

Building as Bridge

Re-imagining Sustainable Living Through Symphonic Design



CERTIFIED
40-49 points

SILVER
50-59 points

GOLD
60-79 points

PLATINUM
80+ points





MEDICAL

MEDICAL

MEDICAL

MEDICAL

MEDICAL

MEDICAL

MEDICAL

MEDICAL

Health Care
Doctor
Hospital
Pharmacist
Nurse
Dentist
First Aid
Surgeon
Emergency

Health Care
Doctor
Hospital
Pharmacist
Nurse
Dentist
First Aid
Surgeon
Emergency

Health Care
Doctor
Hospital
Pharmacist
Nurse
Dentist
First Aid
Surgeon
Emergency



“On being presented with a sick person, doctors do not attempt to find out what is the matter but, rather, attempt to make a diagnosis.”

Eric Cassell, MD, M.A.C.P



diagnosis



650
NDSU
North Dakota State University

←
ONE WAY

650



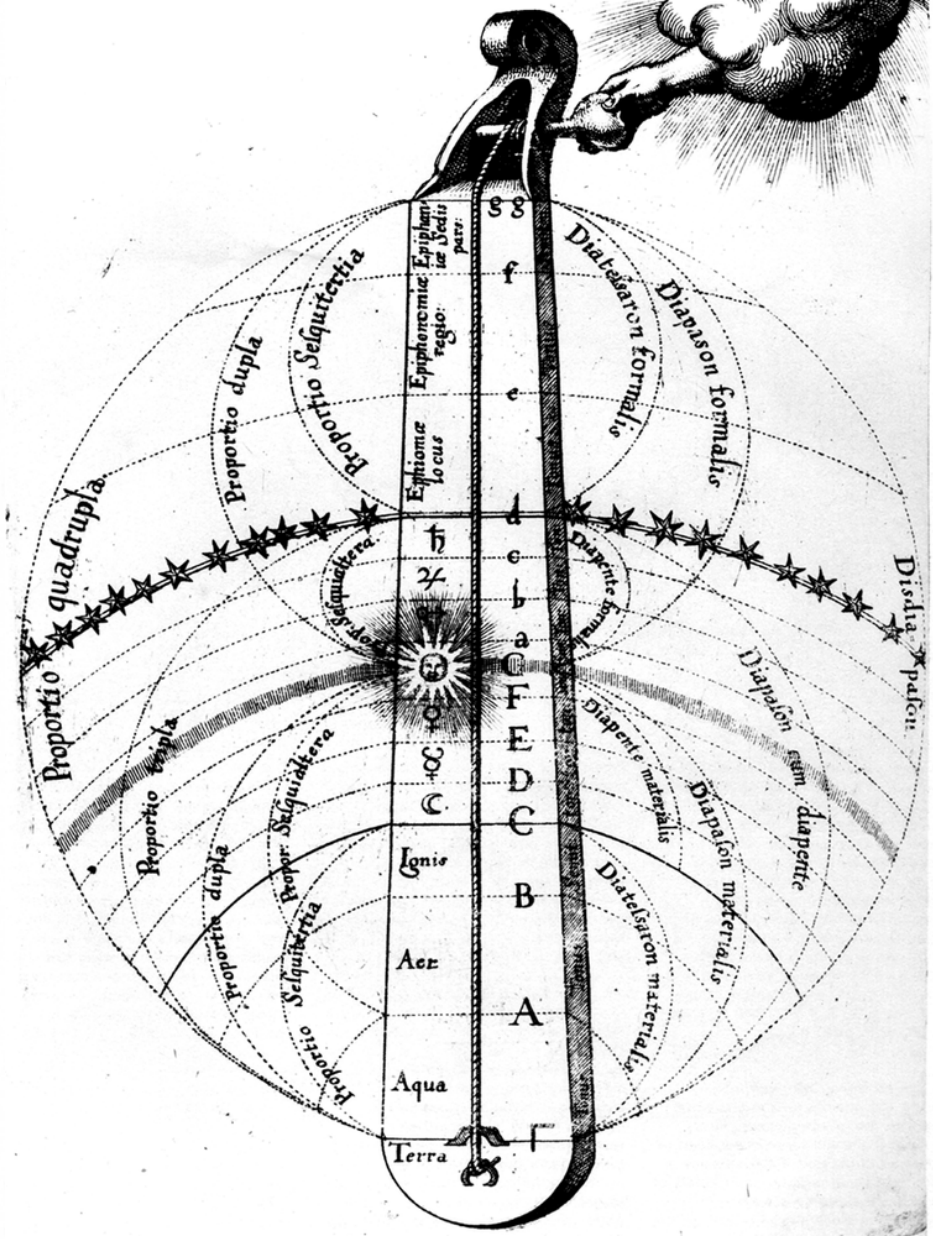
“The mind and the world are simply not separate and independent of each other; the mind is an embodied dynamic system in the world, rather than merely a neural network in the head.”

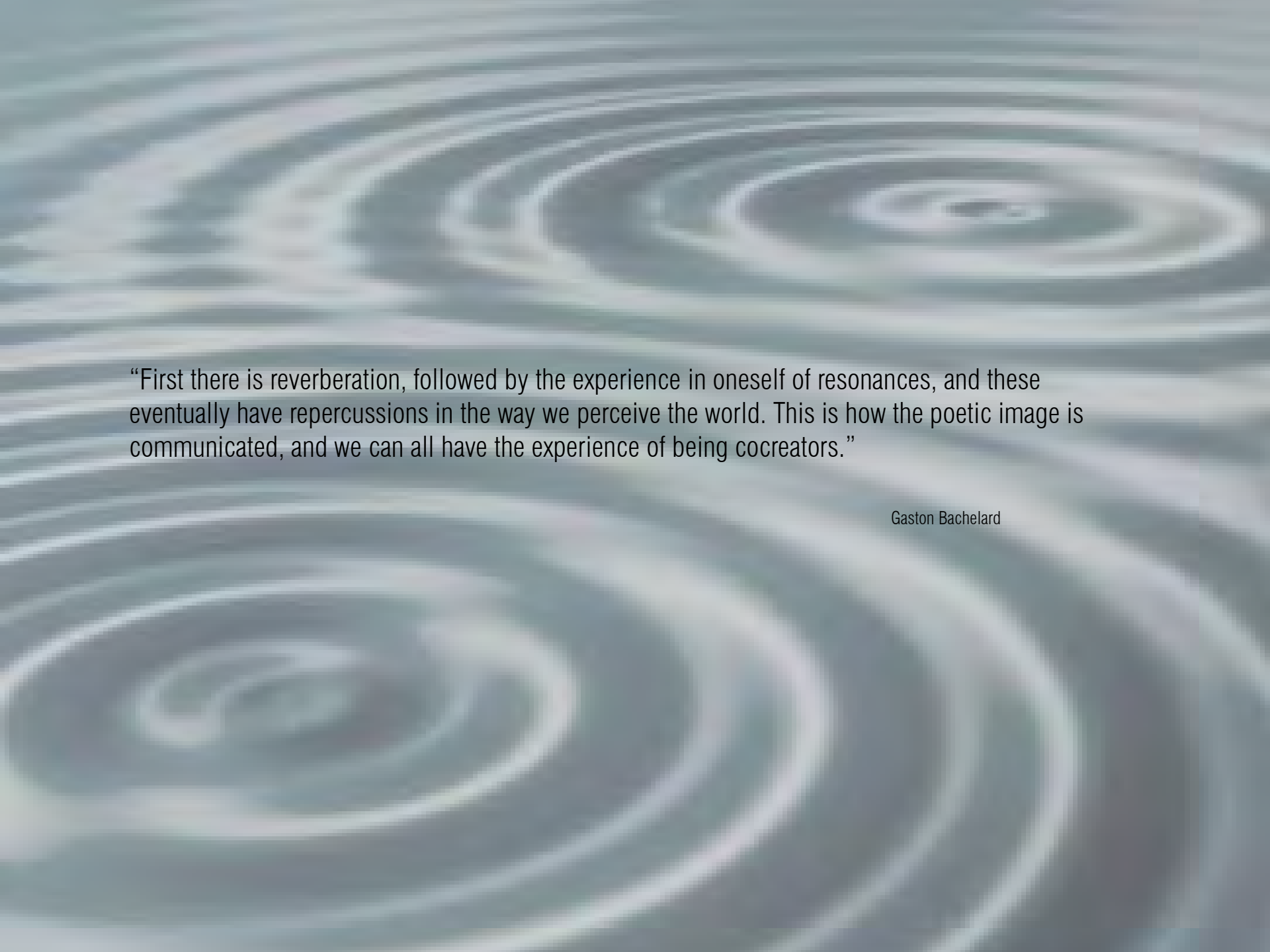
Alberto Perez-Gomez
Mood and Meaning in Architecture

“‘Mood’ [*Stimmung*] makes a substantial contribution to the sense that we have of belonging to a world.”

