

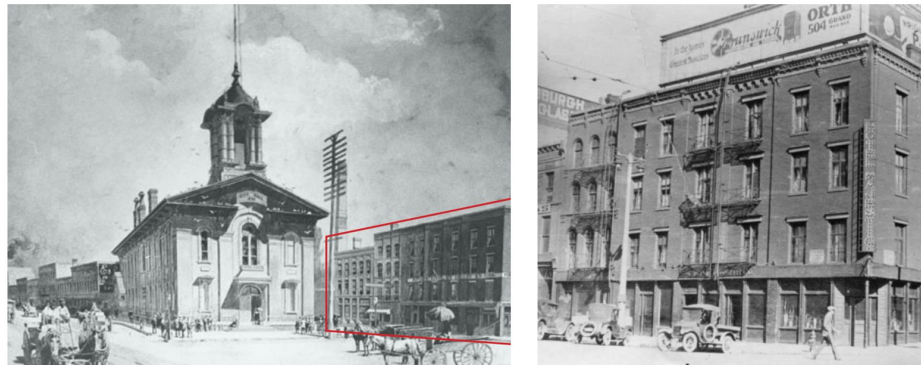
DESIGN FOR INTEGRATION - RESPECT THE CITY OF MKE
THROUGH ITS MATERIAL AND DESIGN PARTI

MATERIAL: Respecting the adjacency to City Hall and of city of Milwaukee, the Archive uses Cleveland Quarry berea sandstone (from City Hall) and Arriscraft high-quality cream brick masonry (MKE Signature) to last for a long time.

PARTI: Site visit puts me in perspective on *how tall* the surroundings are, and our site zoning clearly implements it. With building height has no maximum for C9D zoning, *this site call for a tower.* As a highrise, this project follows 2021 IBC Code for Mass Timber High Rise, Construction Type IV B (Timber), instead of the 2015 IBC (for Wisconsin).

The Archive will *keep street edge* like its predecessor, the Majestic Hotel, matching the neighbor buildings. Following the adjacency of its context, the Archive is taking a *curve edge adjacent to the BMO tower and City Hall.* Adding to the majestic and grand feel of the City Hall, The Archive wants to *off set the front entrance by having 2ft of 3 double heighted columns, aligns with the Frank Zeidler Municipal's column.* The Archive wants to *champion the landscape/waterscape with a bigger footprint.* Curved pathway for workers from CDC to City Hall, soften the harshness of city life. Extensive green roof + land/waterscape gives all green from satellite view - *"take green, bring back green" initiative.* Deep pile foundation for *geothermal*, hence renewable energy.

2015-2016 Zoning					
DOWNTOWN DISTRICTS DESIGN STANDARDS					
USE	MIN. FLOOR AREA	MIN. FLOOR AREA	MIN. FLOOR AREA	MIN. FLOOR AREA	MIN. FLOOR AREA
USE	MIN. FLOOR AREA	MIN. FLOOR AREA	MIN. FLOOR AREA	MIN. FLOOR AREA	MIN. FLOOR AREA
SAFETY/SECURITY	20.1	20.1	20.1	20.1	20.1
SAFETY/SECURITY	20.1	20.1	20.1	20.1	20.1



- LT: Sensitive Land Protection - Option 1: Previous developed land
1 point + WI Regional Priority: **2 points**
- LT: High-Priority Site and Equitable Development - Option 1, path 2 AND Option 2, path 1: 2 points + WI Regional Priority: **3 points**
- EQ: Low Emitting Materials (Inherently non-emitting sources - Flooring, Wall panels, Ceilings, Insulation, Composite Wood)
3 points



ELEVATED EPICS:
A RARE BOOKS
ARCHIVE CITY OF
MILWAUKEE

A WALKTHROUGH USING AIA 10 POINTS FRAMEWORK FOR DESIGN EXCELLENCE

TOTAL GROSS: 18,096 SF
MECH: 18,096 GSF x 0.04 = 723 SF
BUDGET: 12,000,000 USD
PRICE PER SQ: 663 USD

BIKE PARKING REQUIREMENT
- INDOOR (1 PER 6,000 SF OF FLOOR GSF, MIN 2 SPACES)
18096/6000 = 3 SPACES MINIMUM (3 spaces actual)
- OUTDOOR (1 PER 3000 SF OF FLOOR GSF, MIN 2 SPACES)
18096/3000 = 6 SPACES MINIMUM (7 spaces actual)

See Abstract/Narrative document for LEED points explanation.
Some of the credits here are not possible to show, hence it is included in the Abstract/Narrative document.

LEED GOLD CERTIFIED*
72/110; 13 points in question, possible for LEED PLATINUM CERTIFIED*

MODEL IN SITE



LOOKING AT 1:20 SLOPE CURVE PATH, ADA ACCESSIBLE WITHOUT THE NEED OF HANDRAIL, CONNECTING CITY HALL TO CDC BLDG.

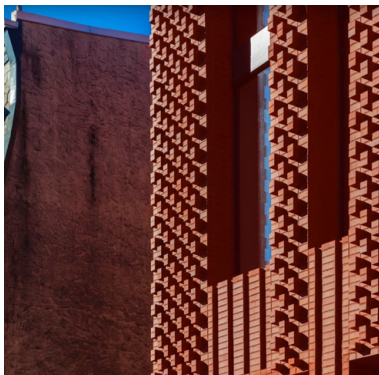


ADJACENCY & PRECEDENT

ACHIEVING MASONRY DEPTH VIA BRICK RETURNS AND SIMPLE KICK OUT PATTERN

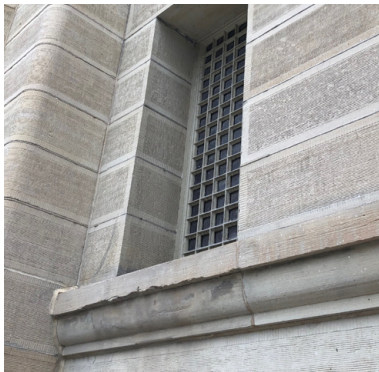


Louis Kahn's Exeter Library



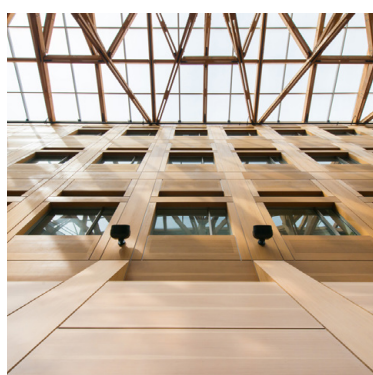
Stanley Saitowitz's Perelman Center

WITH BEREIA SANDSTONE THROUGHOUT, CITY HALL GIVE THE STOIC LOOK AND STRONG STAND THROUGH THE TEST OF TIME. MATERIAL IS ALSO LOCAL, HENCE, GREAT CHOICE FOR THIS PROJECT



Milwaukee City Hall

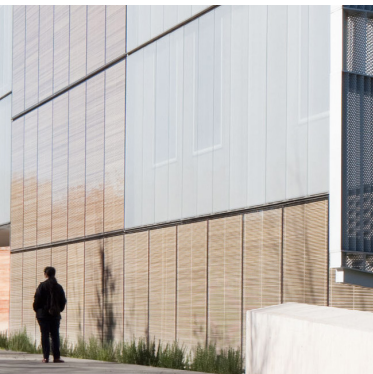
LOWER CO2 EMISSION AND EMBODIED CARBON, PROMOTE FOREST RESTORATION VIA MASS TIMBER BUILDING DEMANDS, PROVIDE BIOPHILIC QUALITY FOR ARCHIVE'S USER



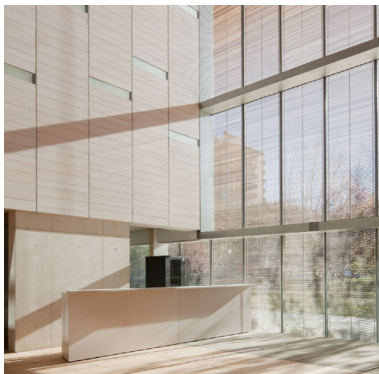
DGBK Architect's UBC Forest Sciences Centre



O'Donnell Toumey's National Photographic Archive



Rojo Fernandez Shaw's Archivo Histórico Provincial



WOODEN INSERTS IN R14+ VITRO VIG GLAZING PROVIDES SOLAR SHADING + "PRIVACY" FOR THE ARCHIVE, YET STILL ALLOW MAXIMUM VIEWING FOR READERS @ DOUBLE HEIGHTED READING ROOM TOWARDS EAST - CITY HALL

MATERIAL STUDY



ARCHIVE CLADDING
GEORGIA LINEAR BRICK SERIES
WHITE PEARL
SOLID
ARRISCRAFT



COLUMN CLADDING
BEREA SAND STONE, VEIN-CUT
2'-0" ROUND COLUMN
CLEVELAND QUARRIES

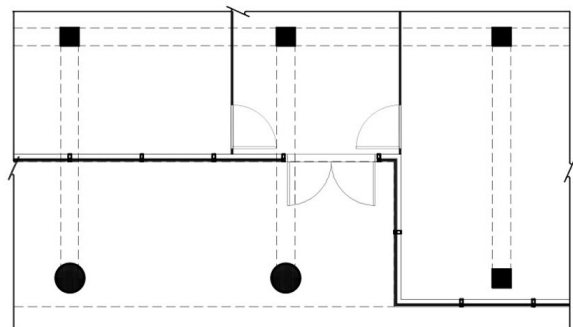
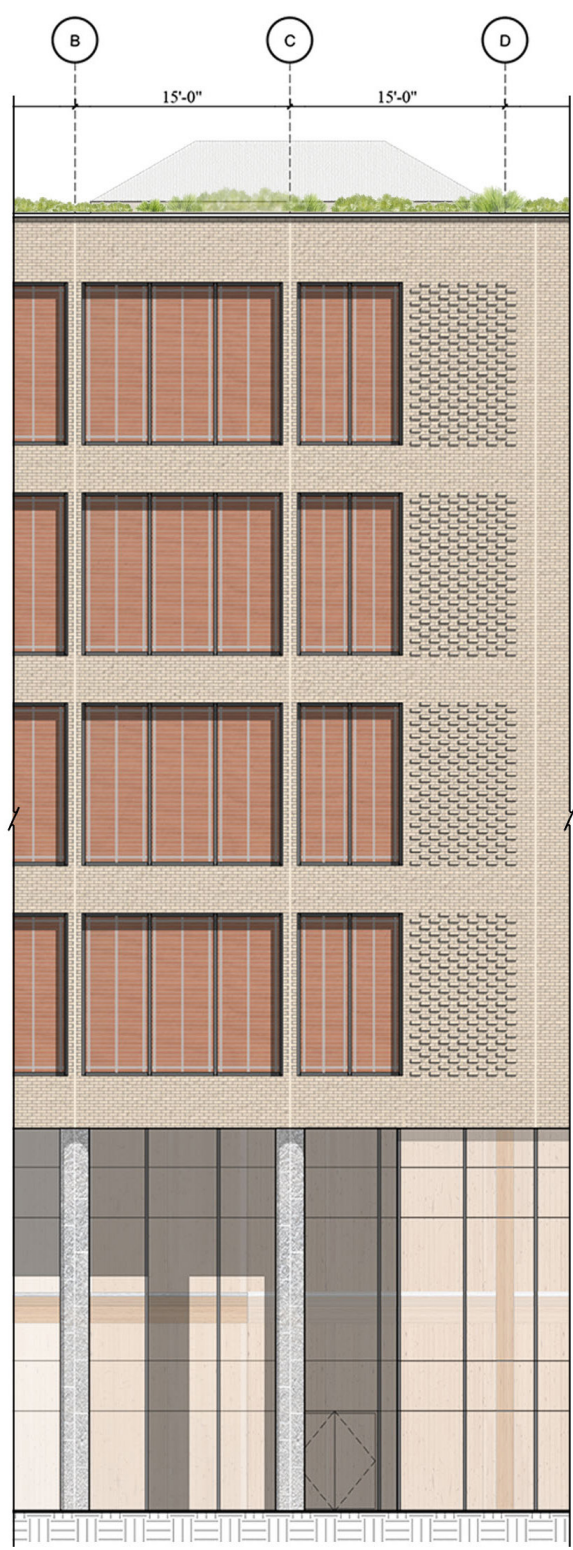


STRUCTURE
INFILL BUILDING
MASS TIMBER (IN OAK)
LAMINATED TIMBER BEAM & COLUMN
CROSS LAMINATED TIMBER DECK
WITH 3" CONCRETE TOPPING

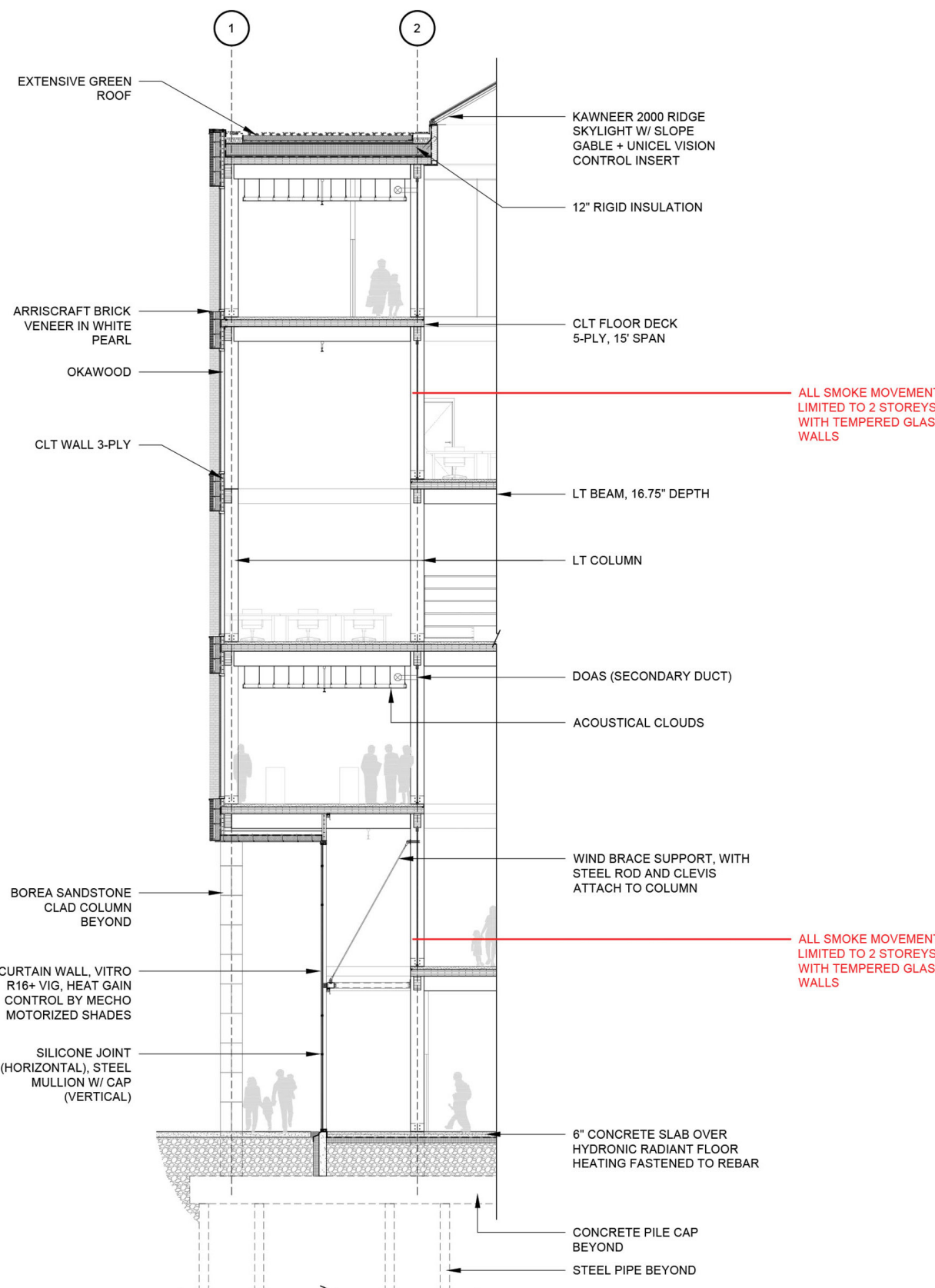


OPENINGS
OKAWOOD: GLAZING WITH FUNCTIONAL
TIMBER INSERT
COLOR: WHITE SERAYA
OKALUX

TECTONIC STUDY



SS: Protect or Restore Habitat: 6 native species at the extensive green roof



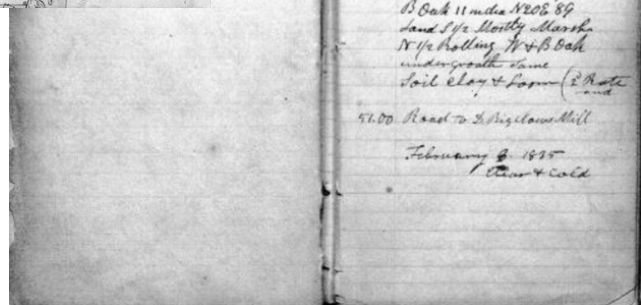
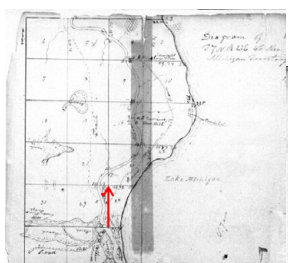
DESIGN FOR ECOLOGY: EMBEDDED WITH NATURE THROUGH LANDSCAPE

The site keeps 3 existing trees and plants 2 new Oak trees which are native to the land. Hundreds of native plants will be used throughout the plaza and green roof, with the purpose of regenerating biodiversity, as much as possible.

