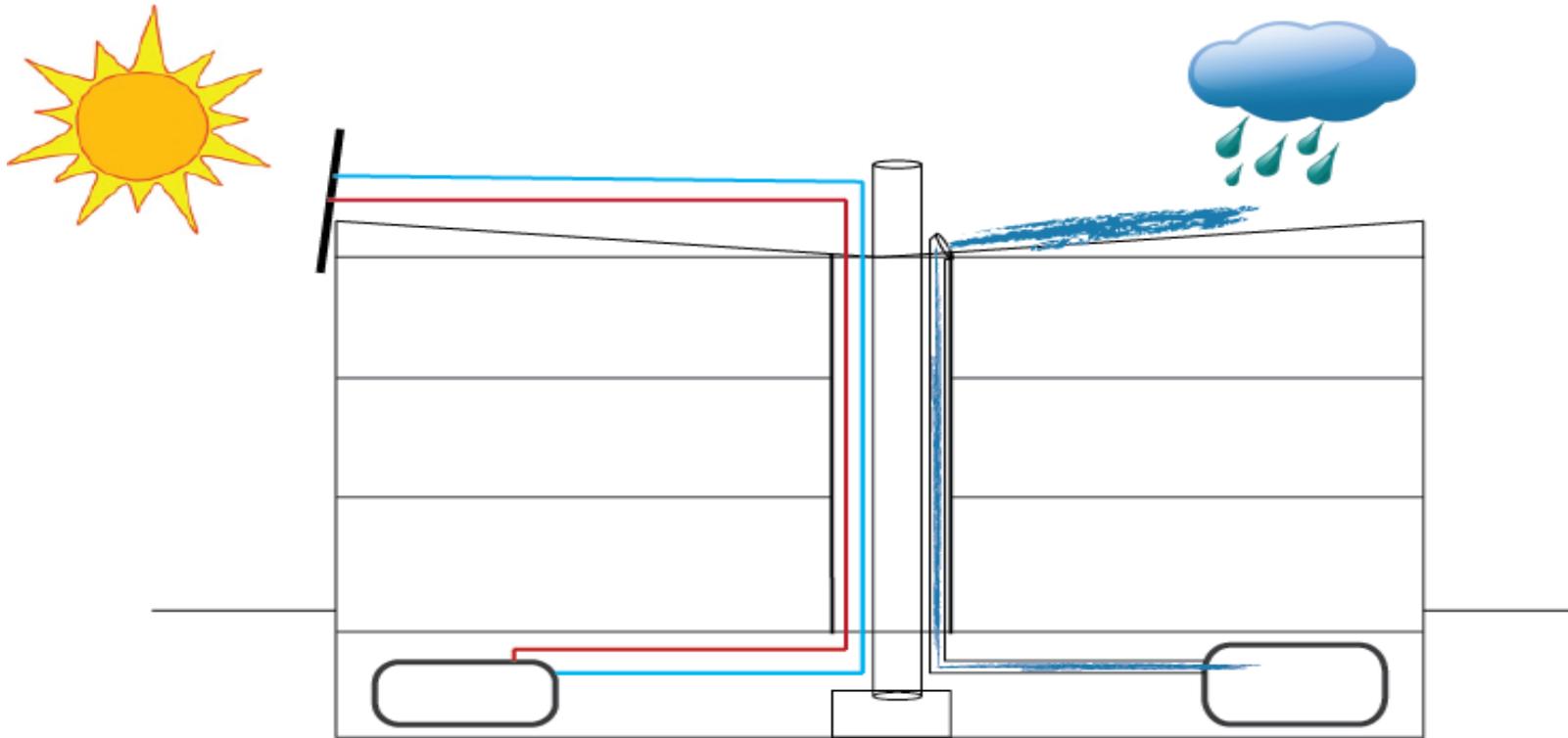
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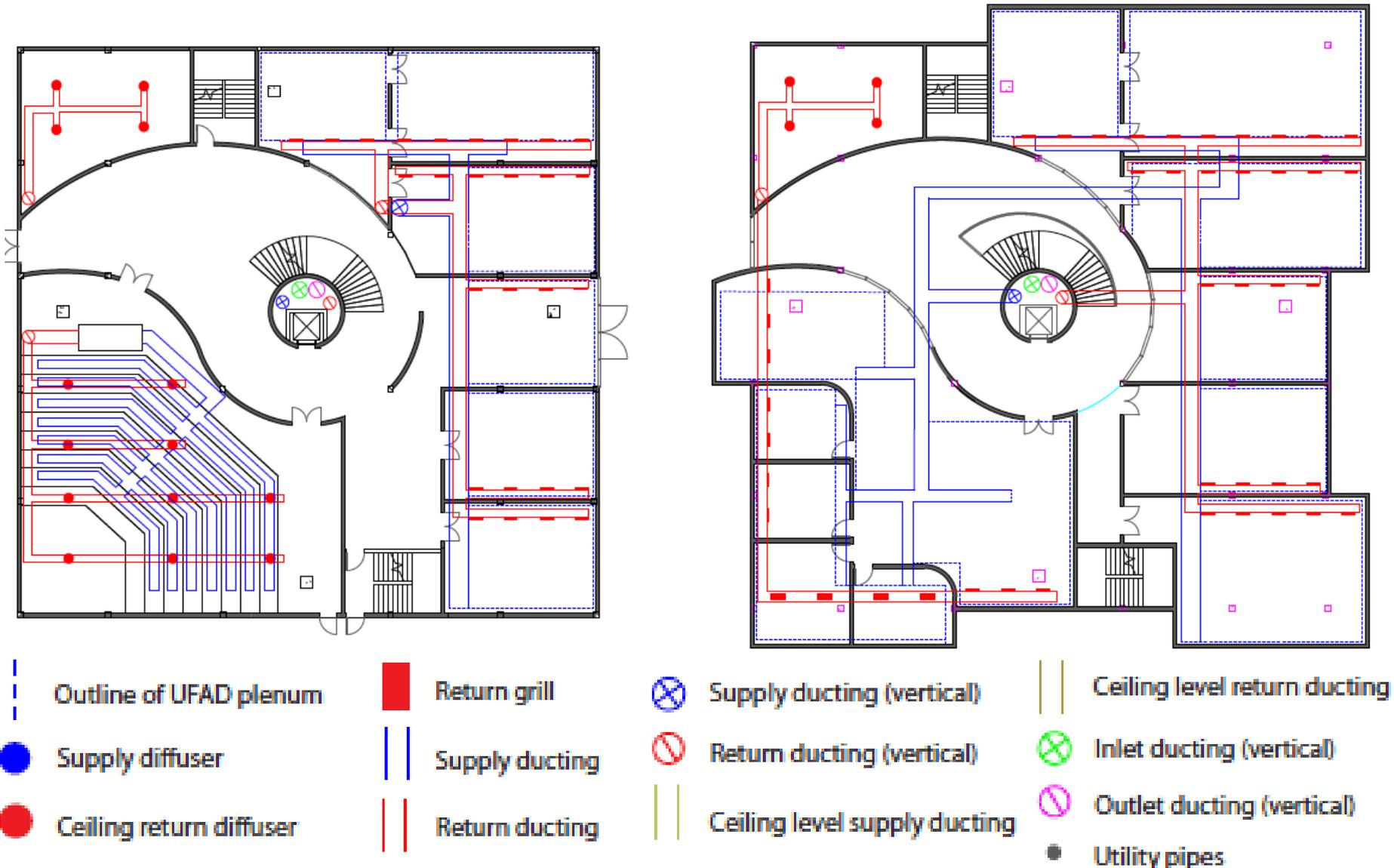
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CM

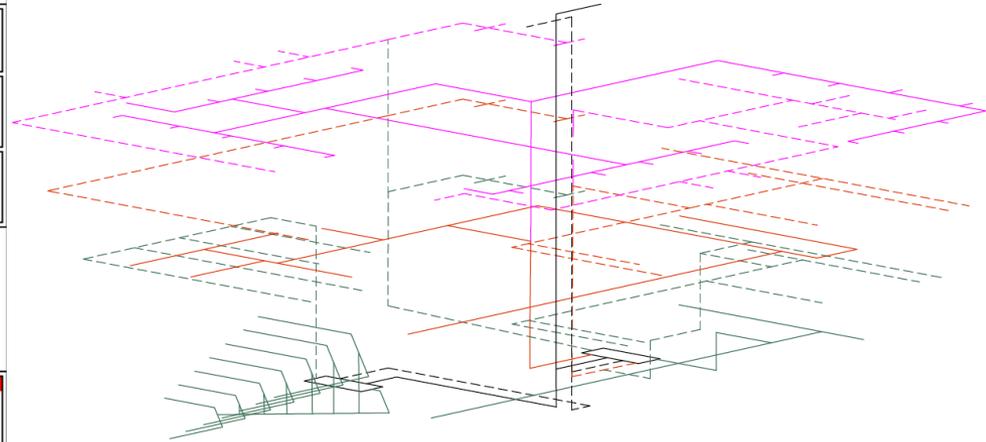
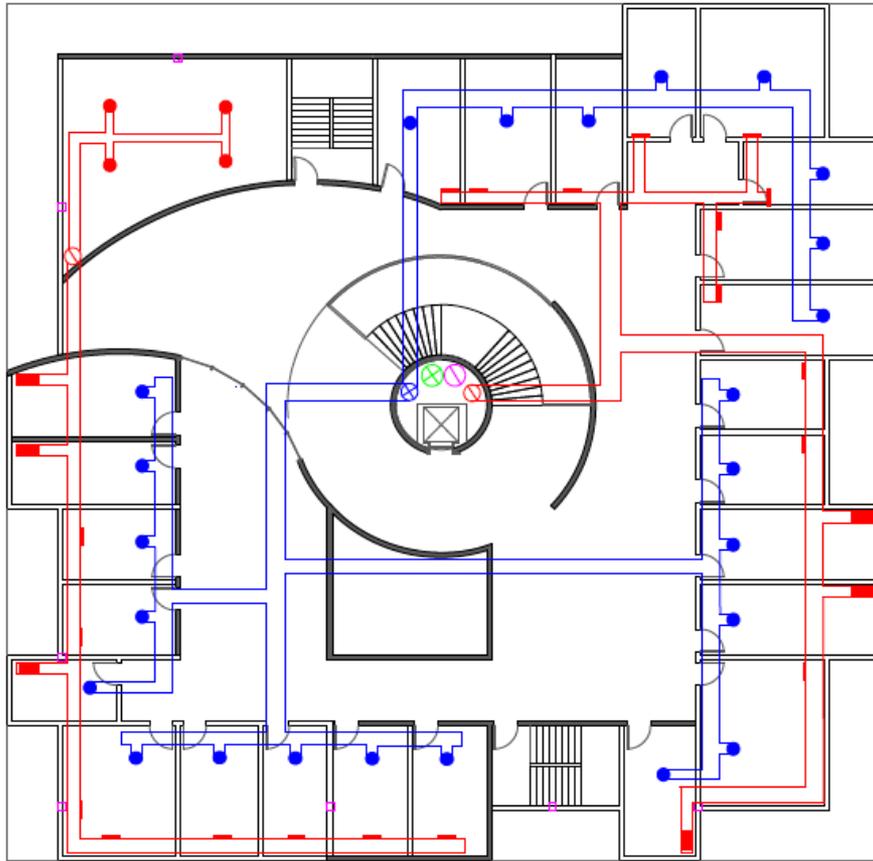
LCFM



First and second floor

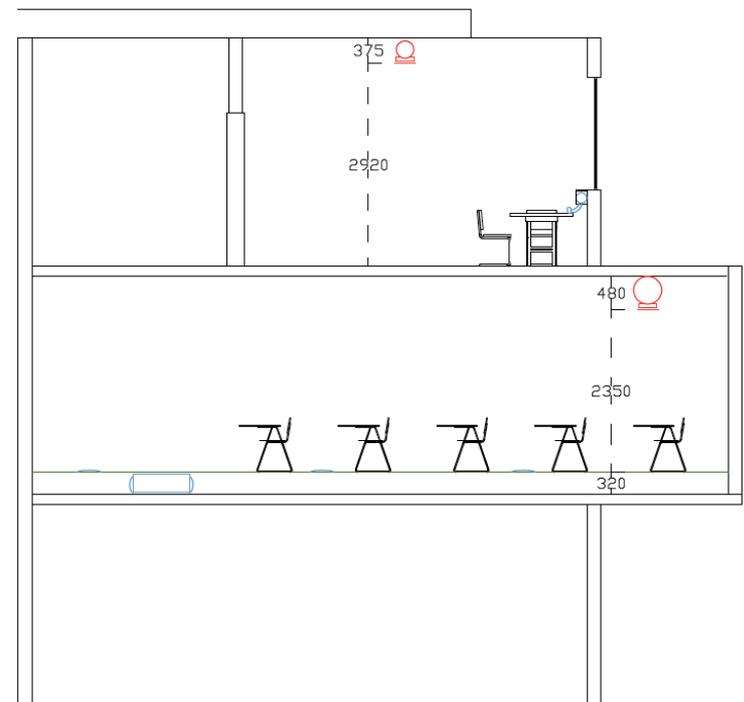
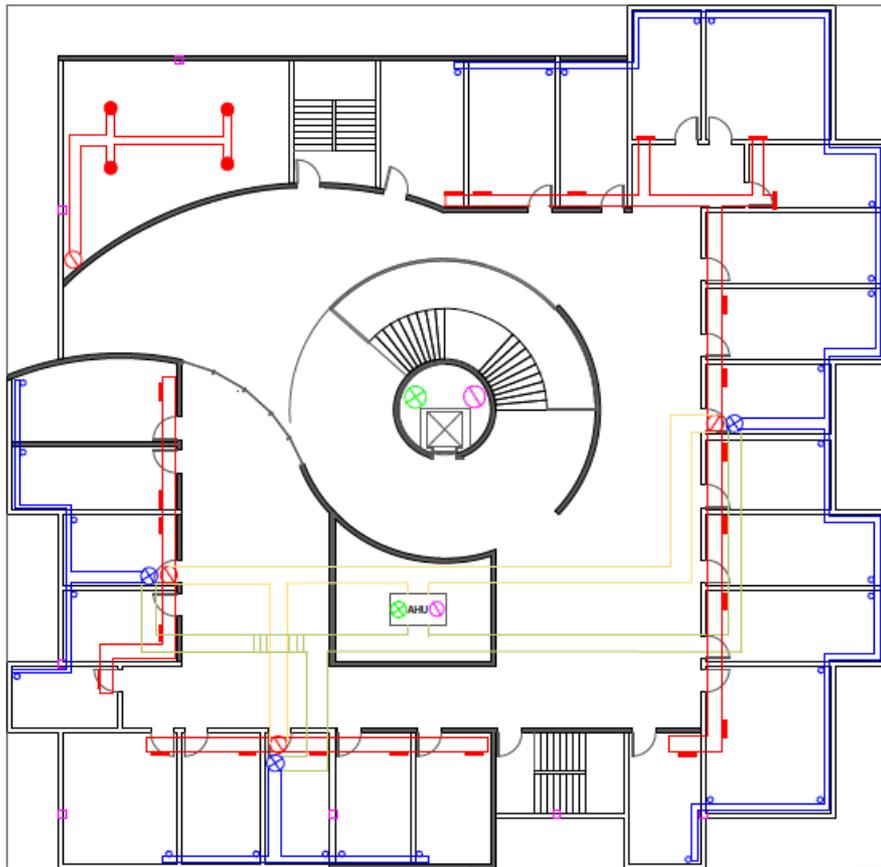