Martin Heidegger, German Philosopher





The background of the slide is a soft-focus image of concentric ripples on a body of water, creating a sense of depth and movement. The ripples are light-colored against a darker, muted blue-green background.

“First there is reverberation, followed by the experience in oneself of resonances, and these eventually have repercussions in the way we perceive the world. This is how the poetic image is communicated, and we can all have the experience of being cocreators.”

Gaston Bachelard

“The individual who takes his own death to be the end that circumscribes all others would exist inauthentically precisely because he has refused to acknowledge the tragic tension between individual and species in a human being.”

Karsten Harries
Lesson of a Dream

“...not just to our mortality, but to a love that lets us experience ourselves as essentially incomplete, in need of others, in need of community.”

Karsten Harries
Lesson of a Dream

Heidegger's Fourfold

Earth: the ground that supports us, sustaining gifts of food and water

Sky: the sun, the moon and stars, the changing seasons

Divinities: a sense of vocation or calling, our contributions to the world that continue to exist in an ongoing historical order

Mortals: ourselves, the preservers of the fourfold but limited by our existence



“Mortals dwell in that they save the earth... To save the earth is more than to exploit it or even wear it out. Saving the earth does not master the earth and does not subjugate it, which is merely one step from boundless spoilation.”

Martin Heidegger
Building, Dwelling, Thinking



“...the task of architecture is ‘to make visible how the world touches us’.”