On site analysis, land survey for this area is soil clay and loam. As a 2nd rated land, where building construction is tougher, the Archive wants to champion the landscape with a bigger footprint. As soil clay tends to hold moisture longer, it can benefit native planting greatly.

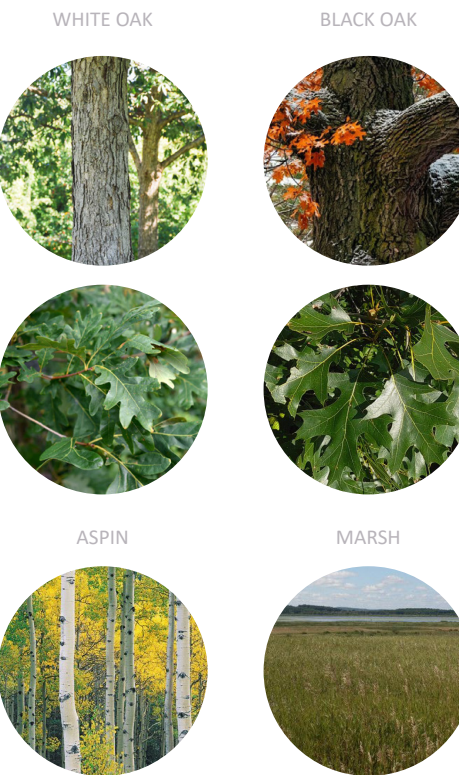
SS: Protect or Restore Habitat
2 points

JN - Design with Nature, Biophilic
2 points



Historical Ecology, Land survey 1835, Township: T007N
Range: 22 East, Sections: between 28 and 29

Native to site: White Oak, Black Oak, Aspin, Marsh



GROUND FLOOR PLAN IN
CONTEXT + UG PLAN

SCALE: 1/16" = 1'

USGBC MIDWEST COMPETITION #171
POSSIBLE LEED POINTS IN RED

MEET ZONING AND PROGRAM REQUIREMENT

Zoning is C9D. For downtown district, minimum height is 30ft, maximum in none, in which this was implemented as a parti for this design. With small square footage, occupants can enjoy for land/waterscape of native trees and plants. On top of the roof are extensive green roof, with a skylight "hat" shaded by Unicel vision control for comfort, not only add to the appearance of taller, but also for viewing our beloved MKE City Hall. The glazing requirement for the building needs to meet at least 60% on Market and at least 15% on Wells, which the Archive are well over. The corner of Market/ Wells are doubled height glazed cafe, intended to invite people in. It is open late as well, which would be well litted during day and night.

One of the requirement for the programing request, while the owner did not want a cafe do fear of pests that affect books, the city requires it. Hence, in the design, the cafe has to pass 2 doors to reach the Archive, which adds an immense protection to the rare archives section.

All rooms are designed in accordance to program requirements, such as 4000 linear feet of collection stacks, stable temperature control, safety and surveillance of stacks and readers, entrance space and catering connection, et cetera. Plans have been examined and red lined. Please request for program planning, zoning analysis and construction document set if needed. Above are only a few "specialty" highlighted.

DESIGN FOR EQUITABLE COMMUNITIES

The Archive will create an all-accessible plaza in the middle of the harshness of the city. Within the plaza, curvy walkway following the topography is used to soften the landscape. Existing tree along with new native trees are being planted, interwoven with waterscape that will invite people in to relax. In the summer, outdoor cafe is extended to the waterscape, provide more seatings besides park benches along the curve.

The Archive is built out to the lot line with a transparent, double-height café and lobby area on Market and Wells Street corner that will invite visitors. UV reflected pattern will be used here for bird strike, along with Mech's Electroshade Motorize to minimize heat gain. All toilets are ADA and gender-neutral, initiating safe spaces for everyone.

Integrative Process - Social Equity
1 point max for integrative process

SS: Open Space - more than 25% are vegetated (land+waterscape)
1 point

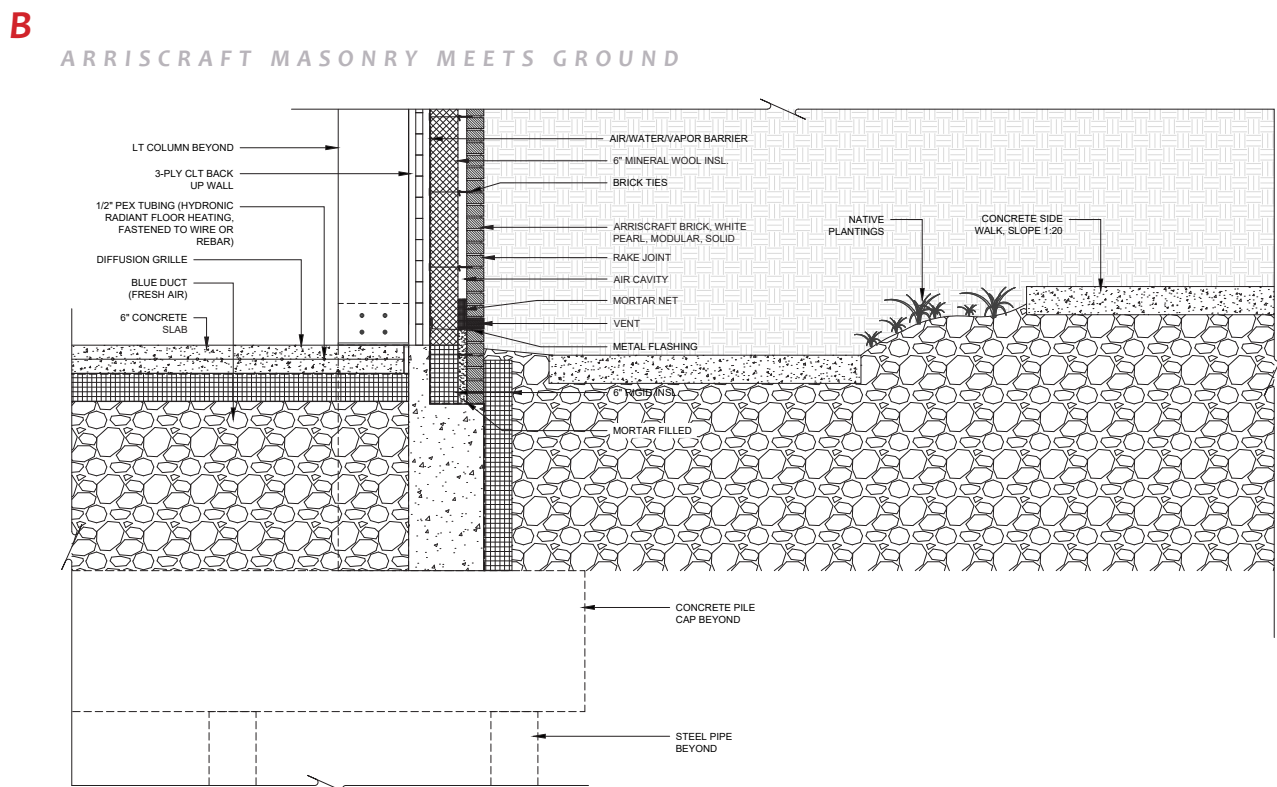
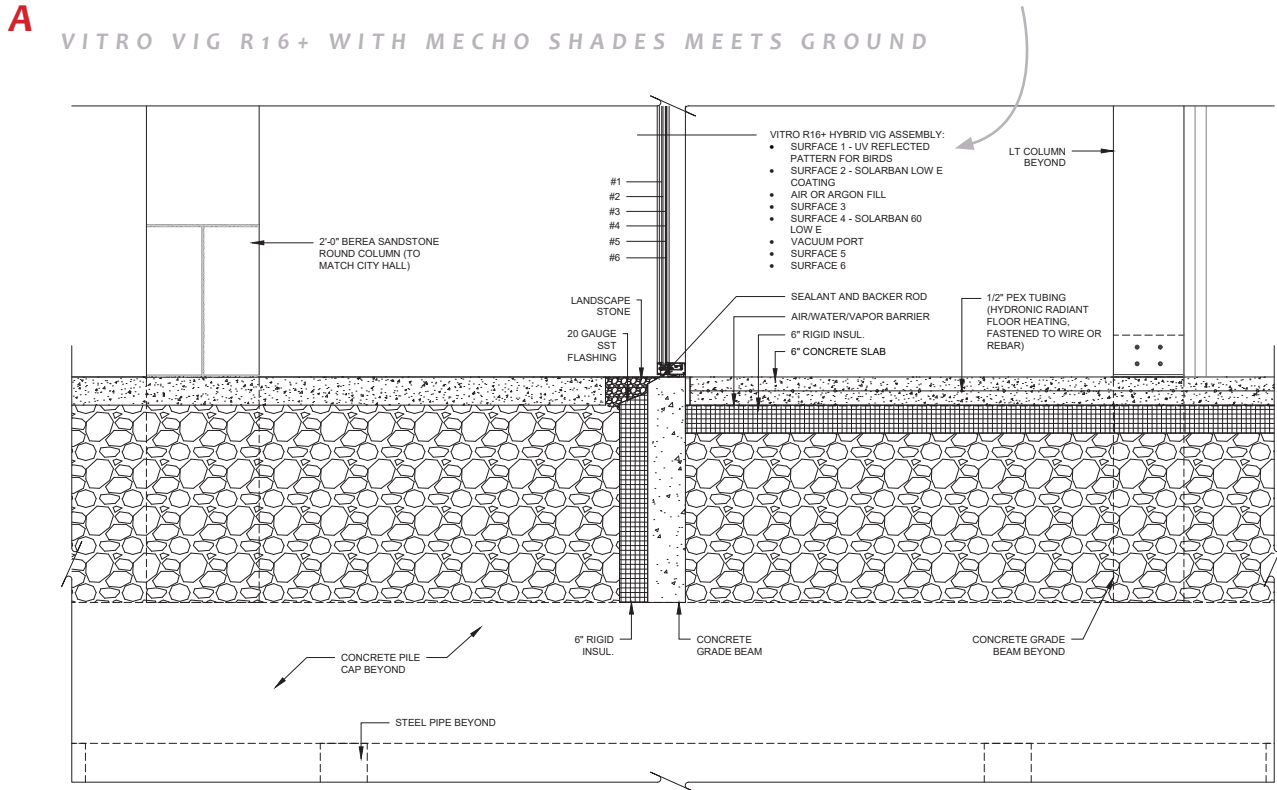
BUILDING SYSTEM

Wall: Interior butt glazing at stairs and double height area; Exposed Lam. timber beams, columns, Cross Lam Tim walls and floors in public areas; Acoustical clouds @ ceilings for offices, work rooms (typically small areas)
Glazing: High quality glass system from Vitro - firts floor glazing using Vitro Hybrid VIG which can gives up to R16+ value, combining with Mech Motorized shades as a sun shading solution; and Vitro VIG unit with Okawood (wooden insert from Okatech for shading). All glazing units' surface #1 have UV reflected pattern for bird safety. Wisconsin is one of the state with very high migration traffic of birds, and the Archive aim to protect these little guys as they migrate.
Insulation: 6" Mineral insulation for walls, 12" Rigid insulation for roof.
Structural system: Mass timber, 15'-0" span of 5-ply CLT floor and roof planks resting on laminated timber columns and beam; beam span is 16' 9", beam depth is 16.75". Non-loadbearing exterior backup walls of 3-ply (4.5") CLT spanning 15' max. Loadbearing of 5-ply (7.5") CLT at elevator shaft and staircases. 3" concrete topping which can use for radiant heating and cooling via hydronic pex tubing.
Mechanical system: Geothermal water-source radiant heating cooling using concrete floor slabs/toppings; Very small ducts required for dedicated fresh air ventilation.

Integrative Process - Assessment for Resilient AND Health & Well-being
1 point max for integrative process

WALL MEETS GROUND

IN - Bird Collision Deterrence
1 point



(Area of Nonroof/0.5) + (Area of High-Reflectance Roof/0.75) + (Area of Vegetated Roof/0.75)	≥	Total Paved Site + Total Roof
Non-roof// Unicel Vision Control Integrated Louvers: 563 sf High-reflectance// White paved walkable path: 497.2 sf Vegetated roof// 2328.69 sf (563/0.5)+(497.2/0.75)+(2328.69/0.75)	≥	Total roof: 3463.66 sf Total paved: 1362.2 sf
Total: 4893.85 sf	≥	Total: 4825.8 sf

GROUND FLOOR PLAN

1. ENTRANCE AND ORIENTATION SPACE
2. CAFE AND BOH
13. TRASH/RECYCLING (NO LOADING)
14. KITCHEN
15. TOILETS
16. INDOOR BIKE PARK AND SHOWER
17. OUTDOOR BIKE PARK

UG FLOOR PLAN

18. MECHANICAL

LT: Reduced Parking Footprint
1 point

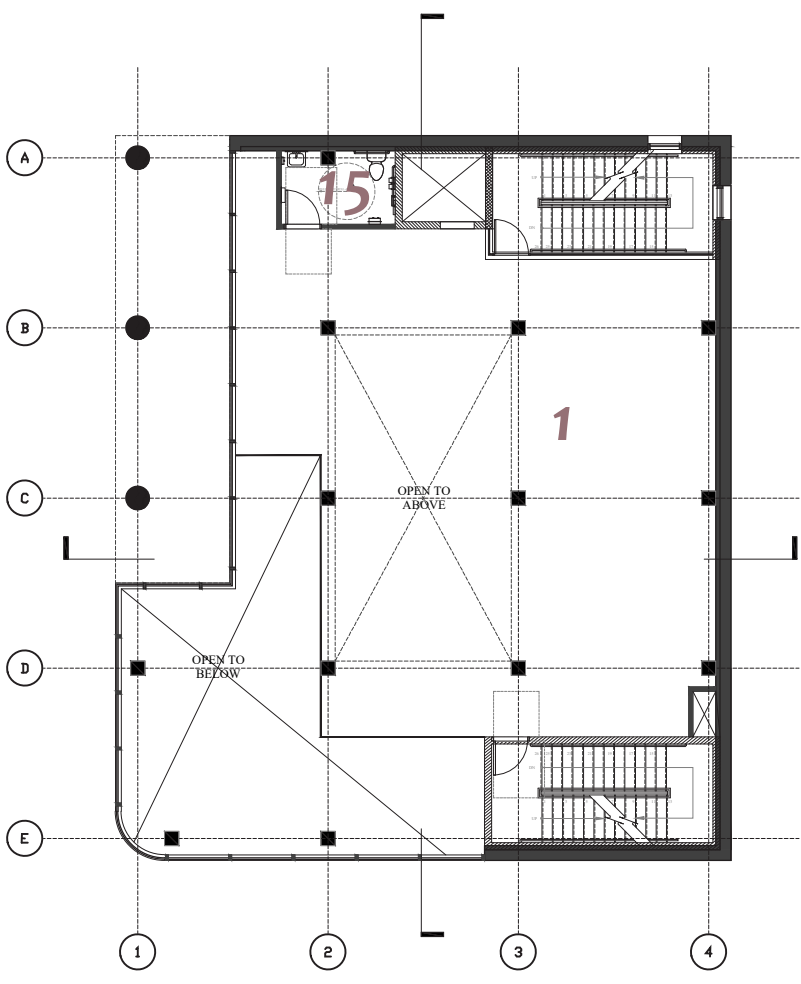
LT: Bicycle Facilities
1 point

SS: Site Assessment
1 point

SS: Protect or Restore Habitat: At least 25%; New native trees and ground cover ground floor (min 2)

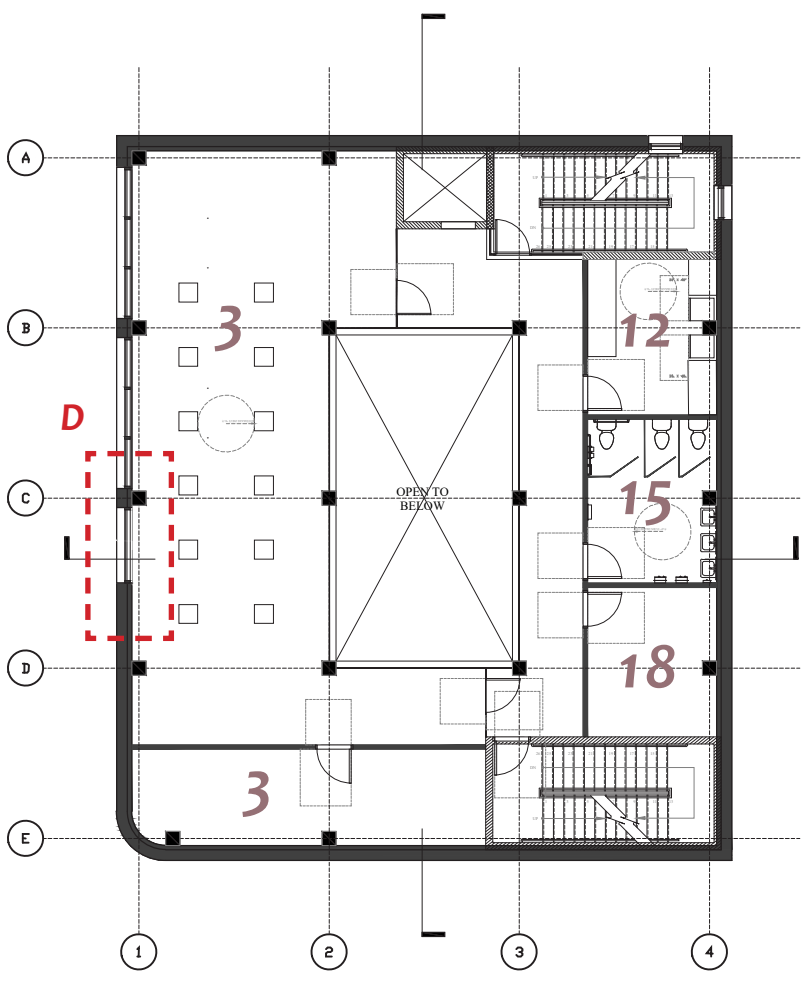
FLOOR PLANS: 2ND TO 7TH (ROOF)