Third floor and 3d network

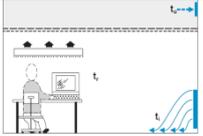
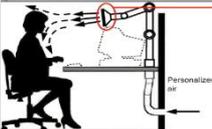
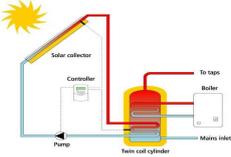


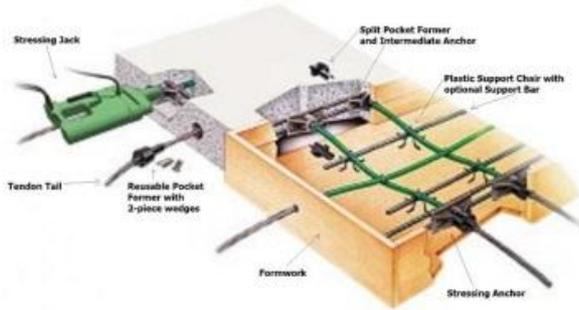
- | | | | |
|-------------------------|----------------|------------------------------|------------------------------|
| Outline of UFAD plenum | Return grill | Supply ducting (vertical) | Ceiling level return ducting |
| Supply diffuser | Supply ducting | Return ducting (vertical) | Inlet ducting (vertical) |
| Ceiling return diffuser | Return ducting | Ceiling level supply ducting | Outlet ducting (vertical) |
| | | Utility pipes | |

Option concept



- | | | | | | | | |
|--|-------------------------|--|----------------|--|------------------------------|--|------------------------------|
| | Outline of UFAD plenum | | Return grill | | Supply ducting (vertical) | | Ceiling level return ducting |
| | Supply diffuser | | Supply ducting | | Return ducting (vertical) | | Inlet ducting (vertical) |
| | Ceiling return diffuser | | Return ducting | | Ceiling level supply ducting | | Outlet ducting (vertical) |
| | | | | | Utility pipes | | |

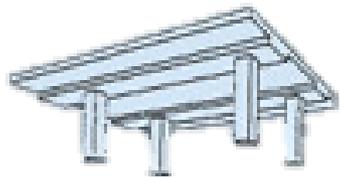
		INSTALLATION COST	ANNUAL ENERGY COST	25 YEARS COST	STV DELTA
AUDITORIUM VENTILATION		\$37.8k	\$2.1k	\$168.1k	
		\$30.7k	\$2.0k	<u>\$143.7k</u>	
# OF AHUS		\$48.8k	\$3.1k	\$227.8k	
		\$64.8k	\$1.3k	<u>\$210.3k</u>	
HEATING SYSTEM		\$216.3k	\$2.3k	\$573.3k	
		\$141.0k	\$4.1k	<u>\$500.3k</u>	- 2% points



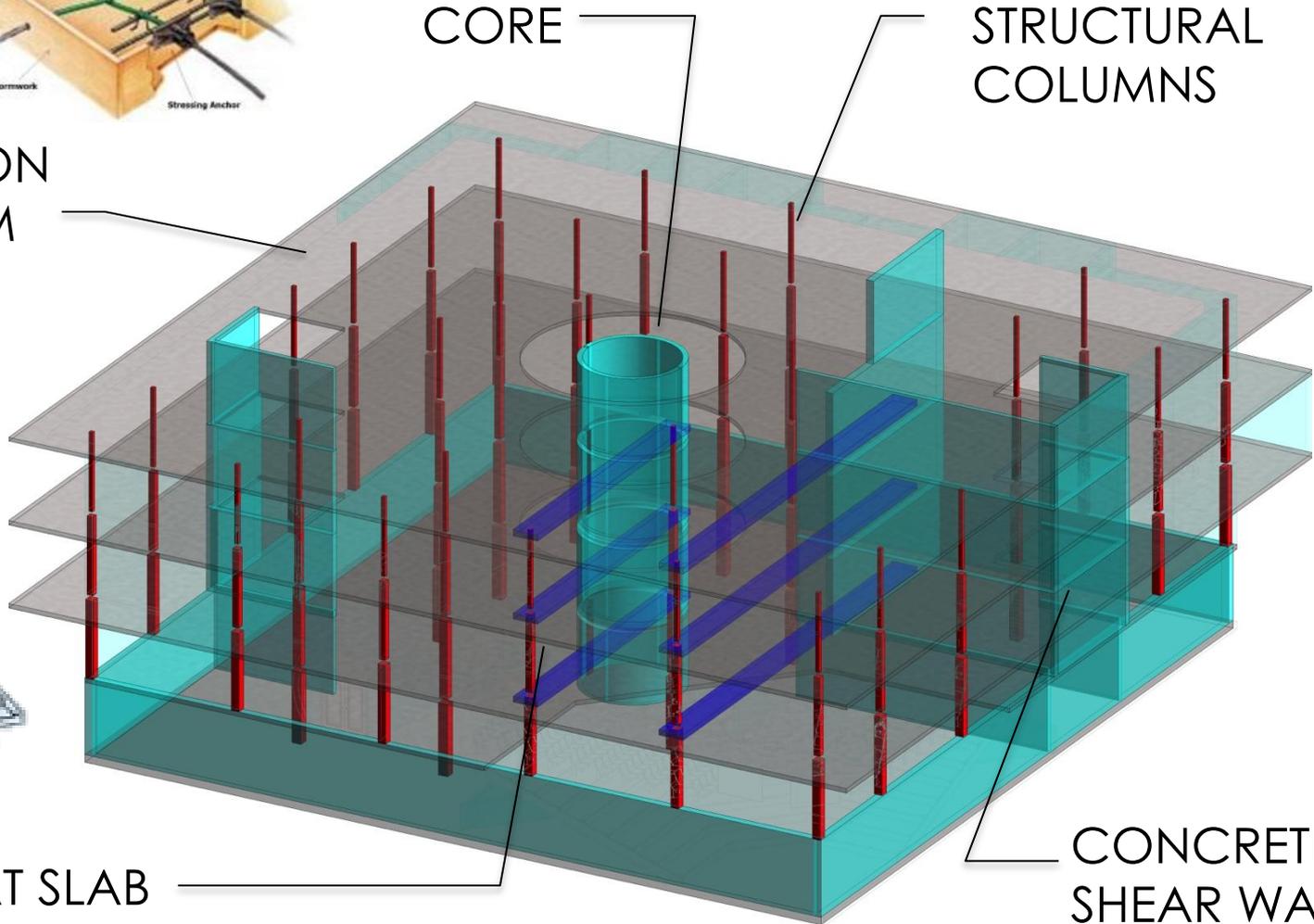
POST TENSION
SLAB SYSTEM

CORE

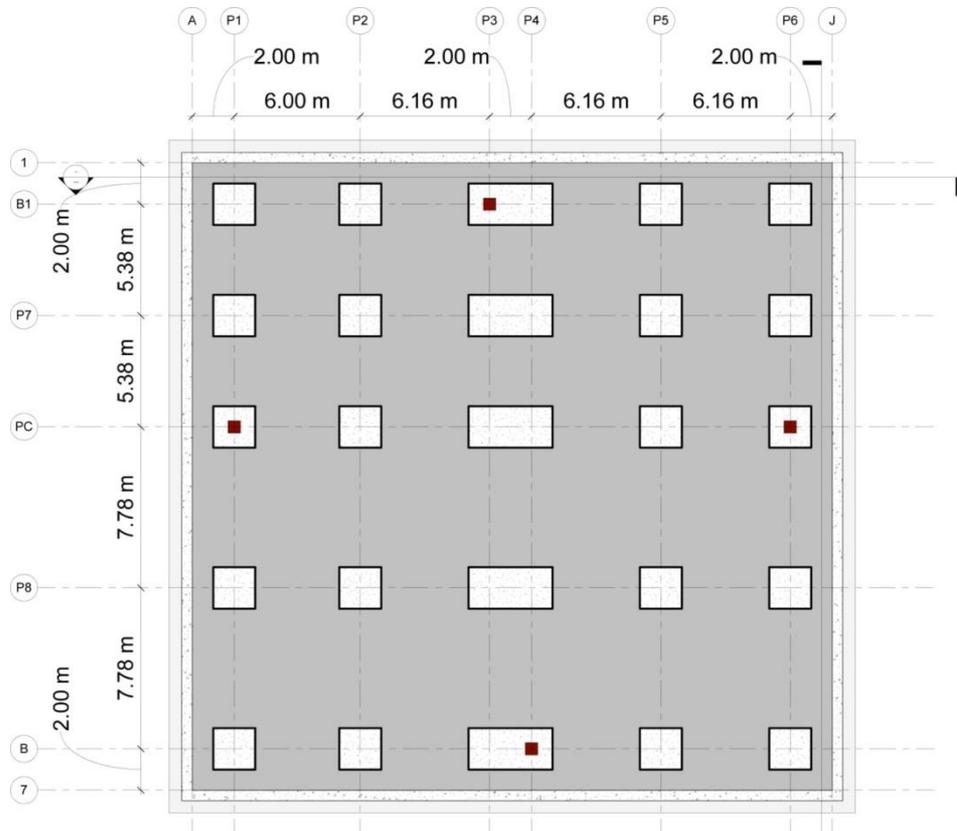
STRUCTURAL
COLUMNS



BANDED FLAT SLAB



CONCRETE
SHEAR WALL



FOUNDATION

GUIDEPOSTS

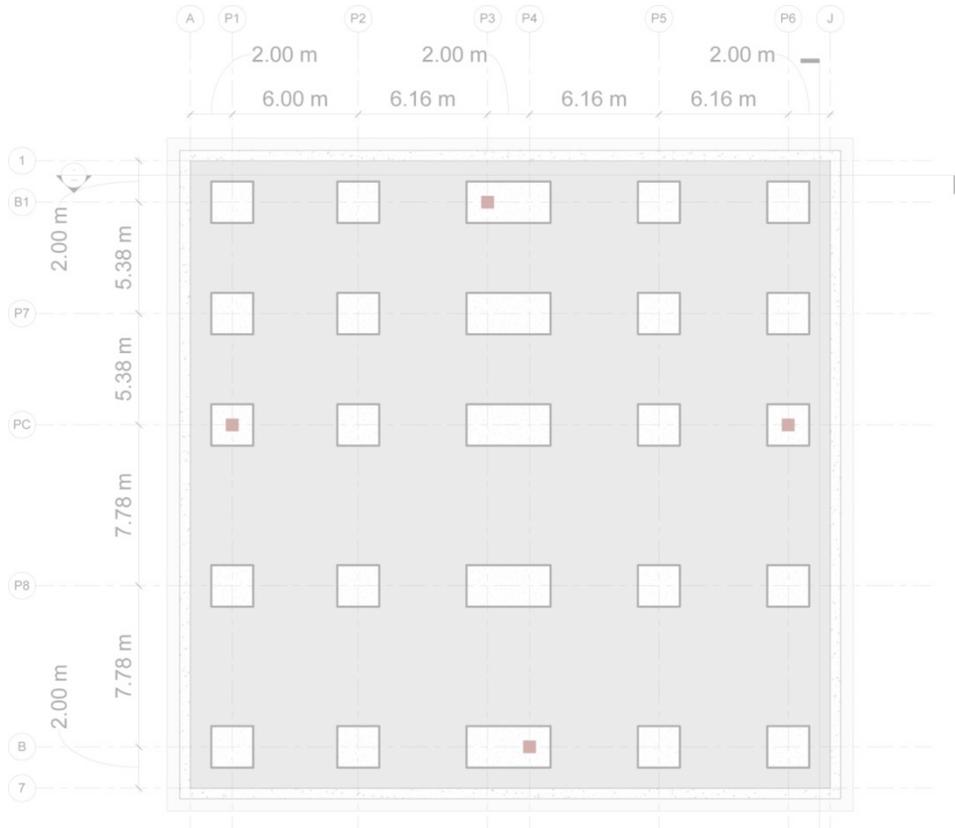
600x600 mm

SLAB THICKNESS

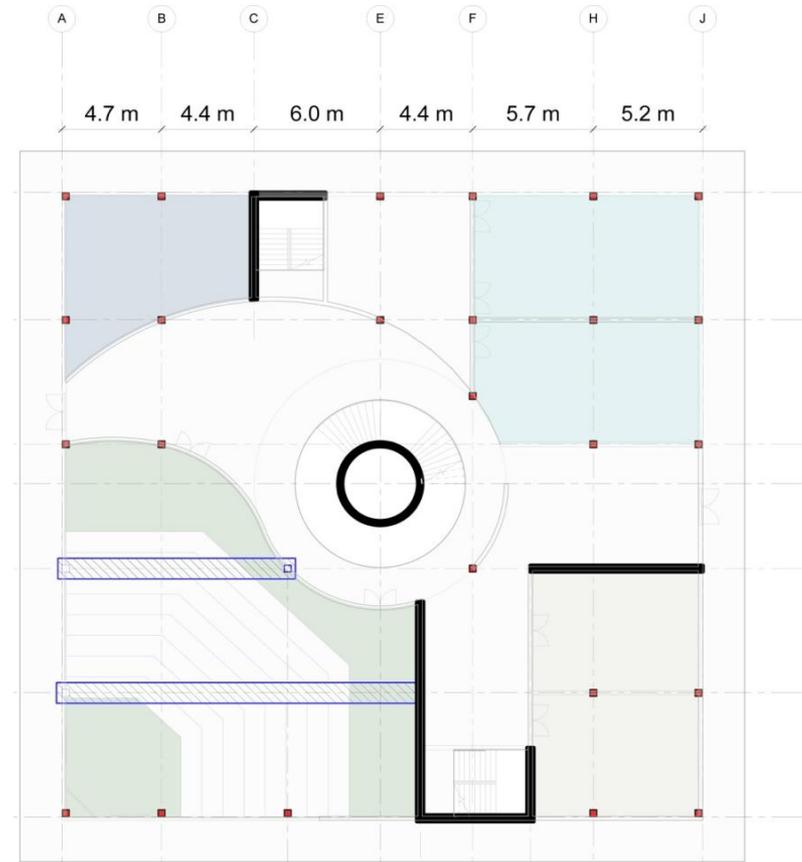
180 mm

RETAINING WALL THICK.