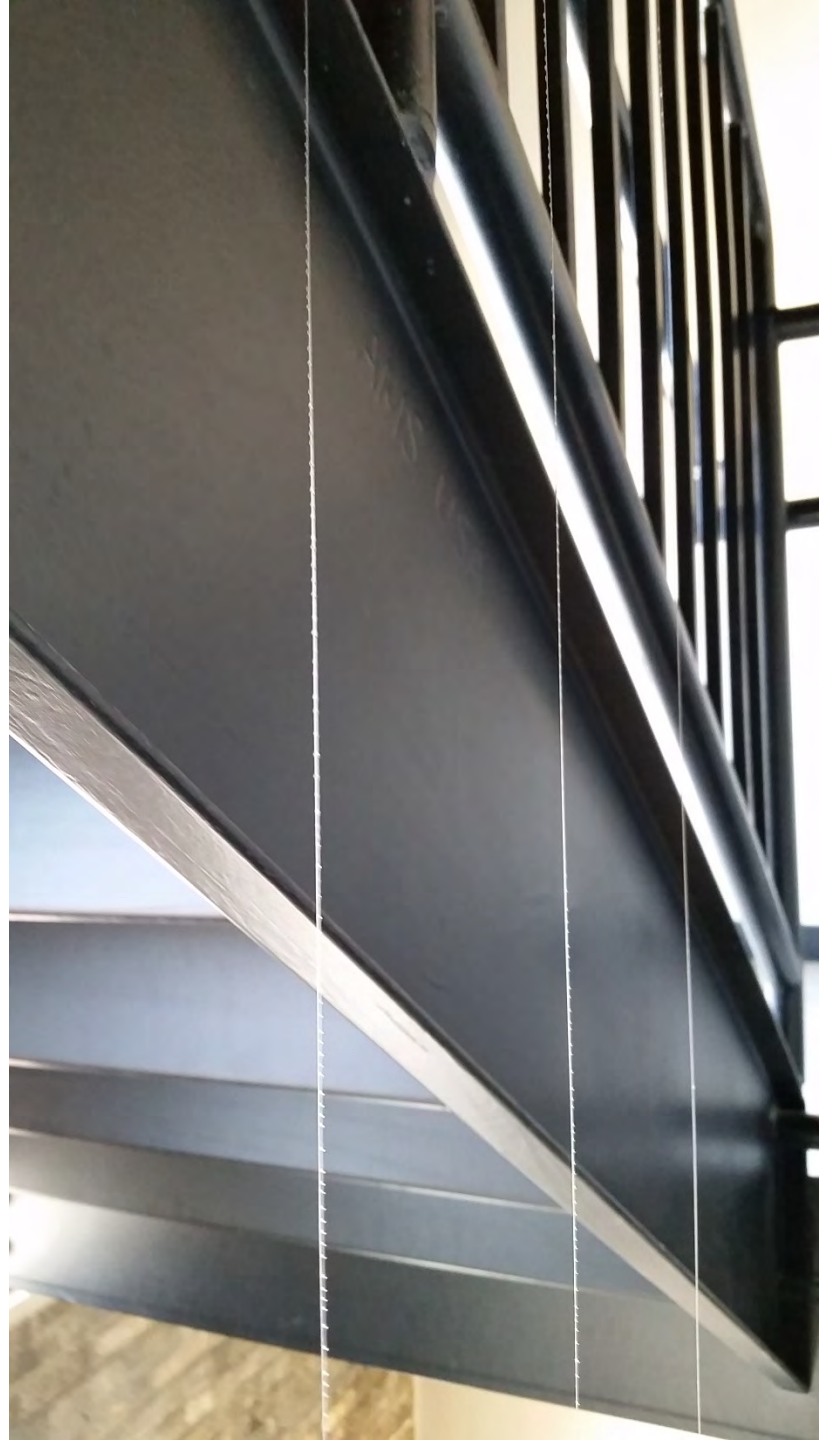
Juhani Pallasmaa
The Eyes of the Skin

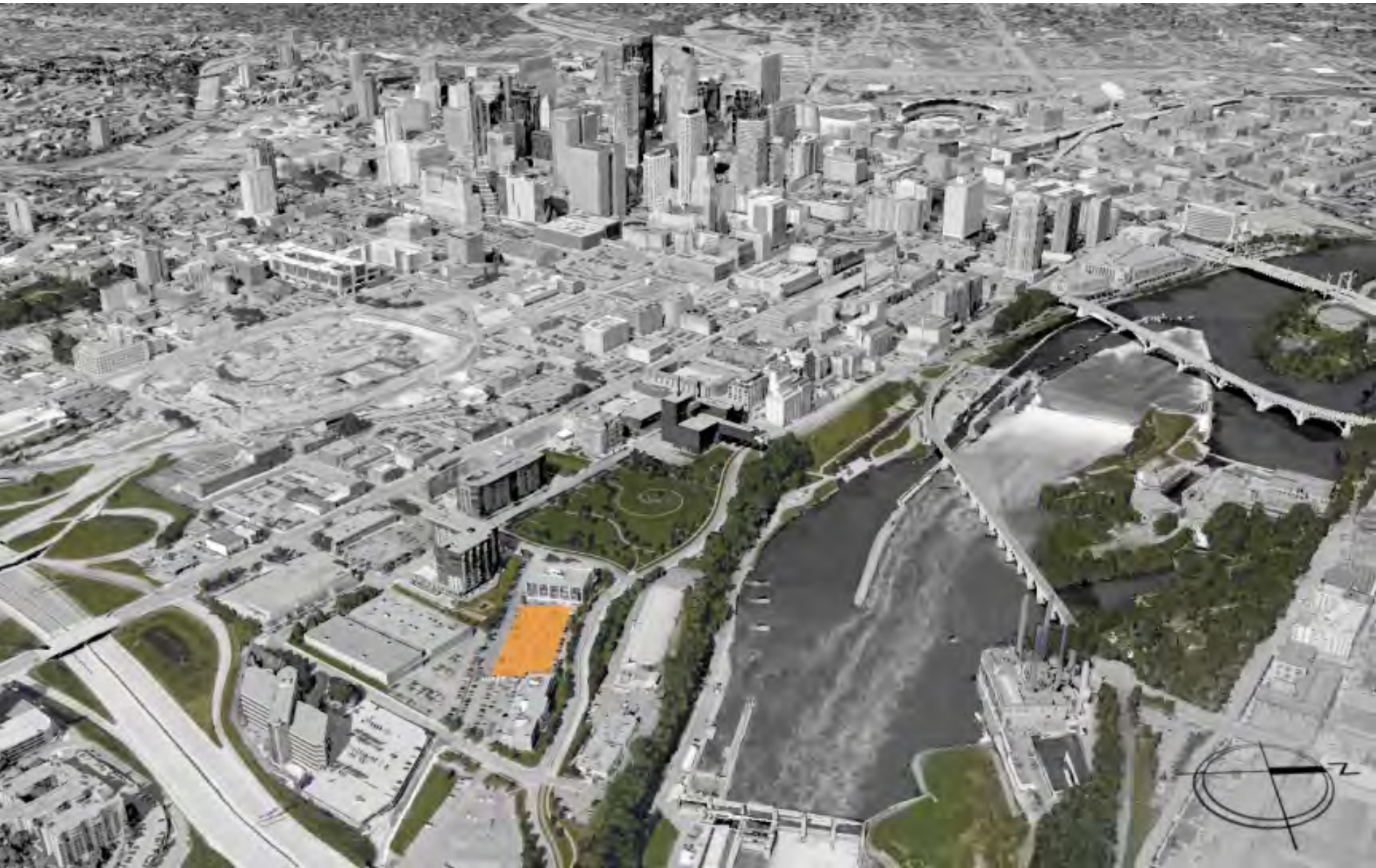


Artefact



Artefact





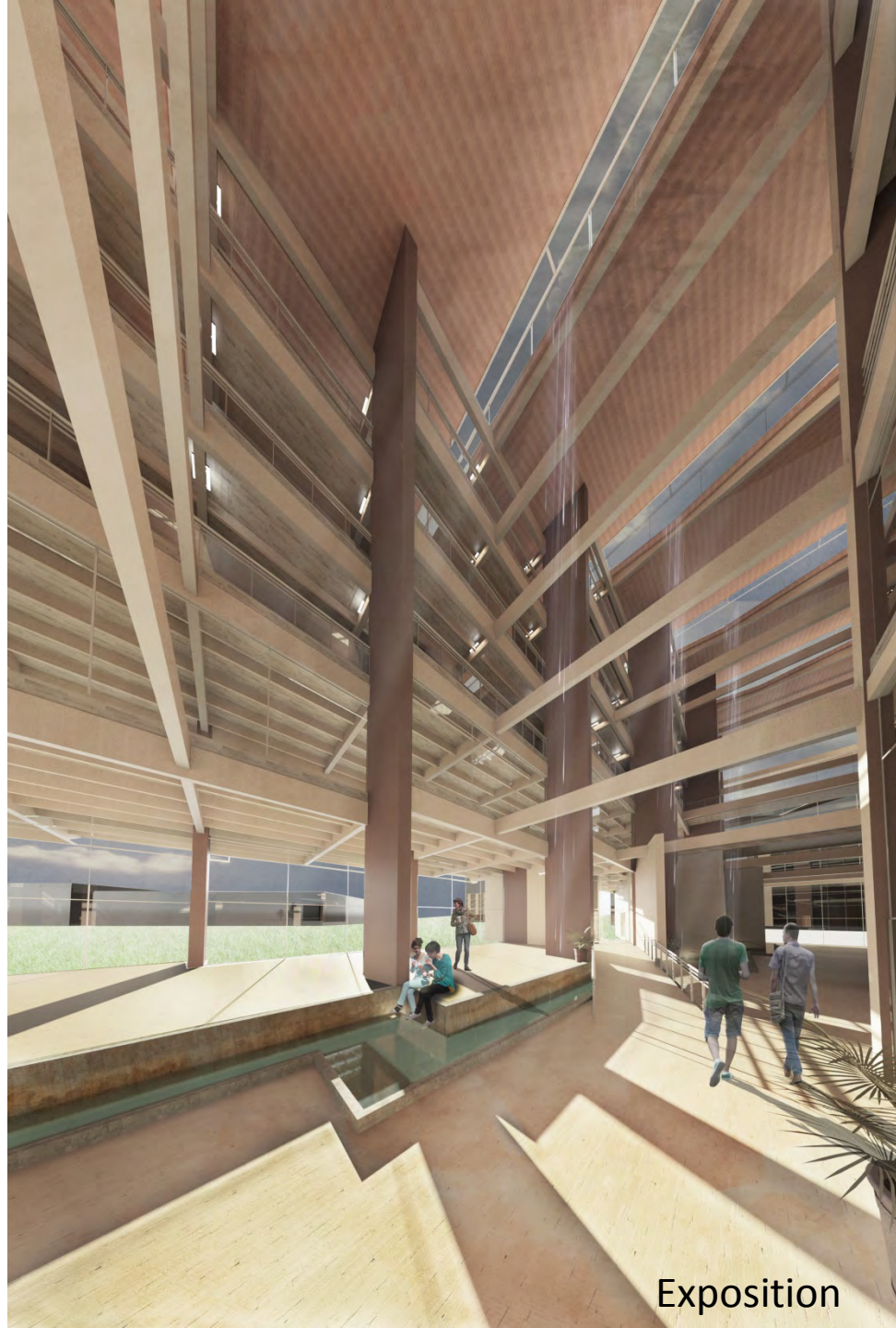




Introduction



Introduction



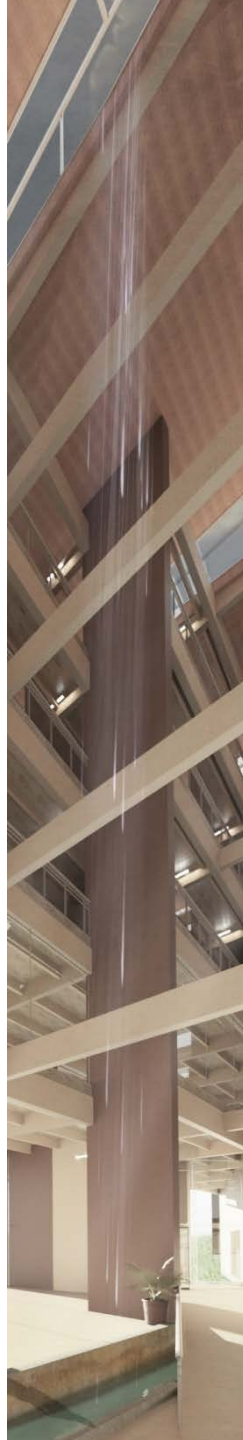
Exposition