SCALE: 1/16" = 1'



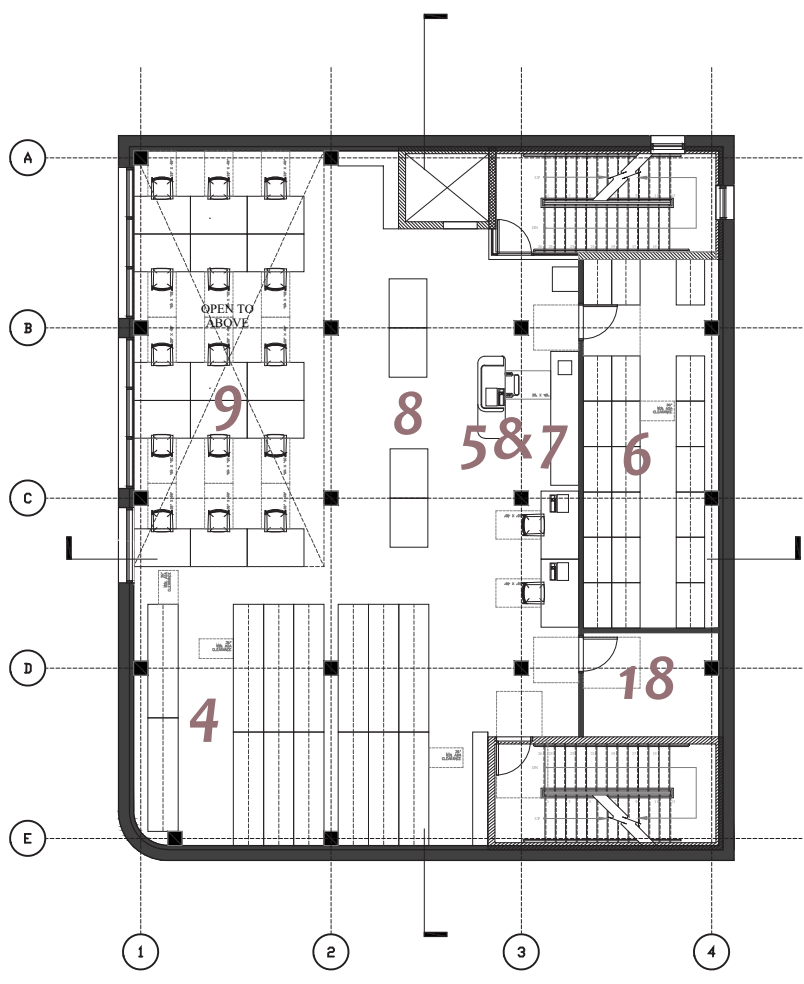
SECOND FLOOR PLAN

1. ENTRANCE AND ORIENTATION SPACE
15. TOILETS



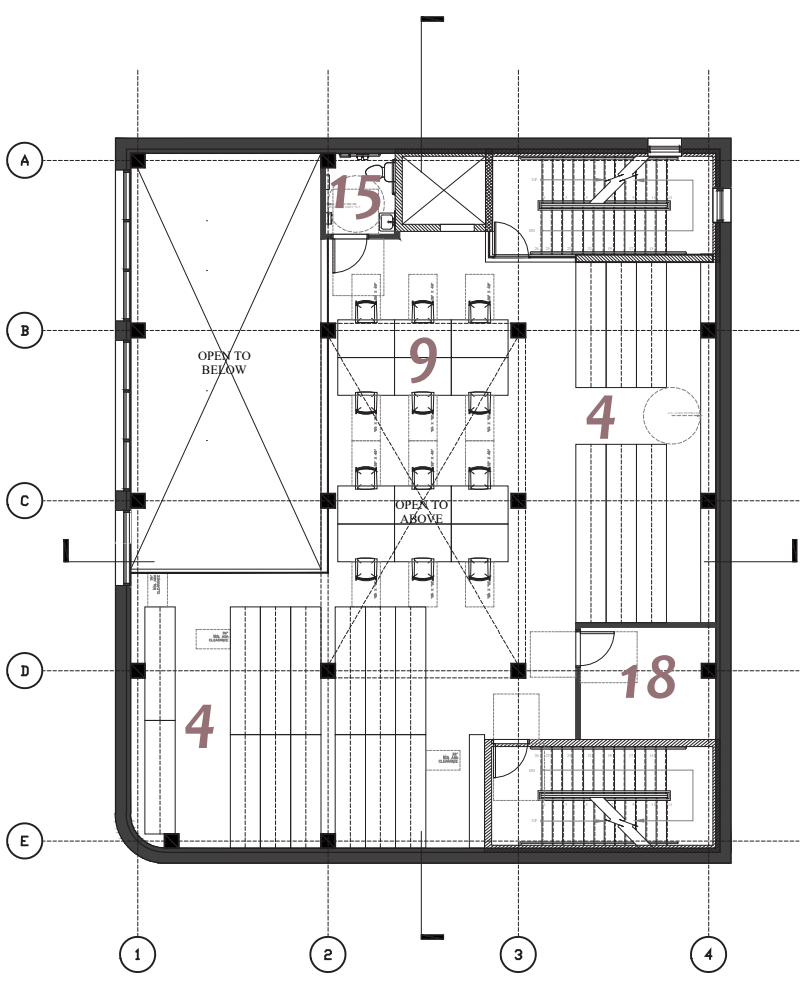
THIRD FLOOR PLAN

3. CHANGING EXHIBITION GALLERY
12. NEW ACQUISITIONS HOLDING ROOM
15. TOILETS
18. MECHANICAL



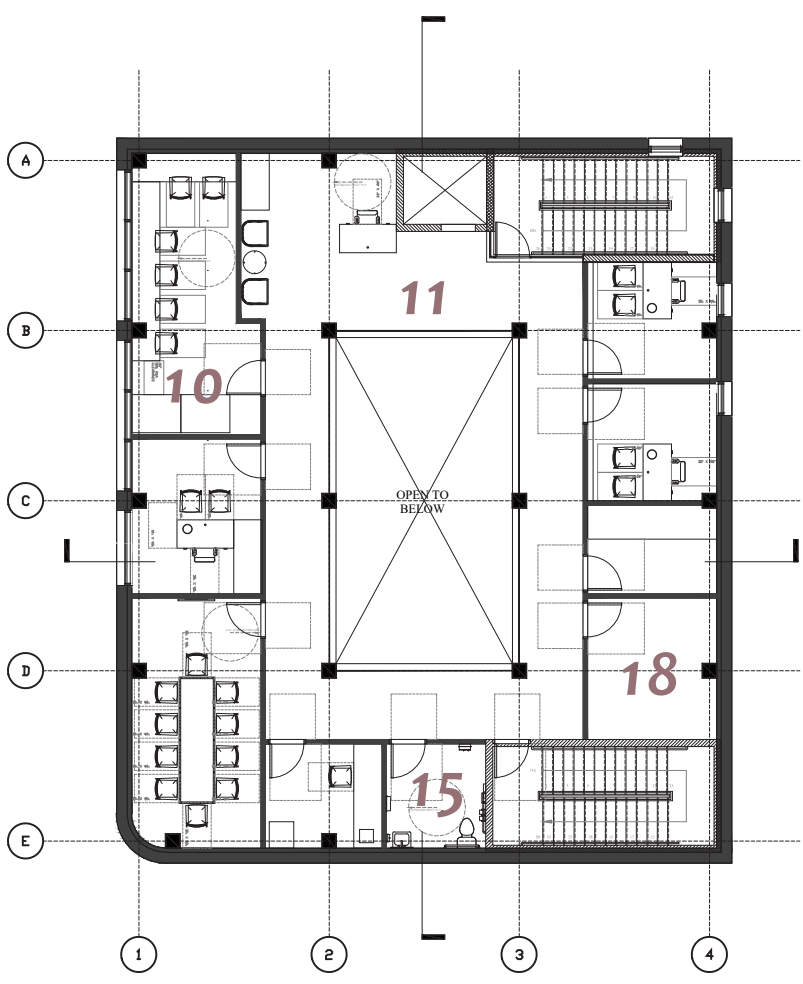
FOURTH FLOOR PLAN

4. COLLECTION STACKS
5. HELP DESK
6. PRINT STORAGE
7. COPY ROOM
8. MAP AND PLAN STORAGE
9. READING AREA (open space)
18. MECHANICAL



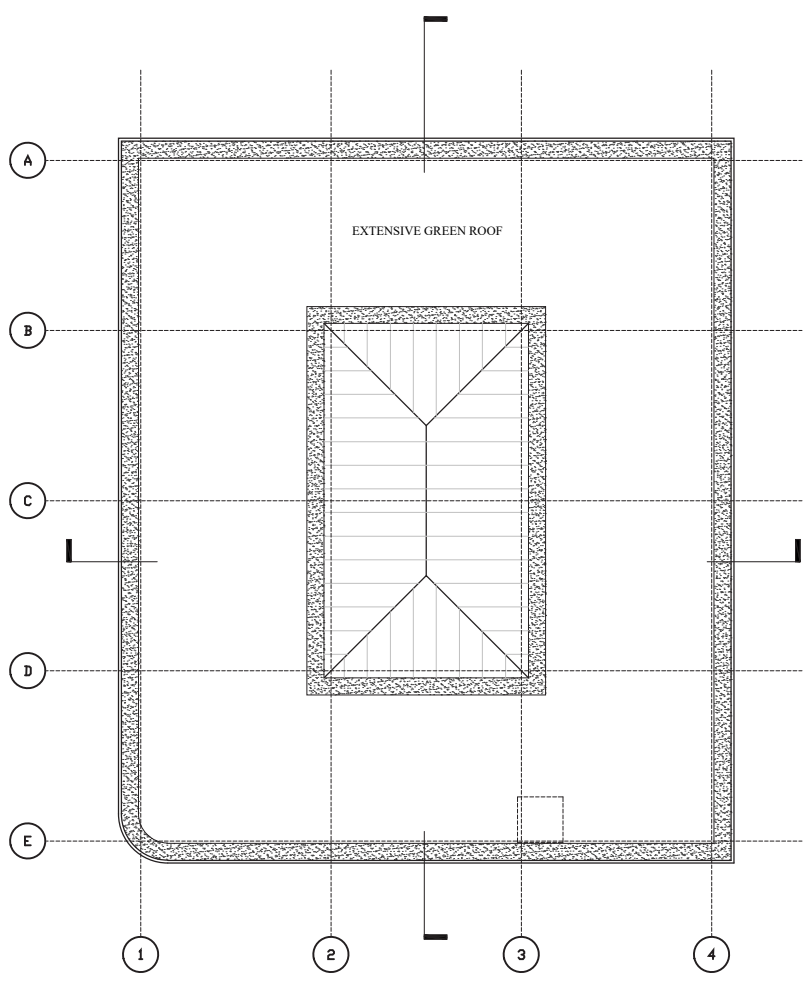
FIFTH FLOOR PLAN

4. COLLECTION STACKS
9. READING AREA (open space)
15. TOILETS
18. MECHANICAL



SIXTH FLOOR PLAN

10. ARCHIVE WORK ROOM
11. ADMIN OFFICES
15. TOILETS
18. MECHANICAL



ROOF PLAN

SS: Heat Island Reduction
2 points

SECTION IN CONTEXT

SCALE: 1/32" = 1'



LONGITUDINAL SECTION

SCALE: 1/16" = 1'

- 1. ENTRANCE AND ORIENTATION SPACE
- 2. CAFE AND BOH
- 3. CHANGING EXHIBITION GALLERY
- 4. COLLECTION STACKS
- 5. HELP DESK
- 6. PRINT STORAGE
- 7. COPY ROOM
- 8. MAP AND PLAN STORAGE
- 9. READING AREA (open space)
- 10. ARCHIVE WORK ROOM
- 11. ADMIN OFFICES
- 12. NEW ACQUISITIONS HOLDING ROOM
- 13. TRASH/RECYCLING (NO LOADING)
- 14. KITCHEN
- 15. TOILETS
- 16. INDOOR BIKE PARK AND SHOWER
- 17. OUTDOOR BIKE PARK
- 18. MECHANICAL

STRUCTURE:
LAMINATED TIMBER COLUMN, LAM. TIM. BEAM AND CLT DECK WITH 3" CONCRETE TOPPING, WHICH IS USED FOR RADIANT HEATING AND COOLING

RAINWATER MANAGEMENT:
3 LARGE CISTERNS HOLD 100-YEAR STORM WATER EVENT (SECTION IS CUTTING THROUGH CISTERN #2 - LARGE)

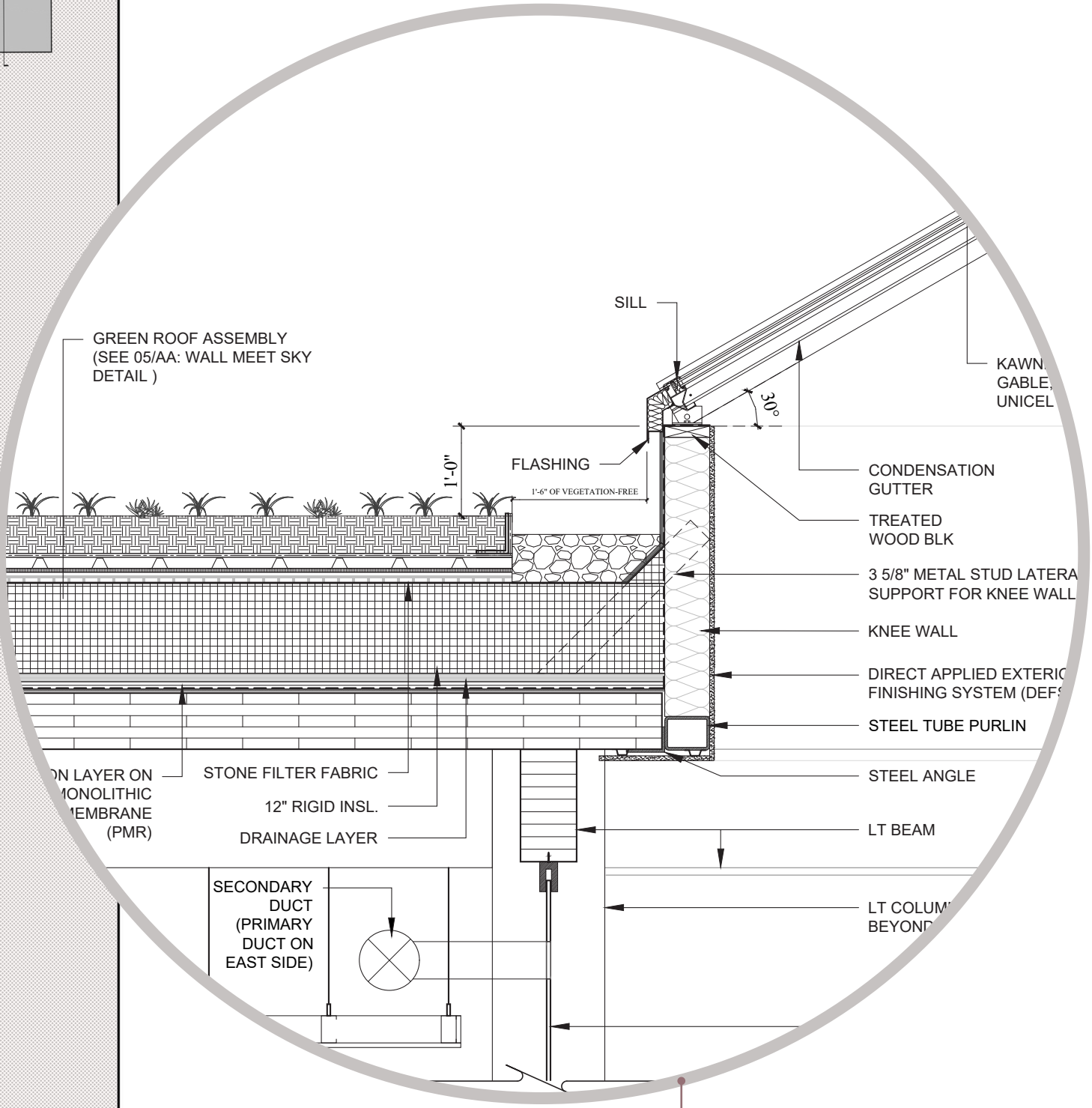
EA: Enhanced Refrigerant Management:
(no refrigerants)
1 points

MECHANICAL SYSTEM:
LOCATION OF HORIZONTAL MECHANICAL DISTRIBUTION INCLUDING: D.O.A.S. DUCT, HEATING/COOLING SUPPLY & RETURN, SPRINKLER MAIN

FOUNDATION:
PILE, PILE-CAP AND GRADE BEAM FOUNDATION FOR POOR SOILS; 140' DEEP PILES ALSO USED FOR GEOTHERMAL SOURCE

EA: Renewable Energy (On-site)
5 points

USGBC MIDWEST COMPETITION #171
POSSIBLE LEED POINTS IN RED



C
HOLE IN THE ROOF
KAWNEER SKYLIGHTS WITH UNICEL VISION CONTROL

DESIGN FOR WATER

The site design has 3 water features, to prepare for a 100 year rainfall event. They will hold and clean storm water on-site to be released to a creek slowly. Storm water that remains will also be reused, to water native plantings on site.