500 mm



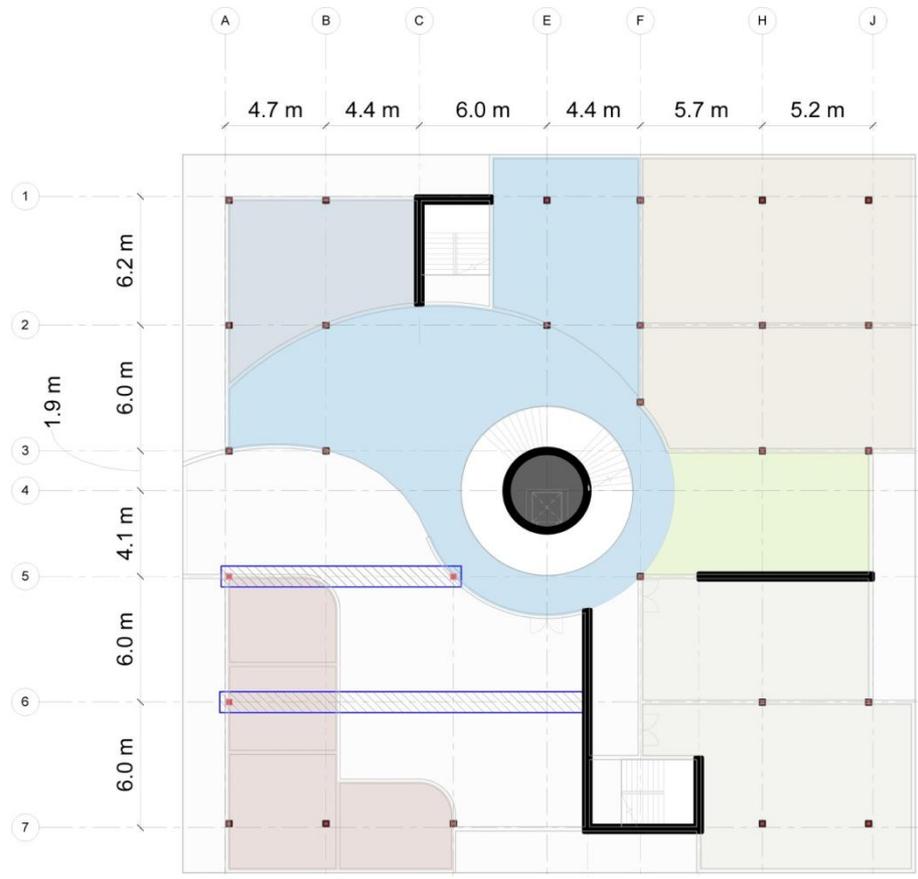
FOUNDATION



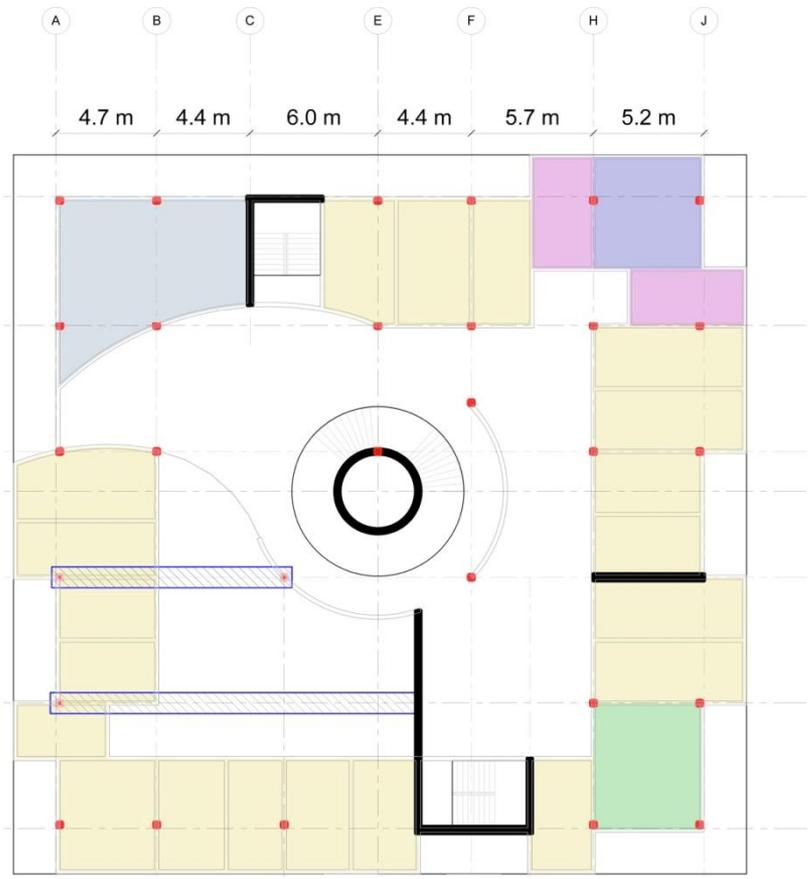
1ST / 2ND FLOOR

COLUMNS 600x600 mm
 BANDED SLAB 600x400 mm
 SLAB THICKNESS 180 mm
 SHEAR WALL THICKNESS 500 mm

320x320 mm
 600x400 mm
 180 mm
 200 mm



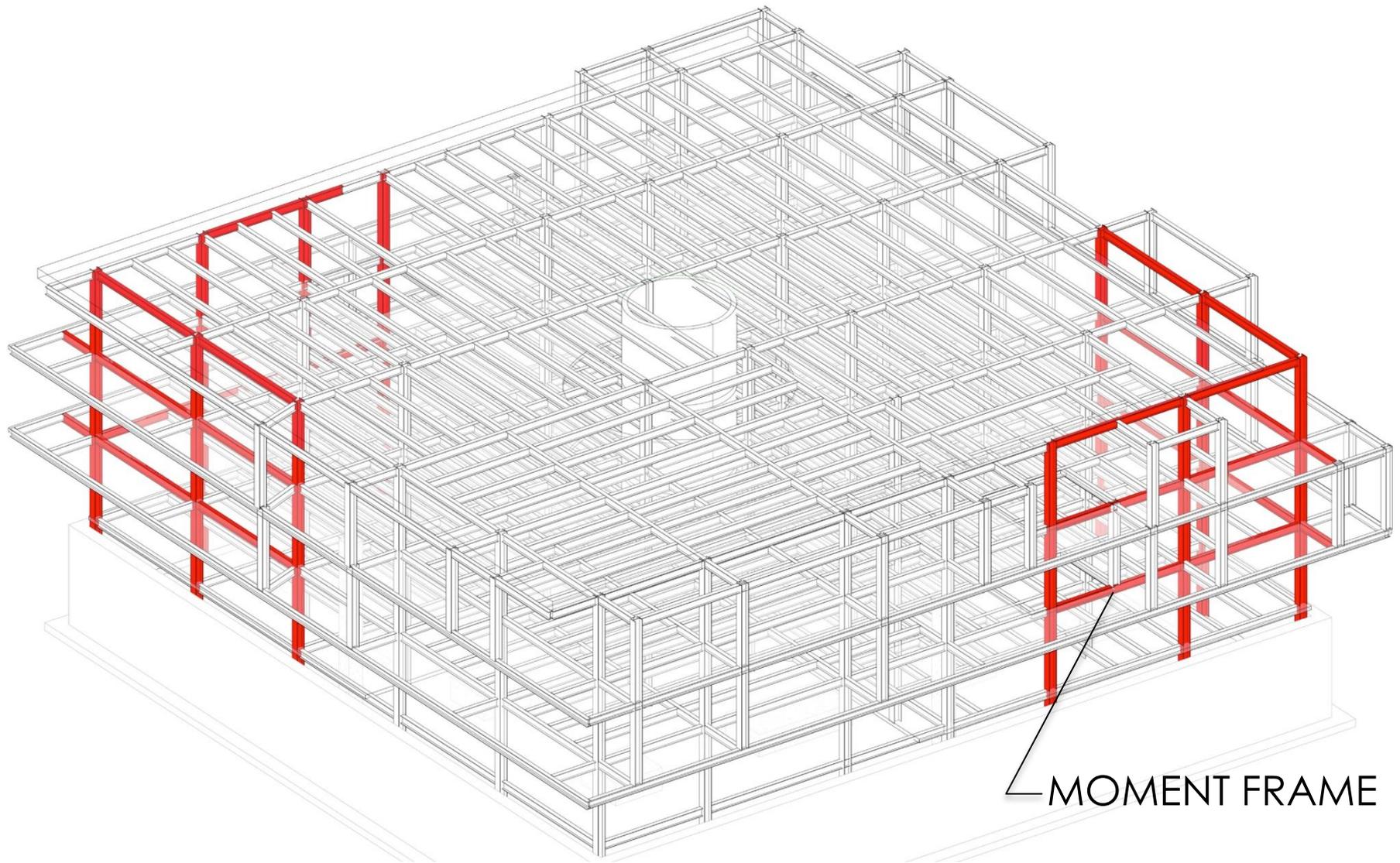
3rd Floor



Roof

COLUMNS	250x250 mm
BANDED SLAB	600x400 mm
SLAB THICKNESS	180 mm
SHEAR WALL THICKNESS	200 mm

180x180 mm
600x400 mm
150 mm
150 mm



MOMENT FRAME

2ND Floor

Columns:

Interior W12x96
 Exterior W10x45

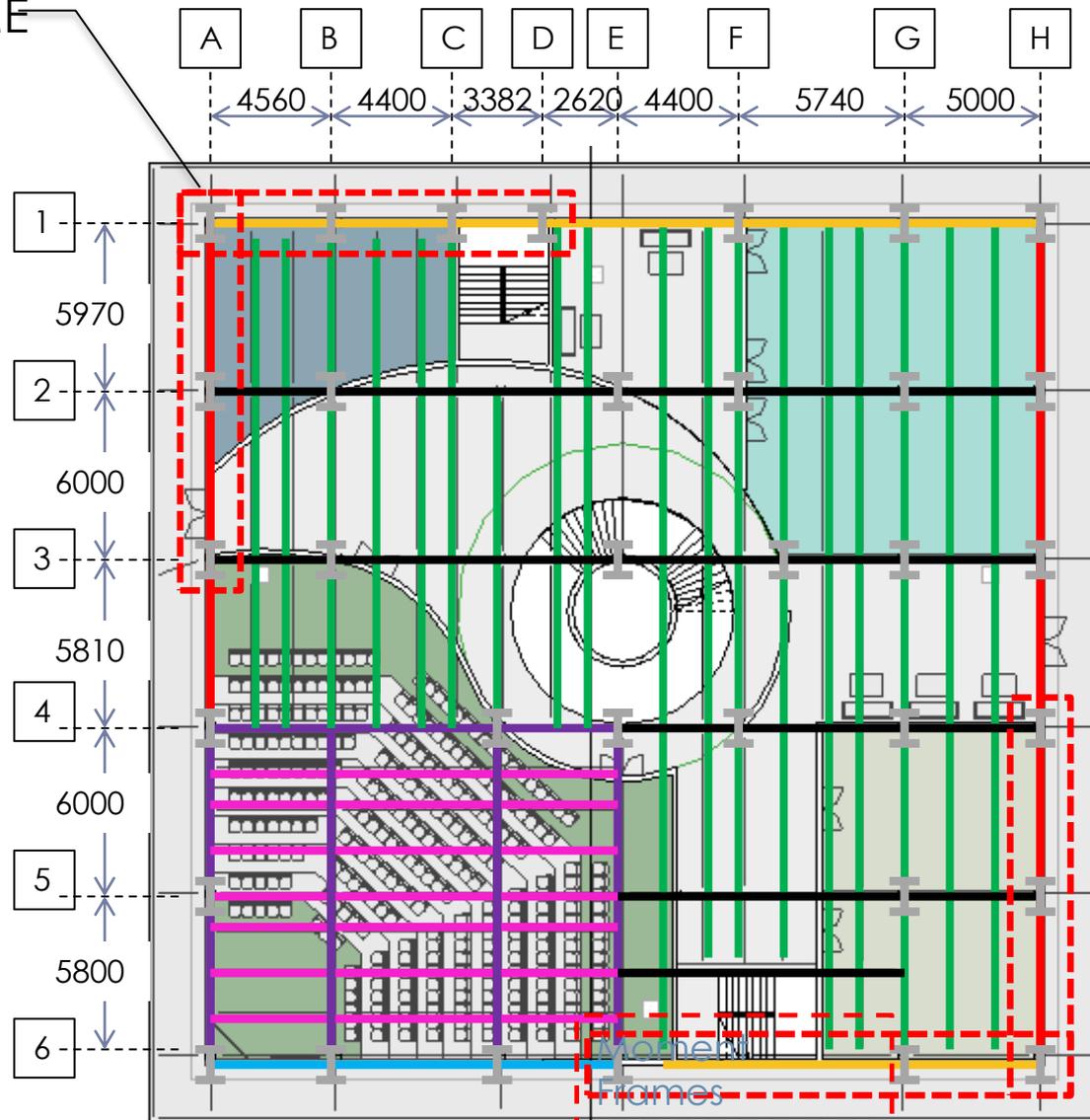
Typical Member Sizes:

Ext. FB W18x21
Int. FB W10x30
Ext. FG W12x26
Int. FG W24x55

Auditorium Members:

Ext. FB W8x21
Int. FB W10x30
Ext. FG W24x68
Int. FG W36x160

MOMENT
T FRAME



3RD Floor

Typical Member Sizes:

Ext. FB **W18x21**

Int. FB **W10x30**

Ext. FG **W12x26**

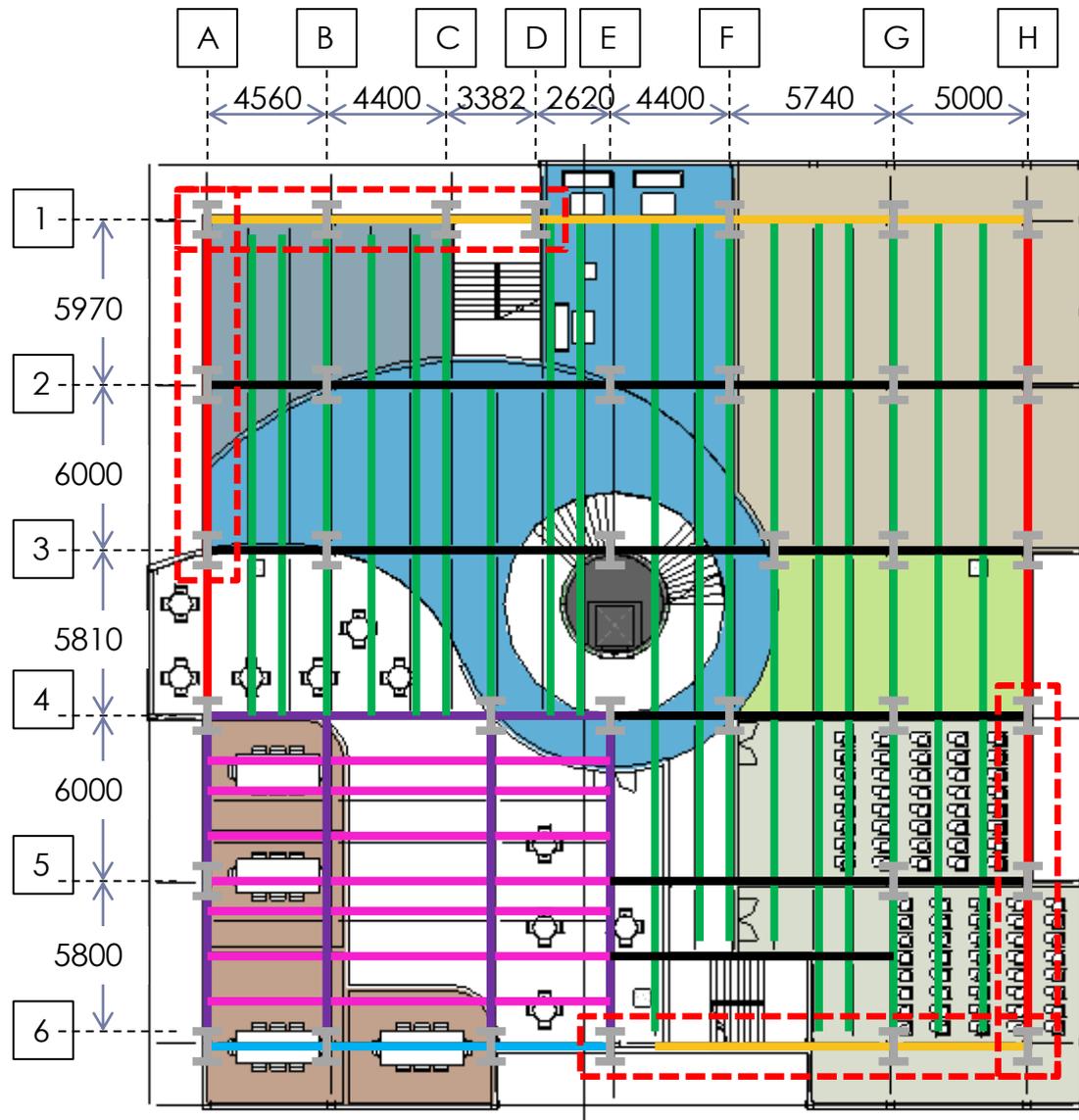
Int. FG **W24x55**

Ext. FB **W8x21**

Int. FB **W10x30**

Ext. FG **W24x68**

Int. FG **W36x160**

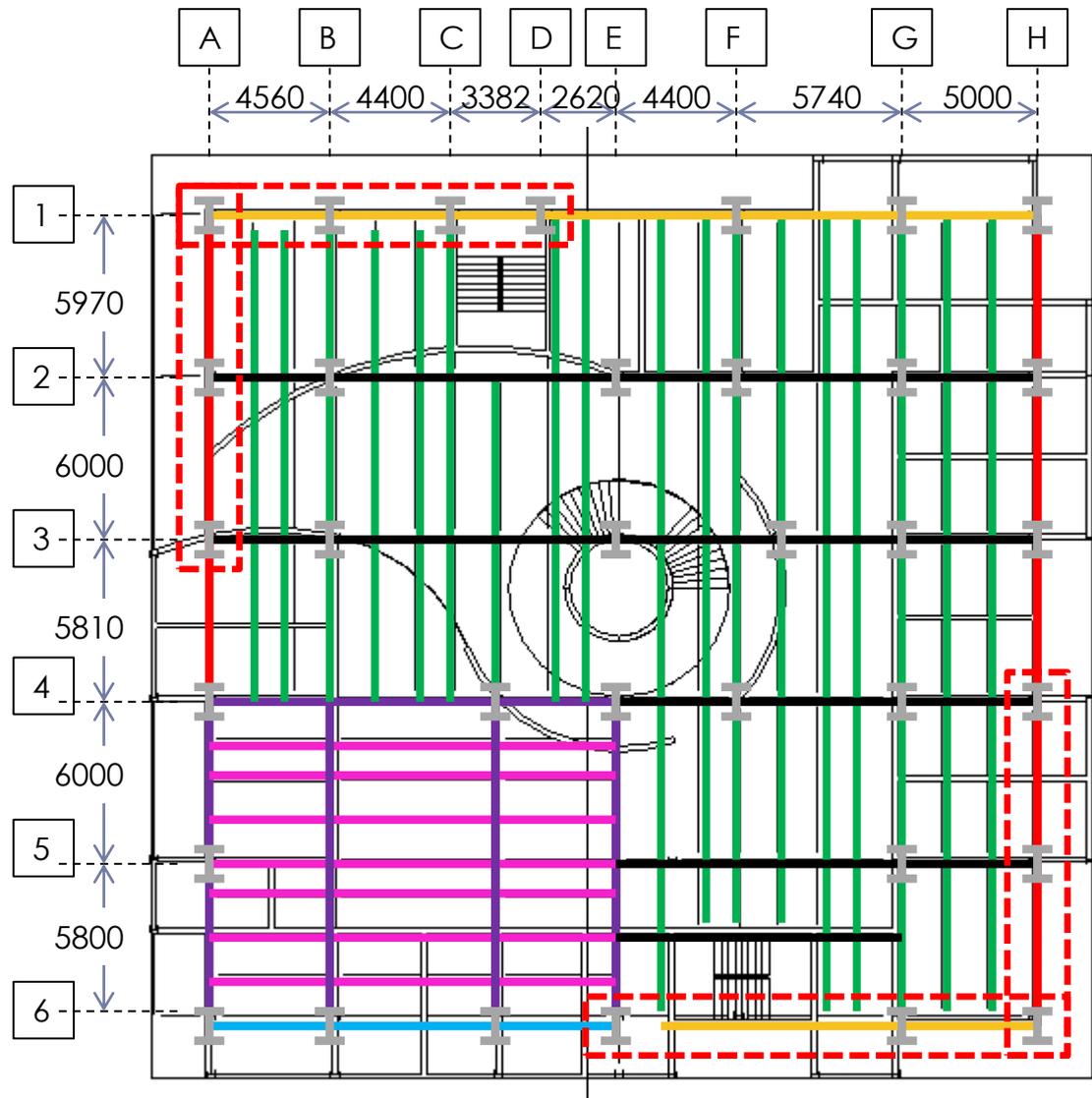


ROOF

Typical Member Sizes:

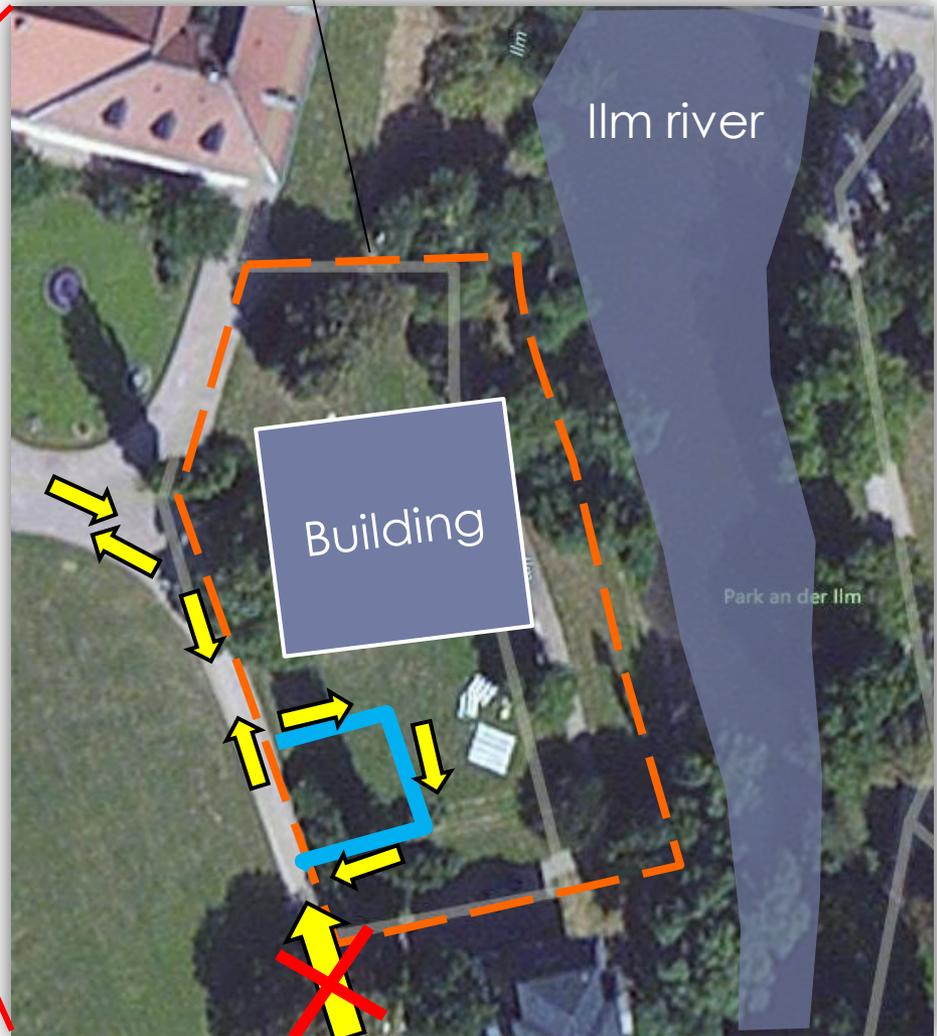
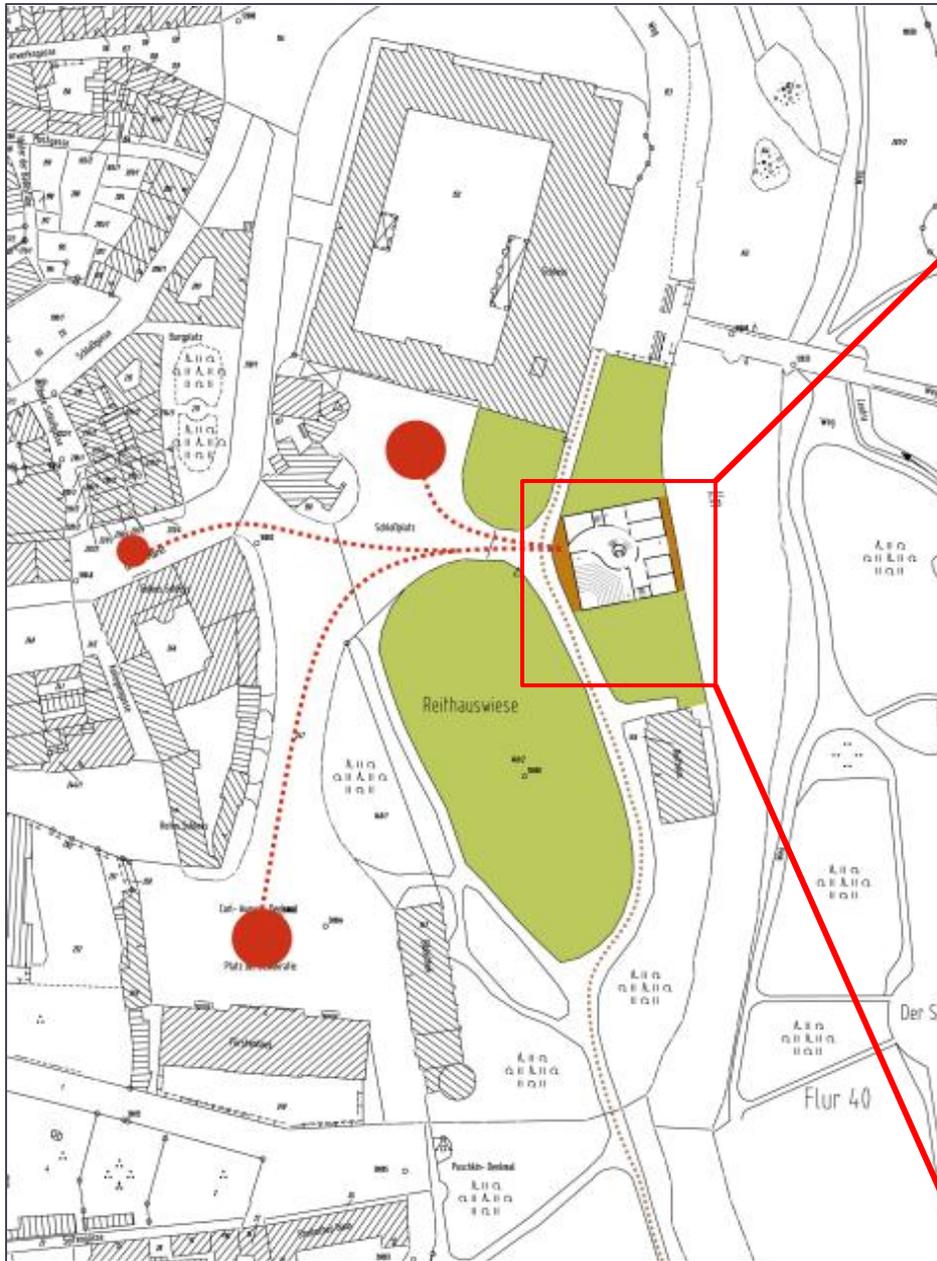
Ext. RB **W8x18**
Int. RB **W8x24**
Ext. RG **W10x22**
Int. RG **W18x50**