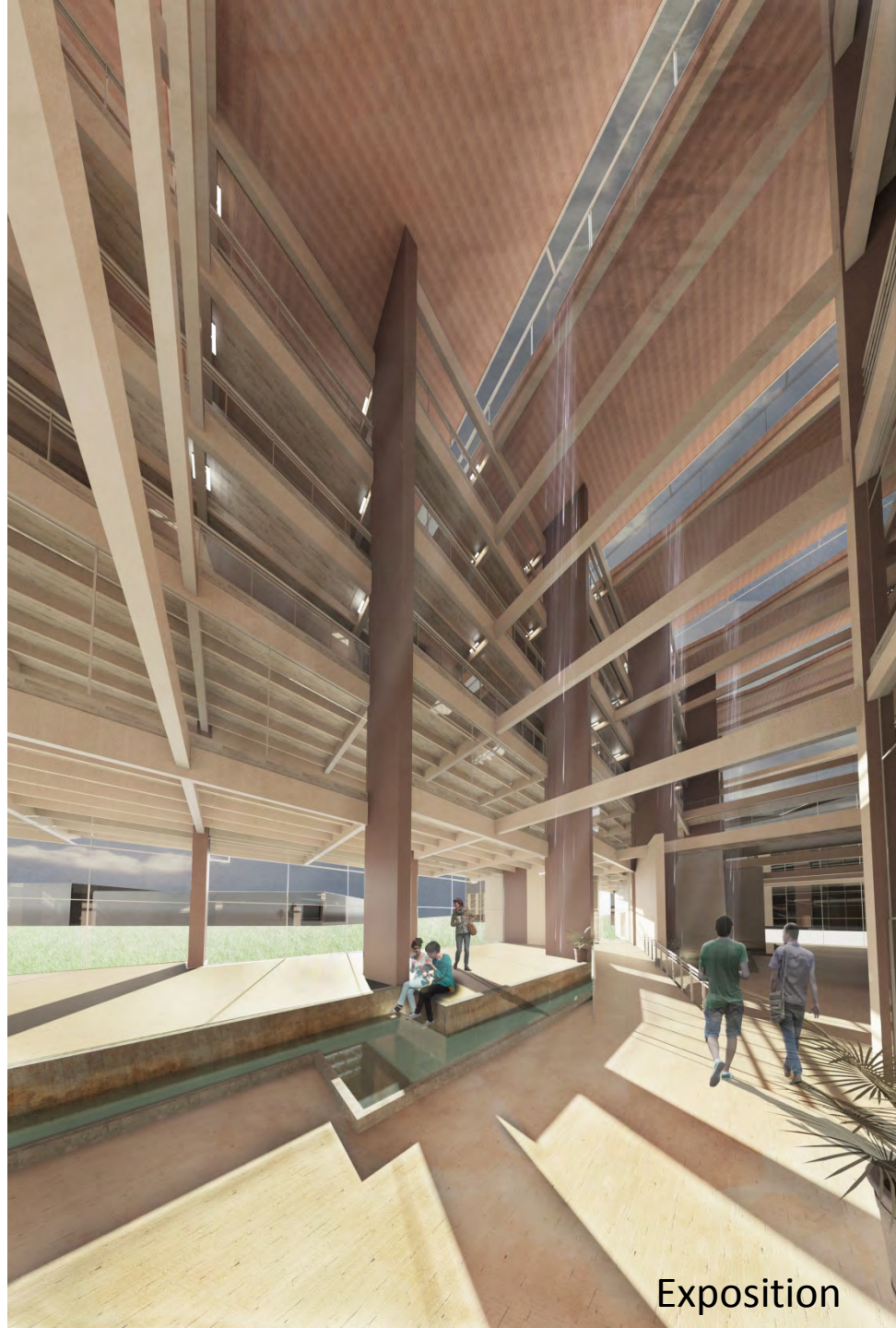




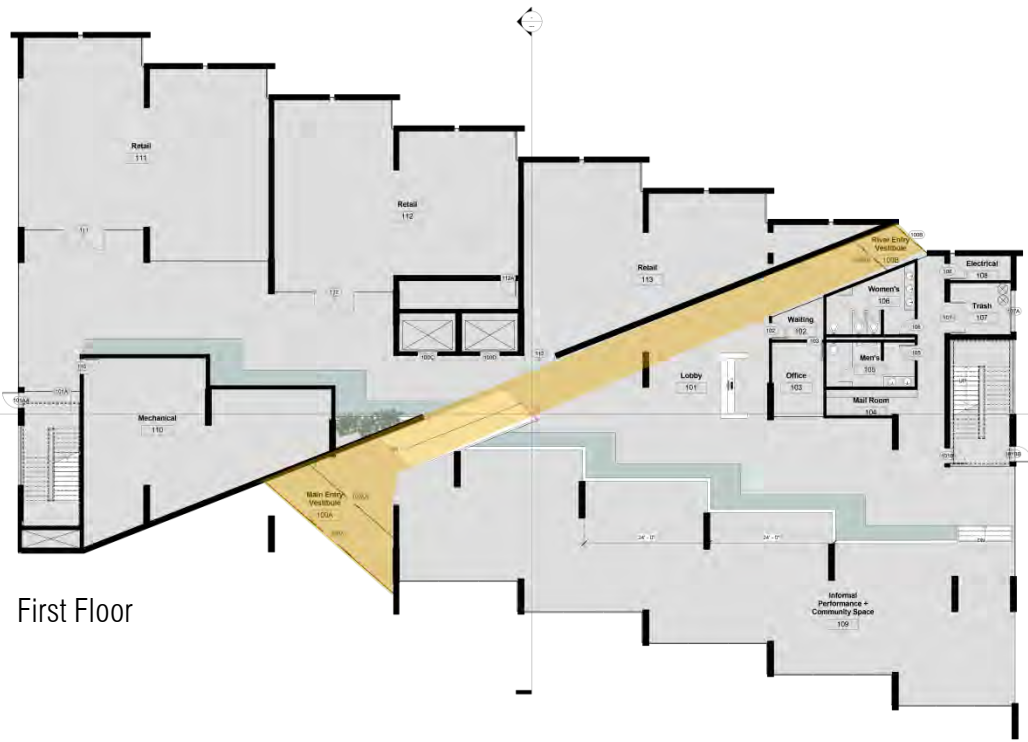




Exposition



Exposition



First Floor





Third – Fifth Floor



Second Floor



Development: Gallery



Development: Studios



Development: Library



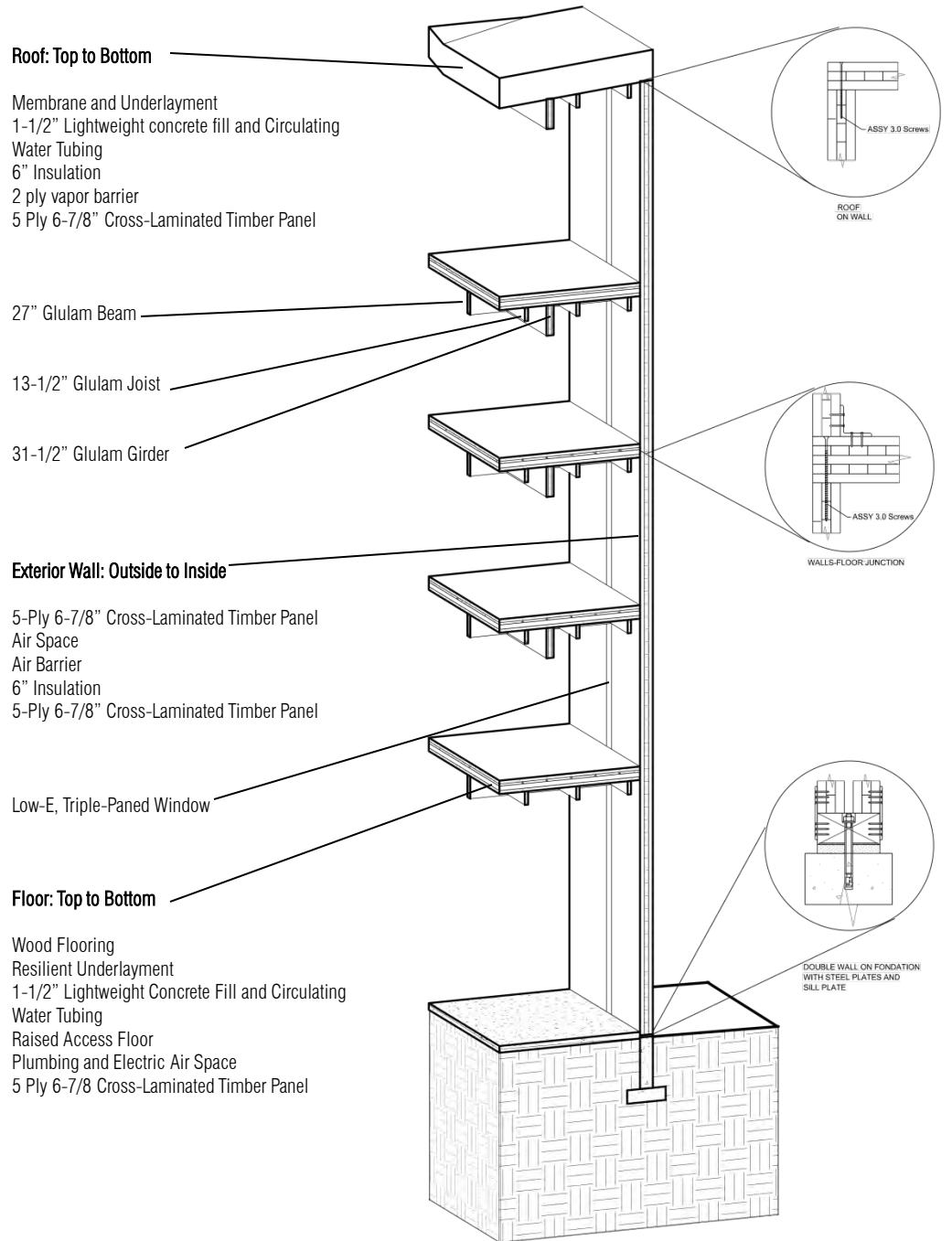
Development: Residence



