AUTODESK. UNIVERSITY

The Kendeda Building for Innovative Sustainable Design

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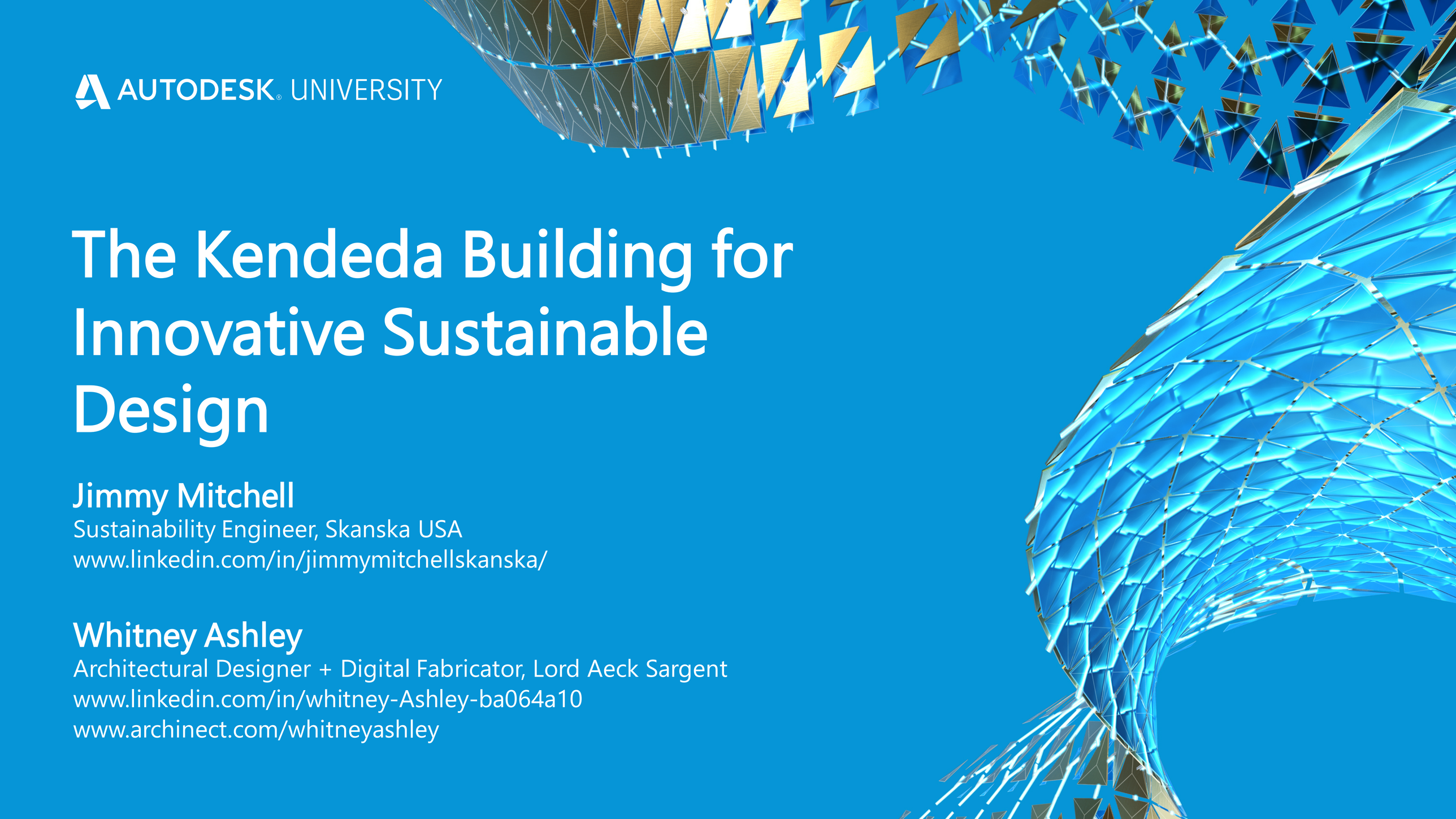


Jimmy Mitchell

Sustainability Engineer

Jimmy started with Skanska in 2005 with a bachelor's degree in civil engineering at Georgia Tech. Sustainability is a career passion, one of Georgia's first LEED managers, created the Atlanta Mission urban garden, and a founding member of the construction material reuse nonprofit based in Atlanta, the Lifecycle Building Center. He recently completed The Kendeda Building for Innovative Sustainable Design with Skanska playing a leading role for all design and construction project phases.

Whitney Ashley

Design Staff

Whitney Ashley is a multidisciplinary, project designer at Lord Aeck Sargent. Her experiences includes projects in the areas of education, sustainable design, commercial, housing and mixed-use. She has been working on the multi-award winning project The Kendeda Building for Innovative Sustainable Design from the project design phase to project completion and certification. Her expertise include digital design and fabrication with experience of an international award winning design-build project and multiple public art installations along the Atlanta Beltline. Her work pushes the boundaries between art and architecture with a combination of material research that are a catalyst for community involvement.

Whitney holds a Master of Science in Architecture with a concentration of Digital Design and Fabrication from the Georgia Institute of Technology and a Bachelor of Architecture with a minor in Business from Southern Polytechnic State University.


A CALL TO ACTION:
living.
building.
challenge.
www.livingbuildingchallenge.org

THE METAPHOR OF THE FLOWER

ROOTED IN PLACE AND YET:

Harvests all energy + water

Is adapted to climate and site

Operates pollution free

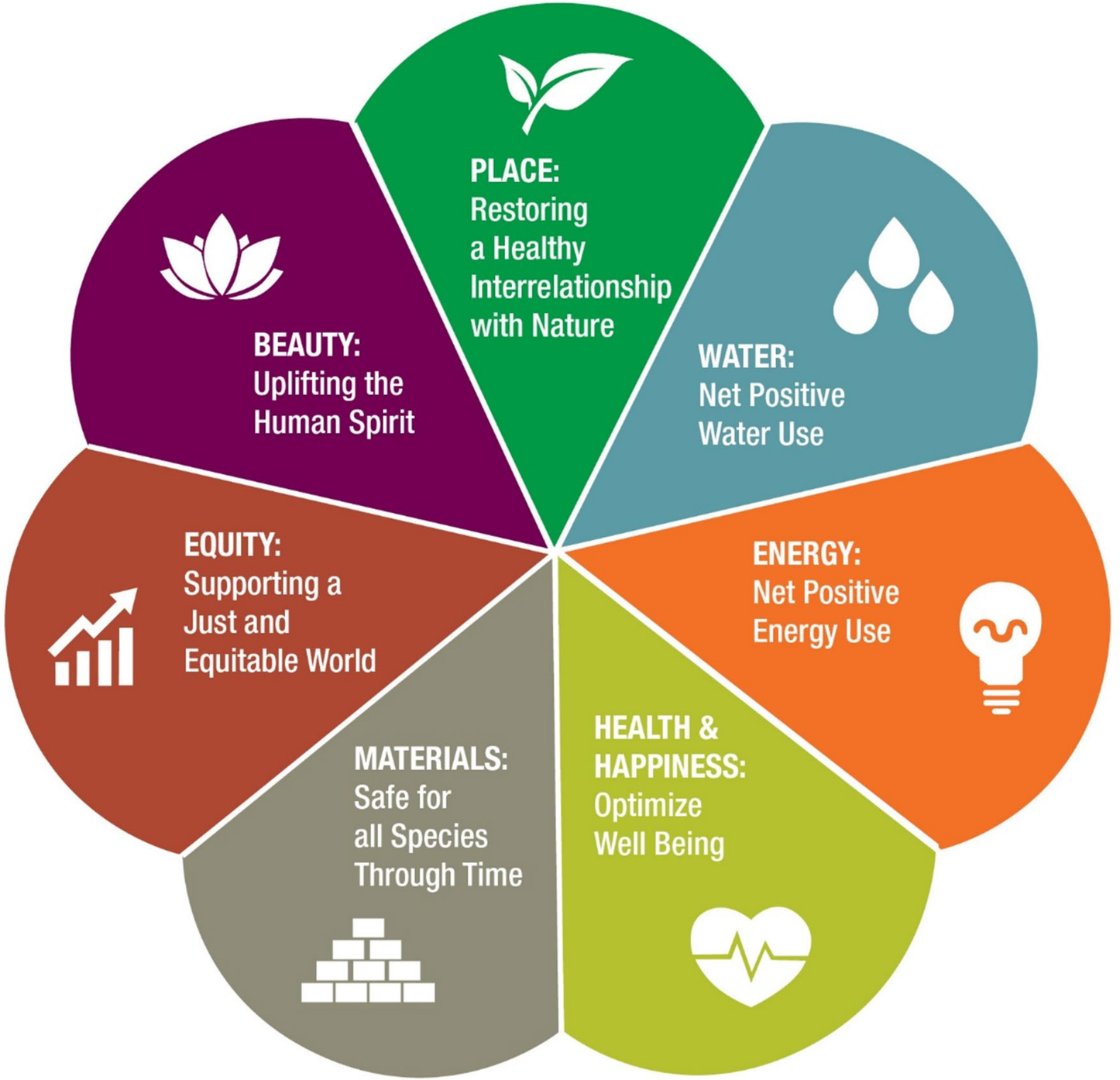
Is comprised of integrated systems

Is beautiful

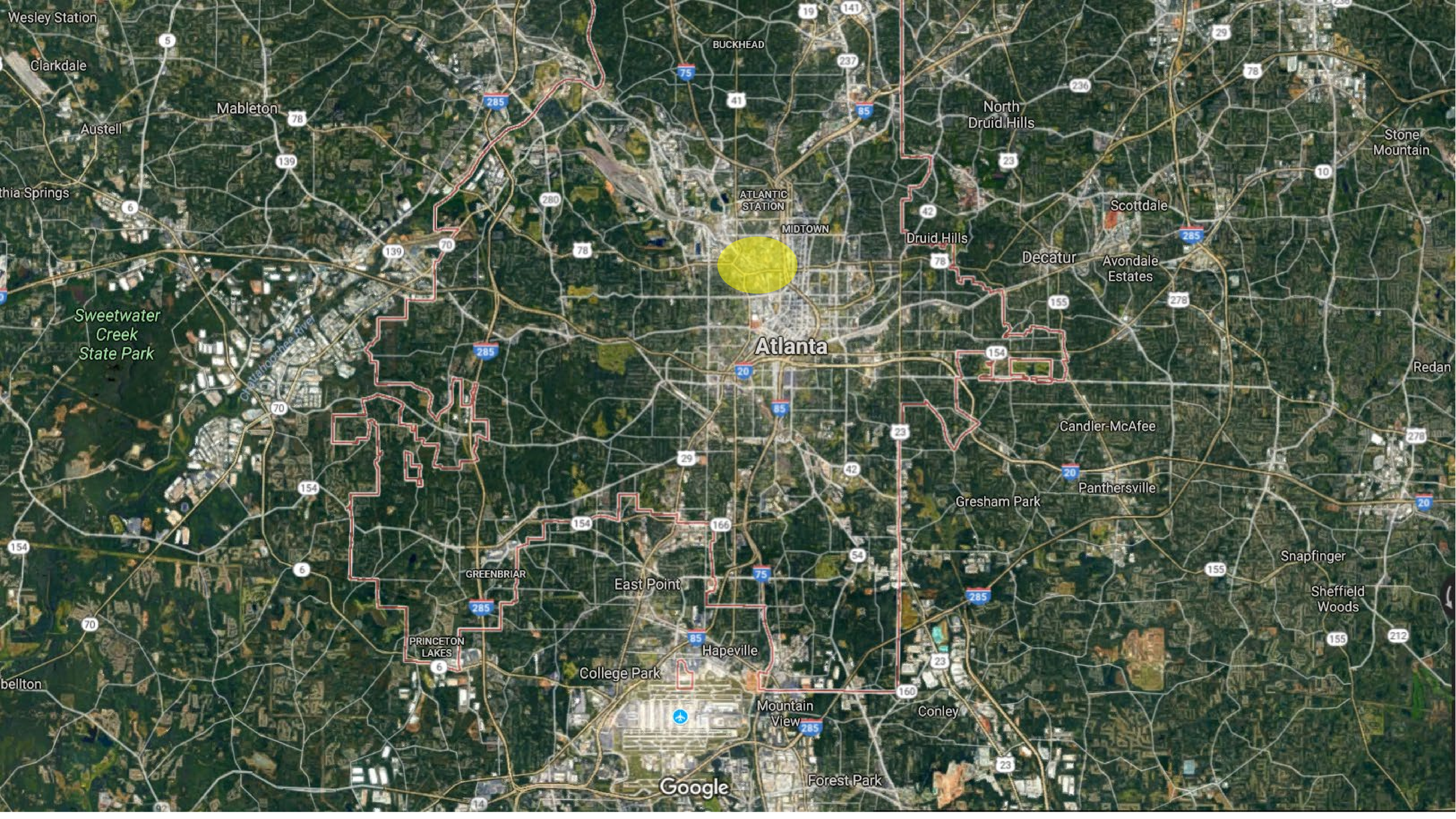
LIVING BUILDING CHALLENGE℠

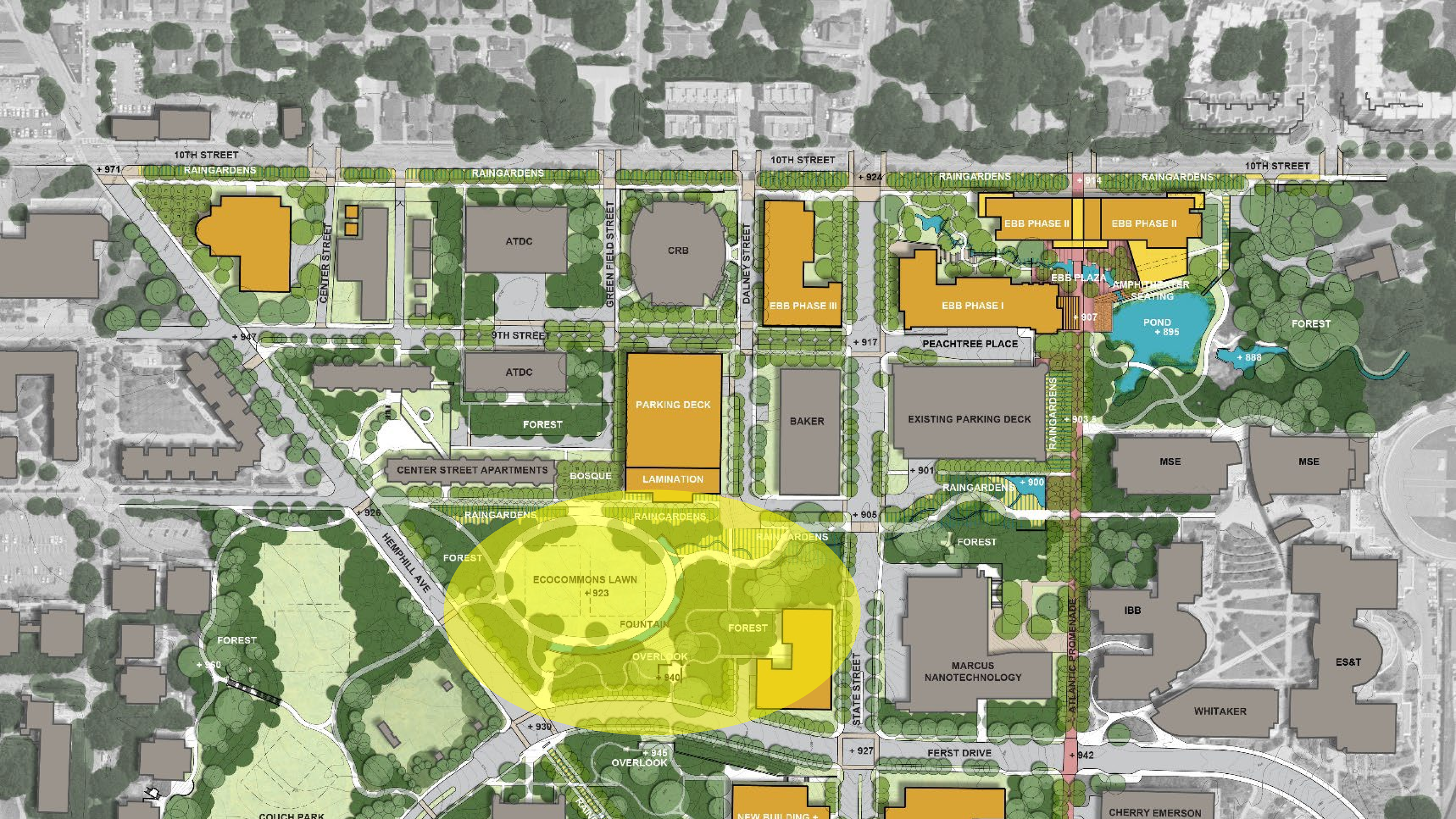
Integrated Holistic Planning & Design

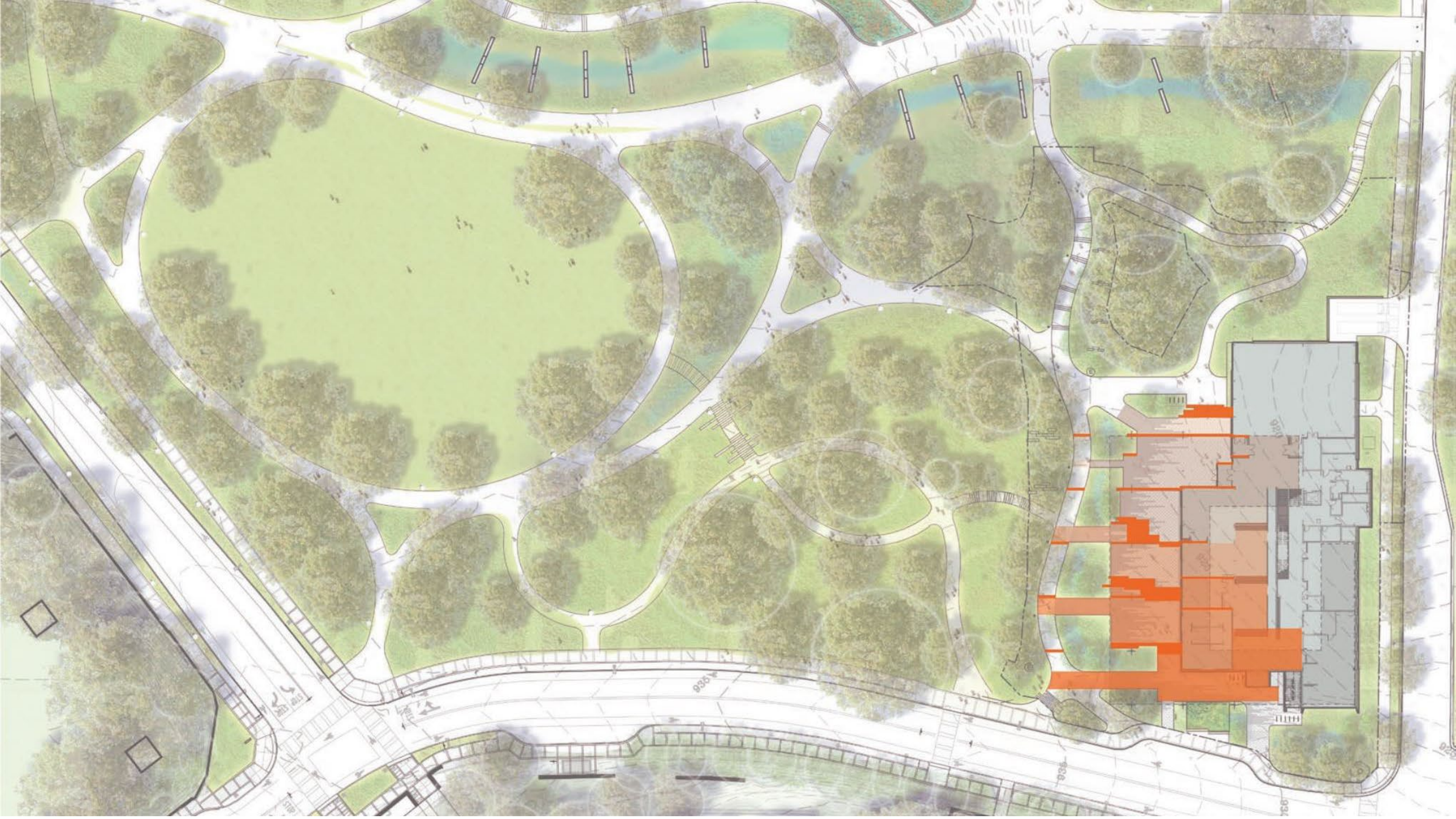
20 Imperatives within a 7 Petal Structure



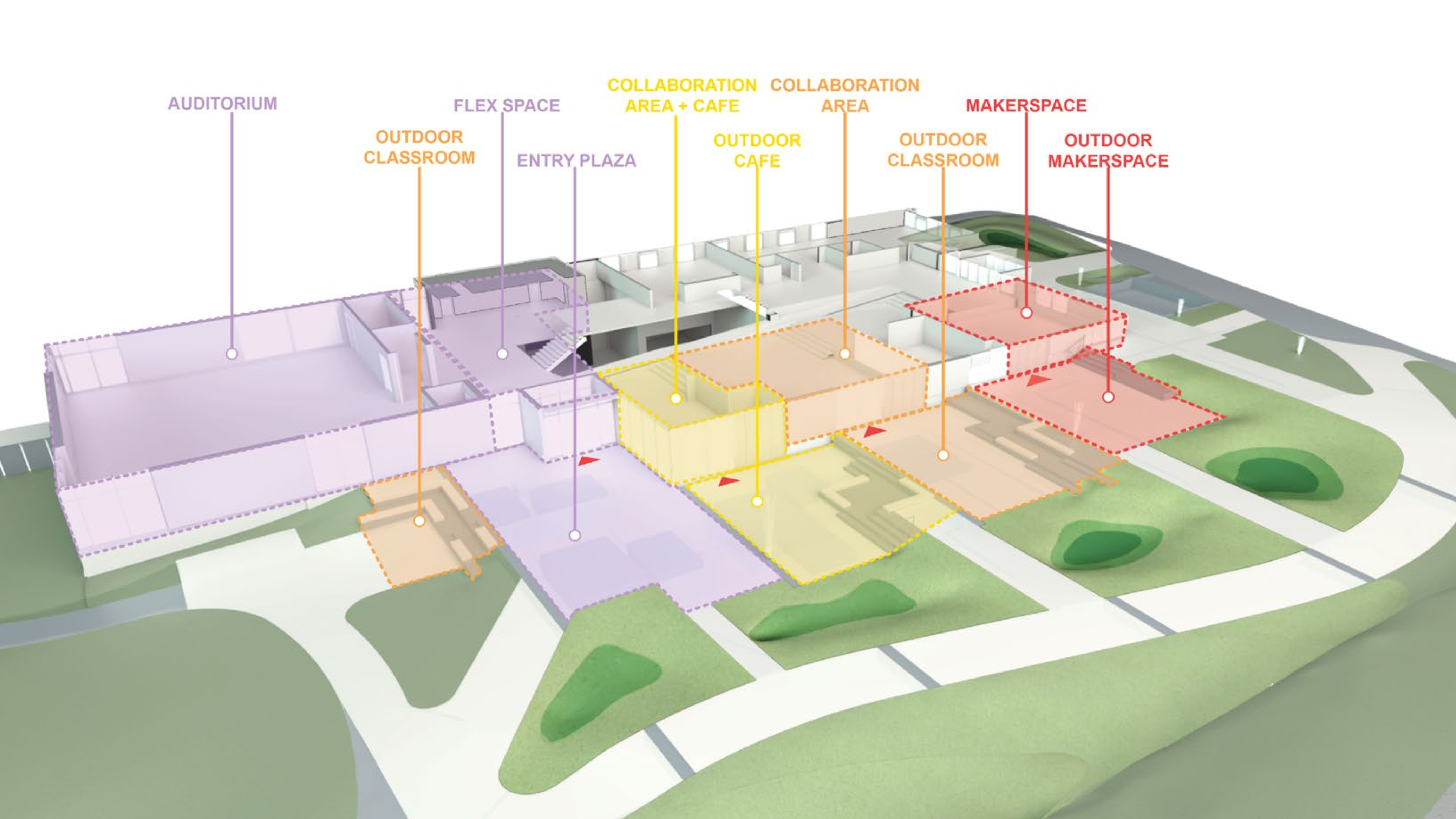

THE KENDEDA FUND
LIVING BUILDING CHALLENGE
The Kendeda Building For Innovative Sustainable Design at Georgia Tech


Wesley Station
Clarkdale
Mableton
Austell
BUCKHEAD
ATLANTIC STATION
MIDTOWN
North Druid Hills
Stone Mountain
Scottdale
Druid Hills
Decatur
Avondale Estates
Sweetwater Creek State Park
Chattahoochee River
Atlanta
Redan
Candler-McAfee
Panthersville
Gresham Park
Snapfinger
Sheffield Woods
GREENBRIAR
East Point
PRINCETON LAKES
Hapeville
College Park
Mountain View
Conley
Forest Park
Google


10TH STREET
+ 971
RAINGARDENS
RAINGARDENS
10TH STREET
+ 924
RAINGARDENS
+ 914
RAINGARDENS
10TH STREET
CENTER STREET
GREEN FIELD STREET
DALNEY STREET
ATDC
CRB
EBB PHASE II
EBB PHASE II
EBB PHASE III
EBB PLAZA
AMPHITHEATER SEATING
EBB PHASE I
+ 907
POND
+ 895
FOREST
+ 888
+ 947
9TH STREET
+ 917
PEACHTREE PLACE
ATDC
FOREST
PARKING DECK
BAKER
EXISTING PARKING DECK
RAINGARDENS
+ 903.5
MSE
MSE
CENTER STREET APARTMENTS
BOSQUE
LAMINATION
+ 901
RAINGARDENS
+ 900
+ 926
RAINGARDENS
RAINGARDENS
RAINGARDENS
+ 905
FOREST
HEMPHILL AVE
FOREST
ECOCOMMONS LAWN
+ 923
FOUNTAIN
FOREST
OVERLOOK
+ 940
IBB
FOREST
+ 950
MARCUS
NANOTECHNOLOGY
ATLANTIC PROMENADE
ES&T
WHITAKER
STATE STREET
+ 930
+ 945
OVERLOOK
+ 927
FERST DRIVE
+ 942
CHERRY EMERSON
COUCH PARK
NEW BUILDING +




WHAT IS THE


AUDITORIUM
FLEX SPACE
COLLABORATION AREA + CAFE
COLLABORATION AREA
MAKERSPACE
OUTDOOR CLASSROOM
ENTRY PLAZA
OUTDOOR CAFE
OUTDOOR CLASSROOM
OUTDOOR MAKERSPACE

LORD AECK SARGENT
A KATERRA COMPANY

MILLER HULL

SKANSKA

Newcomb & Boyd
CONSULTANTS AND ENGINEERS

JENSEN HUGHES

Andropogon

Biohabitats

UZUN +CASE

PAE

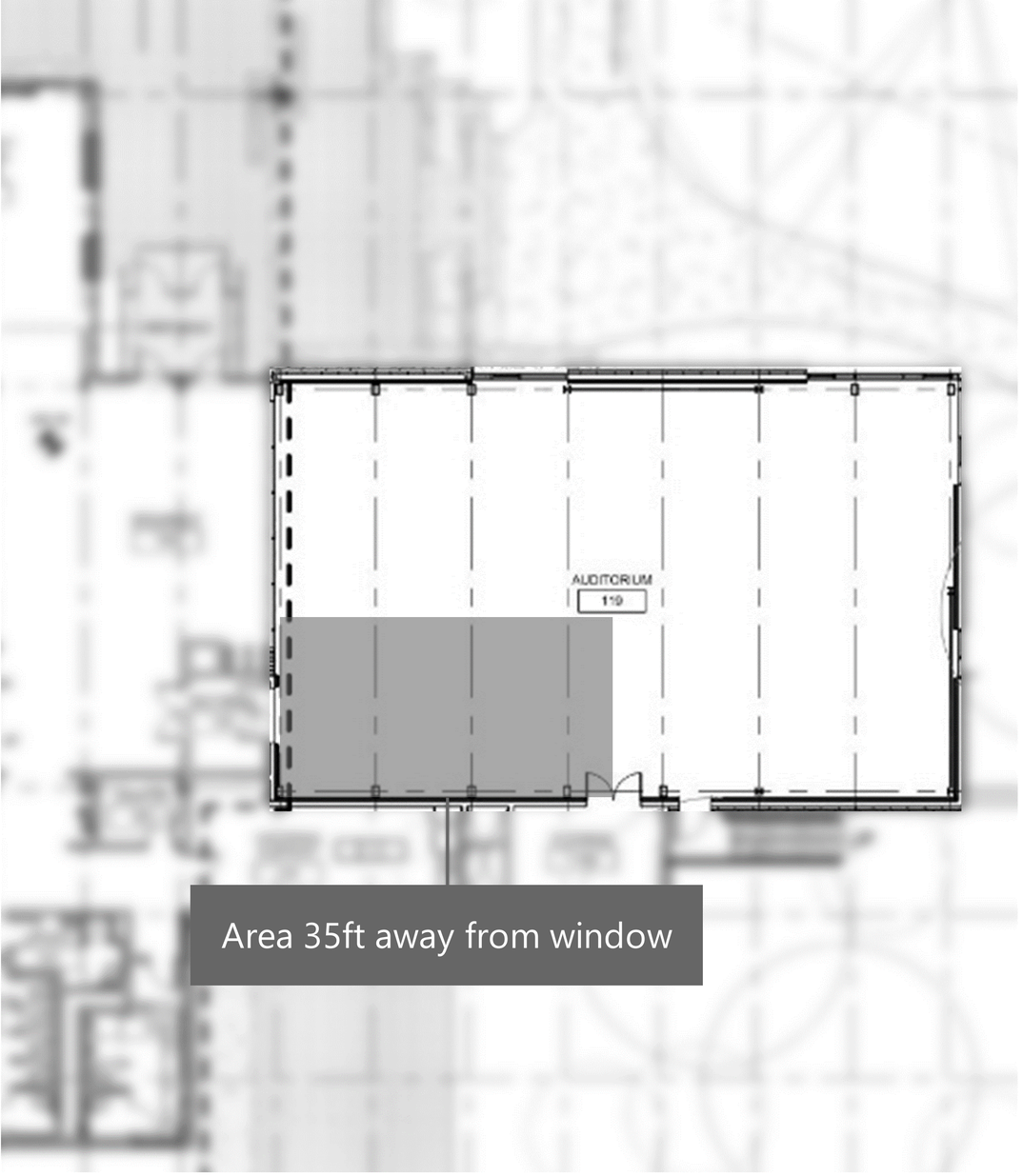
PCS
PROJECT COST SOLUTIONS
Construction Is Personal™

LONG
ENGINEERING, INC.