Ext. RB **W8x18**
Int. RB **W10x26**
Ext. RG **W24x62**
Int. RG **W36x135**





Construction Site



A

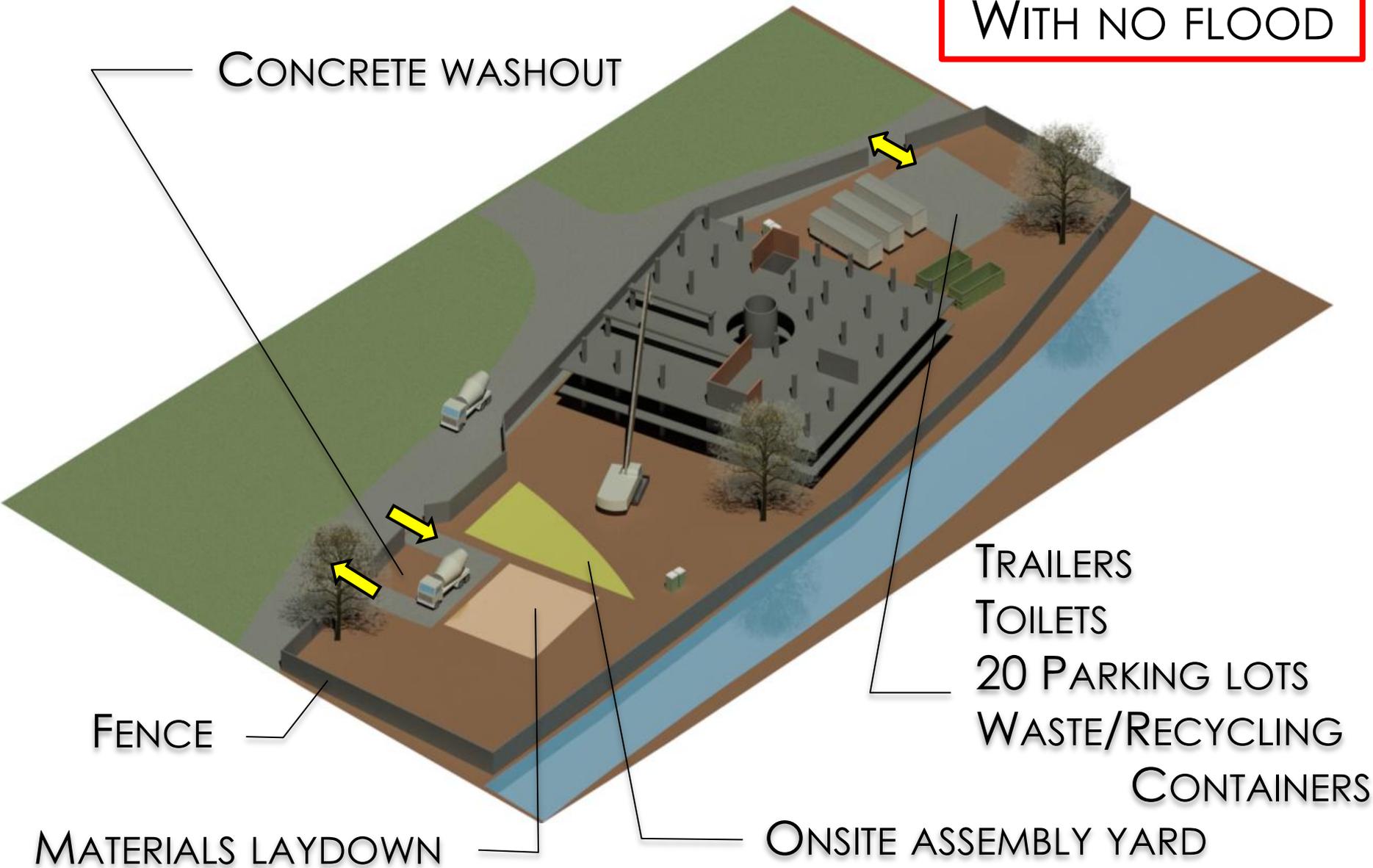
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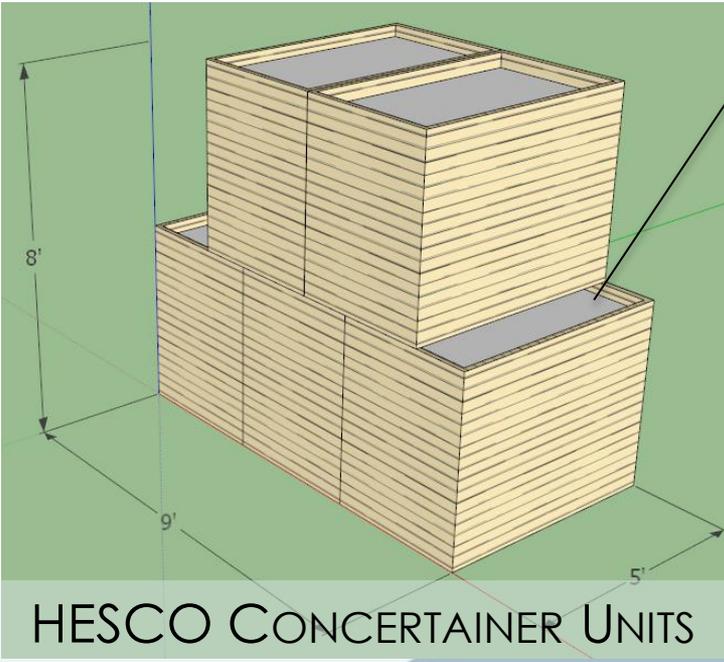
SE

CM

LCFM

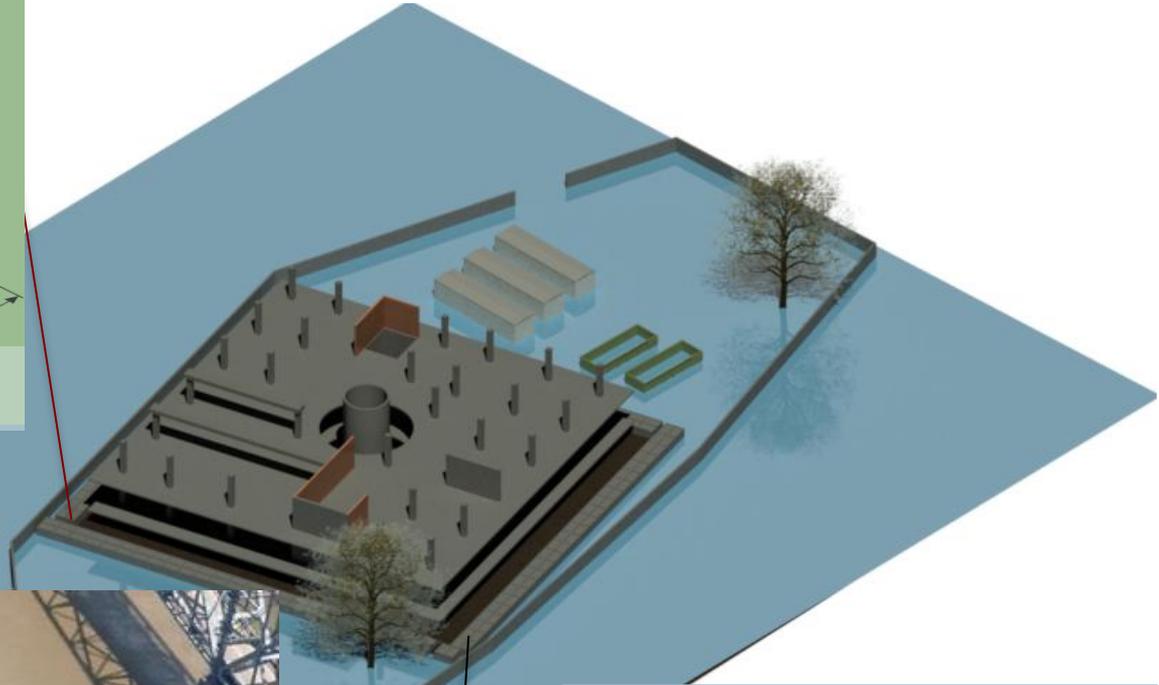
WITH NO FLOOD





SAND FILL

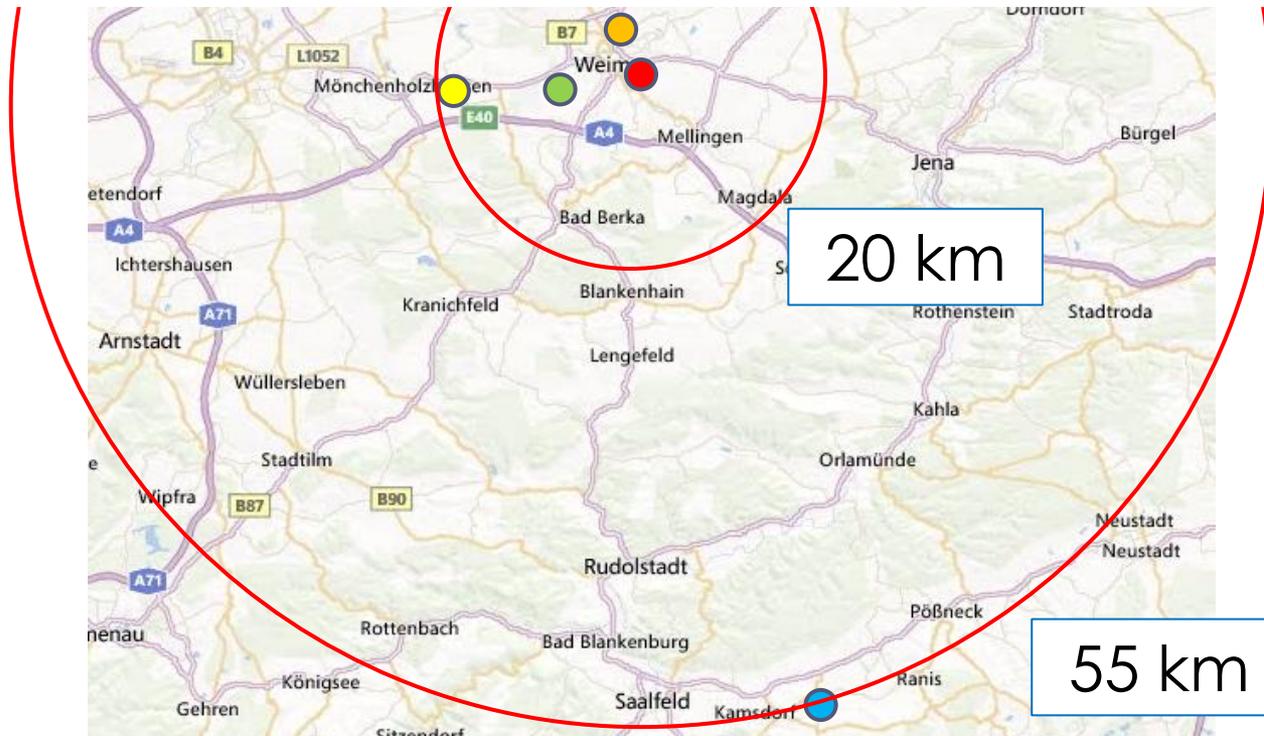
WITH FLOOD



- LENGTH: 160M
- HEIGHT: 2.44 M
- 5 HOUR TO INSTALL

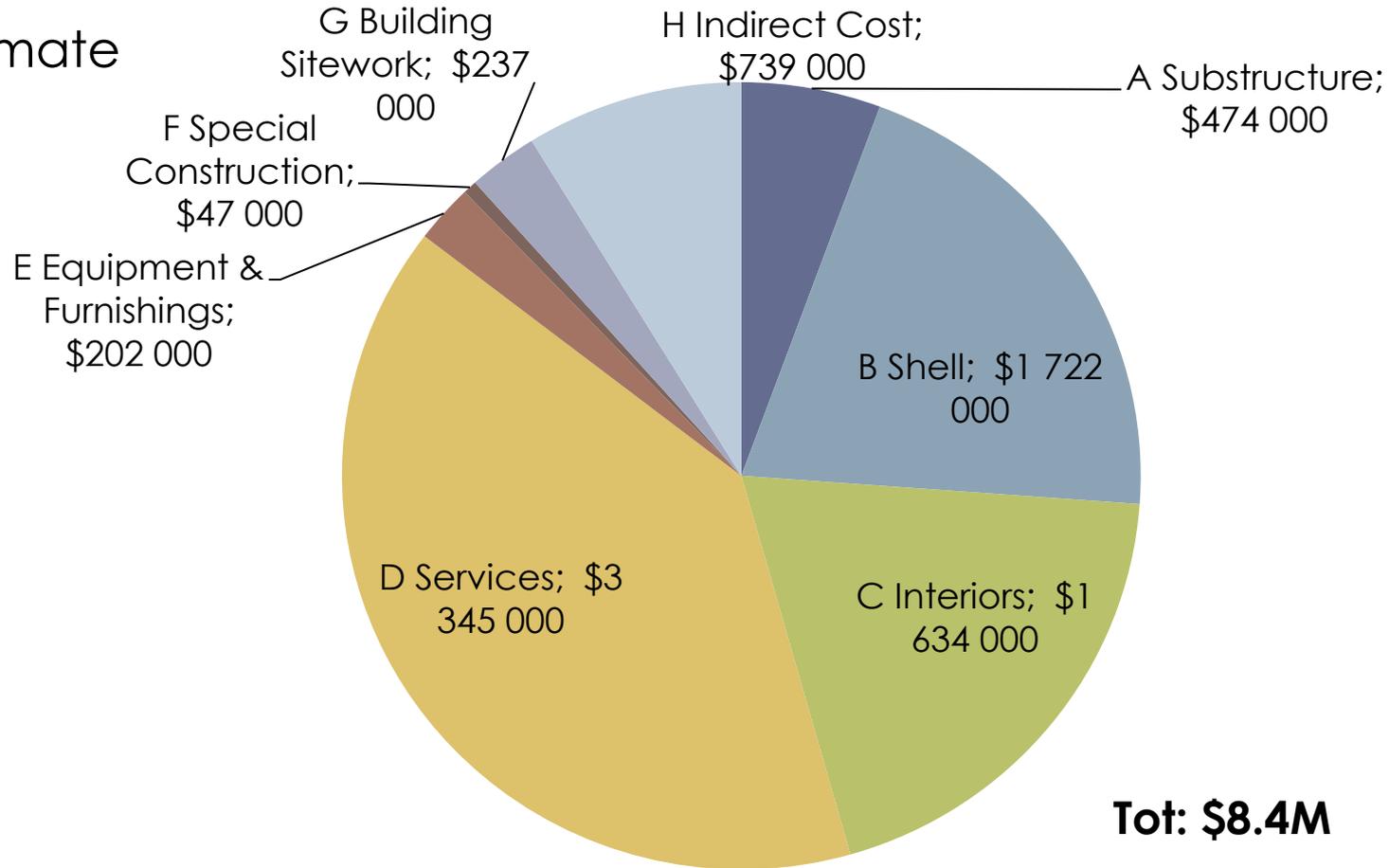


- CONCRETE - THOMAS-GRUPPE 2.6KM
- PRECAST CONCRETE - BETONWERK STREICHARDT 2.9KM
- STEEL – STAHLWERKE THÜRINGEN 54KM
- CONSTRUCTION EQUIPMENT - ZEPPELIN-RENTAL 19KM