With the climate change, Archive's site aims to reduce carbon footprint, without the need to import water from elsewhere just to keep the plaza alive. There will also be additional stormwater tanks located under the building.

CISTERN CALCULATION

Cistern (waterscape) #1: $r = 7.25'$; $h = 8'$; hence $V = 1321.01$ cubic ft
Cistern (waterscape) #2: $r = 5.6'$; $h = 10'$; hence $V = 985.20$ cubic ft
Cistern (waterscape) #3: $r = 5.6'$; $h = 10'$; hence $V = 985.20$ cubic ft
 V total = 3291.44 cubic ft
Tanks under building (Level UG) for building reuse: 3 tanks of $8' \times 5'$ radius, V total = 1884.96 cubic ft

Total rainwater hold: 5176.4 cubic ft of water

DESIGN FOR ENERGY

New geothermal wells will be bored deep below the site to provide a closed-loop water system for all heating and cooling of the building.

Smaller footprint building with big curtain wall such as Okawood and skylight, will flood the 3 double-heighted spaces with natural daylight, calling for less electricity usage to meet a new energy efficiency benchmark. In addition, curtain wall system such as Okawood or Mecho shades will also prevent a great amount solar heat gain, further the energy-saving goal.

Volume in cubic feet: $\pi \times r^2 \times h$, r is radius, h is height
100 year rainfall event is around 5000 cubic feet of water that needs to retain on site.

SS: Rainwater Management
3 points + Regional Priority:
4 points

WE: Outdoor Water Use Reduction
2 points

IN: Sustainable Wastewater Management
1 point

DESIGN FOR RESOURCES

Built from mass timber structure, the Archive embodied carbon in itself which makes a resilient structure strength to last a lifetime. Timber is also known for biophillic use, promote mental and physical health of its users. Some materials sourced locally to reduce carbon footprint and bring a sense of belonging for Milwaukee citizen, such as the classic Cleveland Quarry's Berea Sandstone on Archive's columns.

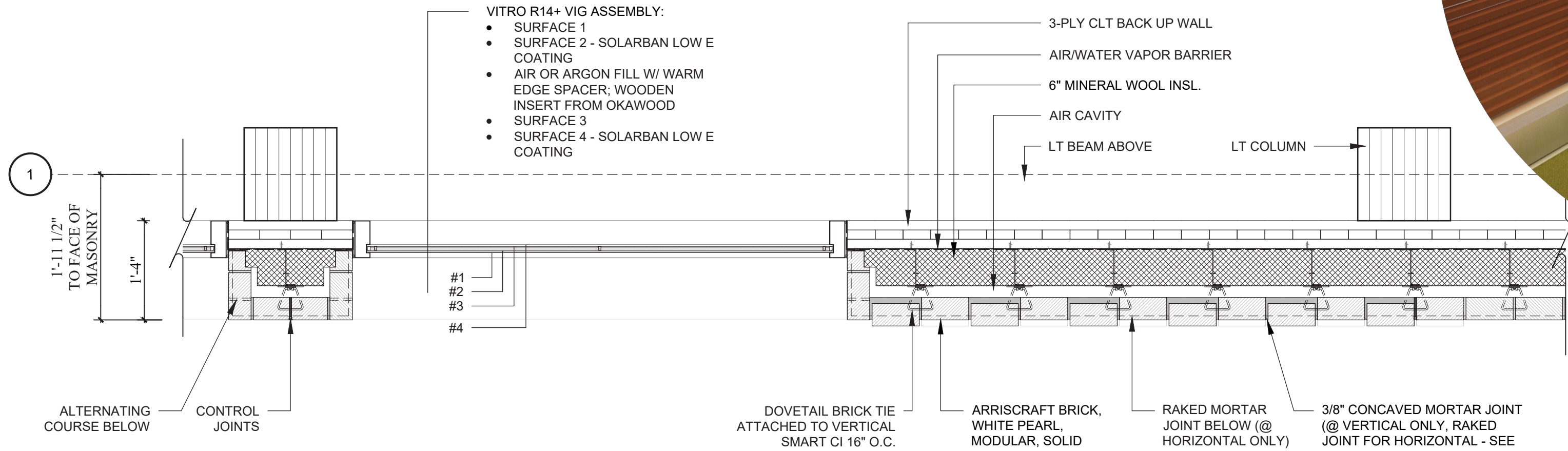
DESIGN FOR ECONOMY

The Archive uses the highest budget for material quality and sustainability from mass timber structure + locally sourced materials. Simply stacked 7-storey tall, the Archive has less land coverage and extensive green space down below as well as on rooftop. Some existing trees are also being kept.

THE "PERFECT WALL" BSI-001 BY BSC: RAINSCREEN

D HOLE IN THE WALL

VITRO VIG R14+ WITH WOODEN INSERTS BY OKAWOOD WITH ARRISCRAFT BRICK KICK



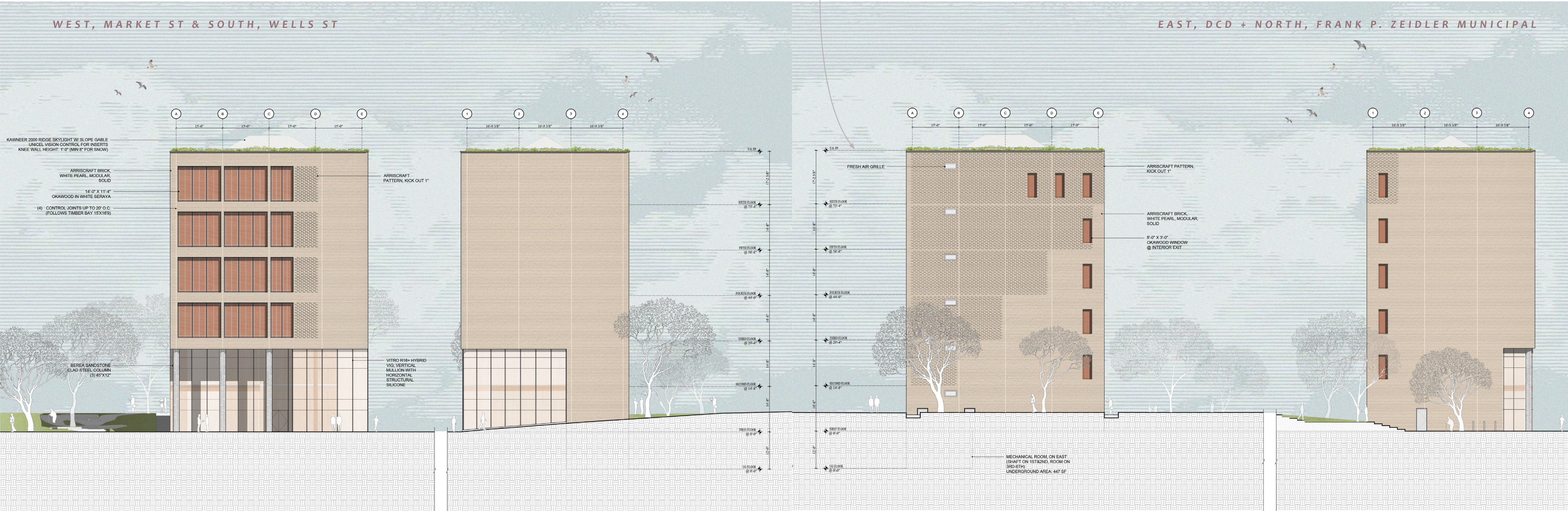
DESIGN FOR CHANGE: FACADE STUDY AND MASONRY PATTERN

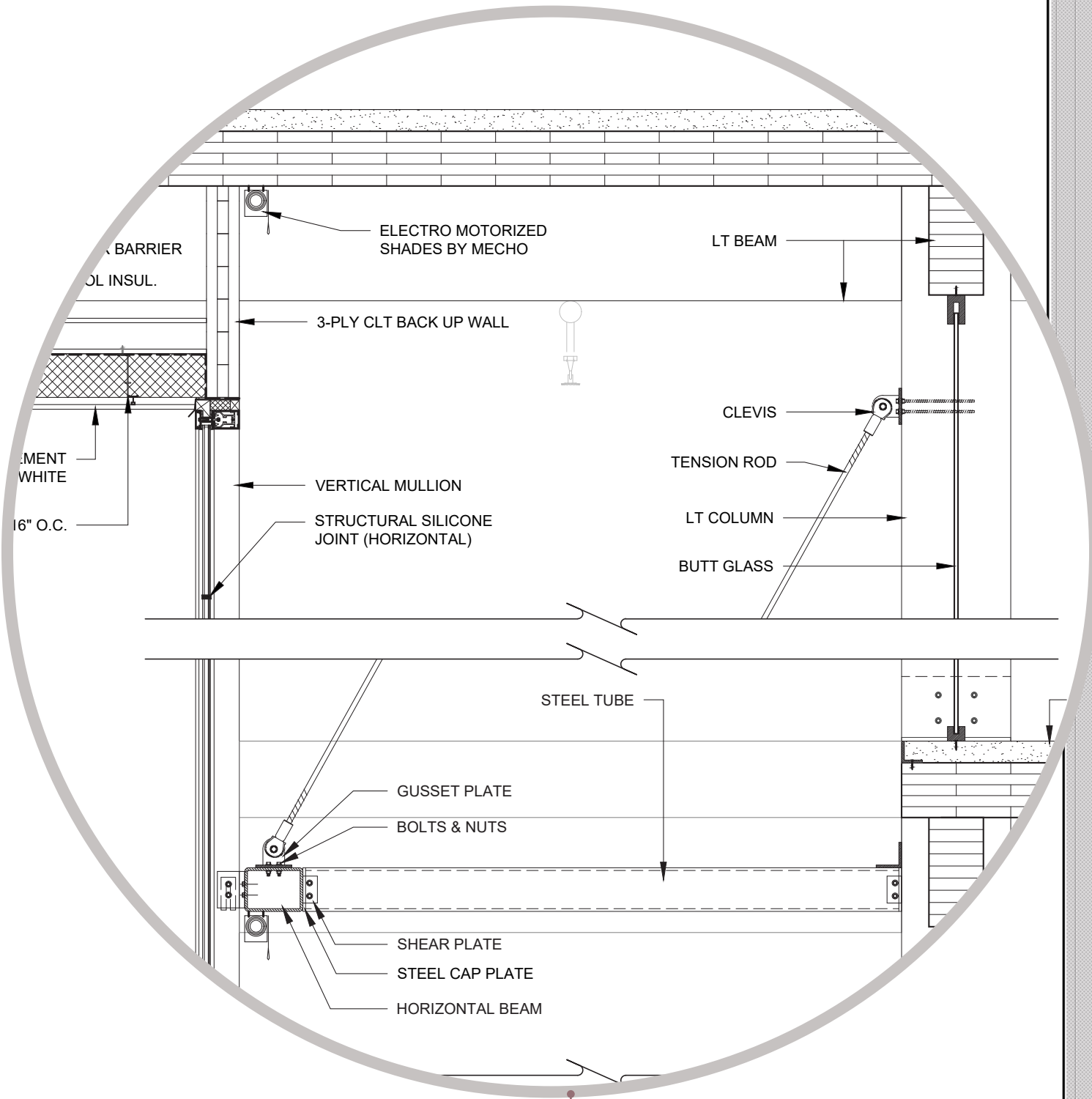
The Archive aims to be easily adaptable for future use, with a simple shape for flexibility of 115' x 16'9" bay of timber structure, and as an infill building type where one can easily close/punched a window for an apartment for example.

EQ: Enhanced Indoor Air Quality Strategies (#1-4)

WEST, MARKET ST & SOUTH, WELLS ST

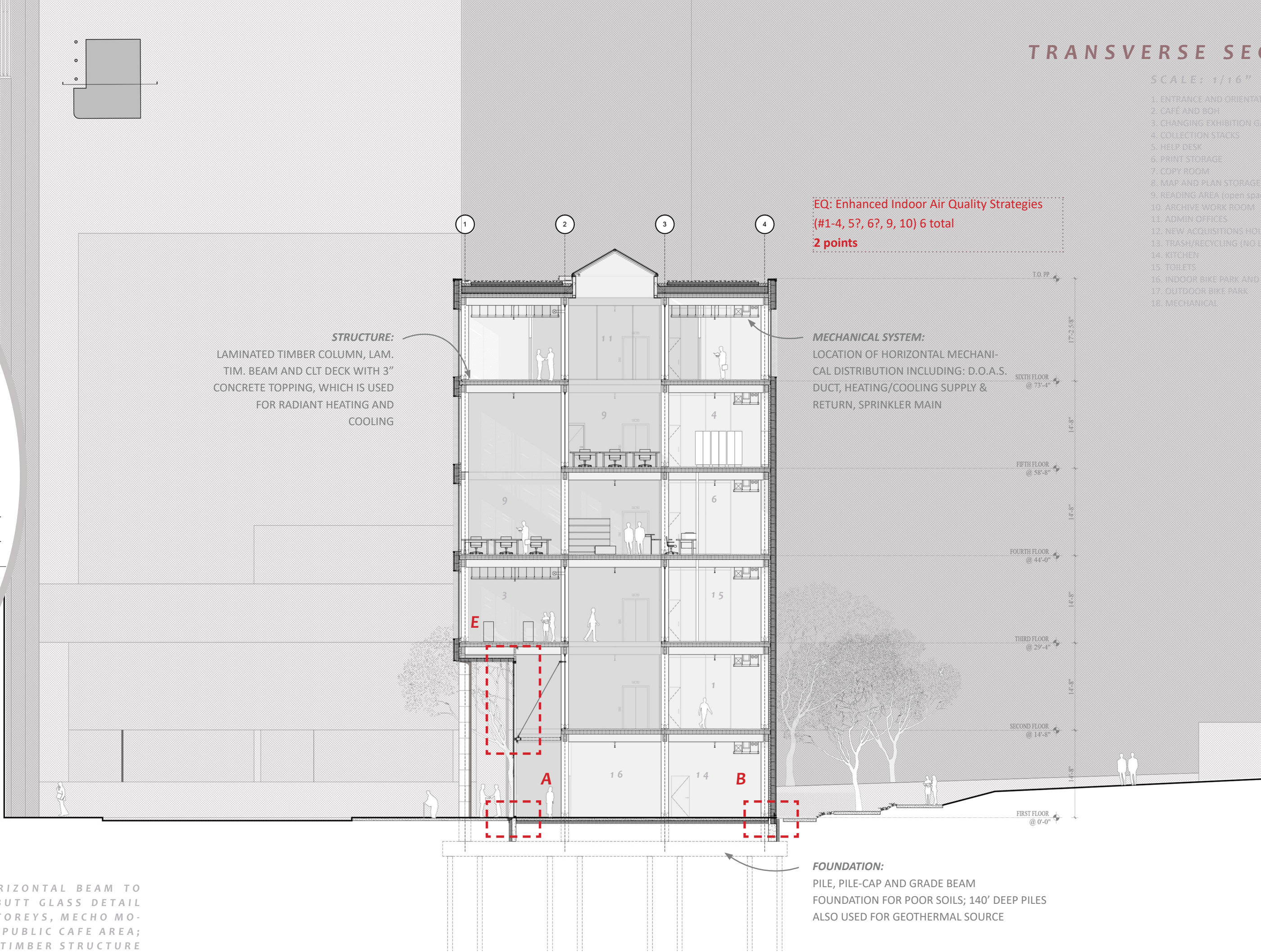
EAST, DCD + NORTH, FRANK P. ZEIDLER MUNICIPAL





E WIND BRACING DETAIL

WIND LOAD TRANSFER VIA HORIZONTAL BEAM TO LAMINATED TIMBER COLUMN; BUTT GLASS DETAIL LIMIT SMOKE TRAVEL UP TO 3 STOREYS, MECHO MOTOR SHADE @ VITRO R16+ VIG - PUBLIC CAFE AREA; EXTENSIVE EXPOSURE OF MASS TIMBER STRUCTURE



TRANSVERSE SECTION

SCALE: 1/16" = 1'

- 1. ENTRANCE AND ORIENTATION SPACE
- 2. CAFE AND BOH
- 3. CHANGING EXHIBITION GALLERY
- 4. COLLECTION STACKS
- 5. HUSBY DESK
- 6. PRINT STORAGE
- 7. COPY ROOM
- 8. MAP AND PLAN STORAGE
- 9. READING AREA (UPPER SPACE)
- 10. ARCHIVE WORK ROOM
- 11. ADMIN OFFICES
- 12. NEW ACQUISITIONS HOLDING ROOM
- 13. TREASURY/RECYCLING (IND. LOADING)
- 14. KITCHEN
- 15. TOILETS
- 16. INDOOR BIKE PARK AND SHOWER
- 17. OUTDOOR BIKE PARK
- 18. MECHANICAL