SONJA BOCHART
WELLBEING+DESIGN


When we try to pick out anything
by itself, we find it hitched to
everything else in the universe.
John Muir

Design Development



Auditorium Rotation

Rain Water Collection

Green Roof

Solar Panels' overhang used for water collection system

Mechanical System Options

Radiant Ceilings

with Dedicated Outdoor Air System

Most expensive

Big architectural impact

Radiant Floors

with Dedicated Outdoor Air System

Medium first cost

Low maintenance

Minimal architectural impact

Overhead Variable Air Volume

Lowest first cost

Conventional

Requires superb envelope performance

High maintenance

AirFlow Panels

with Fan Coil Units

Medium first cost

Unproven technology

Highly visible

Maintenance unknown

The ability to use either geo-thermal or the campus loop is available in both radiant options.

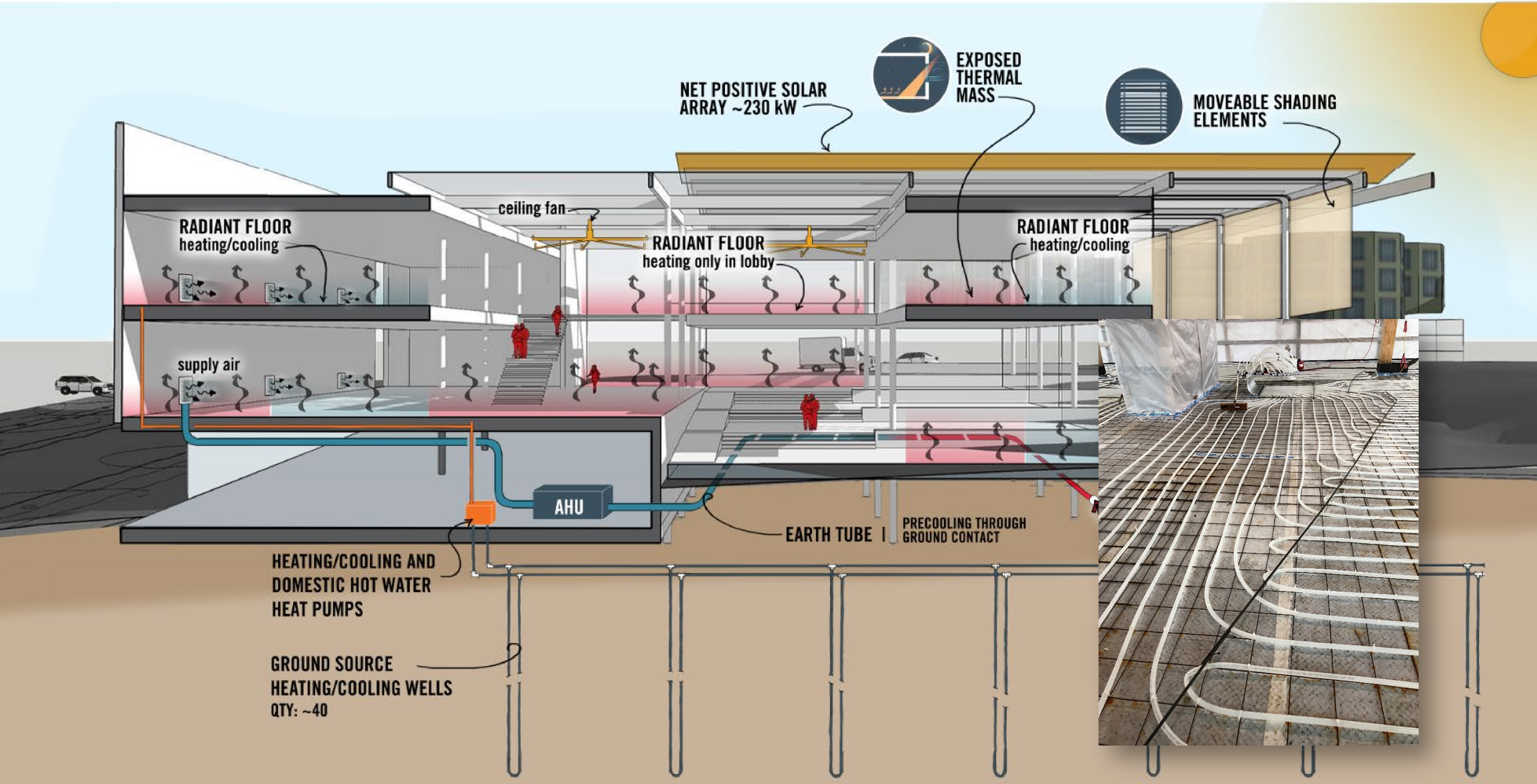
Mechanical Systems

Mechanical systems had two key design options through design development.

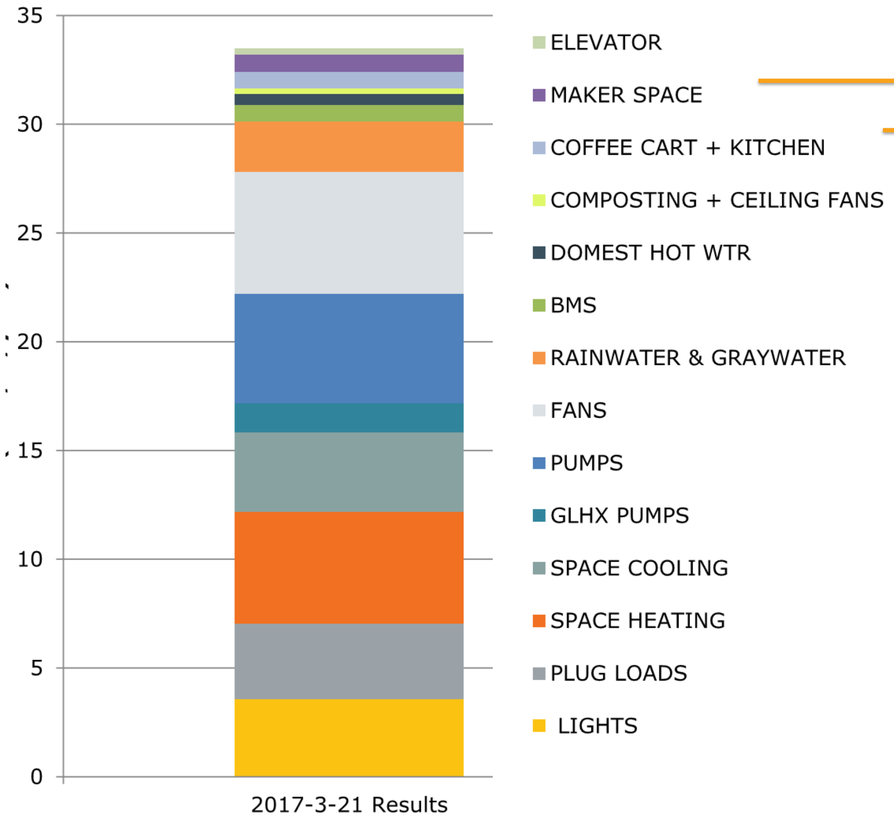
The flexibility was needed to examine the value implications of campus CHW tie in vs. Geothermal.

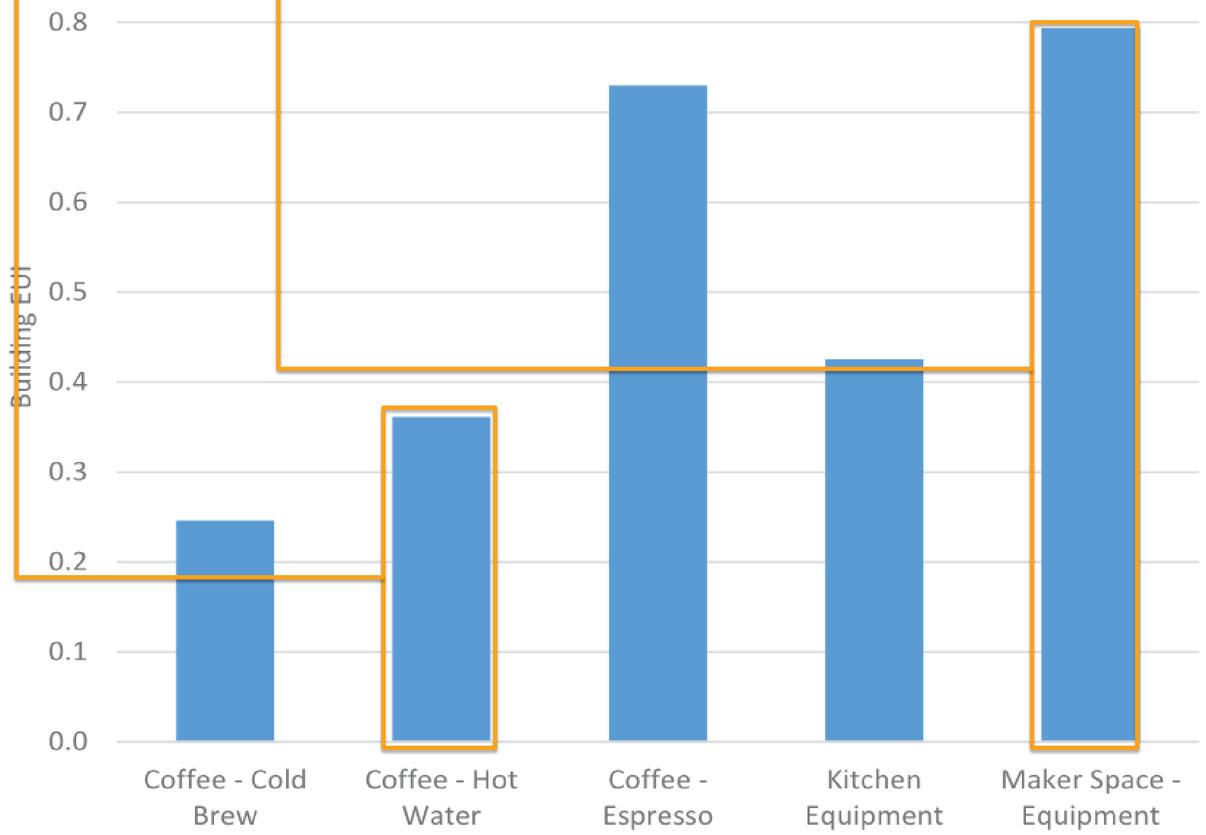
Photo credit goes here

E.3(-40)-1(7) : BASEMENT (82)


NET POSITIVE SOLAR ARRAY ~230 kW
EXPOSED THERMAL MASS
MOVEABLE SHADING ELEMENTS
ceiling fan
RADIANT FLOOR
heating/cooling
RADIANT FLOOR
heating only in lobby
RADIANT FLOOR
heating/cooling
supply air
AHU
EARTH TUBE
PRECOOLING THROUGH GROUND CONTACT
HEATING/COOLING AND DOMESTIC HOT WATER HEAT PUMPS
GROUND SOURCE HEATING/COOLING WELLS
QTY: ~40

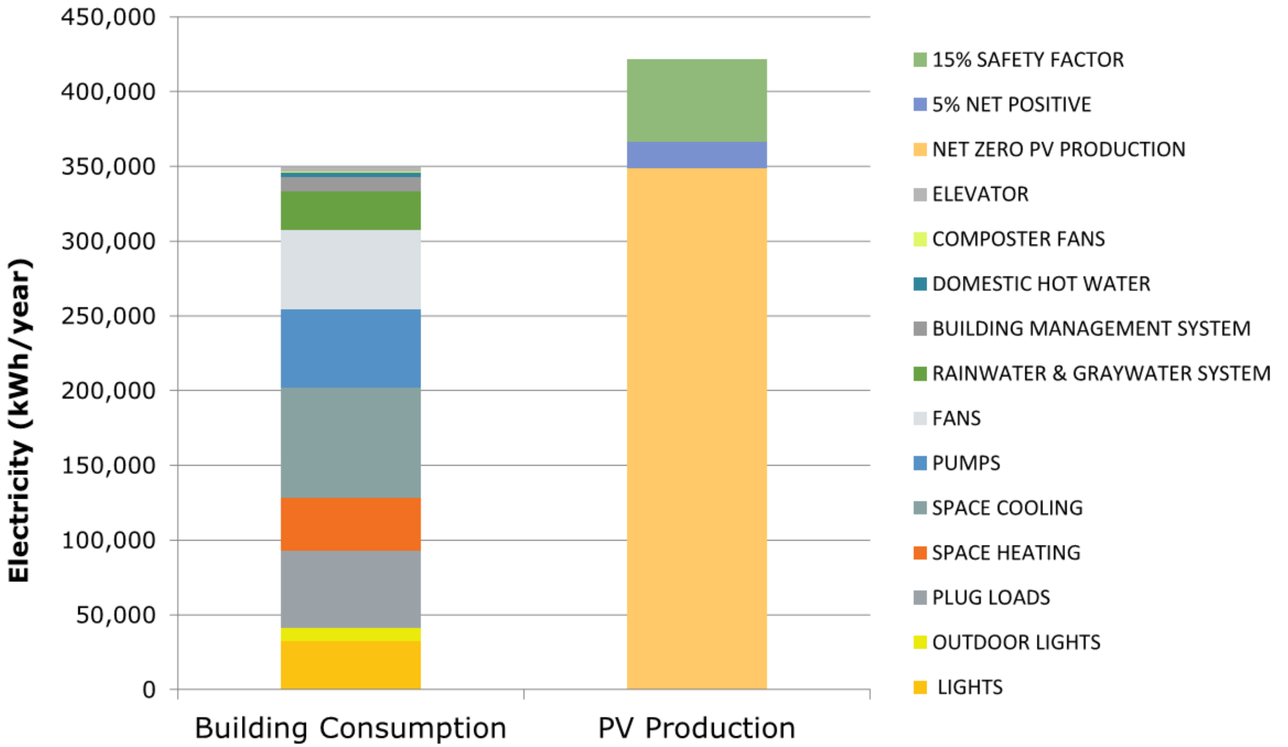
Energy Use Intensity (EUI)