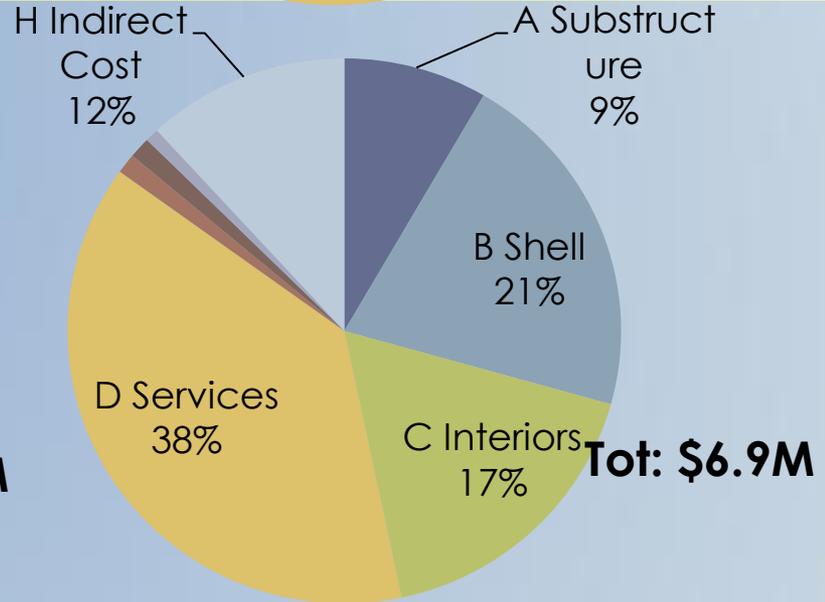
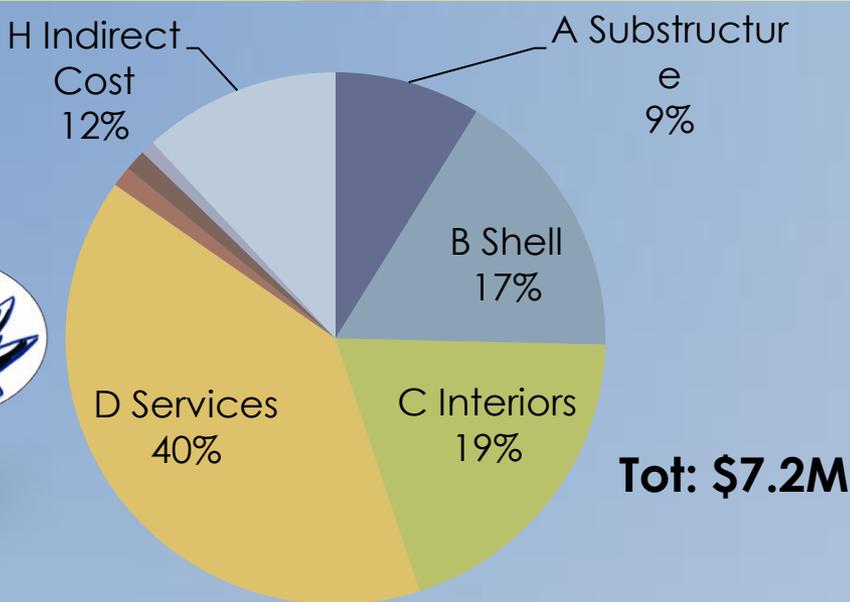
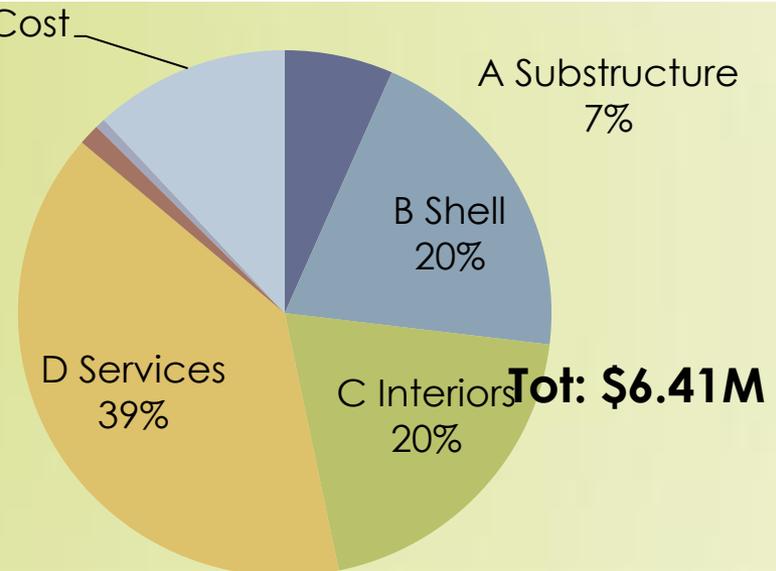
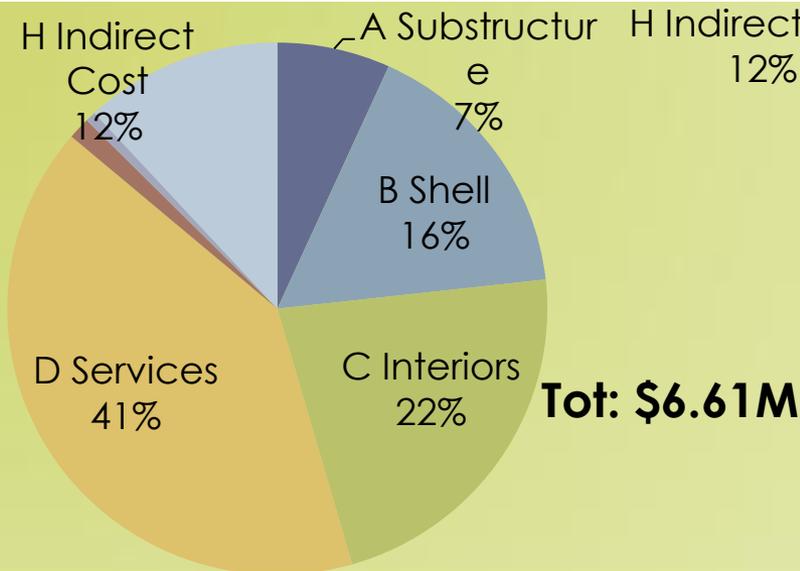
TARGET SET BASED ON:

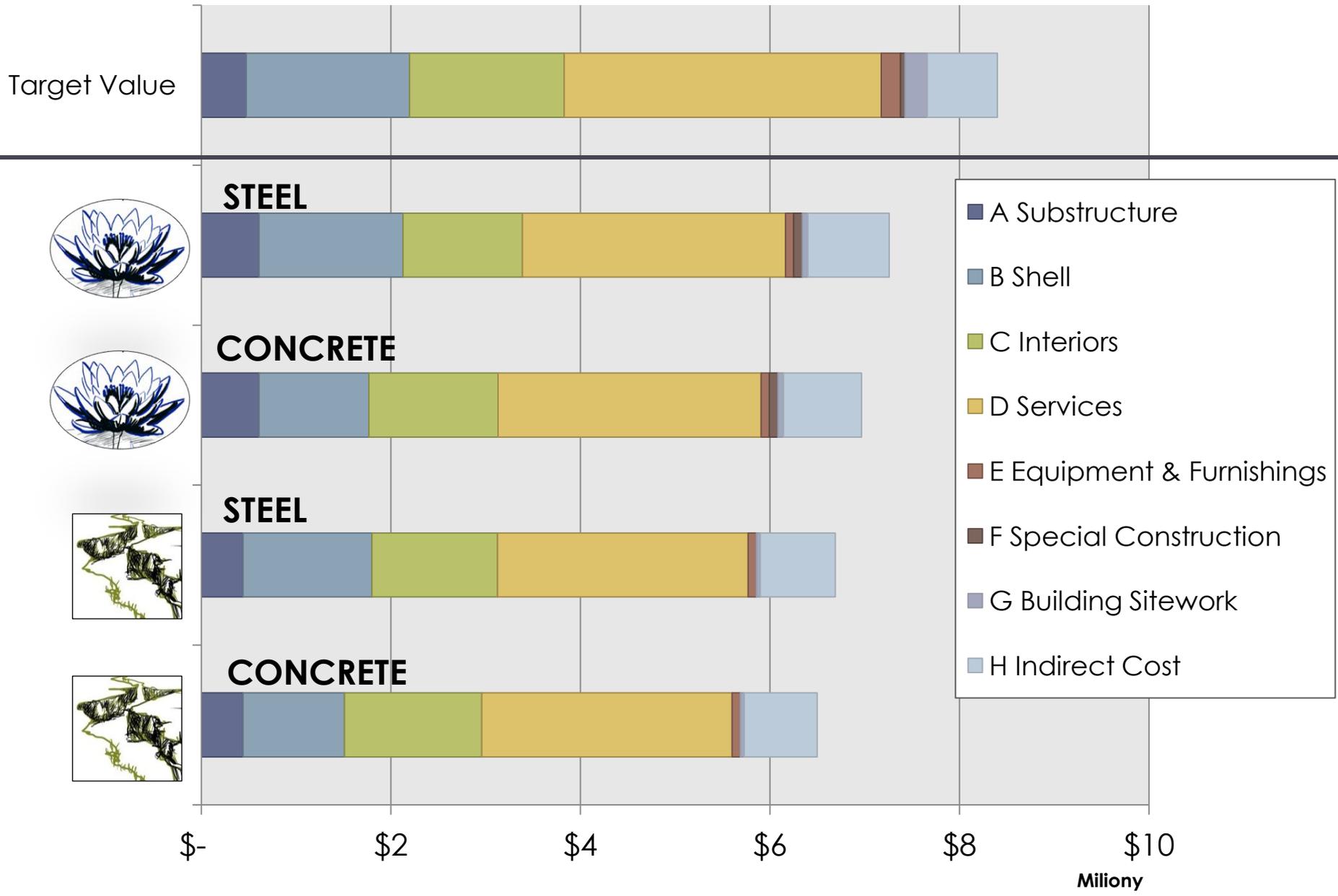
- Owners input
- Previous projects
- First cost estimate



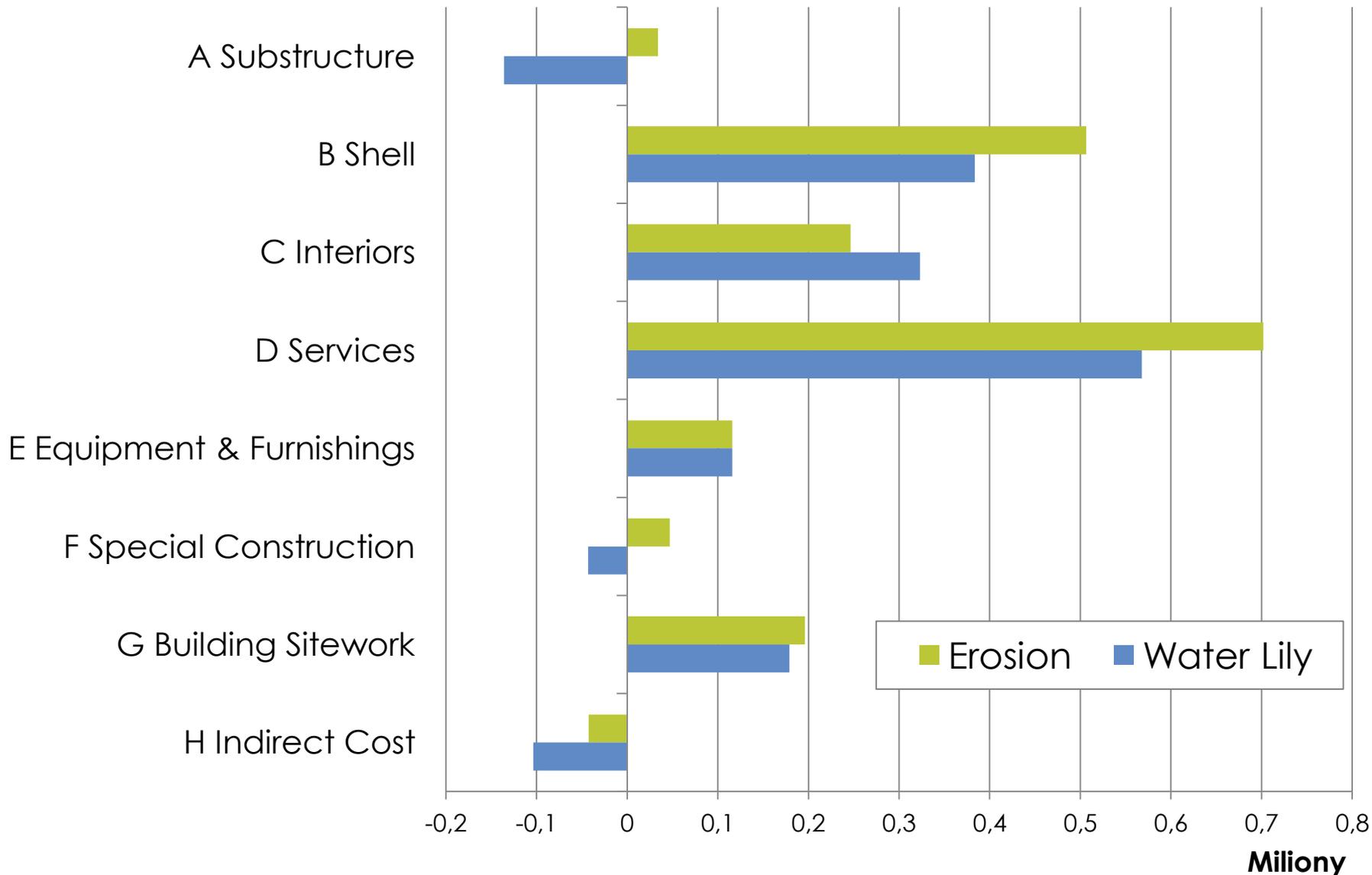
STEEL

CONCRETE





Remaining Budget (Based on TVD)