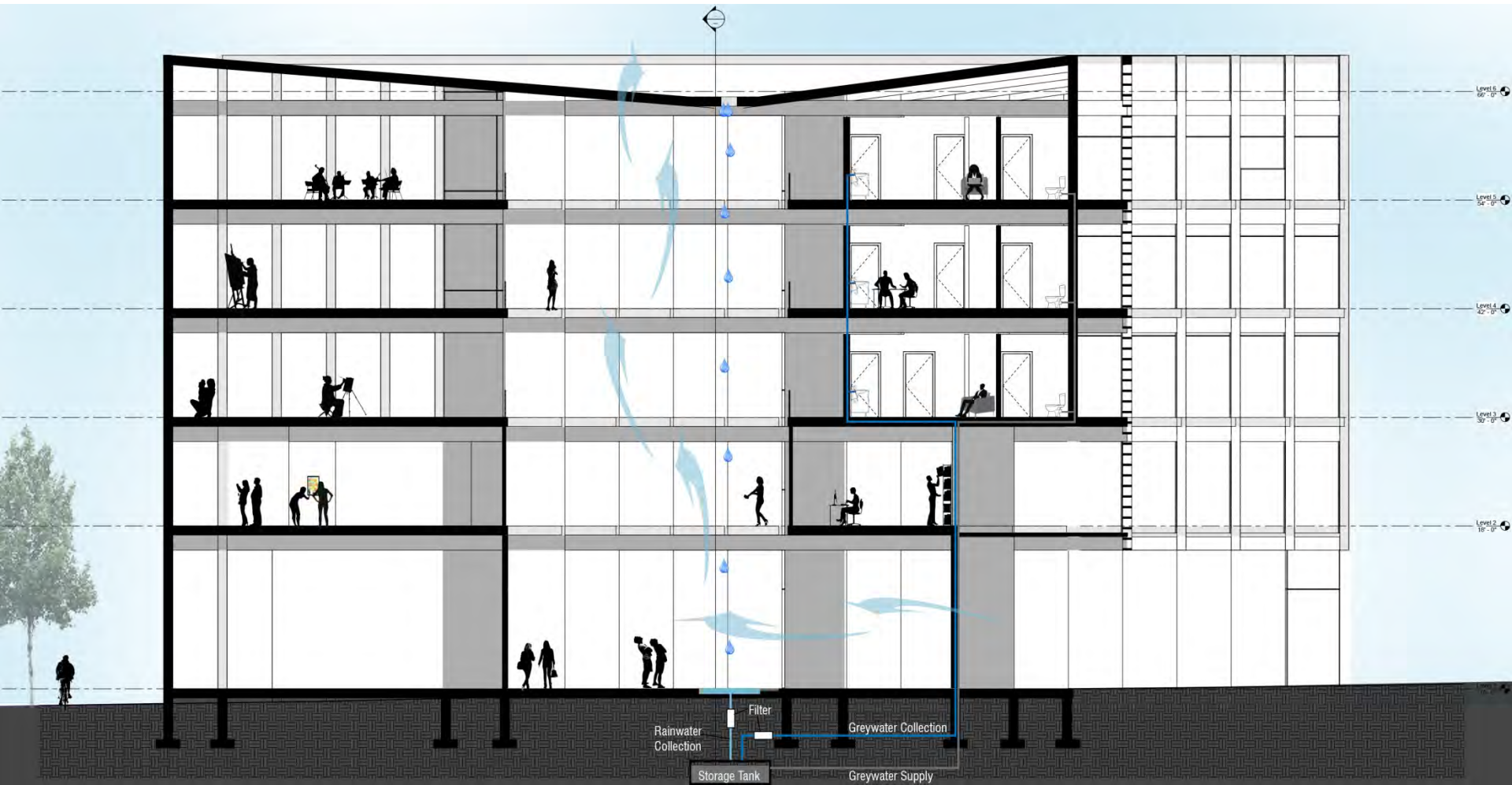
Recapitulation

Cross-Laminated Timber Construction

Cross-Laminated Timber was chosen for its natural beauty and sustainable properties. CLT is renewable, recyclable, has superior insulating properties and reduces our carbon footprint through carbon sequestration.