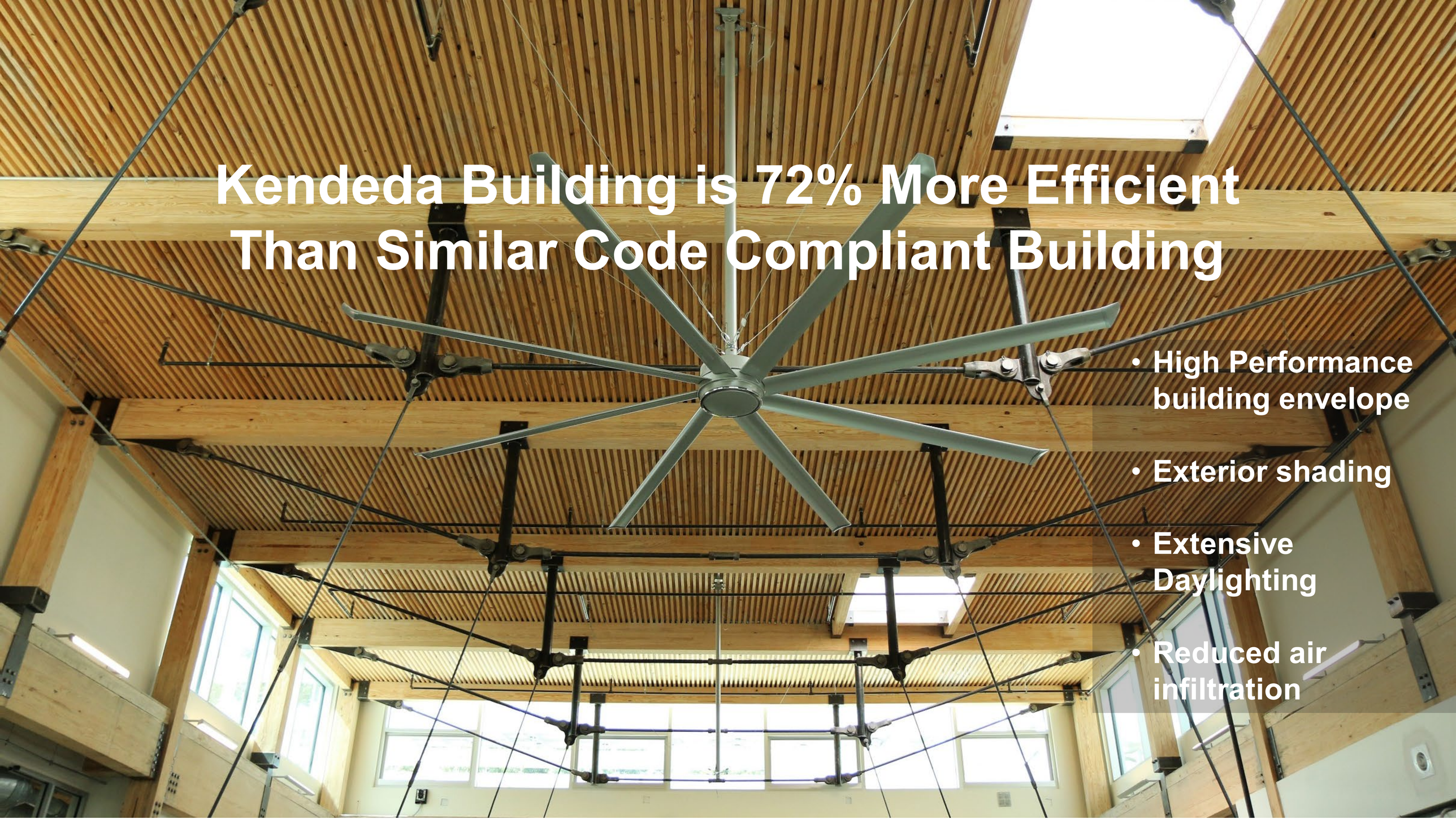




Net Positive Energy

EUI = 32

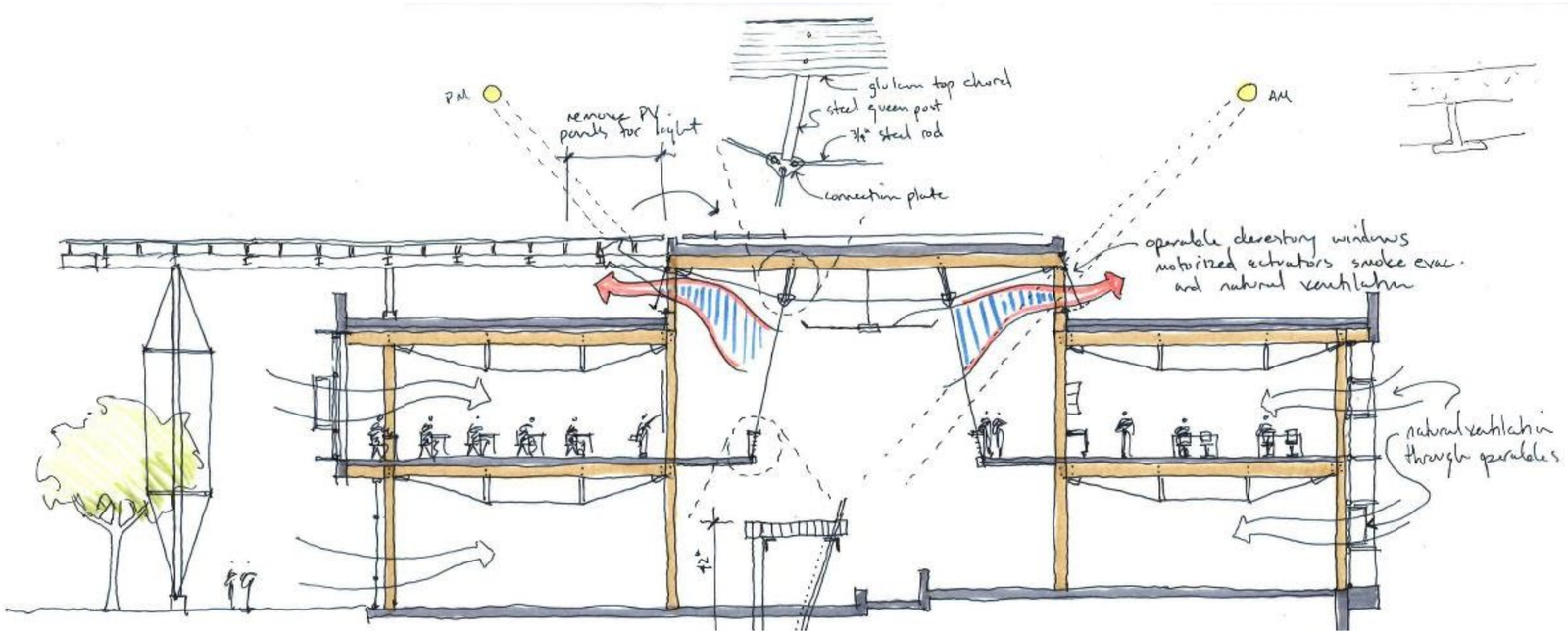


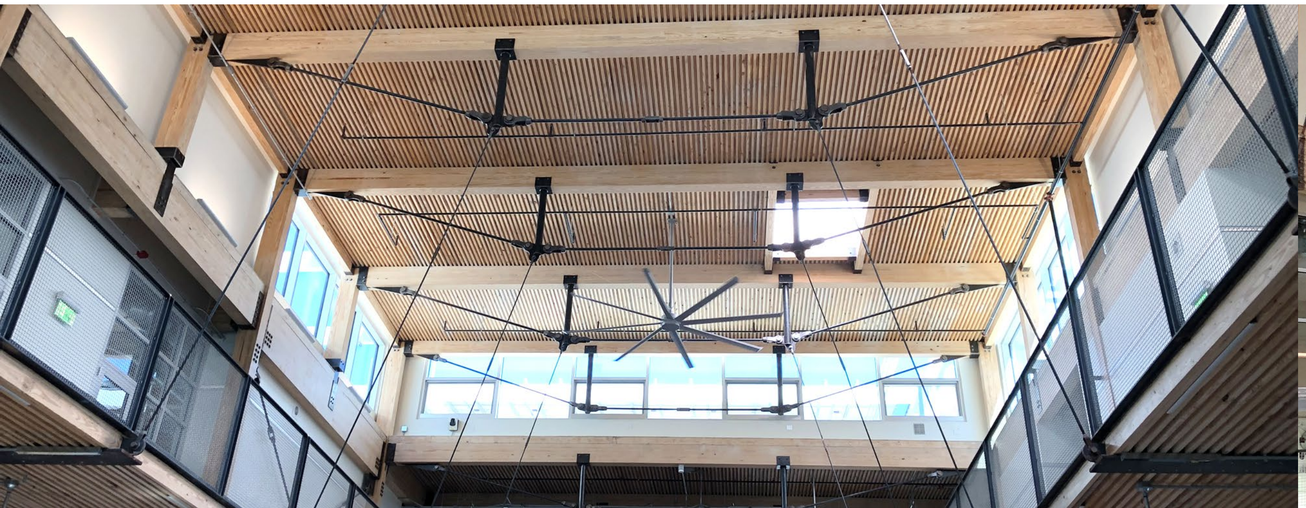


Kendeda Building is 72% More Efficient Than Similar Code Compliant Building

- High Performance building envelope
- Exterior shading
- Extensive Daylighting
- Reduced air infiltration

Redesign Queen Post Truss





Structural Options

LUMBER

Glu-lam Columns and Girders with glu-lam trusses as joists (queen posts).

Nail Laminated decking with 3” topping slab for radiant heating and cooling.

STEEL

Steel Columns and Beams with composite (concrete and steel decking) deck.

Requires additional 3” topping slab for radiant heating and cooling.

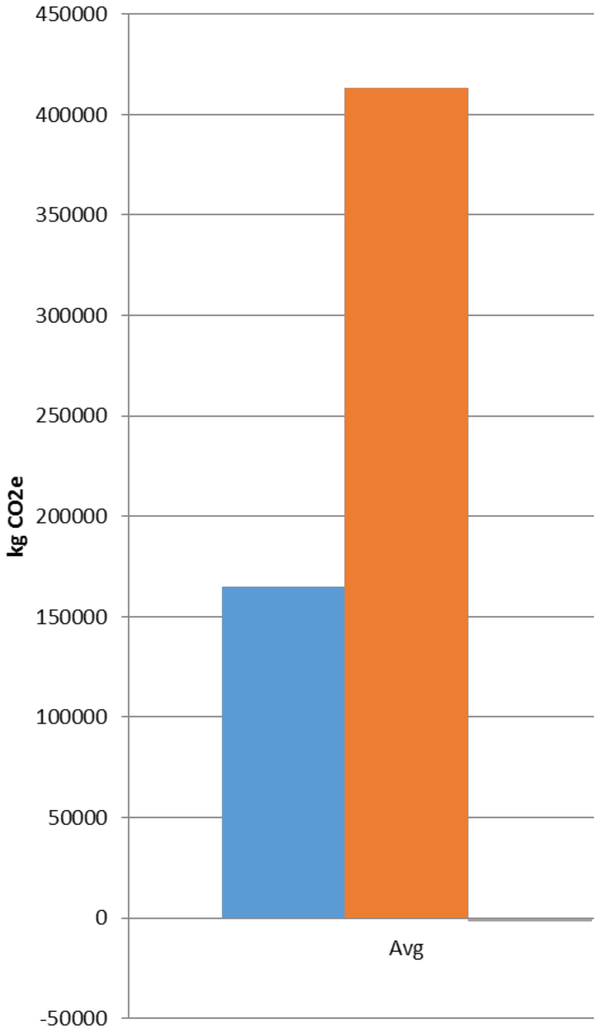
CONRETE

Steel Columns and Beams with Hollow Core Plank decking and 3” topping slab (needed for radiant heating and cooling)

Porch Structure is Steel in all options.