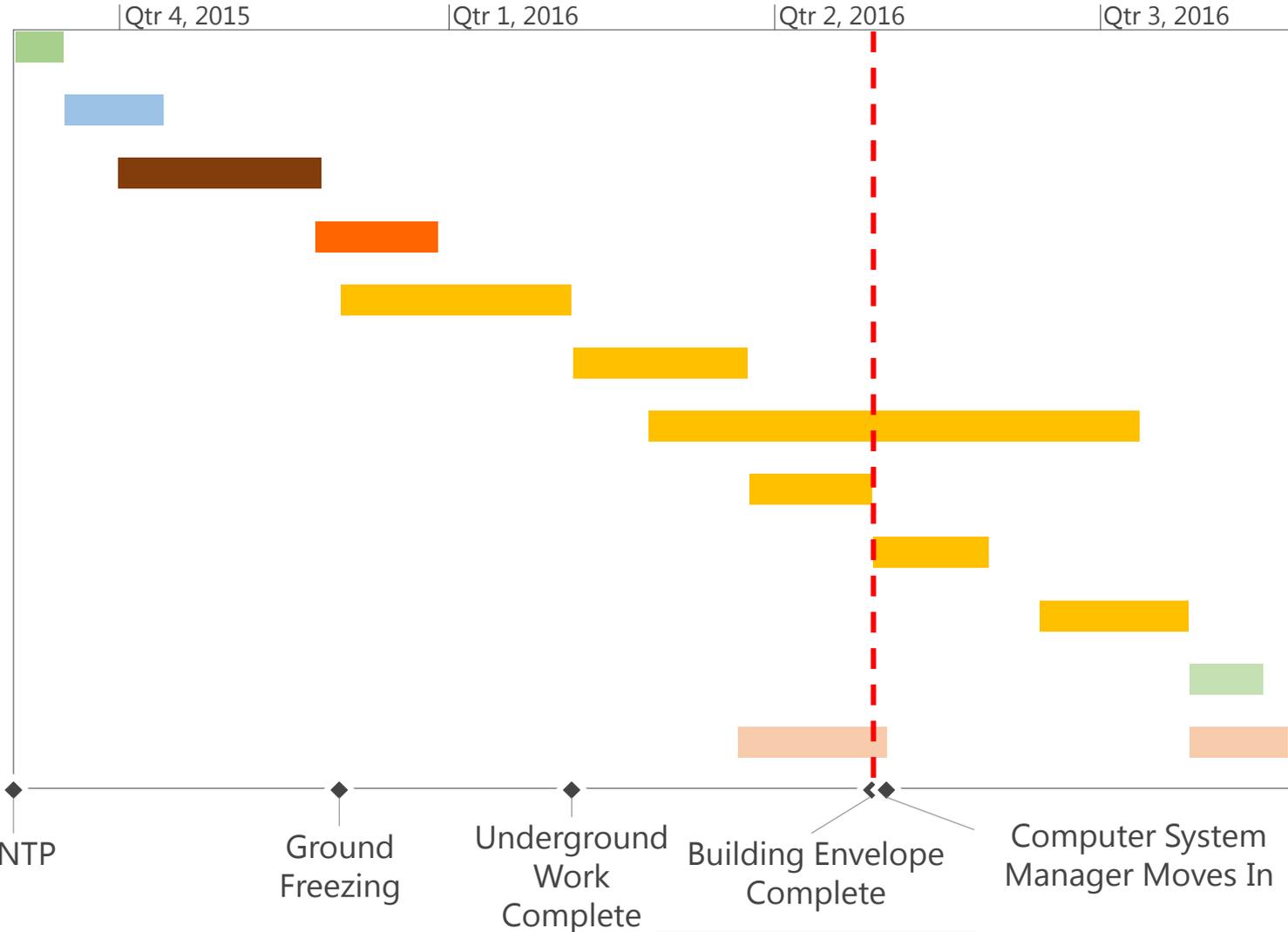




CONCRETE

Start
01/09/15

Finish
22/08/16



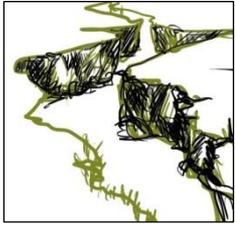
A

MEP

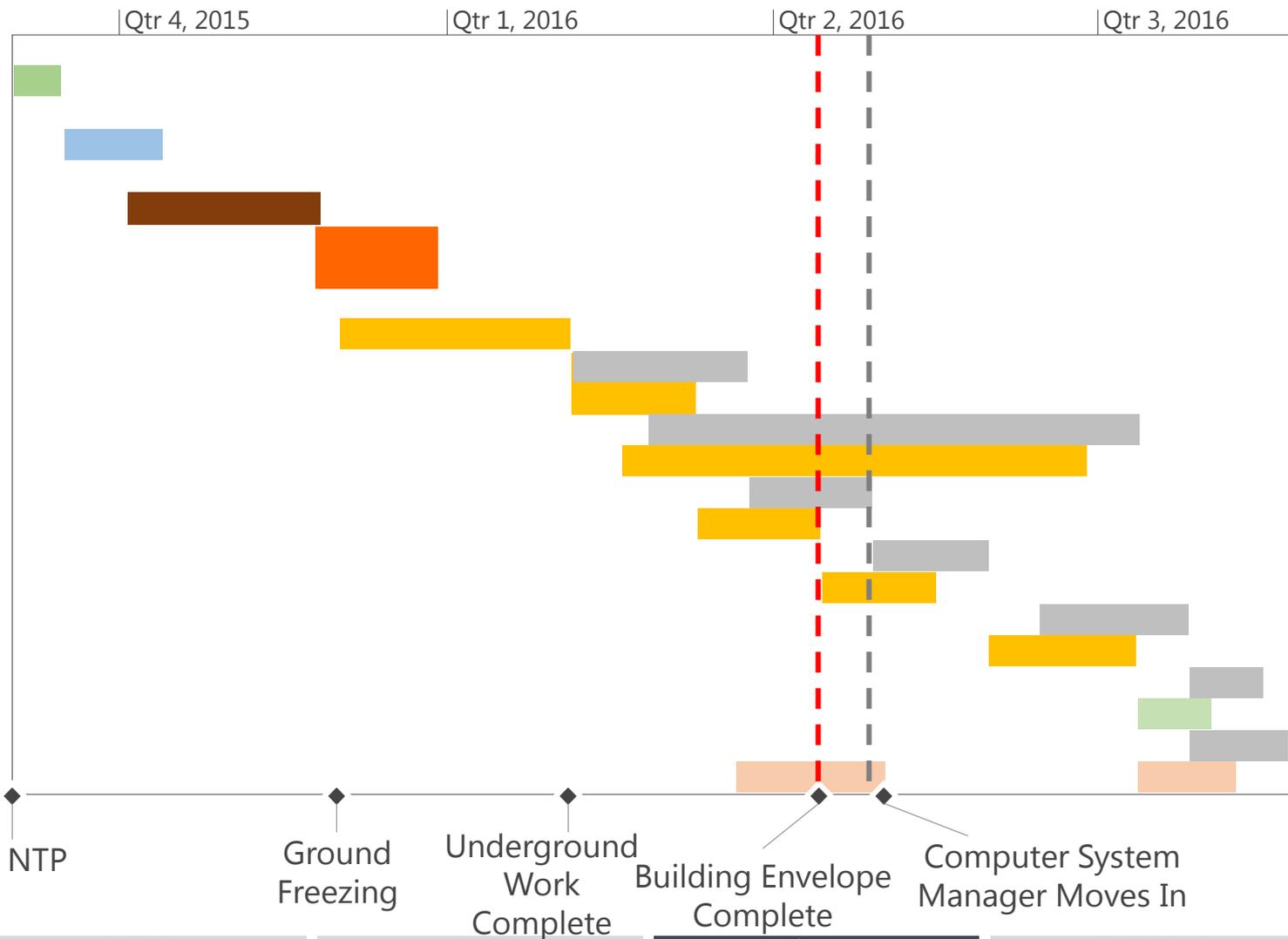
SE

CM

LCFM



Start 01/09/15 STEEL Finish 08/08/16



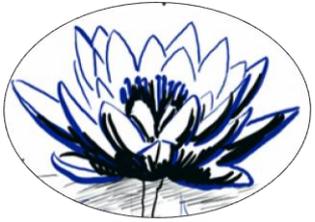
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MEP