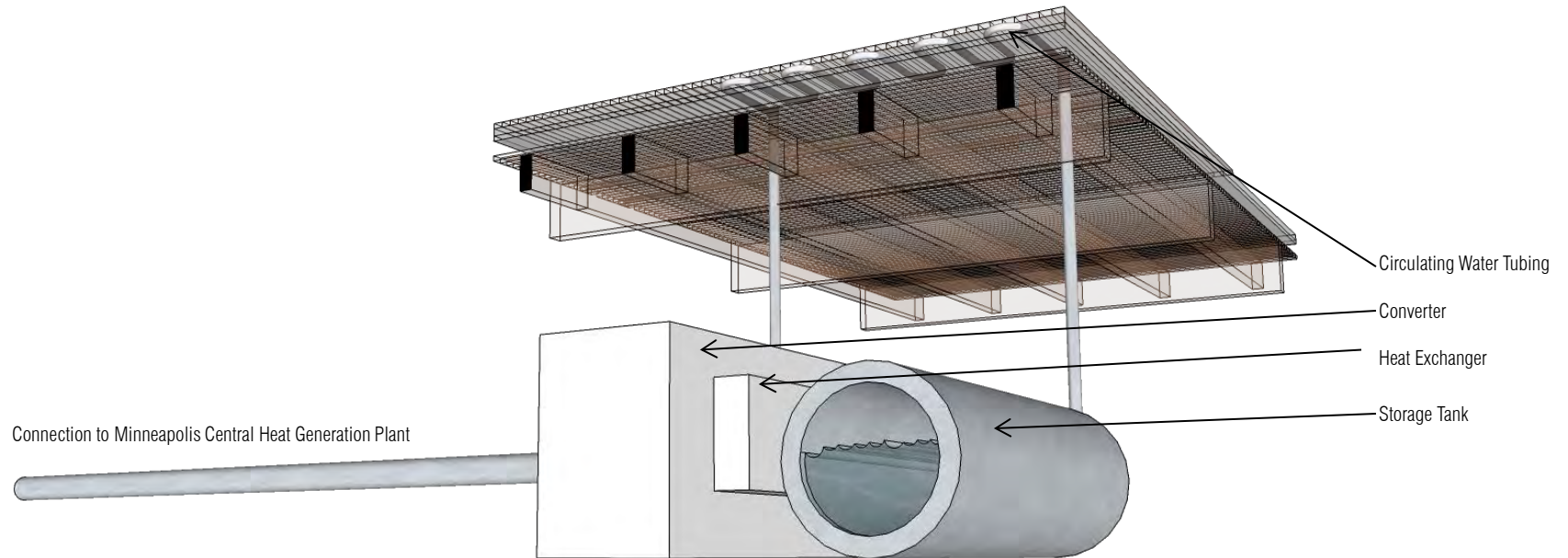
Greywater System Diagram

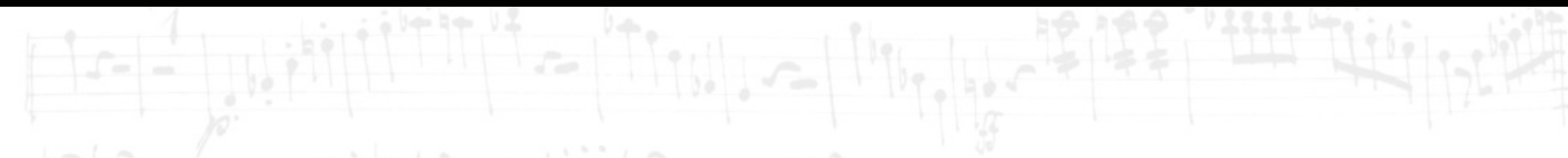


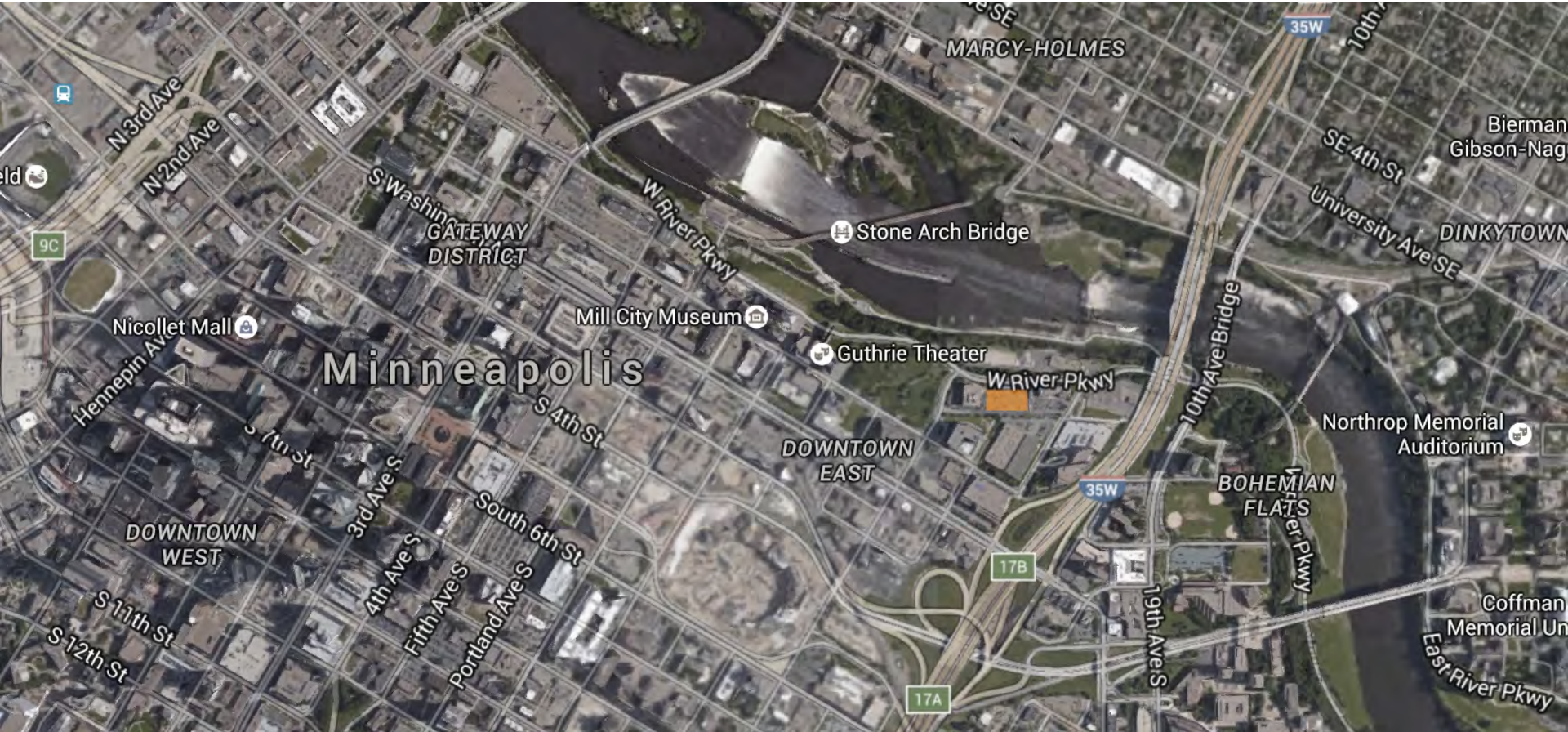
Hydronic Heating System

The sun heats tubes of water embedded in a 1-1/2" layer of concrete during the day, which is then stored and recirculated throughout the building at night.

This system is also connected to Minneapolis' Central Heat Generation Plant that provides steam and chilled water as a back-up system during extreme heating and cooling days.