Structural Systems AVG CO2

42,000 SF BUILDING IN ATLANTA



Concrete
413,168 KG/CO2e

Steel
164,645 KG/C02e

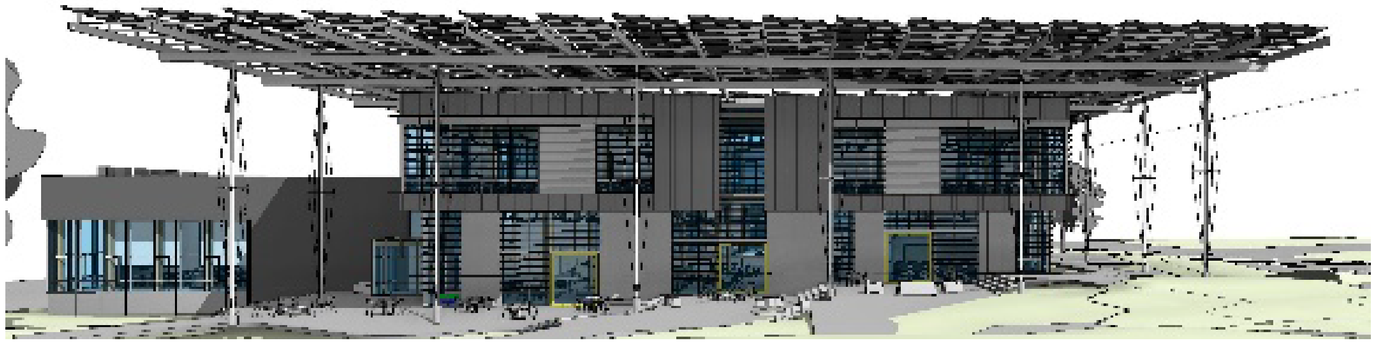
Lumber
-1,718 KG/C02e

SOURCES:
Lawrence Berkeley National Lab B-PATH Tool

Revit for Solar Analysis

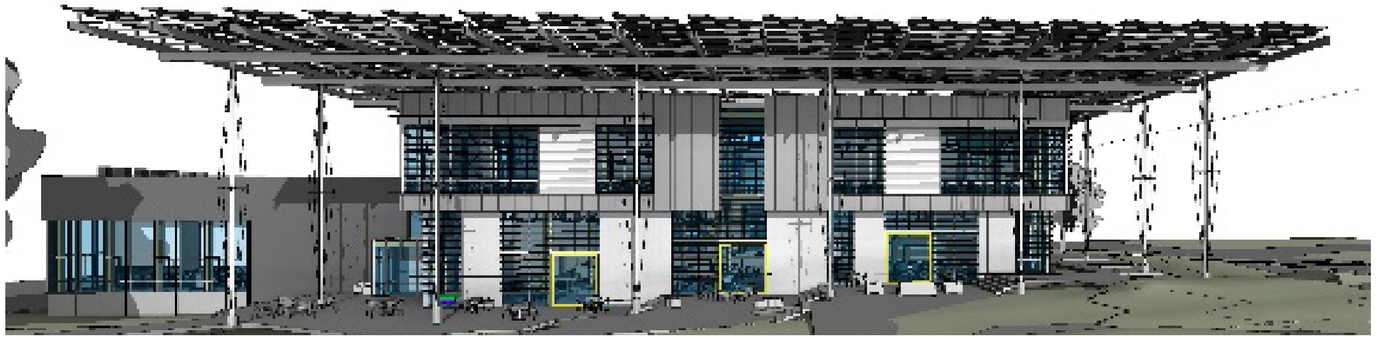
Fall Equinox

4pm

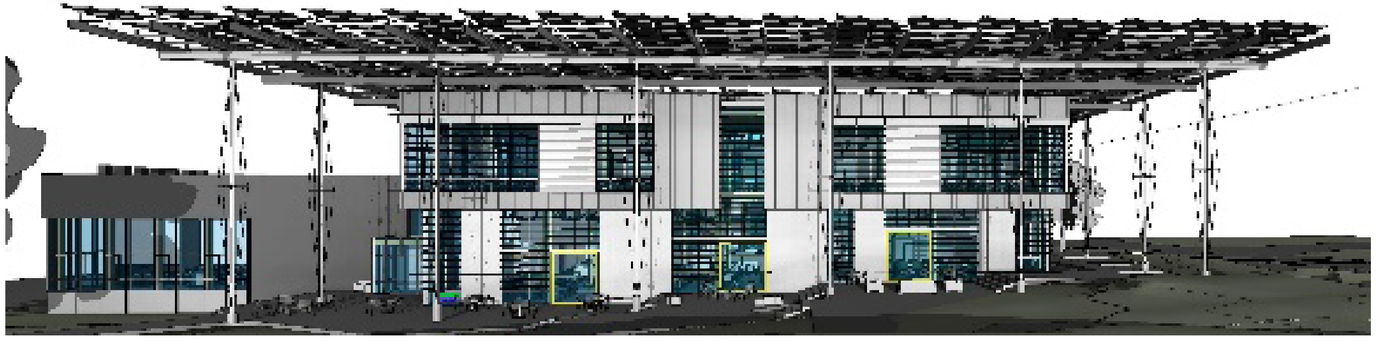


5pm

6pm



7pm

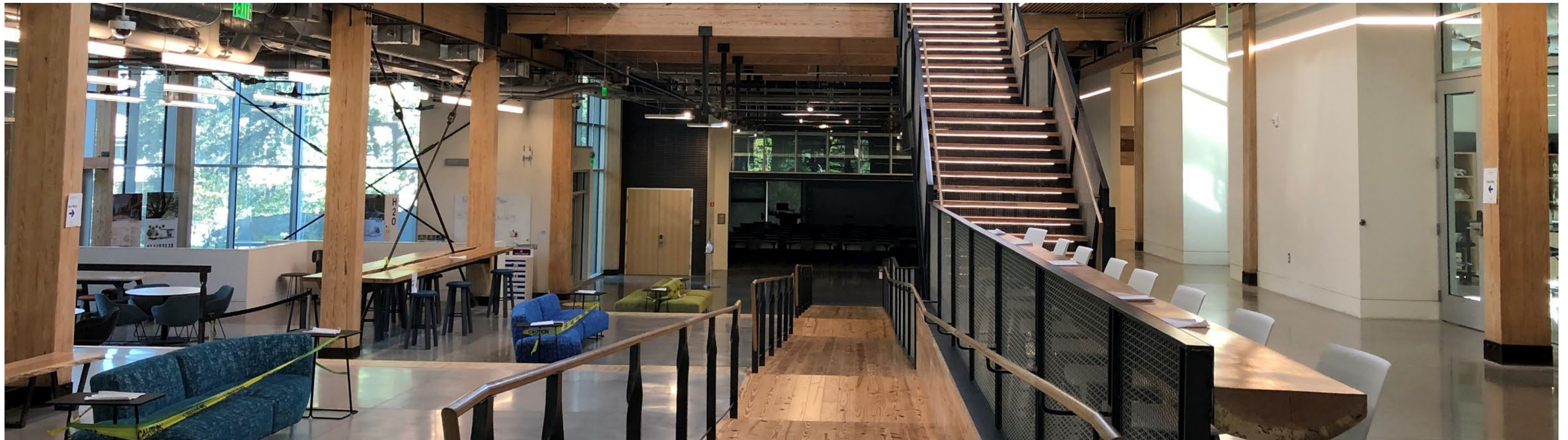


No need for upper exterior blinds with the PV canopy above

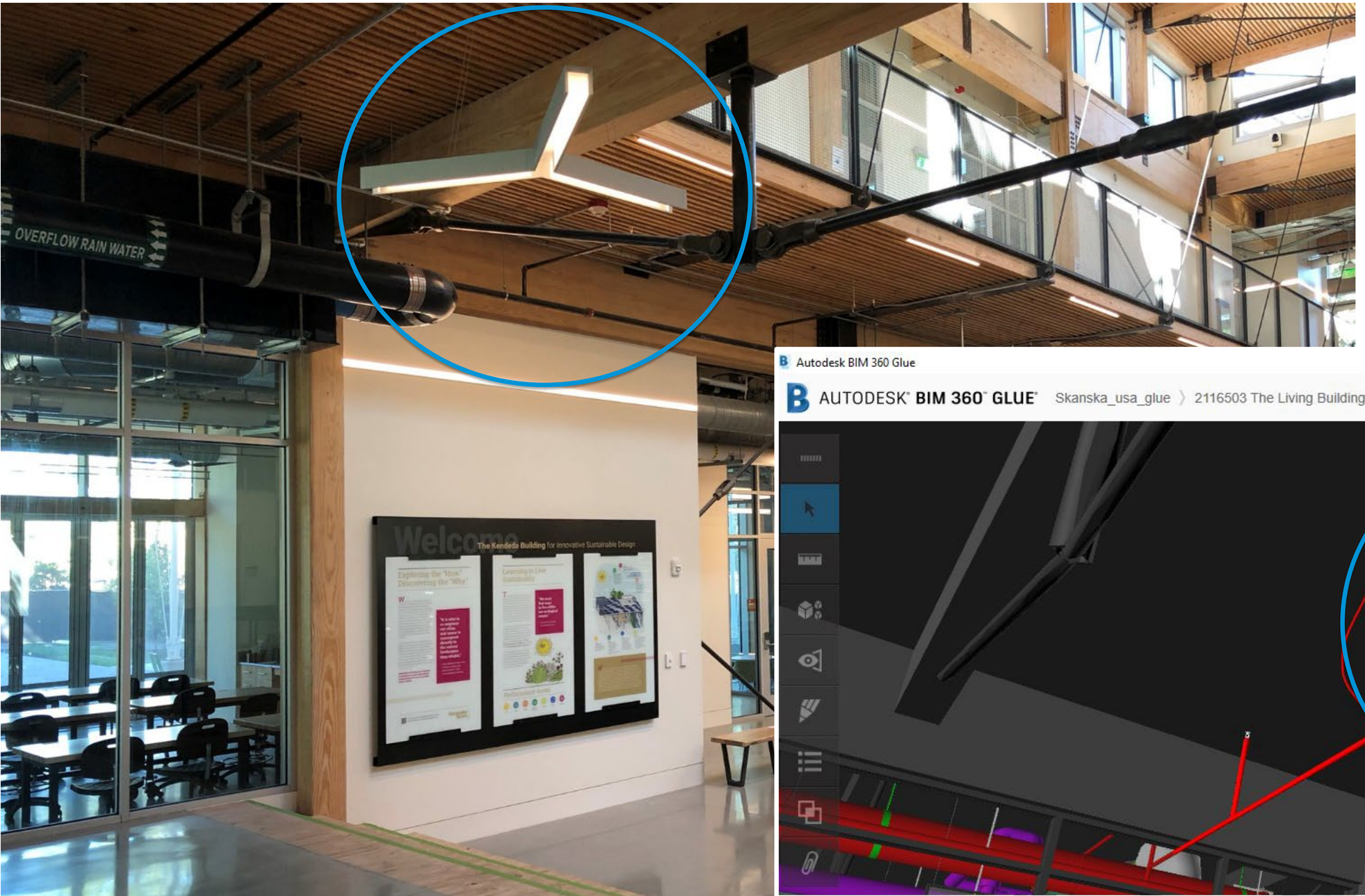
Exterior Blinds at the West Facade

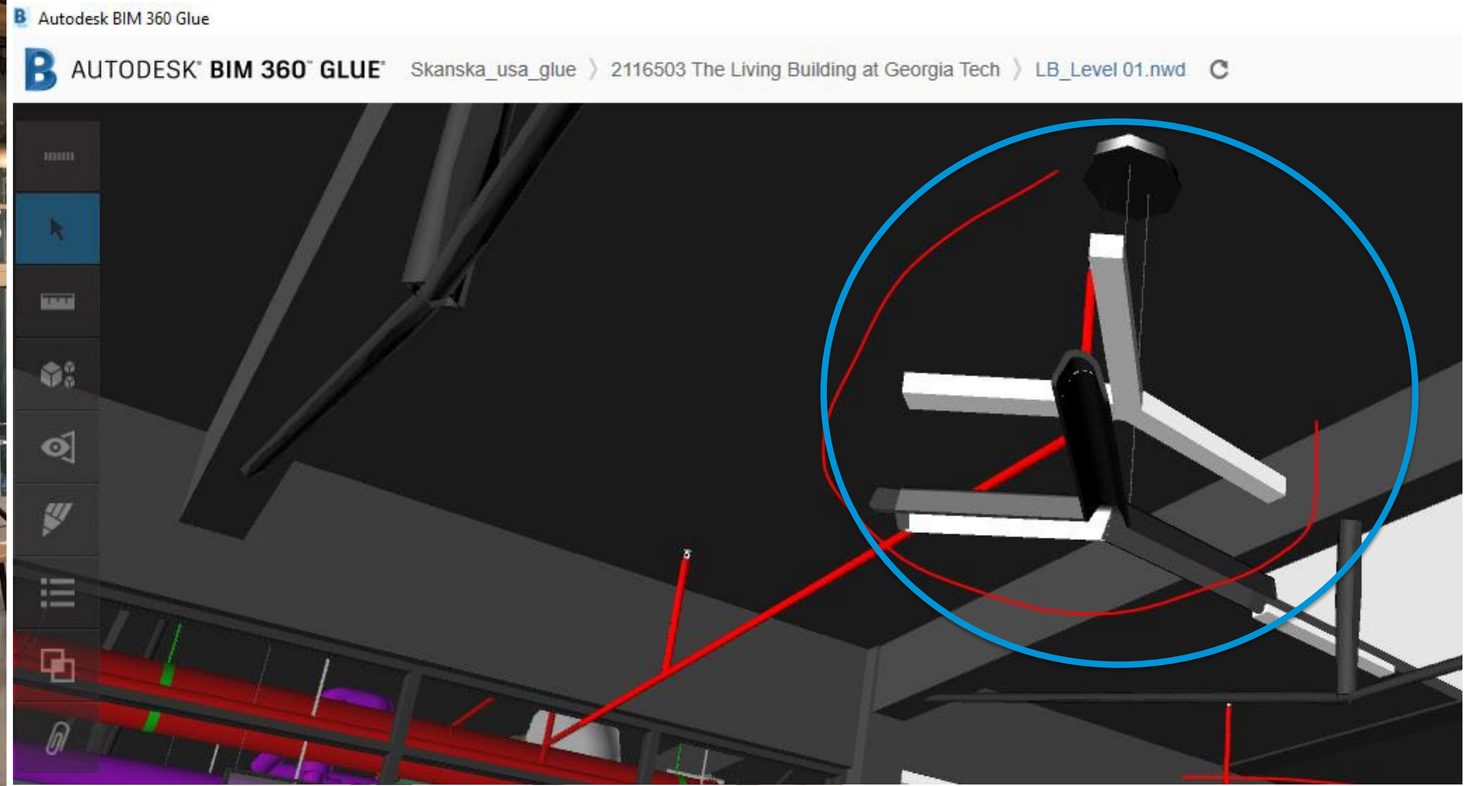
BIM Coordination

BIM360 Glue – Clash of Open Atrium Space

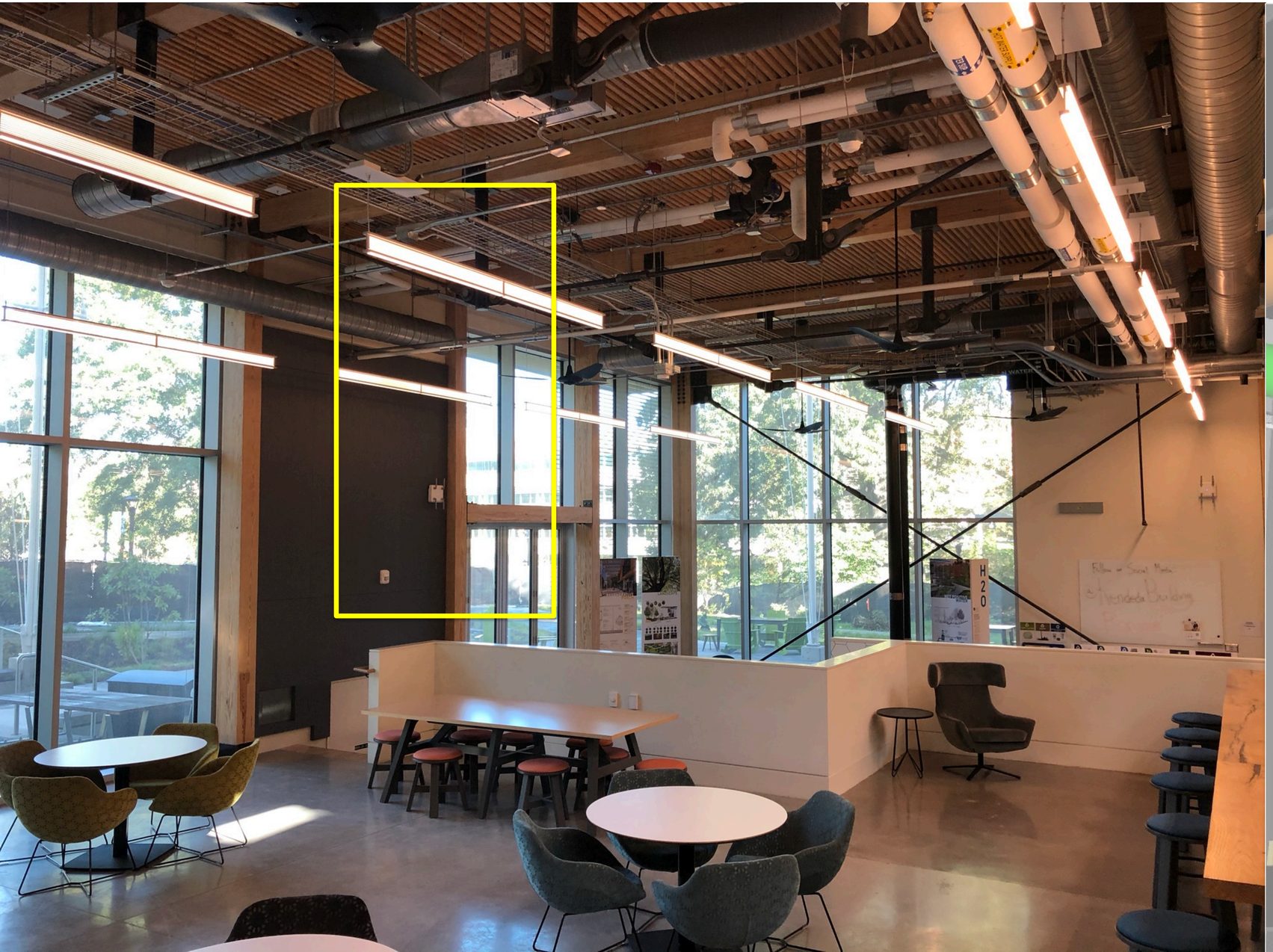


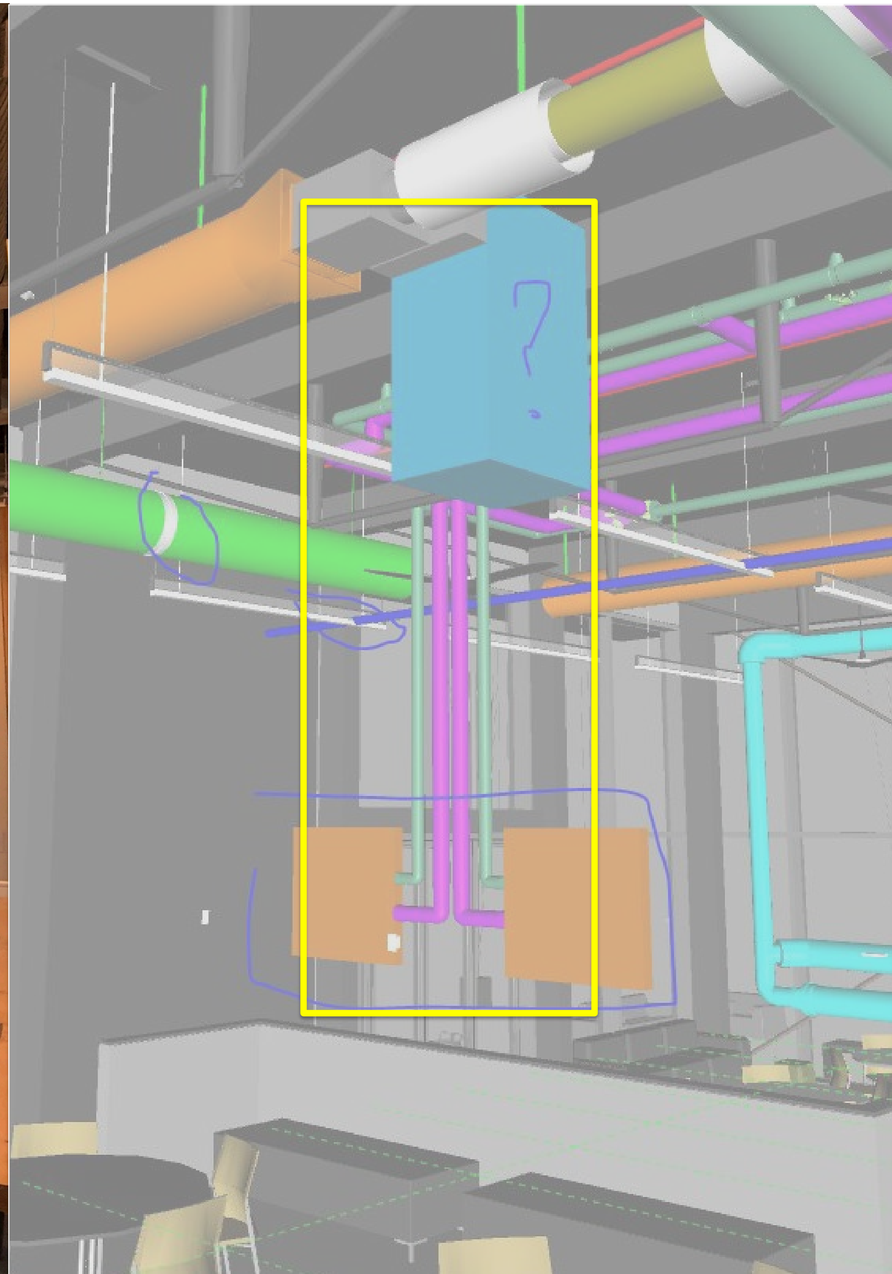
BIM360 Glue – Clash of Open Atrium Space





BIM360 Glue – Clash at Innovation Learning Space





BIM360 Glue – Clash of Classlab of Level 1

Submittals + Red List Compliance

RED LIST TRANSLATED

777 CHEMICALS

ate [2Ash3O4.2Ca]
oride
enate
ite
enal)
tate, Dihydrate
ate, 4-Hydrate
oride, Anhydrous
ate, Anhydrous
de
ide
afluorosilicate
arate
hylhexanoate
oonate
mide
tate
mide
oride, 2.5 Hydrate
oride
de
ate, Hydrate
d Silicate
e Molybdate Sulfate Red
ed
ithargel)
oonate
tate
omate Yellow (C.I. Pigment Yellow 34)
te
Of Mass 214
ol, 2,4,6-Trinitro-, Lead Salt
anesulphonate
c(-Phthalato)Trilead
icate
tate
ate
te
Trihydrate
icarboxylato(2-))Dioxotrilead
te
e

Ammonia-Urea-Formaldehyde
Phenol, Polymer With Formaldehyde, Glycidyl Ether
O-Cresol Formaldehyde Epoxy
Paraformaldehyde
Formaldehyde, Polymer With 4-(1,1-Dimethylethyl)
Phenol, Methyloxirane And Oxirane (9Ci)
Naphthalenesulfonic Acid, Formaldehyde Polymer, Calcium Salt
Formaldehyde
Butylated Polyoxymethylene Urea
Formaldehyde, Melamine Polymer, Methylated
Cresol Formaldehyde
Rosin, Formaldehyde, Fumaric Acid Polymer, Potassium Salt
Phenol Formaldehyde Polymer Hexamethylenetetramine Cross-Linked
Formaldehyde, Polymers With Isobutylenated Phenol
Formaldehyde, Urea Adduct
Benzenesulfonic Acid, 4-Hydroxy-, Polymer With Formaldehyde And 4,4'-Sulfonylbis(Phenol), Sodium Salt (9Ci)
Formaldehyde, Compd With Monosodium Sulfite (1:1)
Phenol Formaldehyde
Naphthalenesulfonic Acid, Polymer With Formaldehyde, Potassium Salt
Naphthalenesulfonic Acid, Formaldehyde Polymer, Ammonium Salt
Melamine Formaldehyde
Extract Residues (Coal), Creosote Oil Acid
Creosote Oil
Creosote Oil
Creosote Oil, Low-Boiling Distillate
Creosote
Coal Tar
Wood Creosote
Creosote Oil, Acenaphthene Fraction
Creosote Oil, Acenaphthene Fraction, Acenaphthene-Free
Residues (Coal Tar), Creosote Oil Distn.
Bromobiphenyl
Decabromodiphenyl Ether (Decabde Bde-209)
2,4,6-Tribromophenol
Phosphoric Acid, Mixed 3-Bromo-2,2-Dimethylpropyl And 2-Bromoethyl And 2-Chloroethyl Esters
Tris (2,3-Dibromopropyl) Phosphate
Alpha-Hexabromocyclododecane (Α-Hbcd)
Beta-Hexabromocyclododecane (Â2â²-Hbcd)
Gamma-Hexabromocyclododecane (Â2â²-Hbcd)
Decabromobiphenyl
Cyclododecane, 1,2,5,6,9,10- Hexabromo-, (1R,2R,5R,6S,9R,10S)-
Dibromostyrene Copolymer (Firemaster Cp44-Hf & Pbs-64Hw)
2,2',3,4,4'-Pentabromodiphenyl Ether (Bde 85)
2-Ethylhexyl-2,3,4,5-Tetrabromobenzoate (Tbb Or Eh-Tbb)

2,2'-[(1-Methylethylidene)Bis[(2,6-Dibromo-4,1-Phenylene)
Heptabromodiphenyl Ether (Heptabde)
2,4,6-Tribromophenyl Terminated Carbonate Oligomer
1,2-Benzenedicarboxylic Acid, 3,4,5,6-Tetrabromo-, Mixed Esters With Diethylene Glycol And Propylene Glycol
Tetrabromobisphenol A (Tbbpa)