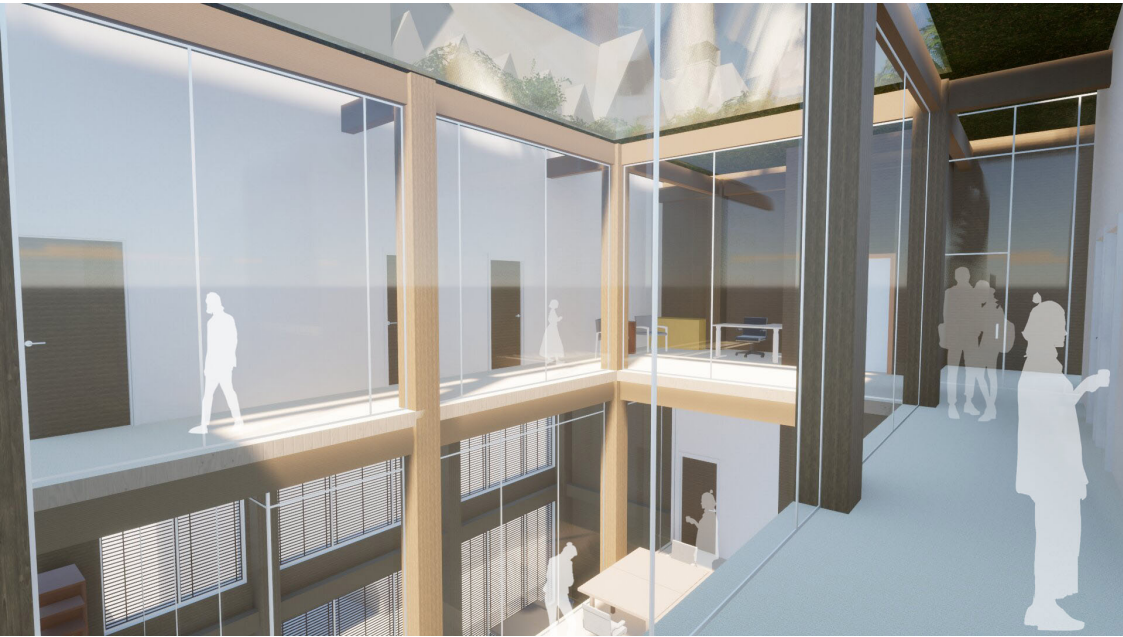
EQ: Enhanced Indoor Air Quality Strategies
{#1-4, 5?, 6?, 9, 10} 6 total
2 points

MECHANICAL SYSTEM:
LOCATION OF HORIZONTAL MECHANICAL DISTRIBUTION INCLUDING: D.O.A.S. DUCT, HEATING/COOLING SUPPLY & RETURN, SPRINKLER MAIN

FOUNDATION:
PILE, PILE-CAP AND GRADE BEAM FOUNDATION FOR POOR SOILS; 140' DEEP PILES ALSO USED FOR GEOTHERMAL SOURCE

DESIGN FOR WELLNESS

As stated previously on mass timber biophillic benefit as well as landscape plaza, on top of that, building is small with a few double heighted space and lightness will provide natural light flooding into the space. Radiant floor heating as well as a special radiant heat by the window to stop downdraft, will be use as well to provide comfort for user in the winter.

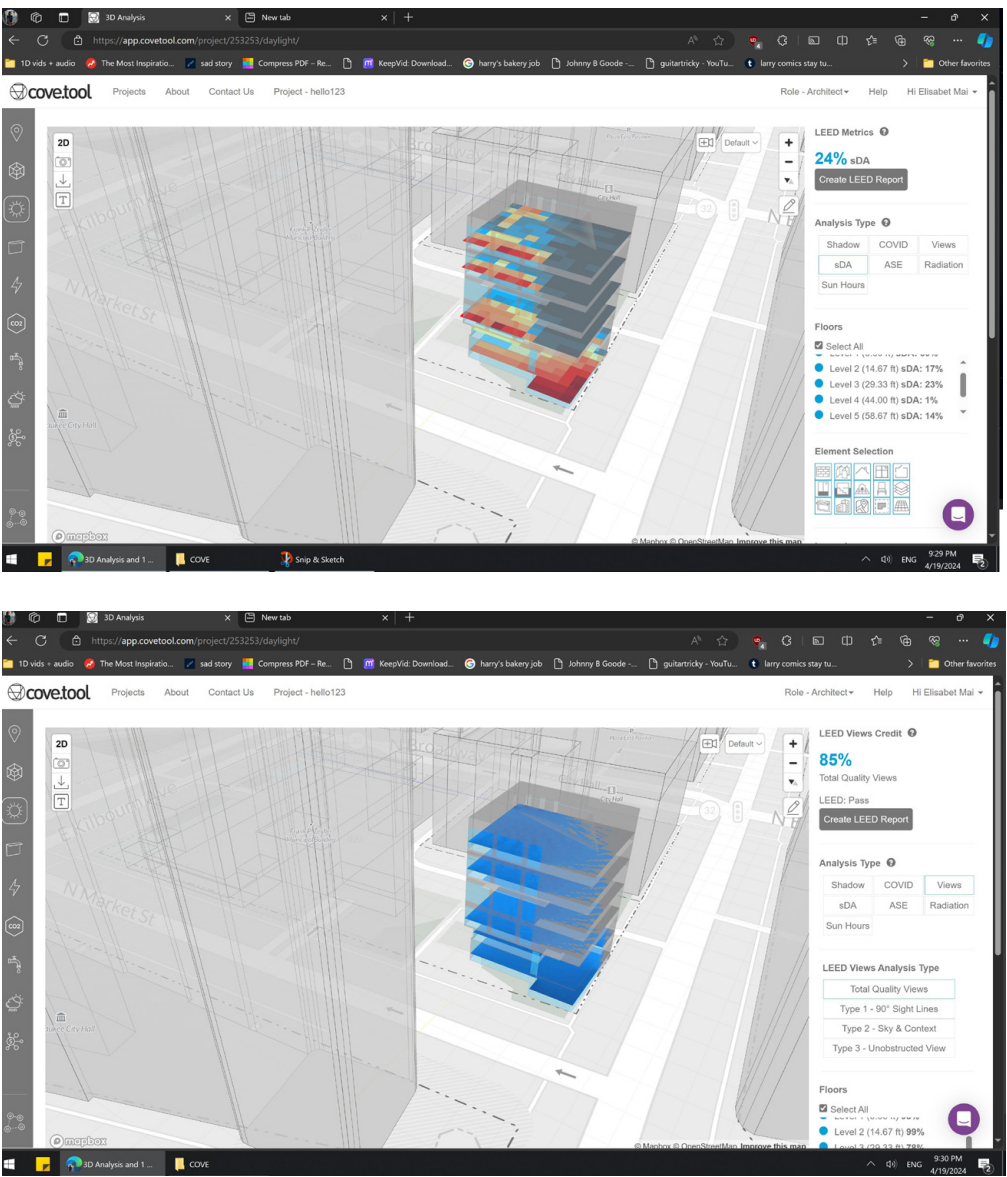


INTERIOR - READING ROOM , STACKS, HUMAN TOUCH DETAIL (CUSTOM CHERRY SEATINGS @ ENTRANCE), STAIRS VIEW OUT

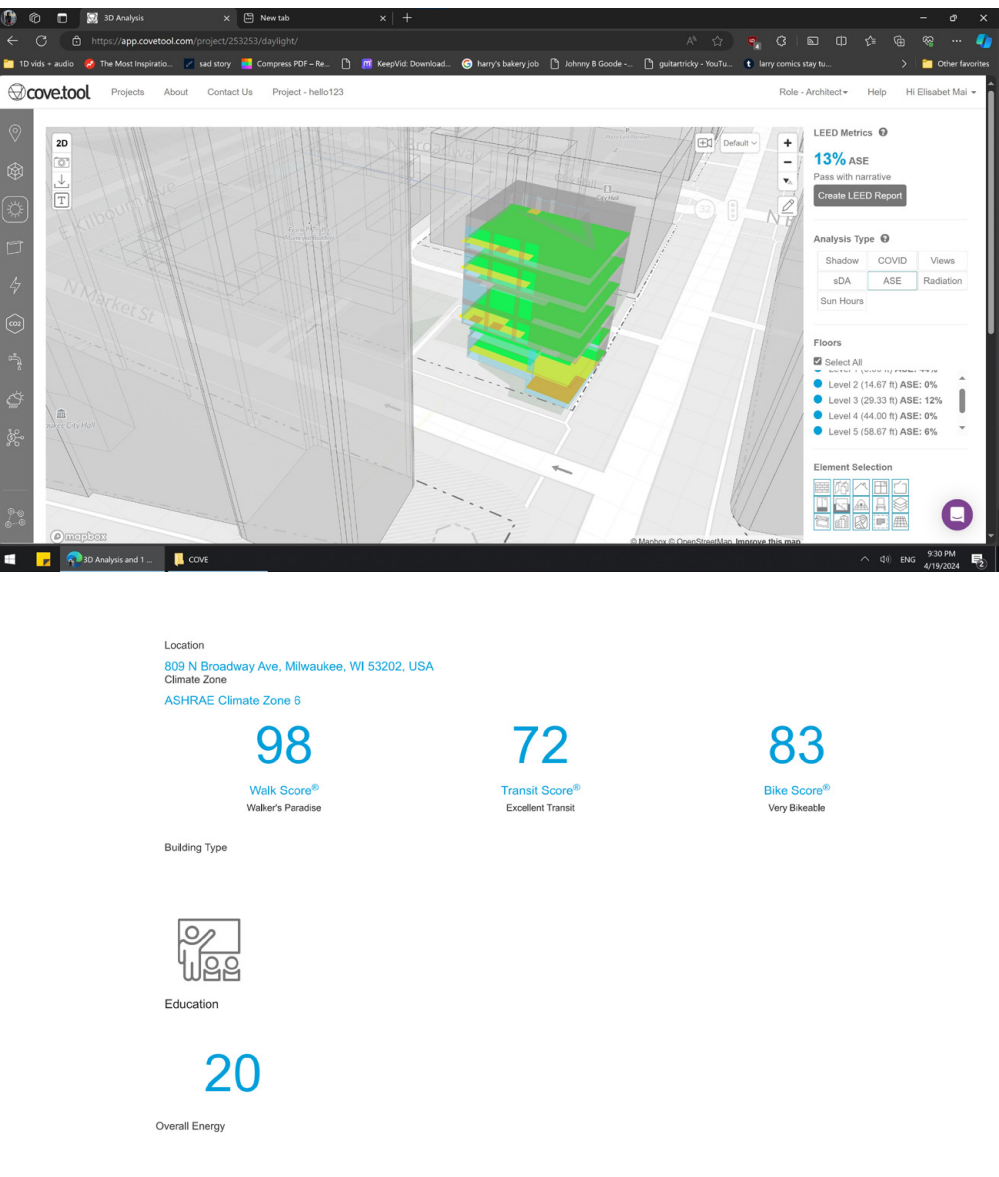


EXTERIOR - CURVED 1:20 SLOPED PATH, WATER/LANDSCAPE, CITY VIEW, BRICK WORK

COVE TOOL - ANALYSIS OF EUI, ATMOSPHERE AND CARBON PROFILE



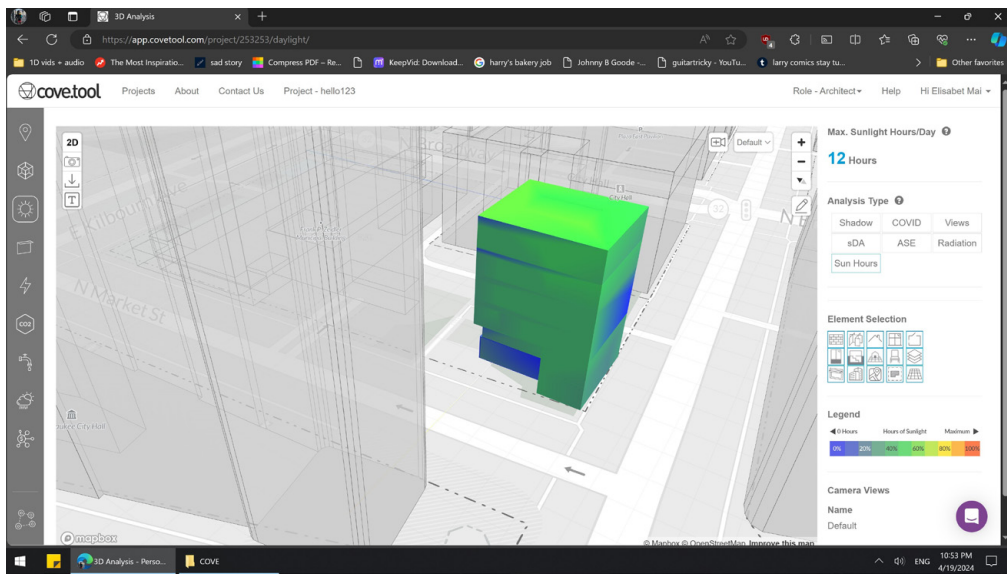
EQ: Quality Views
1 point



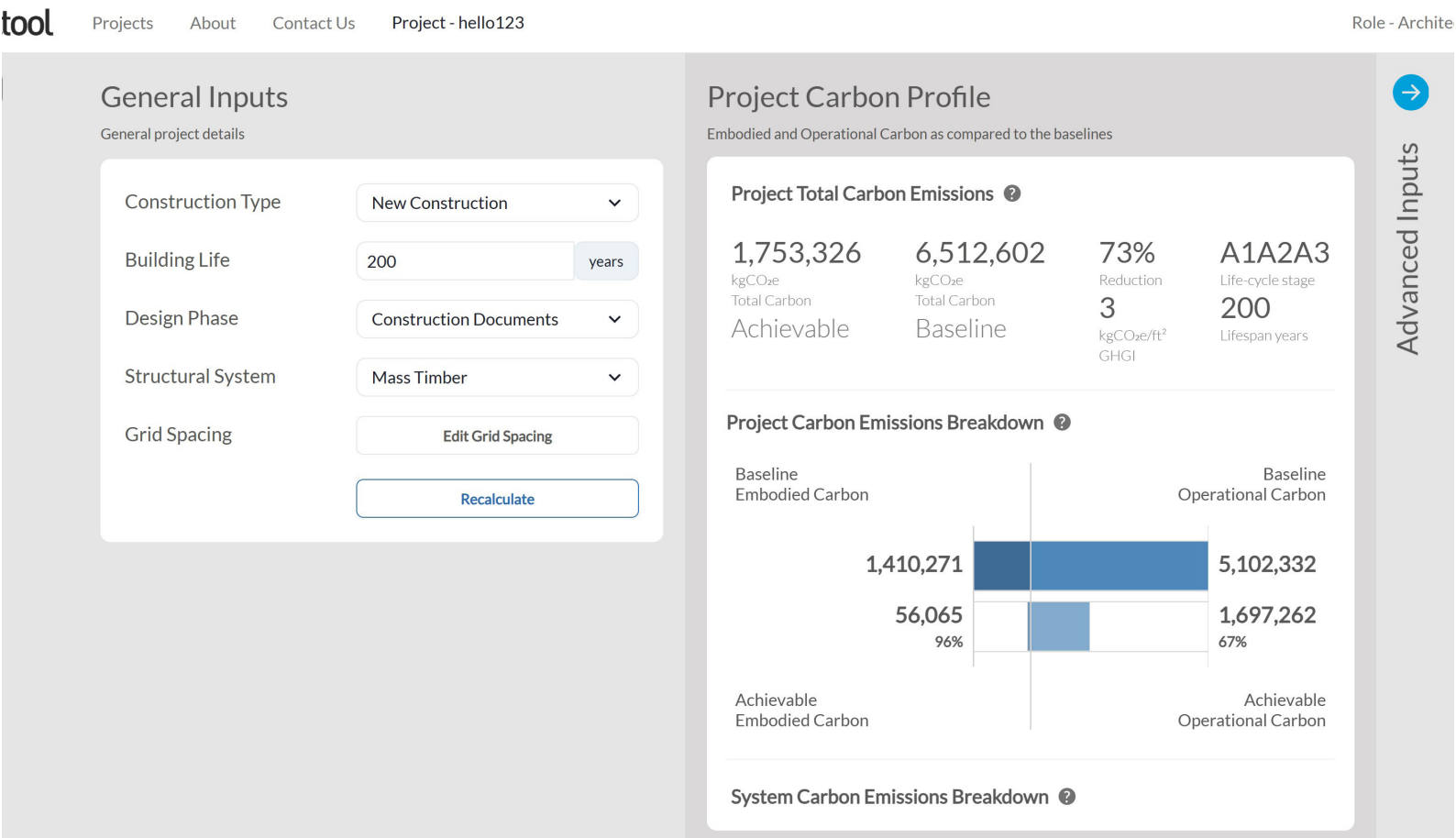
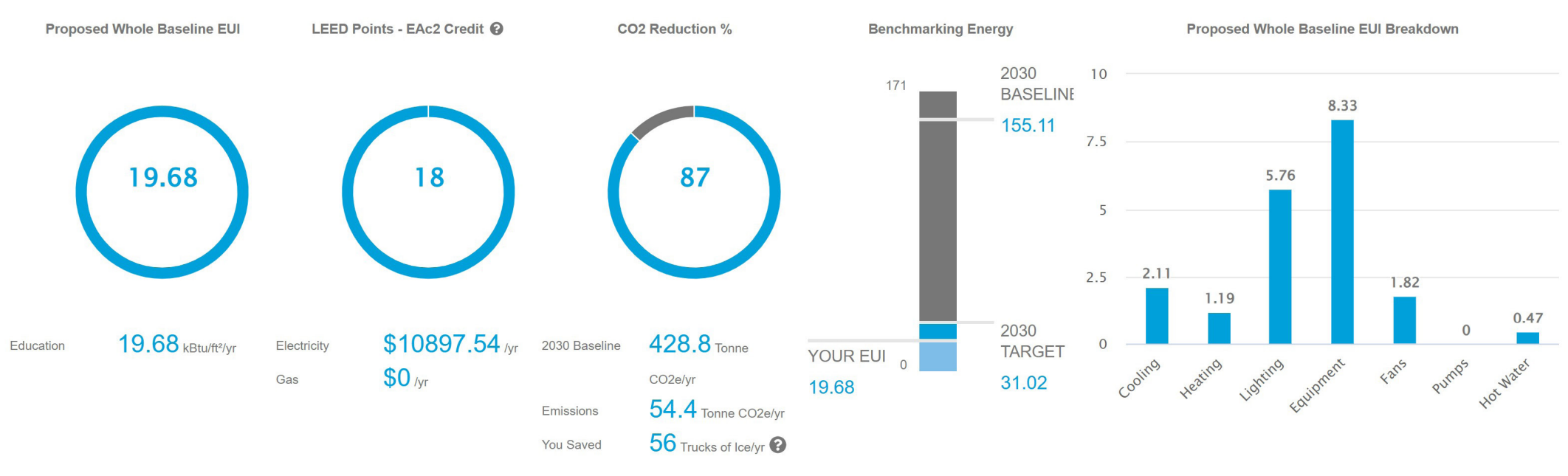
LT: Surrounding Density and Diverse Uses - Option 3: Walkable Location
5 points

	Space ID	Room Template	Im Descript	Area (ft²)	sDA (%)	ASE (%)
Level 1	2	Entry/café	Room	290	62.1	47.1
Level 2	3	Entry/Speaker	Room	218	20	1.5
Level 3	5	Gallery	Room	269	24.5	13.3
Level 4	6	Reading/Archive	Room	259	2.6	0
Level 5	7	Reading/Archive	Room	322	16.3	10.2
Level 6	22	Office	Room	269	24.5	13.3

EQ: Daylight
1-3 points
For regular occupied spaces with ASE > 10%, glare is controlled via Mecho Motorized shades and Okawood by Okatech. At skylight, Unicel inserts is being used to control glare from top.