Minneapolis

MARCY-HOLMES

GATEWAY DISTRICT

Stone Arch Bridge

Mill City Museum

Guthrie Theater

W River Pkwy

DOWNTOWN EAST

Northrop Memorial Auditorium

BOHEMIAN FLATS

DOWNTOWN WEST

Coffman Memorial Un

East River Pkwy

35W

17B

17A

35W

9C

N3rd Ave
N2nd Ave

S Washing

W River Pkwy

SE 4th St

University Ave SE

DINKYTOWN

Bierman
Gibson-Nag

Nicollet Mall

Hennepin Ave

S 7th St

3rd Ave S

4th Ave S

5th Ave S

South 6th St

Portland Ave S

S 4th St

S 11th St

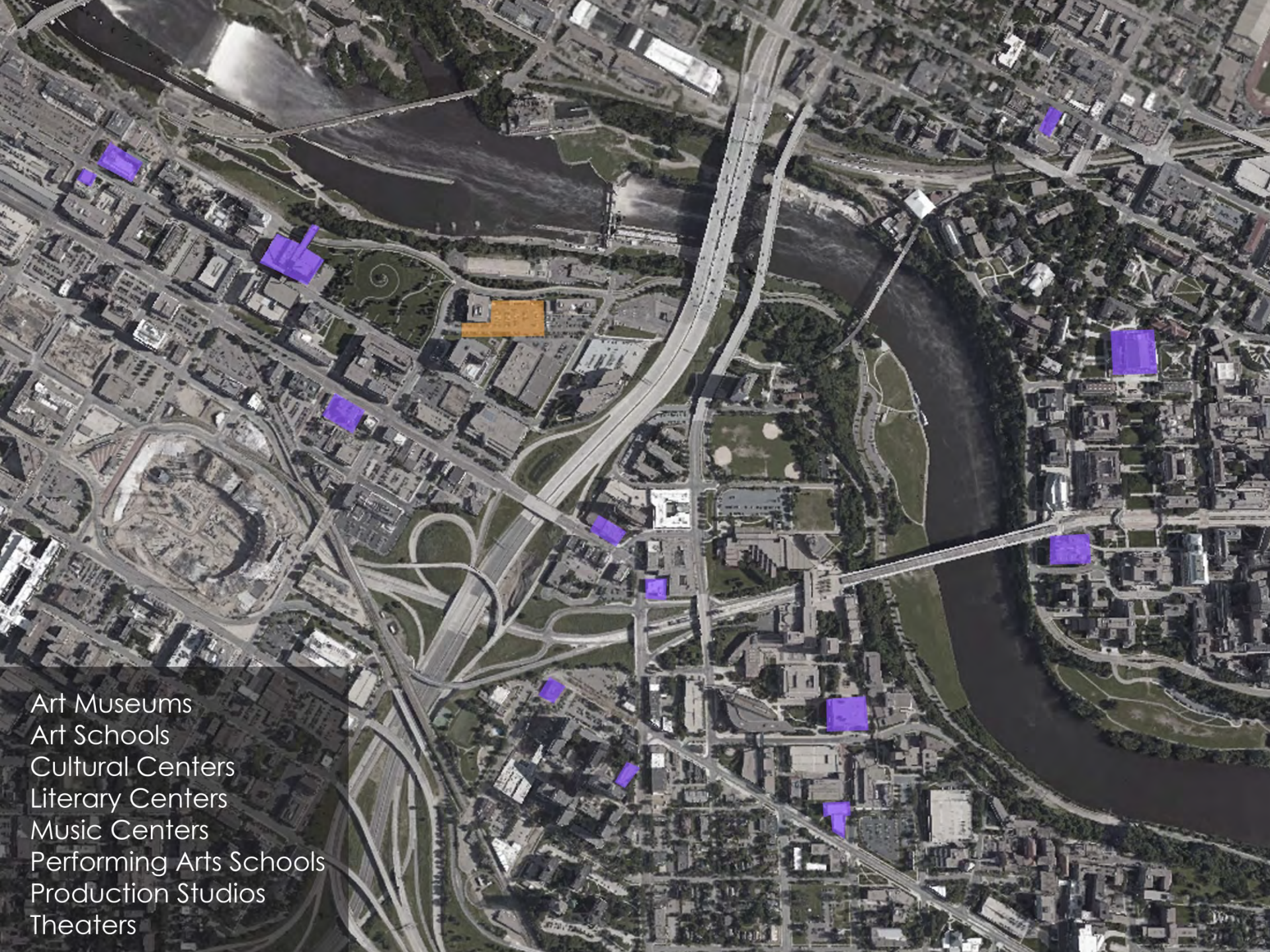
S 12th St

10th Ave Bridge

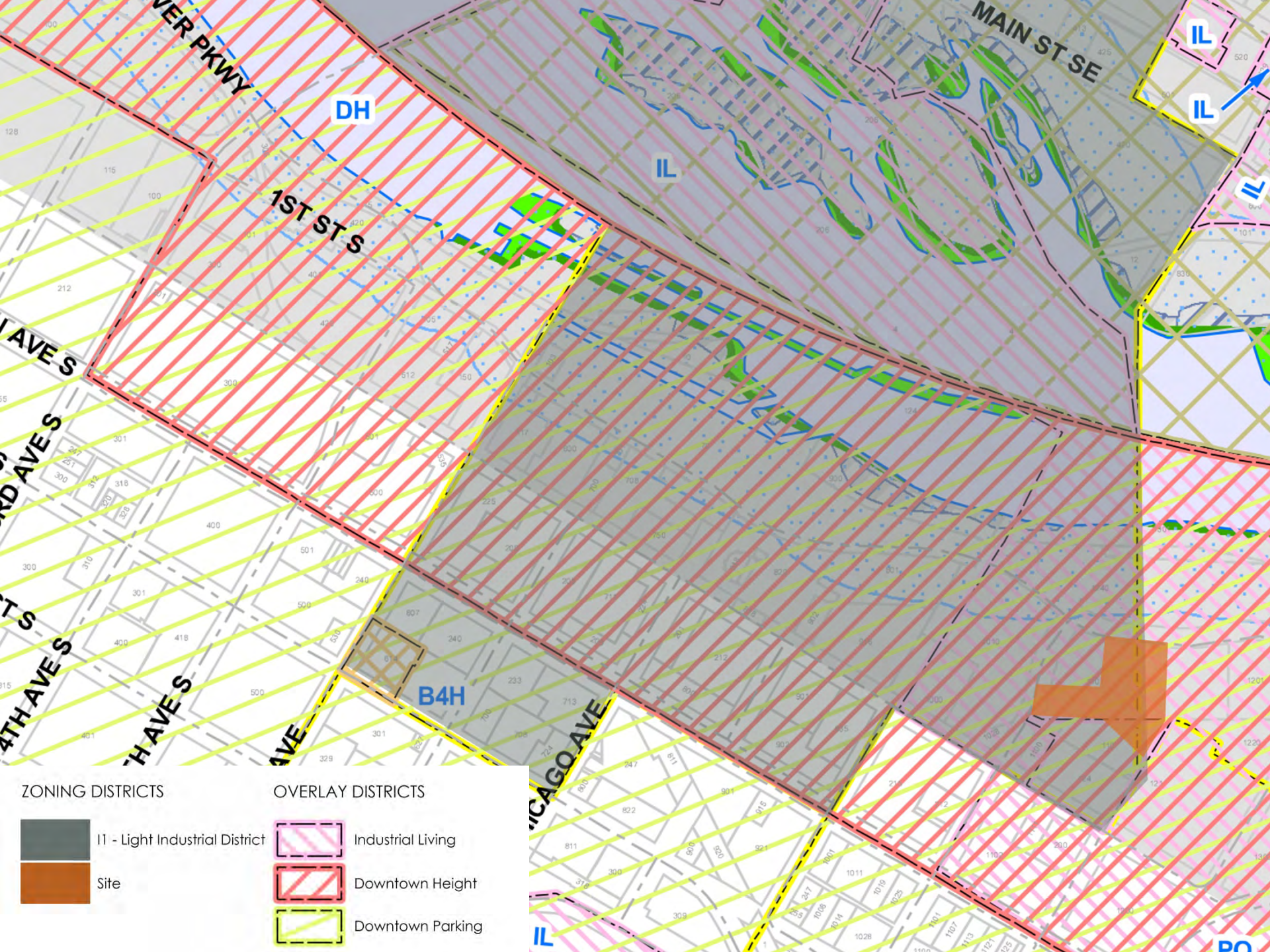
East River Pkwy

19th Ave S

10th



- Art Museums
- Art Schools
- Cultural Centers
- Literary Centers
- Music Centers
- Performing Arts Schools
- Production Studios
- Theaters



ZONING DISTRICTS

- I1 - Light Industrial District
- Site

OVERLAY DISTRICTS

- Industrial Living
- Downtown Height
- Downtown Parking

Egress



Third – Fifth Floor



First Floor

Mechanical vs. Flexible Smoke Curtain

Mechanical Smoke Control System Required:

Two 50,000 cfm fans

Two 30,000 cfm fans

Two three-story risers within a common shaft

Twelve large fire/smoke dampers (varying sizes)

U-shaped distribution ductwork on 3 floors

UUKL (specific panel function to ensure compatibility within the smoke control system)

smoke control panel/fire fan control panel

Associated interlocks/controls/monitoring devices

Increase in emergency generator size

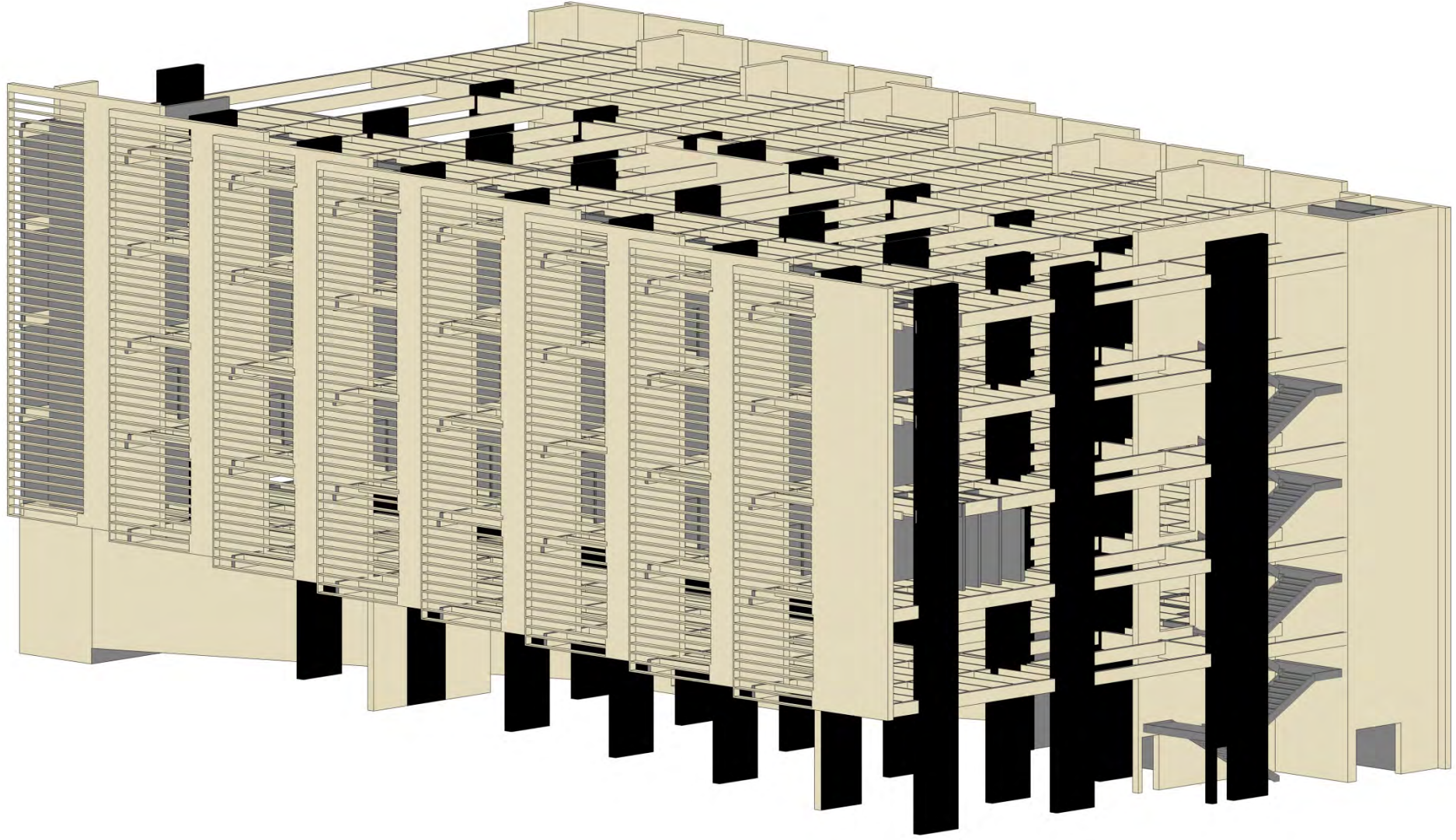
Passive Smoke Control System:

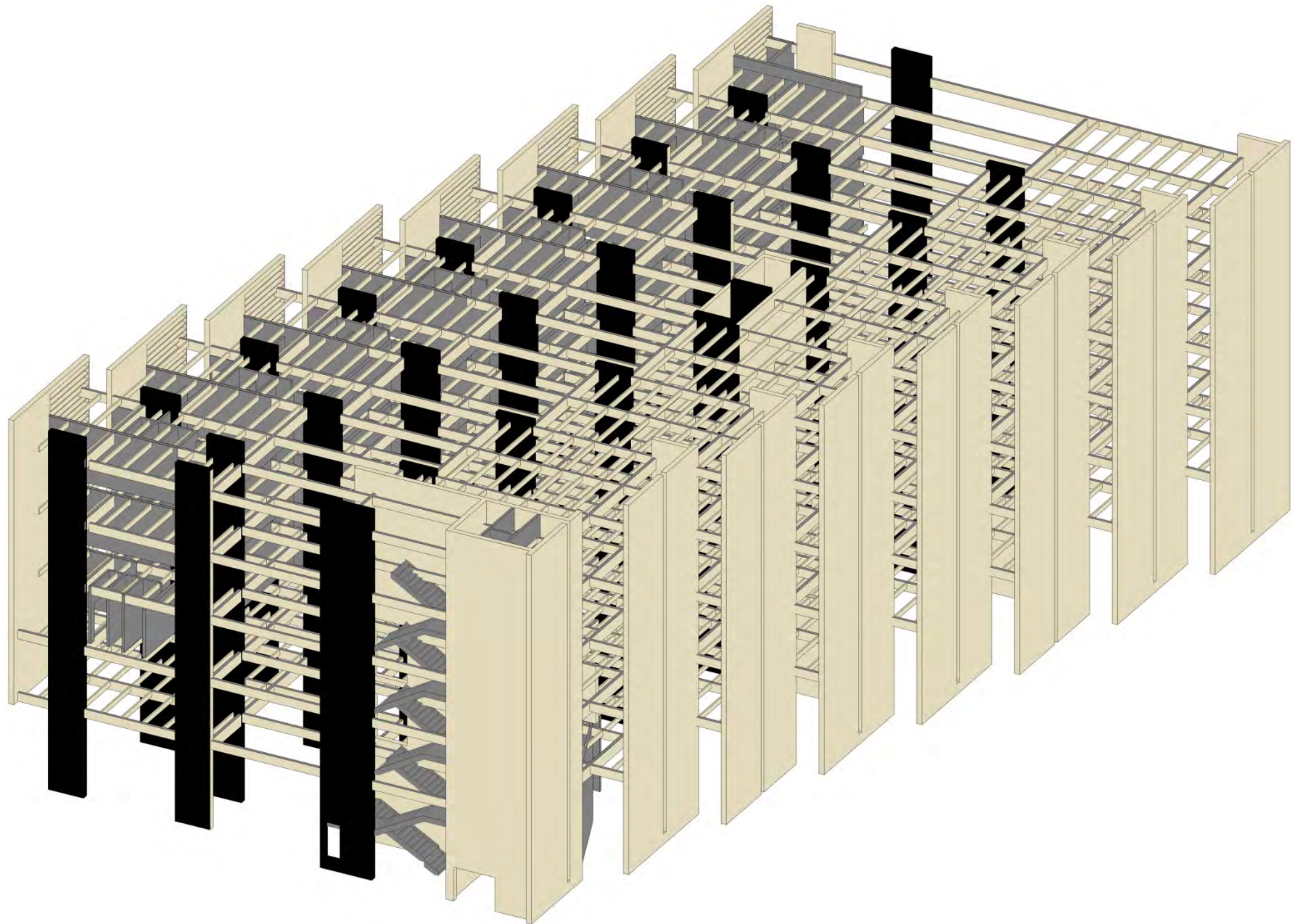
One 20-ft x 60-ft horizontal smoke curtain having a 2-hr. fire-resistance rating

“[Flexible fire and smoke curtain assemblies] are constructed of sustainable materials, reduce energy consumption and lessen the assumed need for code-required structural and mechanical materials. Fire and smoke curtains make a great deal of sustainable sense.”

<https://continuingeducation.bnppmedia.com/course.php?L=180&C=815&P=7>







Total Area = 56,760 sqft

Public Spaces:

1st Floor:

Mercantile: 30-50 sqft per person gross

(1st floor) = $9,600\text{sqft}/50 = 192$ people

2nd Floor:

Library: 50 sqft per person net(reading rooms)

100 sqft per person gross (stack areas)

Library (reading/community space) = $1,710/50 = 34$ people

Library (stack) = $1,710/100 = 17$ people

Art Gallery: 100sqft per person gross

(using library stack use) $6660\text{sqft}/100 = 67$ people

Private Spaces:

3rd-5th Floors:

Residential: 200sqft per person gross

$5,760\text{sqft}/200 = 29$

* 3 floors = 87

Based on number of Beds = 8 people

* 3 floors = 24 people

Art Studios/ music practice rooms (educational shop and vocational use): 50sqft net

$6,600\text{sqft}/50 = 132$ people

* 3 floors = 396 people

Based on number of Beds = 8 people

* 3 floors = 24 people

Mechanical Sizing Spaces:

Fire pump = 8'x12'

Water pump = 8'x12'

Boiler and chilled water plant = 680sqft

Garbage shoot: 24 in diameter

Waste compactor room: 60 sqft

Custodial storage: 8' x 4'6"

Elevator inside shaft: 8'4x6'8" elevator = 6'8x4'3 shaft = 4 ft pit and 13 ft at top above finish floor

Elevator room: 45sqft

Telecommunications/electrical closet: 20 sqft

Plumbing shaft: 12x48 in

Toilets

Retail:

Toilet: Men = $96/500 = 1$ toilet Female = $96/500 = 1$ toilet

Sink: Men = $96/750 = 1$ sink Female = $96/750 = 1$ sink

Drinking Fountain: 1 per 1000 = 1 drinking fountain

Library:

Toilet: Men = $26/125 = 1$ toilet Female = $26/65 = 1$ toilet

Sink: Men = $26/200 = 1$ sink Female = $26/200 = 1$ sink

Drinking Fountain: 1 per 500 = 1 drinking fountain

Art Gallery:

Toilet: Men = $34/125 = 1$ toilet Female = $34/65 = 1$ toilet

Sink: Men = $34/200 = 1$ sink Female = $34/200 = 1$ sink

Drinking Fountain: 1 per 500 = 1 drinking fountain

Residential: 1 of each per dwelling unit

Studios: same as residential

Minneapolis Downtown Parking Requirements

Table 541-2 Specific Off-Street Parking Requirements - Downtown Districts

Use	Minimum Parking Requirement	Maximum Parking Allowed
<p>Maximum parking allowed, downtown districts, in general. Uses subject to a maximum parking requirement may provide parking up to the amount specified below provided that a development with one (1) or more non-residential uses shall not be restricted to fewer than ten (10) total accessory parking spaces on a zoning lot.</p>		
<p>RESIDENTIAL USES</p>		
	<p>None except that multiple-family dwellings of 50 or more units that provide off-street parking for residents shall also provide designated visitor parking at a ratio of not less than one visitor space per 50 dwelling units.</p>	<p>1.5 spaces per dwelling unit or rooming unit in the B4 District; 1.6 spaces per dwelling or rooming unit in the B4S, B4C and B4N Districts; Developments with fewer than 10 dwelling or rooming units shall be subject to a maximum parking requirement of 2 spaces per unit in the downtown districts; Accessible spaces required for residential uses by the Minnesota State Building Code and visitor parking spaces required by this ordinance shall not count toward the maximum parking requirement.</p>
<p>INSTITUTIONAL AND PUBLIC USES</p>		
	<p>None</p>	<p>1 space per 1,000 sq. ft. of GFA</p>
<p>COMMERCIAL USES</p>		
<p>Retail sales and services</p>	<p>None</p>	<p>1 space per 500 sq. ft. of GFA except that the maximum parking requirement for grocery stores shall be 1 space per 300 sq. ft.</p>
<p>Offices</p>	<p>None</p>	<p>1 space per 1,000 sq. ft. of GFA</p>
<p>Automobile services</p>	<p>None</p>	<p>1 space per 200 sq. ft. of GFA+ 2 spaces per service bay</p>
<p>Food and beverages</p>	<p>None</p>	<p>1 space per 200 sq. ft. of GFA</p>
<p>Commercial recreation, entertainment and lodging</p>	<p>None</p>	<p>30% of the capacity of persons except that the maximum requirement for hotels shall be 1 space per guest room + parking equal to 30% of the capacity of persons for affiliated uses such as dining or meeting rooms</p>
<p>Medical facilities</p>	<p>None</p>	<p>1 space per 1,000 sq. ft. of GFA except that the maximum requirement for hospitals shall be as approved by C.U. based on a parking study of the institution, but not more than 1 space per 2 beds</p>
<p>Transportation</p>	<p>None</p>	<p>1 space per 1,000 sq. ft. of GFA</p>
<p>PRODUCTION, PROCESSING AND STORAGE</p>	<p>None</p>	<p>1 space per 1,500 sq. ft. of GFA</p>
<p>PUBLIC SERVICES AND UTILITIES</p>	<p>None</p>	<p>1 space per 1,000 sq. ft. of GFA</p>