Decabromodiphenylethane (Dbdpe)
Pentabromoethylbenzene (Pbeb)
Hexabromobenzene (Hbb)
Pentabromotoluene (Pbt)
Benzene, Ethenyl-, Homopolymer, Brominated Dibromobiphenyl
Carbonic Dichloride, Polymer With 4,4'-(1-Methylethylidene)Bis(2,6- Dibromophenol) And Phenol
Di(2-Ethylhexyl)Phthalate (Dehp)
Di-N-Octyl Phthalate (Dnop)
Ditridecyl Phthalate (Dtdp/Ditp)
Dimethyl Phthalate (Dmp)
Dipropyl Phthalate (Dpp)
Di-N-Pentyl Phthalate (Dnpp)
Diisohexyl Phthalate
Diisodecyl Phthalate (Didp)
Diisooctyl Phthalate (Diop)
Diisononyl Phthalate, Dinp-2 Of Diverse Manufacture, Isomers As Manufactured)
Diundecyl Phthalate (Dup)
Dipropylheptyl Phthalate (Dphp)
Dialkyl(C7-11, Branched And Linear) Phthalates (Dhnup)
Diisononyl Phthalate (Dinp-1, Mixture Of Isomers As Manufactured)
Diisodecyl Phthalate (Didp)
Diisohexyl Phthalate
Diisoheptyl Phthalate (Dihp)
Diethyl Phthalate (Dep)
Diisobutyl Phthalate (Dibp)
Dibutyl Phthalate (Dbp)
Di-N-Hexylphthalate (Dnhp)
Butyl Benzyl Phthalate (Bbp)
Diisoundecyl Phthalate (Diup)
Chlorendic Acid
Tris(2-Chloroethyl) Phosphate (Tcep)
Dechlorane Plus (Dp)
Tris(1-Chloro-2-Propyl)Phosphate (Tcpp, Tmcp)
Chlorinated Tris (Tdcpp, Tdcp)
Tris(2-Chloropropyl) Phosphate
Tris(2,3-Dichloro-1-Propyl)Phosphate
Short Chain Chlorinated Paraffins (Sccp) - Alkanes, C12-13, Chloro
Bis(1-Chloro-2-Propyl) 2-Chloro-1-Propyl Phosphate
Bis(2-Chloro-1-Propyl) 1-Chloro-2-Propyl)
Tris(2,3-Dichloro-1-Propyl)Phosphate
Short Chain Chlorinated Paraffins (Sccp), C10-13
Pentachlorotrifluoropropane (Cfc-213)
Pentachlorotrifluoropropane (Cfc-213 Isomer)

1-Chloro-2,2-Difluoropropane (Hcfc-262Ca)
Monochlorotetrafluoropropane (Hcfc-251)
Pentachlorofluoropropane (Hcfc-231)
1,1,3-Trichloro-1,2,2-Trifluoropropane (Hcfc-233Cb)
Hexachlorofluoropropane (Hcfc-221)
1,2-Dichloro-1,1,2,3,3-Pentafluoropropane (Hcfc-225Bb)
2,3-Dichloro-1,1,1,2,3-Pentafluoropropane (Hcfc-225Ba)
Pentachlorodifluoropropane (Hcfc-222)
Tetrachlorotrifluoropropane (Hcfc-223)
Trichlorotetrafluoropropane (Hcfc-224)
Chloro-1,1,2,2,3,3-Hexafluoropropane (Hcfc-226Cb)
Dichloropentafluoropropane (Hcfc-225Ca)
Dichlorotetrafluoropropane (Hcfc-234)
Monochlorofluoropropane (Hcfc-271)
1,2-Dichloro-1-Fluoroethane (Hcfc-141)
1,2-Dichloro-1,2-Difluoroethane (Hcfc-132)
1,2-Dichloro-1,1,3,3,3-Pentafluoropropane (Hcfc-225Da)
Monochlorohexafluoropropane (Hcfc-226)
Tetrachlorodifluoropropane (Hcfc-232)
Monochloropentafluoropropane (Hcfc-235)
Dichloropentafluoropropane (Hcfc-225Cb)
Monochlorofluoromethane (Hcfc-31)
Tetrachlorodifluoroethane (Hcfc-242)
1-Chloro-2,3,3-Pentafluoropropane (Hcfc-235)
Trichlorofluoropropane (Hcfc-)
Dichlorofluoromethane (Hcfc-)
Chlorodifluoroethane (Hcfc-)
Monochlorodifluoroethane (Hcfc-142B)
Monochlorotrifluoroethane (Hcfc-133A)
Dichlorodifluoropropane (Hcfc-252)
Asbestos
Chloroprene (Neoprene)
Tetrachloroethylene (Perchloroethylene)
1 Chloro-1-Fluoroethane (Hcfc-151A)
1,1,2,3,3-Pentafluoropropane (Hfc-245Ea)
Ethylfluoride (Hfc-161)
1,1,1,3,3-Pentafluorobutane (Hfc-365Mfc)
1,1,1,2,3-Pentafluoropropane (Hfc-245Eb)
1,1,1,2,3,3-Hexafluoropropane (Hfc-236Ea)
1,1,1,3,3-Pentafluoropropane (Hfc-245Fa)
1,1,1,2,2,3-Pentafluoropropane (Hfc-245Ca)
1,1,1,3,3,3-Hexafluoropropane (Hfc-236Fa)
1,1,1-Trichloroethane (Methyl Chloroform)
Methylene Chloride (Dichloromethane)
Polyvinylidene Chloride
Tetramethyl Lead
Tetraethyl Lead
Methylmercury Acetate
Mercury Dioleate
Mercury Naphthenate
Mercury Pentanedione
Methylmercury Nitrile
Methylmercury Benzoate