Baseline Energy



MR: Building Life-Cycle Impact Reduction (path 3)
4 points

EA: Optimize Energy Performance
18 points + Regional Priority: 19 points
IN - Pilot: Energy Simulation Performance Path
1 point

1. Parti:

"The Archive of the City of Milwaukee will honor and celebrate the rich history of the City by collecting, conserving, documenting, and exhibiting the early physical records of the community".

The Archive will keep street edge like its predecessor, the Majestic Hotel, matching the neighbor buildings. Following the adjacency of its context, the Archive is taking a curve edge adjacent to the BMO tower and City Hall. Adding to the majestic and grand feel of the City Hall, the Archive wants to off-set the front entrance by having 2' radius of 3 double heightened columns, aligns with the Frank Zeidler Municipal's column.

The Archive is built out to the lot line with a transparent, double-height café and lobby area on Market and Wells Street corner that will invite visitors. UV reflected pattern will be used here for bird strike, along with Mecho's Electroshade Motorize to minimize heat gain. All toilets are ADA and gender-neutral, initiating safe spaces for everyone.

On site analysis, land survey for this area is soil clay and loam. As a 2nd rated land, where building construction is tougher, the Archive wants to champion the landscape with a bigger footprint. As soil clay tends to hold moisture longer, it can benefit native planting greatly. The Archive will create an all-accessible plaza in the middle of the harshness of the city. Within the plaza, curvy walkway following the topography is used to soften the landscape. Existing tree along with new native trees are being planted, interwoven with waterscape that will invite people in to relax.

The site design has 3 water features, to prepare for a 100 year rainfall event. They will hold and clean storm water on-site to be released to a creek slowly. Storm water that remains will also be reused, to water native plantings on site. Extensive green roof + land/waterscape gives all green from satellite view - "take green, bring back green" initiative. Deep pile foundation for geothermal, hence renewable energy.

2. Meeting program requirement:

One of the requirement for the programing request, while the owner did not want a cafe do to fear of pests that affect books, the city requires it. Hence, in the design, the cafe has to pass 2 doors to reach the Archive, which adds an immense protection to the rare archives section. The café also requires longer hour operation while the Archive closes at 5, hence this is a perfect solution.

The gallery is also open later compares to stacks and reading room, hence, the gallery is on its own floor. Using the double height atrium from the 2nd floor (also an entry space), visitor can enjoy lecture or speaker event/hors d'oeuvres, while able to see the gallery directly from below. You could see this change in the transverse section cut.

All other special rooms are designed in accordance to program requirements, such as 4000 linear feet of collection stacks, stable temperature control for print storage, archive workroom, reading/collection stacks, map storage; new acquisition holding room that is located 1 floor away from the collection stacks to prevent pest from entering; a small trash room (no loading dock) that directly connected to the back of the building for daily disposal; a kitchen that immediate adjacent to the entry space for caterers to set up and serve; et cetera.

Furthermore, safety and surveillance of each space are clearly defined. From the 1st level where anyone can access, up to the highest level where limited staff are located. The collection stacks, which is adjacent to the reading room (1 of the requirement), and readers are clearly visible from the help desk starting from the 4th floor. Administrative are located on the highest level, which is the more private area/least of the noise level.

3. LEED helps in achieving the requirement:

In this project, I think LEED has helped me understanding more on the safety side of building operation. Such as basic safety in construction indoor air quality management, or especially under material and resources – citing your sources. Had I had more time, I would've looked up my manufacture to make sure they are in compliance and have ready reports.

One of the requirement that LEED has helped me achieve in this project was the section rainwater management and heat island reduction. In heat island reduction, I made some changes in accordance to the formula. The change was to have less paving on site, which in reverted back to my “almost” original scheme. LEED also helped me in choosing the “right” skylight design – such as architectural device Unicef Vision Control via louvers insert. Not only that is crucial and informative to the Archive but also helped me earned more points for the LEED v4.1 checklist.

Integrative Process: 1 credit

Through discovery, I am choosing assessment for *resilience, social equity* and *health & well-being*.

Resilience:

- Sea level rises & storm surge; flooding: The site design has 3 water features, to prepare for a 100 year rainfall event. They will hold and clean storm water on-site to be released to a creek slowly. Storm water that remains will also be reused, to water native plantings on site.
- Hurricane & high winds: At the double heighted café, there is a wind brace detail to prevent wall collapse. See more detail in graphic board
- Wildfire, drought, landslides, earthquake, extreme heat: Some aren't common at the site, but as a 2nd rated land, where building construction is tougher, the Archive wants to champion the landscape with a bigger footprint. As soil clay tends to hold moisture longer, it can benefit native planting greatly. Green on ground and roof would also help preventing heat island.
- Winter storm: See wall details on graphic boards – thick insulation, high quality material, clear solution for vents as well as preventing heat loss

Social equity:

- Landscape is slope 1:20, ADA accessible. Park benches are provided around. Double heighted front entrance for anyone looking for temporary shelter or rest area. All restrooms are gender-neutral and ADA accessible, as well as the entire space.

Health and well-being:

- Always have fresh air intake at grilles behind of the building. No recycled air for occupants.
- Extensively exposed mass-timber structure – biophilic design.

I. LOCATION AND TRANSPORTATION

Sensitive Land Protection: 1 credit

This was previously developed land – location of Hotel Majestic.

+ **Regional Priority of Wisconsin: 1 credit (FIRST RP, 4 MAX)**

High Priority Site and Equitable Development: 2 credits

Option 1, path 2: Locate on a brownfield

Option 2, path 1: This project will deal with the planning and detailed design of a small building intended to house and make available for study an important collection of historic books, bound manuscripts, records, and photographs.

+ **Regional Priority of Wisconsin: 1 credit (SECOND RP, 4 MAX)**

Surrounding Density and Diverse Uses: 3 credits

Option 3: Walking score here is 98.

Access to quality transit: 1 credit

Table 1. Minimum daily public transit service

Weekday trips	Weekend trips	Points BD+C (except Core and Shell)	Points BD+C (Core and shell)
72	30	1	1
100	70	2	2
144	108	3	3
250	160	4	4

Trips counted from streetcar: Milwaukee The Hop – 71 trips weekdays and 51 trips weekend

Bicycle facilities: 1 credit

Required by the city via zoning, short term bike racks (outdoor, less than 50ft from main entrance) and long term (indoor). Based on my calculated footage:

BIKE PARKING REQUIREMENT

- INDOOR (1 PER 6,000 SF OF FLOOR GSF, MIN 2 SPACES)

$18096/6000 = 3$ SPACES MINIMUM (3 spaces actual)

- OUTDOOR (1 PER 3000 SF OF FLOOR GSF, MIN 2 SPACES)

$18096/3000 = 6$ SPACES MINIMUM (7 spaces actual)

Showers is at the first floor of the Archive. Indoor bike storage is the first thing you see when entering the building. Direct access.

Reduce Parking Footprint: 1 credit

C9D Zoning does not require parking space. The Archive doesn't have any either, except for bikes.

II. SUSTAINABLE SITES

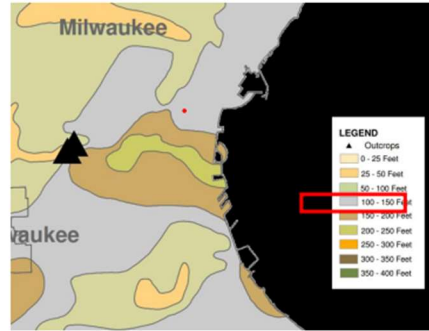
Site Assessment: 1 credit

Topography, hydrology, climate, vegetation, soils, human use and human health effect can be seen in the graphic board. Here is some more site condition from my pre-design report:

SITE TOPO/SUBSURFACE CONDITION



Google map on subsurface/topo map



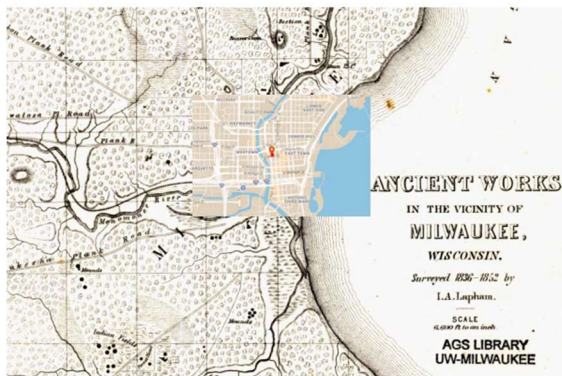
Our site on subsurface/topo map

As we can see, from Site Ecology section, historically, from WI Public Land Survey Record, our site eco has:

- marsh (soft wet land, overgrown by grasses)
 - also made of soil clay (not ideal for construction)
- > which makes it 2nd rate land.

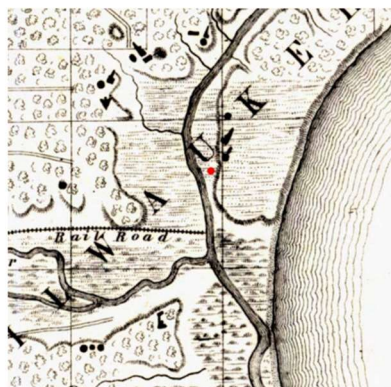
In addition, this topo/subsurface condition supported that, hence our building site is on the 100-150 ft deep zone for deep pile foundation

SITE HISTORY – EFFIGY MOUNDS



"Native Americans have lived in the area now called Wisconsin for more than 12,000 years. Throughout this time, Native Americans engaged in a near-universal practice of humans – **the respectful disposition of their dead.**"

Here is the map of historical mounds shape that Native American built.



Our site on ancient works of Native American mounds



Wisconsin is the center of effigy mound culture. Courtesy National Park Service.

We are in the Effigy Mounds region:

- Fertile land
- Respect disposition of their dead
- Burial ground: linear-shaped and "effigy" mounds made in the shapes of animal/spiritual beings such as birds, turtles, bears, panthers and humanoid forms, among others.
- Mounds sometimes exist singly but are more often part of groups of several to over 100 individual mounds.
- Wisconsin is the geological center of effigy mound distribution, with more effigy mound sites than anywhere else in the world.

More on resources:
<https://dnr.wisconsin.gov/topic/Land/CulturalRes/mounds>

Some symbol: effigy mounds pairing from various site

Protect or Restore Habitat: 2 credits

Small building footprint; using previous paved material; landscape are filled with native plants + trees (2 new Oaks). A portion of habitat area for pollinator would be on the NE of the landscape.

Open Space: 1 credit

About 75% are landscape (outdoor space), 10-15% are paved, which makes 50-60% are vegetated space. Extensive green roof are above as well.

Rainwater Management: 3 credits

100-year rainfall event, site needs to hold 5K of cubic feet of water. Calculation for cisterns (waterscape) and underground under the Archive tanks are well over (see graphic boards).

Table 1. Points for percentile of rainfall retained

All Projects	Zero Lot Line Projects	Points	Points Healthcare
80 th Percentile	70 th Percentile	1	1
85 th Percentile	75 th Percentile	2	2
90 th Percentile	80 th Percentile	3	-

+ Regional Priority of Wisconsin: 1 credit (THIRD RP, 4 MAX)

Heat Island Reduction: 2 credits

See calculated numbers on graphic boards, under roof plan.

Light pollution reduction: 1 credit (?)

May earn via downward lighting at the curved path.

III. WATER EFFICIENCY

Outdoor Water Use Reduction: 2 credits

No irrigation required, managed from storm water management plan (see plans, sections and calculation)

Indoor Water Use Reduction: 3 credits (?)

Aim for 35%, using smart flush and reuse storm water

Table 1. Points for reducing water use

Percentage Reduction	Points (BD+C)	Points (CS)	Points (Schools, Retail, Hospitality, Healthcare)
25%	1	1	1
30%	2	2	2
35%	3	3	3
40%	4	4	4
45%	5	--	5
50%	6	--	--



Optimize process water use: 1 credit

Aim for 20% recycled alternative water to meet process water demand

Option 3. Process Water Use (1-2 points except CS, 1-3 points CS)

Demonstrate that the project is using minimum 20% recycled alternative water to meet process water demand for 1 point, or using minimum 30% recycled alternative water to meet process water demand for 2 points. Ensure that recycled alternative water is of sufficient quality for its intended end use.

Minimum percentage of recycled alternative water used should be based on water use during the month with the highest water demand.

Process water uses eligible for achievement of Option 3 must represent at least 10% of total building regulated water use and may not include water used for cooling. Eligible subsystems may include:

- Boilers
- Humidification systems
- Other subsystems using process water

Water Metering: 1 credit

Installing for: Domestic hot water, irrigation from cistern and tanks, and indoor plumbing fixtures & fittings.

Install permanent water meters for two or more of the following water subsystems, as applicable to the project:

- **Irrigation.** Meter water systems serving at least 80% of the irrigated landscaped area. Calculate the percentage of irrigated landscape area served as the total metered irrigated landscape area divided by the total irrigated landscape area. Landscape areas fully covered with xeriscaping or native vegetation that requires no routine irrigation may be excluded from the calculation.
- **Indoor plumbing fixtures and fittings.** Meter water systems serving at least 80% of the indoor fixtures and fitting described in WE Prerequisite Indoor Water Use Reduction, either directly or by deducting all other measured water use from the measured total water consumption of the building and grounds.
- **Domestic hot water.** Meter water use of at least 80% of the installed domestic hot water heating capacity (including both tanks and on-demand heaters).
- **Boiler with aggregate projected annual water use of 100,000 gallons (378 500 liters) or more, or boiler of more than 500,000 BtuH (150 kW).** A single makeup meter may record flows for multiple boilers.
- **Reclaimed water.** Meter reclaimed water, regardless of rate. A reclaimed water system with a makeup water connection must also be metered so that the true reclaimed water component can be determined.
- **Other process water.** Meter at least 80% of expected daily water consumption for process end uses, such as humidification systems, dishwashers, clothes washers, pools, and other subsystems using process water.

III. ENERGY AND ATMOSPHERE

Enhanced Commissioning: 6 credits

Aim to follow Path 2 + Option 2 for building enclosure

Optimize Energy Performance: 18 credits

See Cove Tool analysis on graphic board 4

+ **Regional Priority of Wisconsin: 1 credit (FOURTH RP, 4 MAX)**

Advanced Energy Metering: 1 credit

Aim to install advanced energy metering for the entire building energy sources

Renewable Energy: 5 credits

140' deep steel pipe for geothermal energy, which makes this tier 1: On site renewable energy

Enhanced Refrigerant Management: 1 credit

140' deep steel pipe for geothermal energy, which makes this tier 1: On site renewable energy

Table 1. Points for Renewable Energy Procurement

Points	Tier 1		
	BD+C (Except CS)	CS	BD (Except CS)
1	2%	1%	10'
2	5%	3%	20'
3	10%	5%	30'
4	15%	10%	40'
5	20%	15%	50'

III. MATERIALS AND RESOURCES

Building Life-Cycle Impact Reduction: 3 credits

See the Archive life-cycle result from Cove Tool board #4

AND/OR

Option 2. Whole-Building Life-Cycle Assessment (1-4 points)

For new construction (buildings or portions of buildings), conduct a cradle-to-grave life-cycle assessment of the project's structure and enclosure and select one or more of the following paths below to earn up to 4 points:

Path 1: Conduct a life cycle assessment of the project's structure and enclosure (1 point).