SE

CM

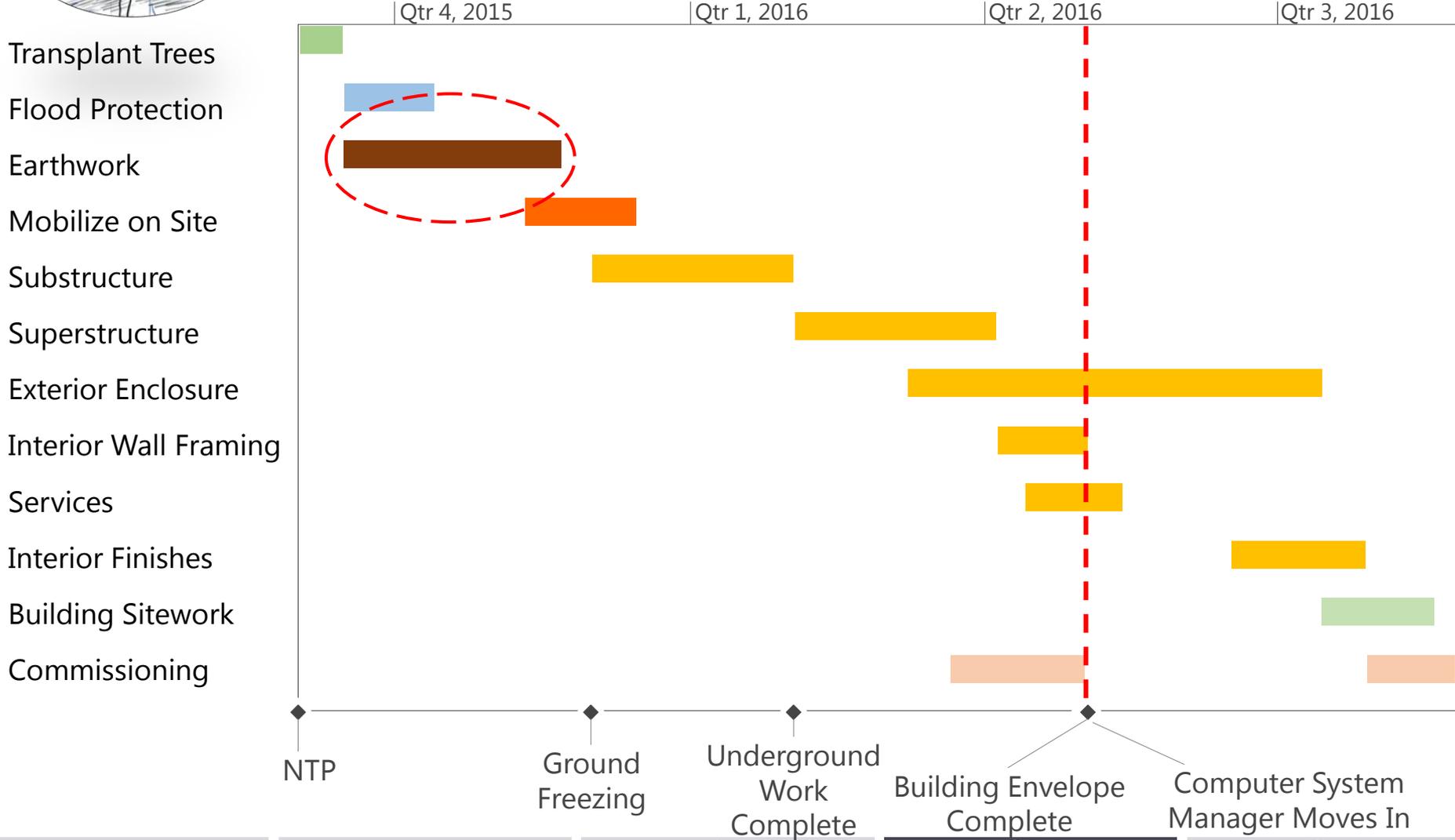
LCFM

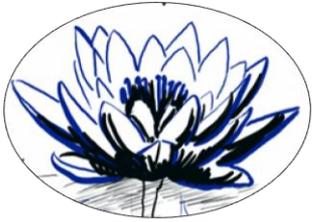


CONCRETE

Start
01/09/15

Finish
25/08/16

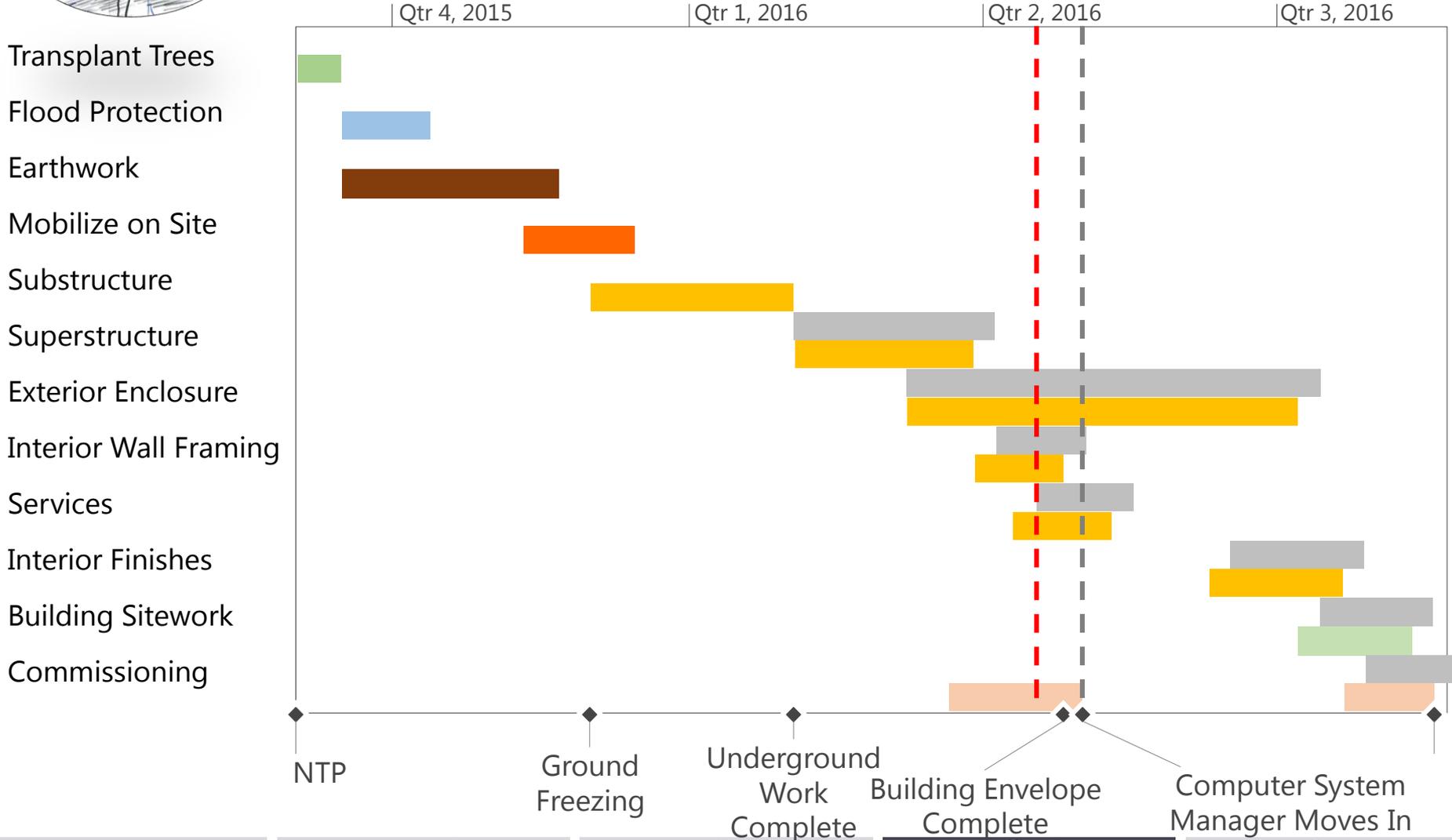


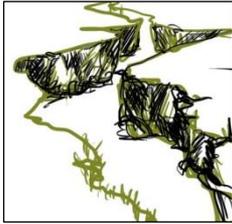


STEEL

Start
01/09/15

Finish
18/08/16



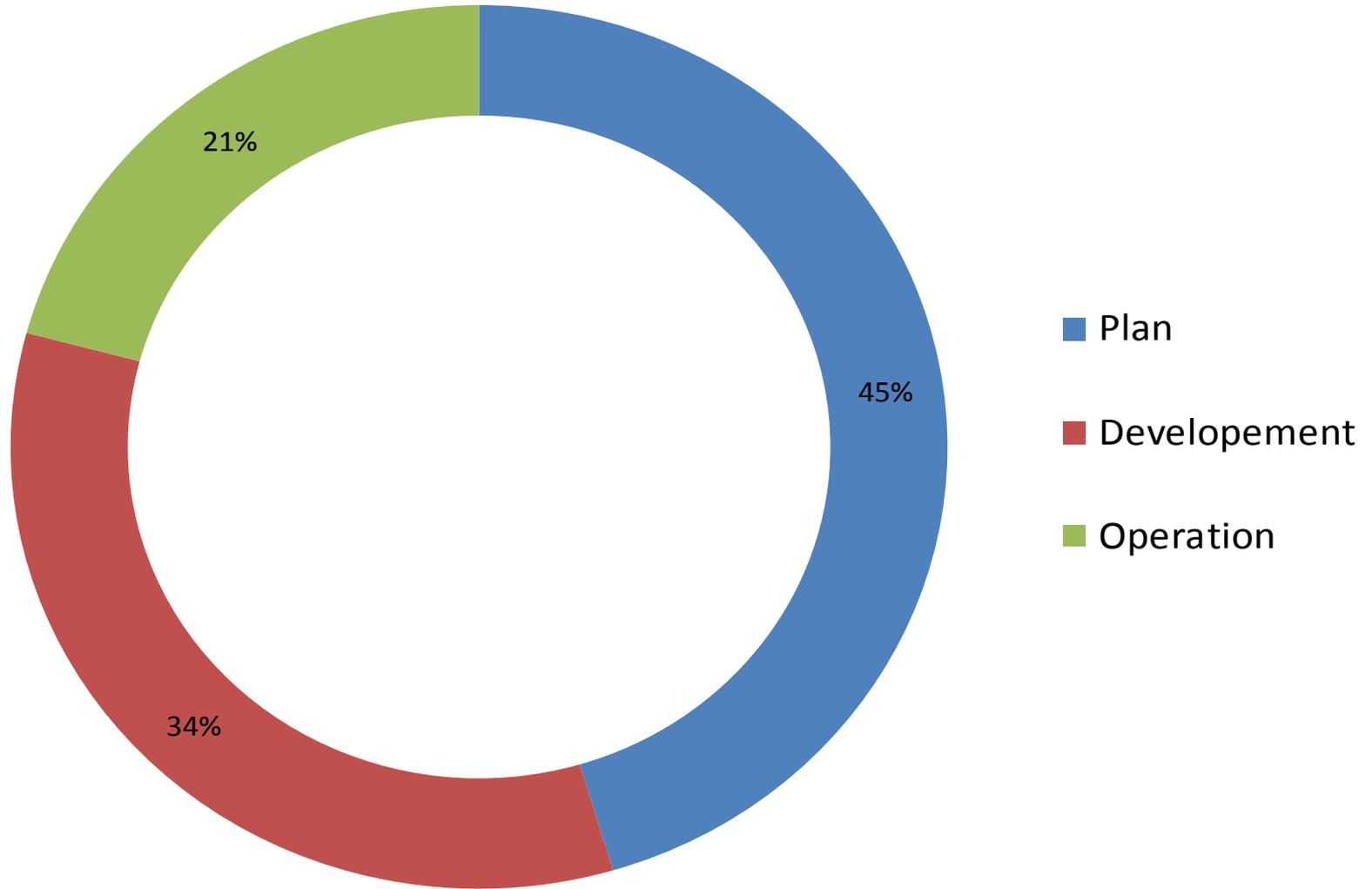


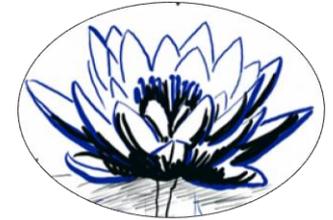
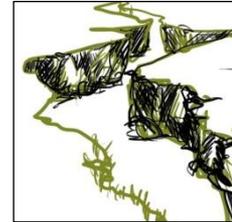
TARGET IMPACT

5615
(tonsCo₂eq)

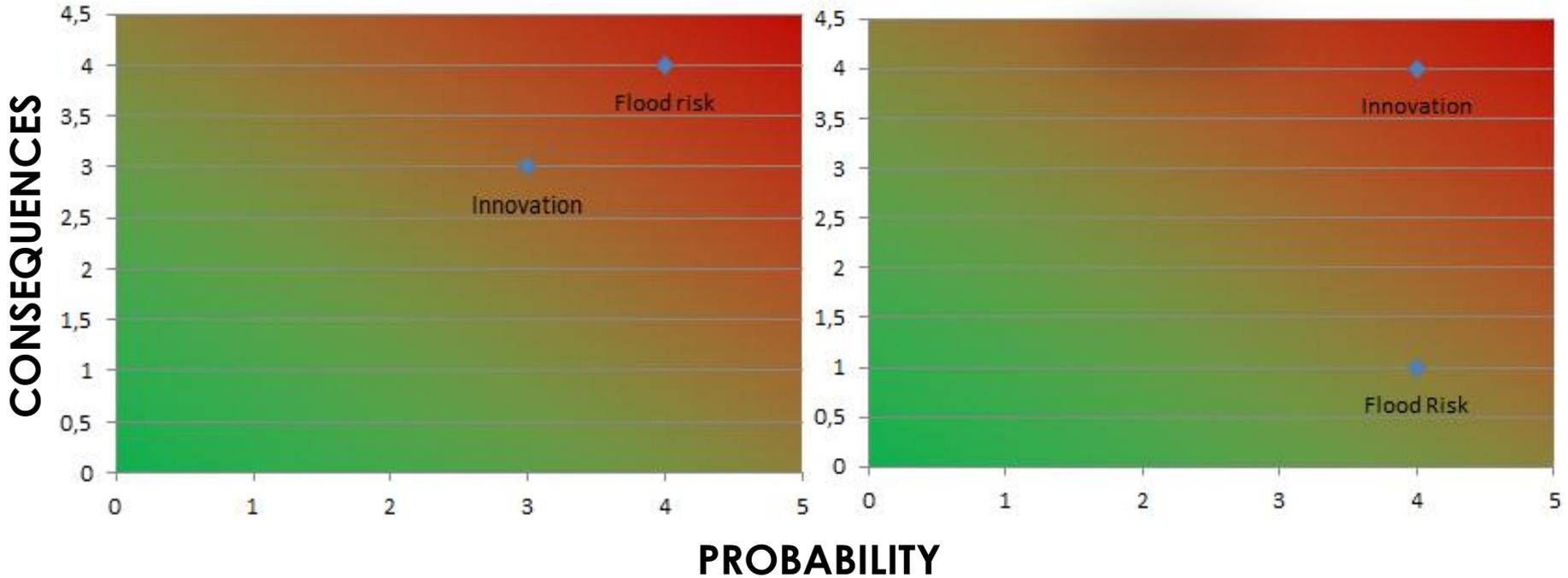
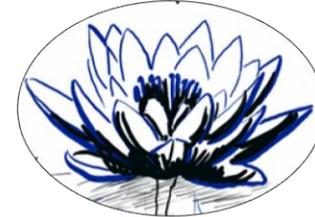


	IMPACT (tonsCo ₂ eq)	% OF TARGET	% OF TARGET	IMPACT (tonsCo ₂ eq)
CONCRETE	3131	56 %	50 %	2798
STEEL	3490	62 %	54 %	3036





				EROSION		WATER LILY	
	Risk Name	Description	Consequences	Probability	Consequences	Probability	Consequences
Internal Risks	problems with innovative construction	the innovative amphibious building	loss of money	3	3	4	4
External Risks	flood	flood will disturb the ground floor	repair and cleaning cost	4	4	4	1

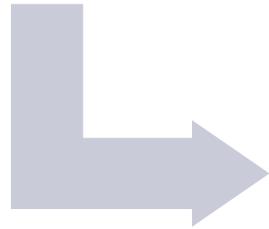


RISK ALLOCATION		RISK MANAGEMENT	LIFECYCLE OCCURRENCE
Owner	PC		
0%	100%	good cooperation with the producer/profession	Plan & Development phase
0%	100%	insurance	Development & Operation phase

FLOOD RISK

Development

- FIRE INSURANCE
- PERFORMANCE INSURANCE

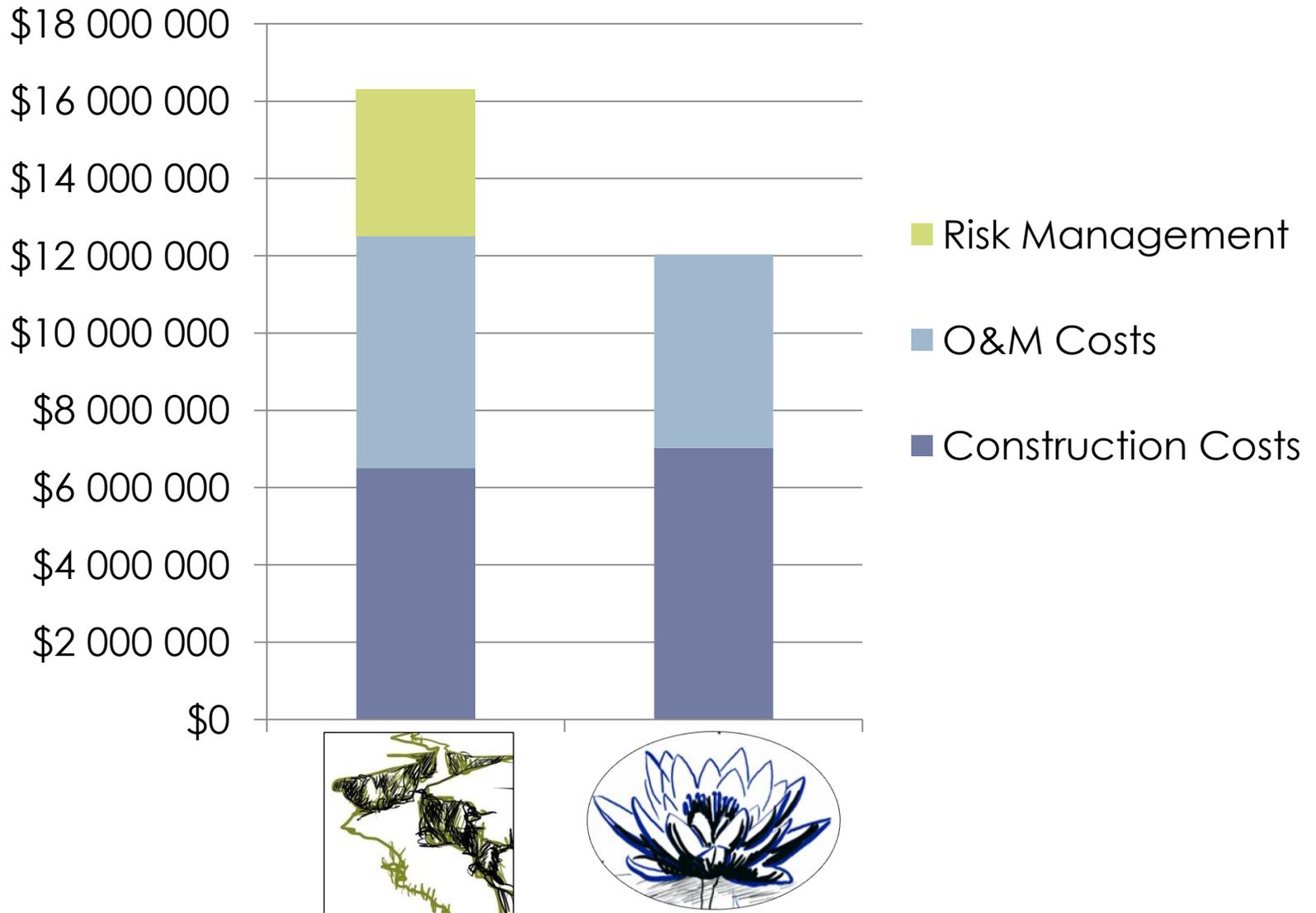


Operation

- BUILDING INSURANCE
- LIABILITY INSURANCE

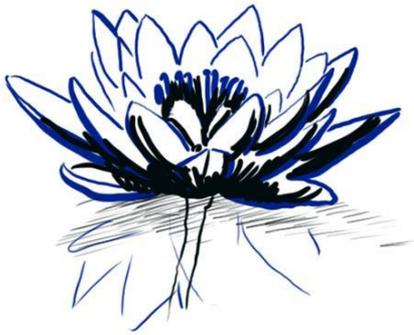
➤ BASE : 3,000,000 \$ per annum

Erosion: 120,000 \$ **Waterlily:** 000,000 \$ per annum



Erosion	Best = 3 Points	Water Lily
	Better = 2 Points	
	Good = 1 Point	
	●	
●	Big Idea	●
●	Innovation	●
●	Connection with Environment	●
●	Collaborative Space	●
●	Aesthetic Value	●
●	Risk Factor	●
●	Comfort	●
●	Efficiency	●
●	Constructability / Phasing	●
24 points	Total Value	26 points
\$6.51M	Cost	\$7.03M
3,69	Value for Cost	3,70

RIVER TEAM 2013 PRESENTS...



WATER LILY (CONCRETE)

A

MEP

SE

CM

LCFM

Thank you!

AEC MENTORS:

Willem Kymmell
Humberto Cavallin
Jan Słyk
Björn Wündsch
Sarah Russell-Smith
John Nelson
Arsen Melikov
Jochen Teizer
Paul T. Eickenberg
and
Renate Fruchter

**AMPHIBIOUS
DEFENSE SYSTEM:**
Elizabeth English



Questions?



A

MEP

SE

CM

LCFM