2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl (Pcb-209)
2-Chlorobiphenyl (Pcb-1)
3-Chlorobiphenyl (Pcb-2)
4-Chlorobiphenyl (Pcb-3)
2,2',3,3',5,5',6,6'-Octachlorobiphenyl (Pcb-202)
2,2',4,4'-Tetrachlorobiphenyl (Pcb-47)
Tri-Pcb
Penta-Pcb
Di-Pcb
2,3'-Dichlorobiphenyl
Hexa-Pcb
Tetrachlorobiphenyl
Mono-Pcb
Hepta-Pcb
3,4'-Dichlorobiphenyl
3,4-Dichlorobiphenyl (Pcb-12)
2,3',4,4',5-Pentachlorobiphenyl (Pcb-118)
2,3',4,4'-Tetrachlorobiphenyl (Pcb-66)
Pentachlorobiphenyl
Tetrachlorobiphenyl (Pcb-)
2,3,3',4,4'-Pentachlorobiphenyl (Pcb-105)
2,4,4',5-Tetrachlorobiphenyl
3,3',4,4',5,5'-Hexachlorobiphenyl (Pcb-169)
2,3,4,4'-Tetrachlorobiphenyl (Pcb-60)
2,2',3,3',4,4',5,5'-Octachlorobiphenyl (Pcb-)
2,6-Dichlorobiphenyl (Pcb-)
2,2',3,3',5,5'-Hexachlorobiphenyl (Pcb-)
2,3,5,6-Tetrachlorobiphenyl (Pcb-65)
2,2',4,4',6,6'-Hexachlorobiphenyl (Pcb-155)
2,5-Dichlorobiphenyl (Pcb-9)
3,5-Dichlorobiphenyl (Pcb-14)
2,4'-Dichlorobiphenyl (Pcb-8)
2,2',4,4',5,5'-Hexachlorobiphenyl (Pcb-153)
2,2',3,4,4',5-Hexachlorobiphenyl (Pcb-138)
2,2',3,4,4',5,5'-Heptachlorobiphenyl (Pcb-180)
2,2',3,3',4,4',5-Heptachlorobiphenyl
2,4,6-Trichlorobiphenyl (Pcb-30)
2,2',5,5'-Tetrachlorobiphenyl (Pcb-52)
2,2',3,3',5,5'-Hexachlorobiphenyl
2,2',3,4,4',5-Hexachlorobiphenyl
2,2',3,3',4,4',5,5'-Octachlorobiphenyl (Pcb-194)
2,2',3,4'-Tetrachlorobiphenyl
Aroclor 1231
Aroclor 1262
2,2',5-Trichlorobiphenyl (Pcb-18)
2,2',4-Trichlorobiphenyl
2,3',5'-Trichlorobiphenyl
3,3',4-Trichlorobiphenyl (Pcb-35)
2,2',4,5,5'-Pentachlorobiphenyl (Pcb-101)
2,3',5,5-Pentachlorobiphenyl (Pcb-95)
2,2',4',6-Pentachlorobiphenyl (Pcb-99)
2,2',3,4,5'-Pentachlorobiphenyl (Pcb-87)
2,3,3',4',6-Pentachlorobiphenyl (Pcb-110)

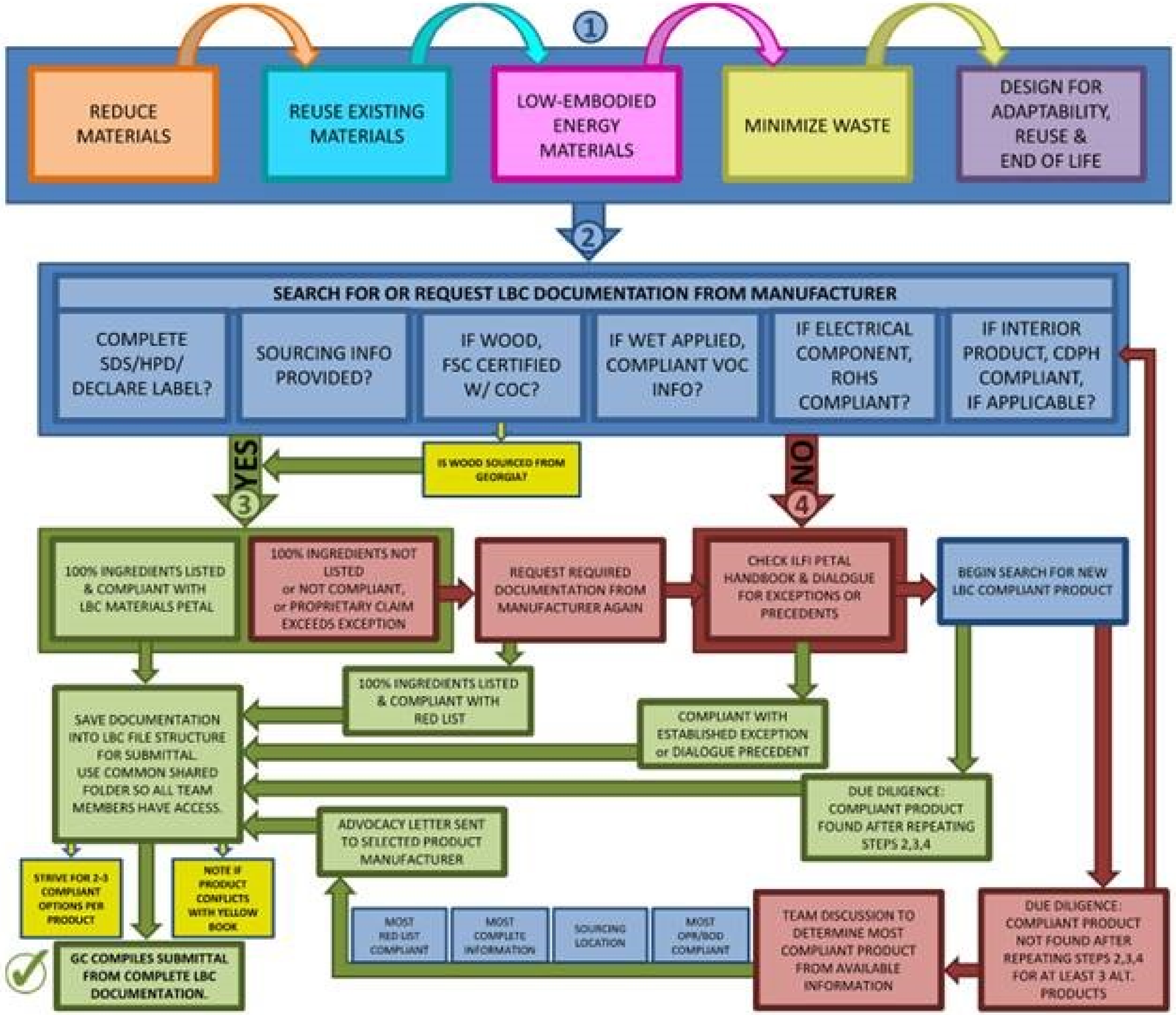
2,2',3,5,6-Hexachlorobiphenyl
2,2',3,3',5,6,6'-Heptachlorobiphenyl
2,2',3,3',4,6,6'-Heptachlorobiphenyl
2,2',3,3',4,5'-Hexachlorobiphenyl
2,2',3,3',5,5',6-Heptachlorobiphenyl
2,2',3,4',5,5',6-Heptachlorobiphenyl (Pcb-187)
2,2',3,4,4',5',6-Heptachlorobiphenyl
2,2',3,3',4,4',6-Heptachlorobiphenyl (Pcb-171)
2,4,5,3',4',5'-Hexachlorobiphenyl
2,2',3,3',4,5,6,6-Octachlorobiphenyl
2,2',3,3',4,5,5'-Heptachlorobiphenyl
2,2',3,3',4,5,5',6'-Octachlorobiphenyl
2,2',3,4,4',5,5',6-Octachlorobiphenyl
2,2',3,3',4,4',5,6-Octachlorobiphenyl
2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl (Pcb-207)
2,2',3,3',5,6-Hexachlorobiphenyl (Pcb-134)
Hexachlorobiphenyl
Heptachlorobiphenyl (Pcb-185)
Hexachlorobiphenyl
Aroclor 1242
3,4,5-Trichlorobiphenyl
Nona-Pcb
2,3,4,6-Tetrachlorobiphenyl
Octachlorobiphenyl
2,3',5-Trichlorobiphenyl
Octachlorobiphenyl
2,2',3,4,4',6-Hexachlorobiphenyl
2,2',4,6,6'-Pentachlorobiphenyl (Pcb-104)
2,3',4,4',6-Pentachlorobiphenyl
2,3',4,5',6-Pentachlorobiphenyl
3,3',4,4',5-Pentachlorobiphenyl (Pcb-126)
2,2',3,4,4',6'-Hexachlorobiphenyl
2,3',4,4',5'6-Hexachlorobiphenyl
2,2'3,3',5-Pentachlorobiphenyl (Pcb-83)
2,2',4,5',6-Pentachlorobiphenyl
2,2',4,4',5,6'-Hexachlorobiphenyl
2,3',4,4',6-Tetrachlorobiphenyl
2,2',3,4',6-Pentachlorobiphenyl
2,2',3,3',4,6-Hexachlorobiphenyl
2,2',4,6-Tetrachlorobiphenyl (Pcb-50)
2',3,4,4',5-Pentachlorobiphenyl (Pcb-123)
2,2',3,4,5-Pentachlorobiphenyl (Pcb-86)
2,2',4,6-Tetrachlorobiphenyl (Pcb-51)
2,2',3,4',6-Pentachlorobiphenyl
2,2',4,5,6'-Pentachlorobiphenyl
2,2',3,4',5-Pentachlorobiphenyl
2,2',3,4',6,6'-Hexachlorobiphenyl
2,2',3,5,6,6'-Hexachlorobiphenyl
2,3,3',5',6-Pentachlorobiphenyl

2,2',3,4,5,6,6'-Heptachlorobiphenyl
2,3,3',4,4',5',6-Heptachlorobiphenyl
2,3,3',4,5,5',6-Heptachlorobiphenyl
2,2',3,3',4,4',5,6,6'-Octachlorobiphenyl
2,2',3,4,4',5,5',6-Octachlorobiphenyl
2,2',3,4,5,6,6'-Heptachlorobiphenyl
2,3,3',4,5-Pentachlorobiphenyl
Aroclor 1252
Ammonium Copper Arsenate - See 16102-92-4
Arsenic
Arsenous Acid
Roxarsone
10,10'-Bis(Phenoxyarsinyl) Oxide
Triphenylarsine
Arsenobetaine
Dichlorophenylarsine
Sodium Chromate
Strontium Chromate
Ammonium Dichromate
Barium Chromate
Chromium (VI) Oxide
Basic Lead Chromate
Barium Dichromate
Zinc Chromate
Calcium Chromate
Lithium Dichromate (VI)
Lithium Chromate
Chromium Oxychloride
Lead Chromate Oxide
Chromium (VI)
Zinc Chromate With Zinc Hydroxide And Chromium Oxide (9:1)
Chromic Acid
Potassium Dichromate
Ammonium Chromate
Potassium Chromate
Sodium Dichromate
Lead Oxide Sulfate (Pb2O(So4))
Lead Titanium Oxide (Pbtio3)
Lead Oxide Sulfate (Pb5O4(So4))
Lead Oxide Phosphonate (Pb3O2(Hpo3))
Lead Oxide Sulfate (Pb4O3(So4))
Dioxobis(Stearato)Trilead
Lead Cyanamidate
Acetic Acid, Lead Salt, Basic
Sulfurous Acid, Lead Salt, Dibasic
Silicic Acid (H2Si2O5), Barium Salt (1:1), Lead-Doped
Fatty Acids, C16-18, Lead Salts
Perfluorooctanesulfonic Acid (Pfos, C-8)
Perfluoroundecanoic Acid (Pfuna, C-11)
Perfluorooctane (C-8)
Perfluorododecanoic Acid (Pfdoa, Pfdoda, C-12)
Perfluorooctanoic Acid (Pfoa, C-8)
Perfluorodecanoic Acid (Pfda, C-10)
Perfluorohexanesulfonic Acid (Pfhxs, C-6)
Perfluoroheptanoic Acid (Pfhpa C-7)

Ethanol, 2-(2-(4-(1,1,3,3-Tetramethylbutyl)Phenoxy) Ethoxy)-
Octoxynol-1
Triton(R) X-405
4-Octylphenol Polyethoxylate
Octoxynol-9
4-Nonylphenol (Linear)
4-(1-Ethyl-1,4-Dimethylpentyl)Phenol
P-(1-Methyloctyl)Phenol
4-(1-Ethyl-1,3-Dimethylpentyl)Phenol
P-Isononylphenol
P-(1,1-Dimethylheptyl)Phenol
4-(1-Ethyl-1-Methylhexyl)Phenol
4-Nonylphenol (Branched)
Perfluorooctanesulfonyl Fluoride (Pfosf, C-8)
Tetrachlorobenzene
1,2,3,4-Tetrachlorobenzene
1,2,3,5-Tetrachlorobenzene
1,2,4,5-Tetrachlorobenzene
Ammonium Perfluorooctanoate (C-8)
2-Nonylphenol
3-Nonylphenol
Nonylphenol (Mixed Isomers)
Polyethylene Glycol Mono(Branched P-Nonylphenyl) Ether
4-T-Nonylphenol Diethoxylate
Polyoxyethylene Nonylphenyl Ether
Nonylphenol Polyethylene Glycol Ether
Isononylphenol Ethoxylate
Polyoxyethylene Branched C9 Alkylphenol Ether
Polyethylene Glycol Nonylphenyl Ether
Isooctylphenol
4-Tert-Octylphenol
4-N-Octylphenol
Tert-Octylphenol
2-Tert-Octylphenol
2-N-Octylphenol
Rosin, Polymer With Formaldehyde, 4-Octylphenol And Pentaerythritol
Rosin, Polymer With Formaldehyde, Glycerol, Octylphenol And Polymd. Rosin
Dimethylarsinous Acid
Monomethylarsonic Acid
Trimethylarsine
Monomethylarsane
Dimethylarsane
Arsine Oxide, Hydroxydimethyl-, Sodium Salt,
Trihydrate
Dimethylarsinic Acid
Methylarsonous Acid
Trimethylarsine Oxide
1,4-Dichlorobenzene
Dichlorobenzene (Mixed Isomers)
1,3-Dichlorobenzene
1,2-Dichlorobenzene
1,3,5-Trichlorobenzene