Path 2: Conduct a life cycle assessment of the project's structure and enclosure that demonstrates a minimum of 5% reduction, compared with a baseline building in at least three of the six impact categories listed below, one of which must be global warming potential (2 points).

Path 3: Conduct a life cycle assessment of the project's structure and enclosure that demonstrates a minimum of 10% reduction, compared with a baseline building, in at least three of the six impact categories listed below, one of which must be global warming potential (3 points).

Path 4: Meet requirements of Path 3 and incorporate reuse and/or salvage materials into the project's

Sourcing of Raw Materials: 1 credit (?)

These may apply to the project. As the Archive use local material and high quality, it might earn 2 points.
1 point is assume as laminated timber is being used.

Responsible Sourcing of Raw Materials (1-2 points)

Use products sourced from at least three different manufacturers that meet at least one of the responsible sourcing and extraction criteria below for at least 15%, by cost, of the total value of permanently installed building products in the project (1 point).

Use products sourced from at least five different manufacturers that meet at least one of the responsible sourcing and extraction criteria below for at least 30%, by cost, of the total value of permanently installed building products in the project (2 points).

- **Extended producer responsibility.** Products purchased from a manufacturer (producer) that participates in an extended producer responsibility program or is directly responsible for extended producer responsibility. Products meeting extended producer responsibility criteria are valued at 50% of their cost for the purposes of credit achievement calculation.
- **Bio-based materials.** Bio-based products and materials other than wood must be tested using ASTM Test Method D6866 or equivalent method ISO 16620-2, or be certified to the USDA BioPreferred Voluntary Labeling Initiative that includes verification via ASTM 6866 testing. Exclude hide products, such as leather and other animal skin material.
 - Bio-based products that meet the criteria above: value at 50% of cost multiplied by the bio-based content of the product for the purposes of credit achievement calculation.
- **Wood products.** Wood products must be certified by the Forest Stewardship Council or USGBC-approved equivalent. Products meeting wood products criteria are valued at 100% of their cost for the purposes of credit achievement calculation.

97

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- **Materials reuse.** Reuse includes salvaged, refurbished, or reused products. Products meeting materials reuse criteria are valued at 200% of their cost for the purposes of credit achievement calculation.
 - **Recycled content.** Products meeting recycled content criteria are valued at 100% of their cost for the purposes of credit achievement calculation.
 - Recycled content is the sum of postconsumer recycled content plus one-half the preconsumer recycled content, based on weight.
 - The recycled fraction of the assembly is then multiplied by the cost of assembly to determine the recycled content value.

Material Ingredients: 1 credit (?)

Similar to sourcing of raw materials, did not have time to look up the material ingredient reporting yet, such as Cleveland Quarry or Arriscraft.

Construction and Demolition waste management: 1 credit

Aim to use option 1: Diversion

III. INDOOR ENVIRONMENTAL QUALITY

Enhanced Indoor Air Quality Strategies: 2 credits

Using strategy #1-4, 9 and 10. Unsure about 5&6. 6 strategies for 2 points.

Low-Emitting Materials: 3 credits

5 product categories: *Insulation*: Mineral wool; *wall panels, flooring, ceiling*: laminated timber; indoor columns: laminated timber, outdoor columns: steel column clad in Berea sandstone from Cleveland Quarry; *Paint and coatings* for gallery space and some administrative rooms.

Construction Indoor Air Quality Management Plan: 1 credit

Aim to implement an IAQ management plan for construction and preoccupancy phases.

Indoor Air Quality Assessment: 1 credit

Aim to implement and follow air testing before building is in operation

Thermal Comfort: 1 credit

Aim to implement and follow, please see code tool data for more details.

Requirements

Meet the requirements for both thermal comfort design and thermal comfort control.

Thermal Comfort Design

NC, SCHOOLS, RETAIL, DATA CENTERS, HOSPITALITY, HEALTHCARE

Design heating, ventilating, and air-conditioning (HVAC) systems and the building envelope to meet the requirements of ASHRAE Standard 55–2017, Thermal Comfort Conditions for Human Occupancy with errata or a local equivalent.

For natatoriums, demonstrate compliance with ASHRAE HVAC Applications Handbook, 2015 edition, Chapter 5, Places of Assembly, Typical Natatorium Design Conditions, with errata.

Data Centers only

Meet the above requirements for regularly occupied spaces.

WAREHOUSES & DISTRIBUTION CENTERS

Meet the above requirements for office portions of the building.

Thermal Comfort Control

NC, SCHOOLS, RETAIL, DATA CENTERS, WAREHOUSES & DISTRIBUTION CENTERS, HOSPITALITY

Provide individual thermal comfort controls for at least 50% of individual occupant spaces. Provide group thermal comfort controls for all shared multioccupant spaces.

Thermal comfort controls allow occupants, whether in individual spaces or shared multioccupant spaces, to adjust at least one of the following in their local environment: air temperature, radiant temperature, air speed, and humidity.

Hospitality only

Guest rooms are assumed to provide adequate thermal comfort controls and are therefore not included in the credit calculations.

Interior Lighting, Daylight and Quality Views: 3 credits

Please see simulation and data explanation on graphic board 4 (Cove tool)

Acoustic performance: 1 credit (?)

Each space is design based from public (most noise) to private readings. Some areas are carpeted to minimize noise, such as reading area and collection stacks. Assuming the Archive can achieve 1 credit if running acoustic performance test.

IV. INNOVATION

Pilot: Energy Simulation Performance Path: 1 credit (?)

Please see Cove tool analysis for EUI data

Innovation: 3 credits (?)

Sustainable Wastewater Management, Bird Collision Deterrence, and Designing with Nature, Biophilic Design for the Indoor Environment

IV. REGIONAL PRIORITY

Enhanced Indoor Air Quality Strategies: 4 credits (max)

Stated above, we have

4	0	0	Regional Priority	4
1			Credit Regional Priority: Sensitive Land Protection	1
1			Credit Regional Priority: High Priority Site & Equitable Dev.	1
1			Credit Regional Priority: Rainwater Management	1
1			Credit Regional Priority: Optimize Energy Performance	1

Here is a list of some regional priority credit that belongs to WI:

USGBC Midwest Student Design Competition #171
LEED credits: Abstract and narrative

v4.1

LEED BD+C: New Construction


Enter a property address or address
800 N Broadway are Milwaukee

For projects registered May 8th 2016 or later, Regional Priority credits are based on geolocation. Entering a zip code or city name above may not provide accurate results.


Projects registered prior to May 8th 2016 should use the [zip code look up tool](#) to find Regional Priority credits.

Map

Satellite




Map data ©2024 Google, INEGI



Sensitive Land Protection
Location & transportation
1 point
Required Point Threshold: 1

LEED BD+C: New Construction, LEED BD+C: Schools, LEED BD+C: Retail, LEED BD+C: Data Centers, LEED BD+C: Warehouses And Distribution Centers, LEED BD+C: Hospitality, LEED BD+C: Healthcare • V4.1 - LEED V4.1


✓



Electric Vehicles
Location & transportation
1 point
Required Point Threshold: 1

LEED BD+C: New Construction, LEED BD+C: Core And Shell, LEED BD+C: Retail, LEED BD+C: Data Centers, LEED BD+C: Hospitality, LEED BD+C: Healthcare • V4.1 - LEED V4.1


✗



Optimize Energy Performance
Energy & atmosphere
Up to 18 points
Required Point Threshold: 7

LEED BD+C: New Construction, LEED BD+C: Core And Shell, LEED BD+C: Warehouses And Distribution Centers, LEED BD+C: Hospitality • V4.1 - LEED V4.1


✓



Access to Quality Transit
Location & transportation
Up to 5 points
Required Point Threshold: 3

LEED BD+C: New Construction, LEED BD+C: Retail, LEED BD+C: Data Centers, LEED BD+C: Hospitality, LEED BD+C: Warehouses And Distribution Centers • V4.1 - LEED V4.1


✓



Rainwater Management
Sustainable sites
Up to 3 points
Required Point Threshold: 2

LEED BD+C: New Construction, LEED BD+C: Core And Shell, LEED BD+C: Schools, LEED BD+C: Retail, LEED BD+C: Data Centers, LEED BD+C: Warehouses And Distribution Centers, LEED BD+C: Hospitality • V4.1 - LEED V4.1

✓



High Priority Site and Equitable Development
Location & transportation
Up to 2 points
Required Point Threshold: 2

LEED BD+C: New Construction, LEED BD+C: Schools, LEED BD+C: Retail, LEED BD+C: Data Centers, LEED BD+C: Warehouses And Distribution Centers, LEED BD+C: Hospitality, LEED BD+C: Healthcare • V4.1 - LEED V4.1

✓



LEED v4.1 BD+C

Project Checklist

Y ? N

1			Credit	Integrative Process	1
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9	0	0	Location and Transportation		16
		0	Credit	LEED for Neighborhood Development Location	16
1			Credit	Sensitive Land Protection	1
2			Credit	High Priority Site and Equitable Development	2
3			Credit	Surrounding Density and Diverse Uses	5
1			Credit	Access to Quality Transit	5
1			Credit	Bicycle Facilities	1
1			Credit	Reduced Parking Footprint	1
		0	Credit	Electric Vehicles	1

9	1	0	Sustainable Sites		10
Y			Prereq	Construction Activity Pollution Prevention	Required
1			Credit	Site Assessment	1
2			Credit	Protect or Restore Habitat	2
1			Credit	Open Space	1
3			Credit	Rainwater Management	3
2			Credit	Heat Island Reduction	2
	1		Credit	Light Pollution Reduction	1

4	3	0	Water Efficiency		11
Y			Prereq	Outdoor Water Use Reduction	Required
Y			Prereq	Indoor Water Use Reduction	Required
Y			Prereq	Building-Level Water Metering	Required
2			Credit	Outdoor Water Use Reduction	2
	3		Credit	Indoor Water Use Reduction	6
1			Credit	Optimize Process Water Use	2
1			Credit	Water Metering	1

31	0	0	Energy and Atmosphere		33
Y			Prereq	Fundamental Commissioning and Verification	Required
Y			Prereq	Minimum Energy Performance	Required
Y			Prereq	Building-Level Energy Metering	Required
Y			Prereq	Fundamental Refrigerant Management	Required
6			Credit	Enhanced Commissioning	6
18			Credit	Optimize Energy Performance	18
1			Credit	Advanced Energy Metering	1
		0	Credit	Grid Harmonization	2
5			Credit	Renewable Energy	5
1			Credit	Enhanced Refrigerant Management	1

Project Name: A Rare Books Archive - City of Milwaukee

Date: 05/10/24

Unique ID Number: 171

4	2	0	Materials and Resources	
Y			Prereq	Storage and Collection of Recyclables
3			Credit	Building Life-Cycle Impact Reduction
		0	Credit	Environmental Product Declarations
	1		Credit	Sourcing of Raw Materials
	1		Credit	Material Ingredients
1			Credit	Construction and Demolition Waste Management

10	3	0	Indoor Environmental Quality	
Y			Prereq	Minimum Indoor Air Quality Performance
Y			Prereq	Environmental Tobacco Smoke Control
2			Credit	Enhanced Indoor Air Quality Strategies
3			Credit	Low-Emitting Materials
1			Credit	Construction Indoor Air Quality Management Plan
	2		Credit	Indoor Air Quality Assessment
1			Credit	Thermal Comfort
1			Credit	Interior Lighting
1			Credit	Daylight
1			Credit	Quality Views
1			Credit	Acoustic Performance

0	4	0	Innovation	
	4		Credit	Innovation
		0	Credit	LEED Accredited Professional

4	0	0	Regional Priority	
1			Credit	Regional Priority: Sensitive Land Protection
1			Credit	Regional Priority: High Priority Site & Equitable Dev.
1			Credit	Regional Priority: Rainwater Management
1			Credit	Regional Priority: Optimize Energy Performance

72	13	0	TOTALS		Possible Points:
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Certified: 40 to 49 points, Silver: 50 to 59 points, Gold: 60 to 79 points, Platinum: 80 to 89 points

13

Required

5
2
2
2
2

16

Required

Required

2
3
1
2
1
2
3
1
1

6

5
1

4

1
1
1
1

110

0 to 110



LEED v4.1 BD+C: Core and Shell

Project Checklist

Y ? N



Credit Integrative Process

1

0	0	0	Location and Transportation	20
			Credit LEED for Neighborhood Development Location	20
			Credit Sensitive Land Protection	2
			Credit High Priority Site and Equitable Development	3
			Credit Surrounding Density and Diverse Uses	6
			Credit Access to Quality Transit	6
			Credit Bicycle Facilities	1
			Credit Reduced Parking Footprint	1
			Credit Electric Vehicles	1

0	0	0	Sustainable Sites	11
			Prereq Construction Activity Pollution Prevention	Required
			Credit Site Assessment	1
			Credit Protect or Restore Habitat	2
			Credit Open Space	1
			Credit Rainwater Management	3
			Credit Heat Island Reduction	2
			Credit Light Pollution Reduction	1
			Credit Tenant Design and Construction Guidelines	1

0	0	0	Water Efficiency	11
			Prereq Outdoor Water Use Reduction	Required
			Prereq Indoor Water Use Reduction	Required
			Prereq Building-Level Water Metering	Required
			Credit Outdoor Water Use Reduction	3
			Credit Indoor Water Use Reduction	4
			Credit Optimize Process Water Use	3
			Credit Water Metering	1

0	0	0	Energy and Atmosphere	33
			Prereq Fundamental Commissioning and Verification	Required
			Prereq Minimum Energy Performance	Required
			Prereq Building-Level Energy Metering	Required
			Prereq Fundamental Refrigerant Management	Required
			Credit Enhanced Commissioning	6
			Credit Optimize Energy Performance	18
			Credit Advanced Energy Metering	1
			Credit Grid Harmonization	2
			Credit Renewable Energy	5
			Credit Enhanced Refrigerant Management	1

Project Name:

Date:

0	0	0	Materials and Resources	14
			Prereq Storage and Collection of Recyclables	Required
			Credit Building Life-Cycle Impact Reduction	6
			Credit Environmental Product Declarations	2
			Credit Sourcing of Raw Materials	2
			Credit Material Ingredients	2
			Credit Construction and Demolition Waste Management	2

0	0	0	Indoor Environmental Quality	10
			Prereq Minimum Indoor Air Quality Performance	Required
			Prereq Environmental Tobacco Smoke Control	Required
			Credit Enhanced Indoor Air Quality Strategies	2
			Credit Low-Emitting Materials	3
			Credit Construction Indoor Air Quality Management Plan	1
			Credit Daylight	3
			Credit Quality Views	1

0	0	0	Innovation	6
			Credit Innovation	5
			Credit LEED Accredited Professional	1

0	0	0	Regional Priority	4
			Credit Regional Priority: Specific Credit	1
			Credit Regional Priority: Specific Credit	1
			Credit Regional Priority: Specific Credit	1
			Credit Regional Priority: Specific Credit	1

0	0	0	TOTALS	Possible Points: 110
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Certified: 40 to 49 points, Silver: 50 to 59 points, Gold: 60 to 79 points, Platinum: 80 to 110



LEED v4.1 BD+C: Schools

Project Checklist

Y ? N

			Credit	Integrative Process	1
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0	0	0	Location and Transportation			15
			Credit	LEED for Neighborhood Development Location		15
			Credit	Sensitive Land Protection		1
			Credit	High Priority Site and Equitable Development		2
			Credit	Surrounding Density and Diverse Uses		5
			Credit	Access to Quality Transit		4
			Credit	Bicycle Facilities		1
			Credit	Reduced Parking Footprint		1
			Credit	Electric Vehicles		1

0	0	0	Sustainable Sites			12
Y			Prereq	Construction Activity Pollution Prevention	Required	
Y			Prereq	Environmental Site Assessment	Required	
			Credit	Site Assessment		1
			Credit	Protect or Restore Habitat		2
			Credit	Open Space		1
			Credit	Rainwater Management		3
			Credit	Heat Island Reduction		2
			Credit	Light Pollution Reduction		1
			Credit	Site Master Plan		1
			Credit	Joint Use of Facilities		1

0	0	0	Water Efficiency			12
Y			Prereq	Outdoor Water Use Reduction	Required	
Y			Prereq	Indoor Water Use Reduction	Required	
Y			Prereq	Building-Level Water Metering	Required	
			Credit	Outdoor Water Use Reduction		2
			Credit	Indoor Water Use Reduction		7
			Credit	Optimize Process Water Use		2
			Credit	Water Metering		1

0	0	0	Energy and Atmosphere			31
Y			Prereq	Fundamental Commissioning and Verification	Required	
Y			Prereq	Minimum Energy Performance	Required	
Y			Prereq	Building-Level Energy Metering	Required	
Y			Prereq	Fundamental Refrigerant Management	Required	
			Credit	Enhanced Commissioning		6
			Credit	Optimize Energy Performance		16
			Credit	Advanced Energy Metering		1
			Credit	Grid Harmonization		2
			Credit	Renewable Energy		5
			Credit	Enhanced Refrigerant Management		1

Project Name:

Date:

0	0	0	Materials and Resources			13
Y			Prereq	Storage and Collection of Recyclables	Required	
			Credit	Building Life-Cycle Impact Reduction		5
			Credit	Environmental Product Declarations		2
			Credit	Sourcing of Raw Materials		2
			Credit	Material Ingredients		2
			Credit	Construction and Demolition Waste Management		2