1,034 products reviewed on Material Tracker

597 submittals to ensure Red List Compliance

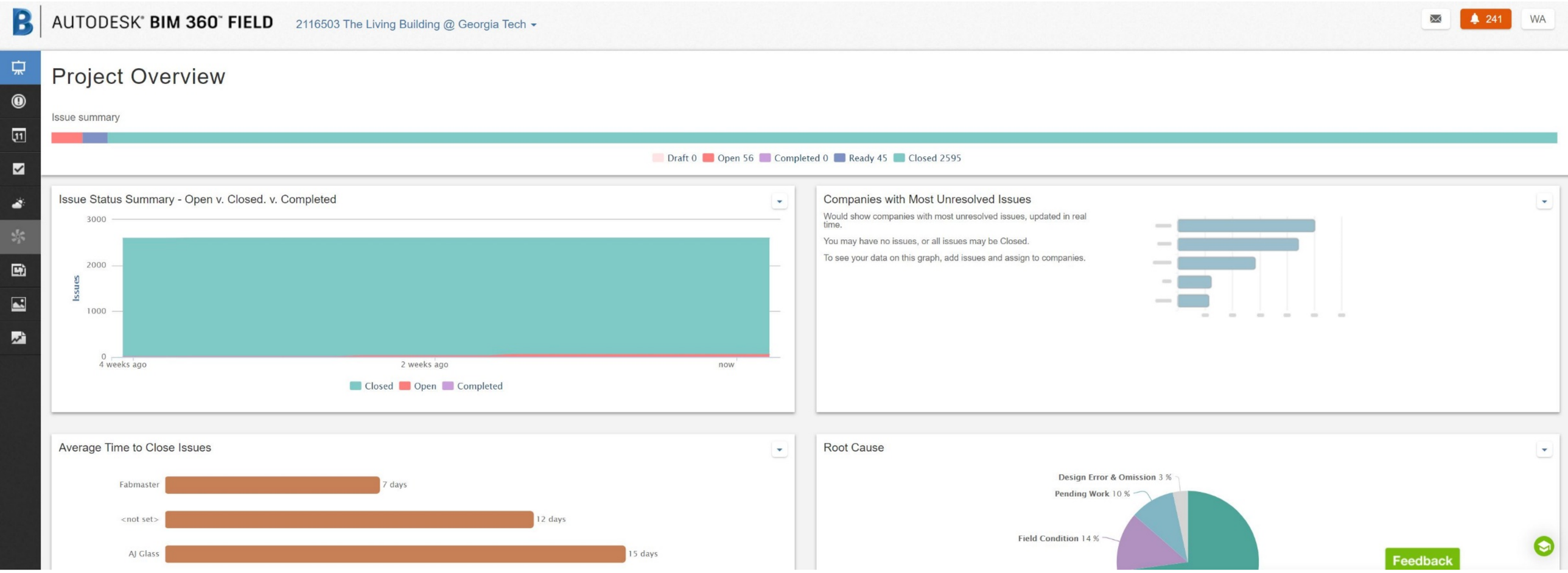


Materials Red List: Reduced Materials Toxicity

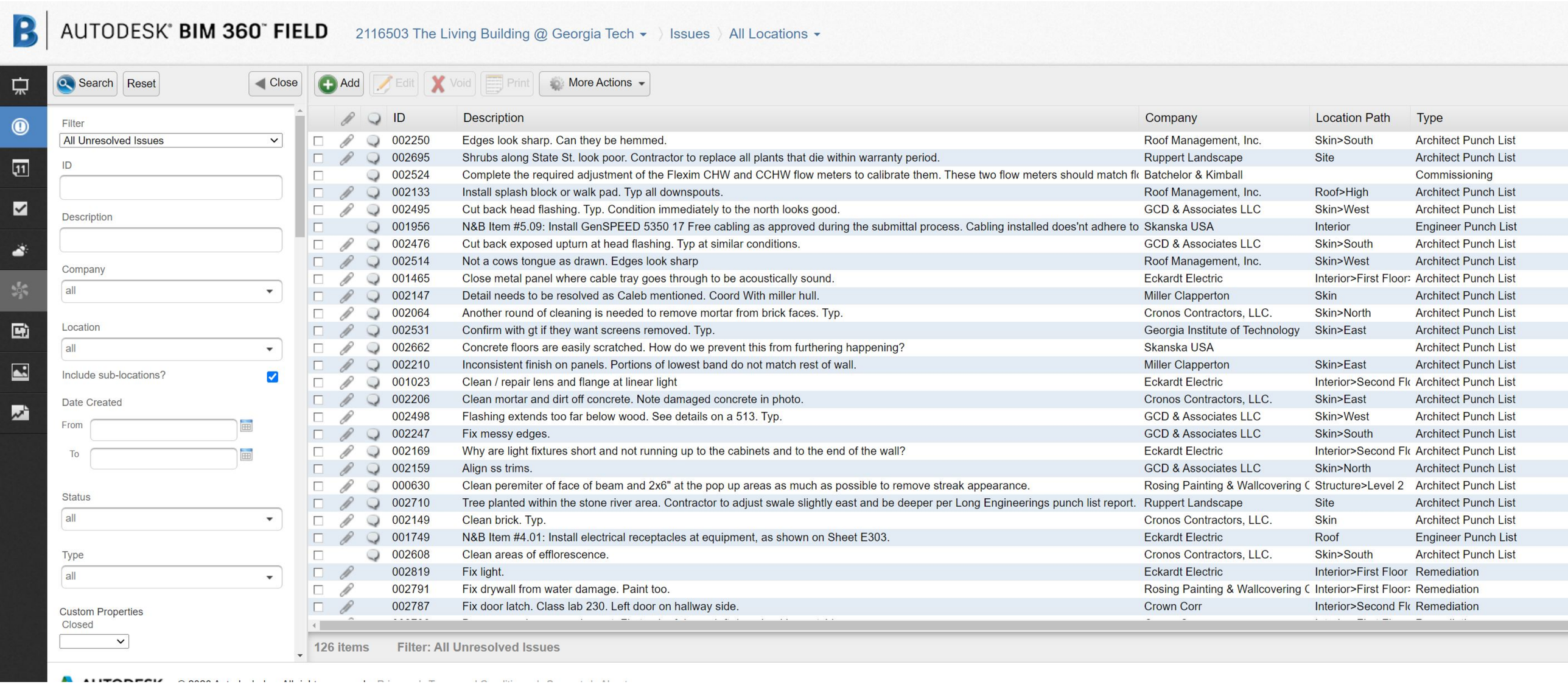




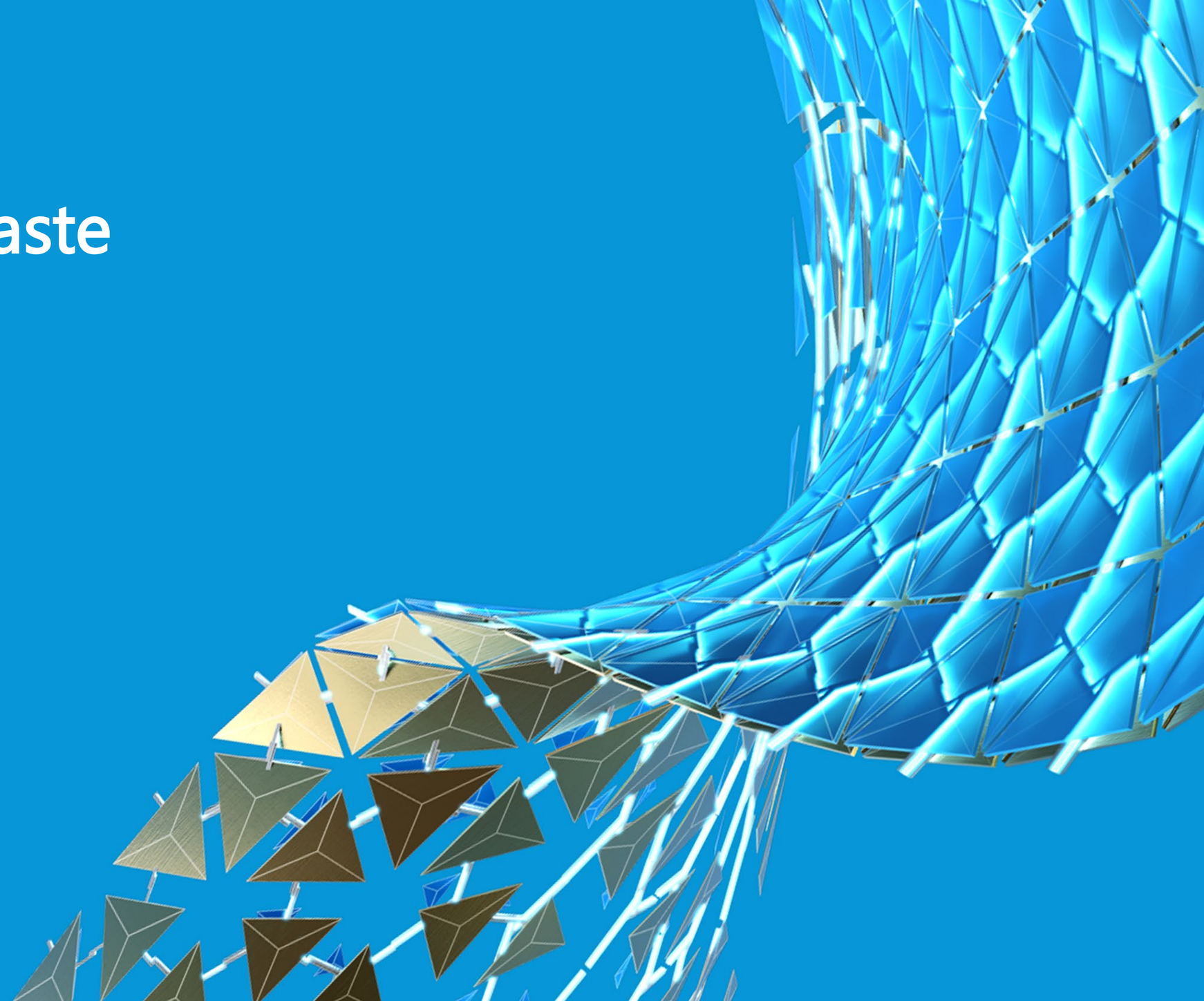

QA + QC


AUTODESK® BIM 360™ FIELD
2116503 The Living Building @ Georgia Tech
241
WA
Project Overview
Issue summary
Draft 0 Open 56 Completed 0 Ready 45 Closed 2595
Issue Status Summary - Open v. Closed. v. Completed
3000
2000
1000
0
Issues
4 weeks ago
2 weeks ago
now
Closed Open Completed
Companies with Most Unresolved Issues
Would show companies with most unresolved issues, updated in real time.
You may have no issues, or all issues may be Closed.
To see your data on this graph, add issues and assign to companies.
Average Time to Close Issues
Fabmaster 7 days
<not set> 12 days
AJ Glass 15 days
Root Cause
Design Error & Omission 3 %
Pending Work 10 %
Field Condition 14 %
Feedback

Punch List


AUTODESK® BIM 360™ FIELD
2116503 The Living Building @ Georgia Tech
Issues
All Locations
Search
Reset
Close
Add
Edit
Void
Print
More Actions
Filter
All Unresolved Issues
ID
Description
Company
all
Location
all
Include sub-locations?
Date Created
From
To
Status
all
Type
all
Custom Properties
Closed
ID
Description
Company
Location Path
Type
002250 Edges look sharp. Can they be hemmed. Roof Management, Inc. Skin>South Architect Punch List
002695 Shrubs along State St. look poor. Contractor to replace all plants that die within warranty period. Ruppert Landscape Site Architect Punch List
002524 Complete the required adjustment of the Flexim CHW and CCHW flow meters to calibrate them. These two flow meters should match fl Batchelor & Kimball Commissioning
002133 Install splash block or walk pad. Typ all downspouts. Roof Management, Inc. Roof>High Architect Punch List
002495 Cut back head flashing. Typ. Condition immediately to the north looks good. GCD & Associates LLC Skin>West Architect Punch List
001956 N&B Item #5.09: Install GenSPEED 5350 17 Free cabling as approved during the submittal process. Cabling installed does'nt adhere to Skanska USA Interior Engineer Punch List
002476 Cut back exposed upturn at head flashing. Typ at similar conditions. GCD & Associates LLC Skin>South Architect Punch List
002514 Not a cows tongue as drawn. Edges look sharp Roof Management, Inc. Skin>West Architect Punch List
001465 Close metal panel where cable tray goes through to be acoustically sound. Eckardt Electric Interior>First Floor Architect Punch List
002147 Detail needs to be resolved as Caleb mentioned. Coord With miller hull. Miller Clapperton Skin Architect Punch List
002064 Another round of cleaning is needed to remove mortar from brick faces. Typ. Cronos Contractors, LLC. Skin>North Architect Punch List
002531 Confirm with gt if they want screens removed. Typ. Georgia Institute of Technology Skin>East Architect Punch List
002662 Concrete floors are easily scratched. How do we prevent this from furthering happening? Skanska USA Architect Punch List
002210 Inconsistent finish on panels. Portions of lowest band do not match rest of wall. Miller Clapperton Skin>East Architect Punch List
001023 Clean / repair lens and flange at linear light Eckardt Electric Interior>Second Fl Architect Punch List
002206 Clean mortar and dirt off concrete. Note damaged concrete in photo. Cronos Contractors, LLC. Skin>East Architect Punch List
002498 Flashing extends too far below wood. See details on a 513. Typ. GCD & Associates LLC Skin>West Architect Punch List
002247 Fix messy edges. GCD & Associates LLC Skin>South Architect Punch List
002169 Why are light fixtures short and not running up to the cabinets and to the end of the wall? Eckardt Electric Interior>Second Fl Architect Punch List
002159 Align ss trims. GCD & Associates LLC Skin>North Architect Punch List
000630 Clean peremiter of face of beam and 2x6" at the pop up areas as much as possible to remove streak appearance. Rosing Painting & Wallcovering C Structure>Level 2 Architect Punch List
002710 Tree planted within the stone river area. Contractor to adjust swale slightly east and be deeper per Long Engineerings punch list report. Ruppert Landscape Site Architect Punch List
002149 Clean brick. Typ. Cronos Contractors, LLC. Skin Architect Punch List
001749 N&B Item #4.01: Install electrical receptacles at equipment, as shown on Sheet E303. Eckardt Electric Roof Engineer Punch List
002608 Clean areas of efflorescence. Cronos Contractors, LLC. Skin>South Architect Punch List
002819 Fix light. Eckardt Electric Interior>First Floor Remediation
002791 Fix drywall from water damage. Paint too. Rosing Painting & Wallcovering C Interior>First Floor Remediation
002787 Fix door latch. Class lab 230. Left door on hallway side. Crown Corr Interior>Second Fl Remediation
126 items
Filter: All Unresolved Issues

Net Positive Waste



Net Positive Waste

Photo credit: The Miller Hull Partnership

Net Positive Waste

97-100
percent of
waste
diverted
from landfills

Recycled materials weighed more than landfill materials

48,560lb went to landfill – only 0.5 percent of total material!

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