0	0	0	Indoor Environmental Quality			16
Y			Prereq	Minimum Indoor Air Quality Performance	Required	
Y			Prereq	Environmental Tobacco Smoke Control	Required	
Y			Prereq	Minimum Acoustic Performance	Required	
			Credit	Enhanced Indoor Air Quality Strategies		2
			Credit	Low-Emitting Materials		3
			Credit	Construction Indoor Air Quality Management Plan		1
			Credit	Indoor Air Quality Assessment		2
			Credit	Thermal Comfort		1
			Credit	Interior Lighting		2
			Credit	Daylight		3
			Credit	Quality Views		1
			Credit	Acoustic Performance		1

0	0	0	Innovation			6
			Credit	Innovation		5
			Credit	LEED Accredited Professional		1

0	0	0	Regional Priority			4
			Credit	Regional Priority: Specific Credit		1
			Credit	Regional Priority: Specific Credit		1
			Credit	Regional Priority: Specific Credit		1
			Credit	Regional Priority: Specific Credit		1

0	0	0	TOTALS	Possible Points:	110
Certified: 40 to 49 points, Silver: 50 to 59 points, Gold: 60 to 79 points, Platinum: 80 to 110					



LEED v4.1 BD+C: Retail

Project Checklist

Y ? N



Credit Integrative Process

1

0	0	0	Location and Transportation	16
			Credit LEED for Neighborhood Development Location	16
			Credit Sensitive Land Protection	1
			Credit High Priority Site and Equitable Development	2
			Credit Surrounding Density and Diverse Uses	5
			Credit Access to Quality Transit	5
			Credit Bicycle Facilities	1
			Credit Reduced Parking Footprint	1
			Credit Electric Vehicles	1

0	0	0	Sustainable Sites	10
Y			Prereq Construction Activity Pollution Prevention	Required
			Credit Site Assessment	1
			Credit Protect or Restore Habitat	2
			Credit Open Space	1
			Credit Rainwater Management	3
			Credit Heat Island Reduction	2
			Credit Light Pollution Reduction	1

0	0	0	Water Efficiency	12
Y			Prereq Outdoor Water Use Reduction	Required
Y			Prereq Indoor Water Use Reduction	Required
Y			Prereq Building-Level Water Metering	Required
			Credit Outdoor Water Use Reduction	2
			Credit Indoor Water Use Reduction	7
			Credit Optimize Process Water Use	2
			Credit Water Metering	1

0	0	0	Energy and Atmosphere	33
Y			Prereq Fundamental Commissioning and Verification	Required
Y			Prereq Minimum Energy Performance	Required
Y			Prereq Building-Level Energy Metering	Required
Y			Prereq Fundamental Refrigerant Management	Required
			Credit Enhanced Commissioning	6
			Credit Optimize Energy Performance	18
			Credit Advanced Energy Metering	1
			Credit Grid Harmonization	2
			Credit Renewable Energy	5
			Credit Enhanced Refrigerant Management	1

Project Name:

Date:

0	0	0	Materials and Resources	13
Y			Prereq Storage and Collection of Recyclables	Required
			Credit Building Life-Cycle Impact Reduction	5
			Credit Environmental Product Declarations	2
			Credit Sourcing of Raw Materials	2
			Credit Material Ingredients	2
			Credit Construction and Demolition Waste Management	2

0	0	0	Indoor Environmental Quality	15
Y			Prereq Minimum Indoor Air Quality Performance	Required
Y			Prereq Environmental Tobacco Smoke Control	Required
			Credit Enhanced Indoor Air Quality Strategies	2
			Credit Low-Emitting Materials	3
			Credit Construction Indoor Air Quality Management Plan	1
			Credit Indoor Air Quality Assessment	2
			Credit Thermal Comfort	1
			Credit Interior Lighting	2
			Credit Daylight	3
			Credit Quality Views	1

0	0	0	Innovation	6
			Credit Innovation	5
			Credit LEED Accredited Professional	1

0	0	0	Regional Priority	4
			Credit Regional Priority: Specific Credit	1
			Credit Regional Priority: Specific Credit	1
			Credit Regional Priority: Specific Credit	1
			Credit Regional Priority: Specific Credit	1

0	0	0	TOTALS	Possible Points: 110
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Certified: 40 to 49 points, **Silver:** 50 to 59 points, **Gold:** 60 to 79 points, **Platinum:** 80 to 110



LEED v4.1 BD+C: Data Centers

Project Checklist

Y ? N

Credit Integrative Process

1

0	0	0	Location and Transportation	16
			Credit LEED for Neighborhood Development Location	16
			Credit Sensitive Land Protection	1
			Credit High Priority Site and Equitable Development	2
			Credit Surrounding Density and Diverse Uses	5
			Credit Access to Quality Transit	5
			Credit Bicycle Facilities	1
			Credit Reduced Parking Footprint	1
			Credit Electric Vehicles	1

0	0	0	Sustainable Sites	10
			Prereq Construction Activity Pollution Prevention	Required
			Credit Site Assessment	1
			Credit Protect or Restore Habitat	2
			Credit Open Space	1
			Credit Rainwater Management	3
			Credit Heat Island Reduction	2
			Credit Light Pollution Reduction	1

0	0	0	Water Efficiency	11
			Prereq Outdoor Water Use Reduction	Required
			Prereq Indoor Water Use Reduction	Required
			Prereq Building-Level Water Metering	Required
			Credit Outdoor Water Use Reduction	2
			Credit Indoor Water Use Reduction	6
			Credit Optimize Process Water Use	2
			Credit Water Metering	1

0	0	0	Energy and Atmosphere	33
			Prereq Fundamental Commissioning and Verification	Required
			Prereq Minimum Energy Performance	Required
			Prereq Building-Level Energy Metering	Required
			Prereq Fundamental Refrigerant Management	Required
			Credit Enhanced Commissioning	6
			Credit Optimize Energy Performance	18
			Credit Advanced Energy Metering	1
			Credit Grid Harmonization	2
			Credit Renewable Energy	5
			Credit Enhanced Refrigerant Management	1

Project Name:

Date:

0	0	0	Materials and Resources	13
			Prereq Storage and Collection of Recyclables	Required
			Credit Building Life-Cycle Impact Reduction	5
			Credit Environmental Product Declarations	2
			Credit Sourcing of Raw Materials	2
			Credit Material Ingredients	2
			Credit Construction and Demolition Waste Management	2

0	0	0	Indoor Environmental Quality	16
			Prereq Minimum Indoor Air Quality Performance	Required
			Prereq Environmental Tobacco Smoke Control	Required
			Credit Enhanced Indoor Air Quality Strategies	2
			Credit Low-Emitting Materials	3
			Credit Construction Indoor Air Quality Management Plan	1
			Credit Indoor Air Quality Assessment	2
			Credit Thermal Comfort	1
			Credit Interior Lighting	2
			Credit Daylight	3
			Credit Quality Views	1
			Credit Acoustic Performance	1

0	0	0	Innovation	6
			Credit Innovation	5
			Credit LEED Accredited Professional	1

0	0	0	Regional Priority	4
			Credit Regional Priority: Specific Credit	1
			Credit Regional Priority: Specific Credit	1
			Credit Regional Priority: Specific Credit	1
			Credit Regional Priority: Specific Credit	1

0	0	0	TOTALS	Possible Points: 110
Certified: 40 to 49 points, Silver: 50 to 59 points, Gold: 60 to 79 points, Platinum: 80 to 110				



LEED v4.1 BD+C: Warehouses and Distribution Centers Project Checklist

Project Name:

Date:

Y ? N



Credit Integrative Process

1

0	0	0	Location and Transportation	16
			Credit LEED for Neighborhood Development Location	16
			Credit Sensitive Land Protection	1
			Credit High Priority Site and Equitable Development	2
			Credit Surrounding Density and Diverse Uses	5
			Credit Access to Quality Transit	5
			Credit Bicycle Facilities	1
			Credit Reduced Parking Footprint	1
			Credit Electric Vehicles	1

0	0	0	Sustainable Sites	10
			Prereq Construction Activity Pollution Prevention	Required
			Credit Site Assessment	1
			Credit Protect or Restore Habitat	2
			Credit Open Space	1
			Credit Rainwater Management	3
			Credit Heat Island Reduction	2
			Credit Light Pollution Reduction	1

0	0	0	Water Efficiency	11
			Prereq Outdoor Water Use Reduction	Required
			Prereq Indoor Water Use Reduction	Required
			Prereq Building-Level Water Metering	Required
			Credit Outdoor Water Use Reduction	2
			Credit Indoor Water Use Reduction	6
			Credit Optimize Process Water Use	2
			Credit Water Metering	1

0	0	0	Energy and Atmosphere	33
			Prereq Fundamental Commissioning and Verification	Required
			Prereq Minimum Energy Performance	Required
			Prereq Building-Level Energy Metering	Required
			Prereq Fundamental Refrigerant Management	Required
			Credit Enhanced Commissioning	6
			Credit Optimize Energy Performance	18
			Credit Advanced Energy Metering	1
			Credit Grid Harmonization	2
			Credit Renewable Energy	5
			Credit Enhanced Refrigerant Management	1

0	0	0	Materials and Resources	
			Prereq Storage and Collection of Recyclables	
			Credit Building Life-Cycle Impact Reduction	
			Credit Environmental Product Declarations	
			Credit Sourcing of Raw Materials	
			Credit Material Ingredients	
			Credit Construction and Demolition Waste Management	

0	0	0	Indoor Environmental Quality	
			Prereq Minimum Indoor Air Quality Performance	
			Prereq Environmental Tobacco Smoke Control	
			Credit Enhanced Indoor Air Quality Strategies	
			Credit Low-Emitting Materials	
			Credit Construction Indoor Air Quality Management Plan	
			Credit Indoor Air Quality Assessment	
			Credit Thermal Comfort	
			Credit Interior Lighting	
			Credit Daylight	
			Credit Quality Views	
			Credit Acoustic Performance	

0	0	0	Innovation	
			Credit Innovation	
			Credit LEED Accredited Professional	

0	0	0	Regional Priority	
			Credit Regional Priority: Specific Credit	
			Credit Regional Priority: Specific Credit	
			Credit Regional Priority: Specific Credit	
			Credit Regional Priority: Specific Credit	

0	0	0	TOTALS	Possible Points:
			Certified: 40 to 49 points, Silver: 50 to 59 points, Gold: 60 to 79 points, Platinum	

13

Required

5

2

2

2

2

16

Required

Required

2

3

1

2

1

2

3

1

1

6

5

1

4

1

1

1

1

110

um: 80 to 110



LEED v4.1 BD+C: Hospitality Project Checklist

Y ? N

Credit Integrative Process

1

0	0	0	Location and Transportation	16
			Credit LEED for Neighborhood Development Location	16
			Credit Sensitive Land Protection	1
			Credit High Priority Site and Equitable Development	2
			Credit Surrounding Density and Diverse Uses	5
			Credit Access to Quality Transit	5
			Credit Bicycle Facilities	1
			Credit Reduced Parking Footprint	1
			Credit Electric Vehicles	1

0	0	0	Sustainable Sites	10
Y			Prereq Construction Activity Pollution Prevention	Required
			Credit Site Assessment	1
			Credit Protect or Restore Habitat	2
			Credit Open Space	1
			Credit Rainwater Management	3
			Credit Heat Island Reduction	2
			Credit Light Pollution Reduction	1

0	0	0	Water Efficiency	11
Y			Prereq Outdoor Water Use Reduction	Required
Y			Prereq Indoor Water Use Reduction	Required
Y			Prereq Building-Level Water Metering	Required
			Credit Outdoor Water Use Reduction	2
			Credit Indoor Water Use Reduction	6
			Credit Optimize Process Water Use	2
			Credit Water Metering	1

0	0	0	Energy and Atmosphere	33
Y			Prereq Fundamental Commissioning and Verification	Required
Y			Prereq Minimum Energy Performance	Required
Y			Prereq Building-Level Energy Metering	Required
Y			Prereq Fundamental Refrigerant Management	Required
			Credit Enhanced Commissioning	6
			Credit Optimize Energy Performance	18
			Credit Advanced Energy Metering	1
			Credit Grid Harmonization	2
			Credit Renewable Energy	5
			Credit Enhanced Refrigerant Management	1

Project Name:

Date:

0	0	0	Materials and Resources	13
Y			Prereq Storage and Collection of Recyclables	Required
			Credit Building Life-Cycle Impact Reduction	5
			Credit Environmental Product Declarations	2
			Credit Sourcing of Raw Materials	2
			Credit Material Ingredients	2
			Credit Construction and Demolition Waste Management	2

0	0	0	Indoor Environmental Quality	16
Y			Prereq Minimum Indoor Air Quality Performance	Required
Y			Prereq Environmental Tobacco Smoke Control	Required
			Credit Enhanced Indoor Air Quality Strategies	2
			Credit Low-Emitting Materials	3
			Credit Construction Indoor Air Quality Management Plan	1
			Credit Indoor Air Quality Assessment	2
			Credit Thermal Comfort	1
			Credit Interior Lighting	2
			Credit Daylight	3
			Credit Quality Views	1
			Credit Acoustic Performance	1

0	0	0	Innovation	6
			Credit Innovation	5
			Credit LEED Accredited Professional	1

0	0	0	Regional Priority	4
			Credit Regional Priority: Specific Credit	1
			Credit Regional Priority: Specific Credit	1
			Credit Regional Priority: Specific Credit	1
			Credit Regional Priority: Specific Credit	1

0	0	0	TOTALS	Possible Points: 110
Certified: 40 to 49 points, Silver: 50 to 59 points, Gold: 60 to 79 points, Platinum: 80 to 110				



LEED v4.1 BD+C: Healthcare

Project Checklist

Project Name:

Date:

Y ? N

Y	Prereq	Integrative Project Planning and Design	Required
	Credit	Integrative Process	1

0	0	0	Location and Transportation	9
		Credit	LEED for Neighborhood Development Location	9
		Credit	Sensitive Land Protection	1
		Credit	High Priority Site and Equitable Development	2
		Credit	Surrounding Density and Diverse Uses	1
		Credit	Access to Quality Transit	2
		Credit	Bicycle Facilities	1
		Credit	Reduced Parking Footprint	1
		Credit	Electric Vehicles	1

0	0	0	Sustainable Sites	9
Y		Prereq	Construction Activity Pollution Prevention	Required
Y		Prereq	Environmental Site Assessment	Required
		Credit	Site Assessment	1
		Credit	Protect or Restore Habitat	1
		Credit	Open Space	1
		Credit	Rainwater Management	2
		Credit	Heat Island Reduction	1
		Credit	Light Pollution Reduction	1
		Credit	Places of Respite	1
		Credit	Direct Exterior Access	1

0	0	0	Water Efficiency	11
Y		Prereq	Outdoor Water Use Reduction	Required
Y		Prereq	Indoor Water Use Reduction	Required
Y		Prereq	Building-Level Water Metering	Required
		Credit	Outdoor Water Use Reduction	1
		Credit	Indoor Water Use Reduction	7
		Credit	Optimize Process Water Use	2
		Credit	Water Metering	1

0	0	0	Energy and Atmosphere	35
Y		Prereq	Fundamental Commissioning and Verification	Required
Y		Prereq	Minimum Energy Performance	Required
Y		Prereq	Building-Level Energy Metering	Required
Y		Prereq	Fundamental Refrigerant Management	Required
		Credit	Enhanced Commissioning	6
		Credit	Optimize Energy Performance	20
		Credit	Advanced Energy Metering	1
		Credit	Grid Harmonization	2
		Credit	Renewable Energy	5
		Credit	Enhanced Refrigerant Management	1

0	0	0	Materials and Resources	19
Y		Prereq	Storage and Collection of Recyclables	Required
Y		Prereq	PBT Source Reduction- Mercury	Required
		Credit	Building Life-Cycle Impact Reduction	5
		Credit	Environmental Product Declarations	2
		Credit	Sourcing of Raw Materials	2
		Credit	Material Ingredients	2
		Credit	PBT Source Reduction- Mercury	1
		Credit	PBT Source Reduction- Lead, Cadmium, and Copper	2
		Credit	Furniture and Medical Furnishings	2
		Credit	Design for Flexibility	1
		Credit	Construction and Demolition Waste Management	2

0	0	0	Indoor Environmental Quality	16
Y		Prereq	Minimum Indoor Air Quality Performance	Required
Y		Prereq	Environmental Tobacco Smoke Control	Required
		Credit	Enhanced Indoor Air Quality Strategies	2
		Credit	Low-Emitting Materials	3
		Credit	Construction Indoor Air Quality Management Plan	1
		Credit	Indoor Air Quality Assessment	2
		Credit	Thermal Comfort	1
		Credit	Interior Lighting	1
		Credit	Daylight	2
		Credit	Quality Views	2
		Credit	Acoustic Performance	2

0	0	0	Innovation	6
		Credit	Innovation	5
		Credit	LEED Accredited Professional	1

0	0	0	Regional Priority	4
		Credit	Regional Priority: Specific Credit	1
		Credit	Regional Priority: Specific Credit	1
		Credit	Regional Priority: Specific Credit	1
		Credit	Regional Priority: Specific Credit	1

0	0	0	TOTALS	Possible Points: 110
Certified: 40 to 49 points, Silver: 50 to 59 points, Gold: 60 to 79 points, Platinum: 80 to 110				

