VANTAGE

WELCH, WV

BO SMITH
SPRING 2026
ARCH 430 PROF. WHITE

APPENDIX

1. REGION
2. PROGRAM
3. STRUCTURE
4. CODE
5. ENVELOPE
6. RENDERS
7. RESOURCES

VANTAGE

“A position, state, or opportunity that affords superiority, a strategic edge, or a comprehensive perspective”



BRIEF

The objective was to create a project beyond a simple architecural peice, but rather a program that interacts with the region in culture and site. To create a program that helps the affected communities of the region, in a changing world.

The Route 52 Corridor in West Virginia is in the heart of Appalachia, this region is home to the coal belt that kept American industry fueled in the 19th and 20th century, but as the world shifts away from coal this region is falling behind, plagued with drug epidemics and a shrinking population as people leave the region for better opportunities elsewhere, the aim of the project is to create a program that helps to stabilize, rejuvenate, or provide assistance to this region, in a fashion that embraces the culture and heritage of this region as well as addressing the issues facing the communities along Route 52.



1

REGION & SITE



POPULATION



= 10,000

80+

70–79

60–69

50–59

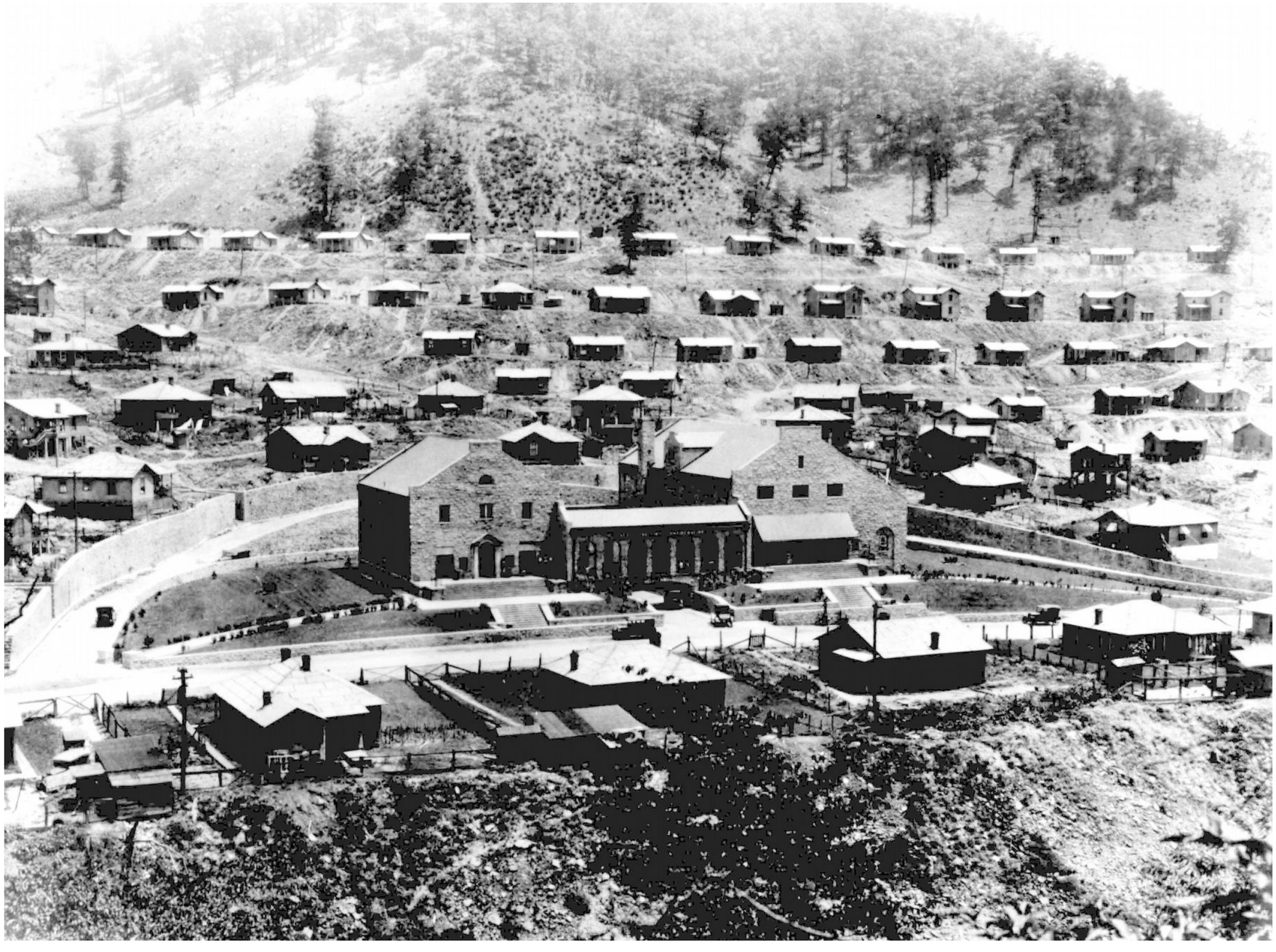
40–49

30–39

20–29

10–19

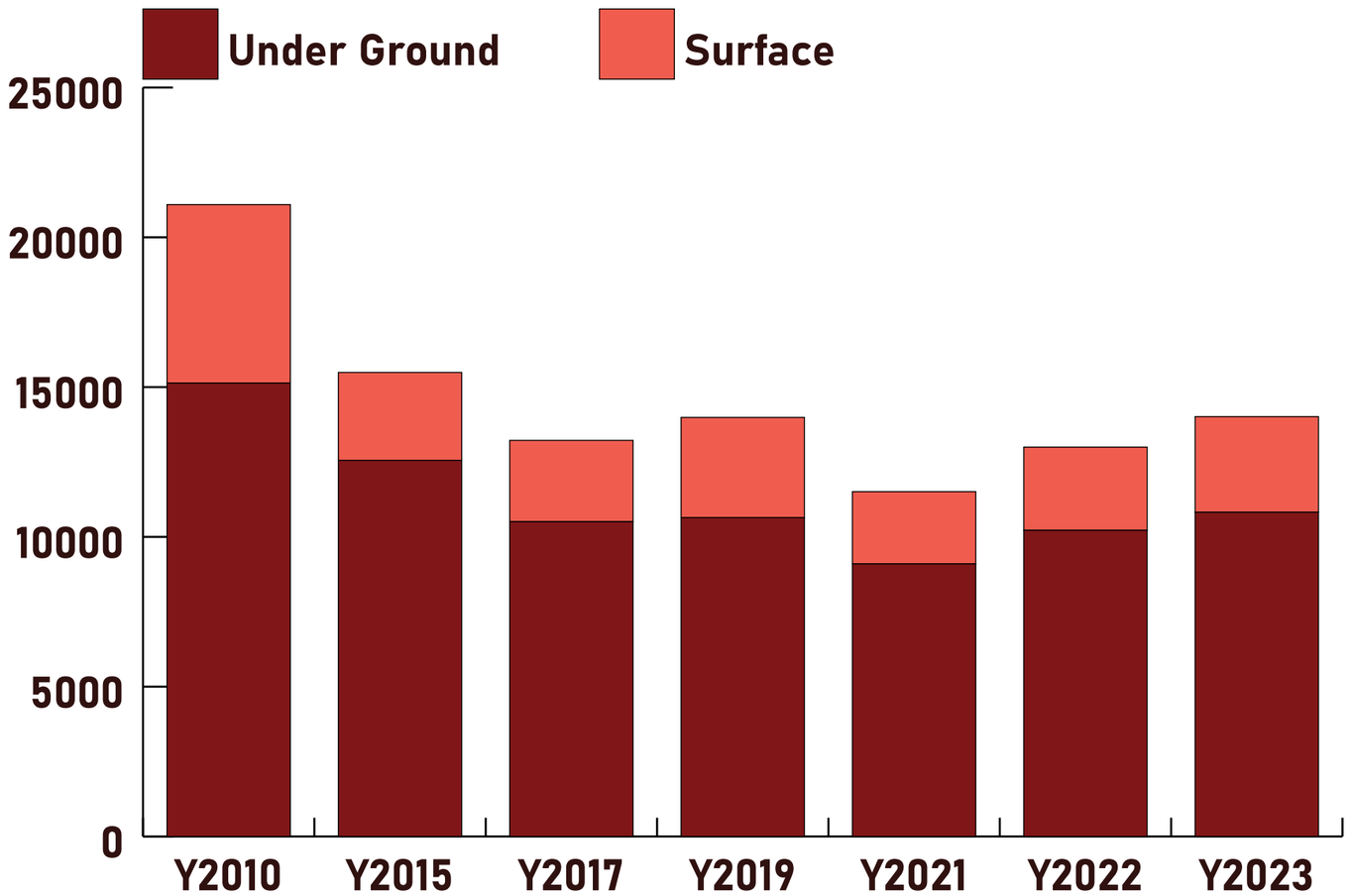
0–9



Coal towns formed the backbone of the population centers within the Appalachian region brining jobs, incentives, and investment into infrastructure, railways, waterways, and roads. These paths severed as the artieries that kept the nation fueled. It was during the early coal booms that the population of the region grew, creating a generational wave, but as the time has passed the population of these towns has grown slower or shrunk often with younger generations leaving for better opportunities elsewhere, leading to an aging population.

FULING THE NATION

COAL MINERS



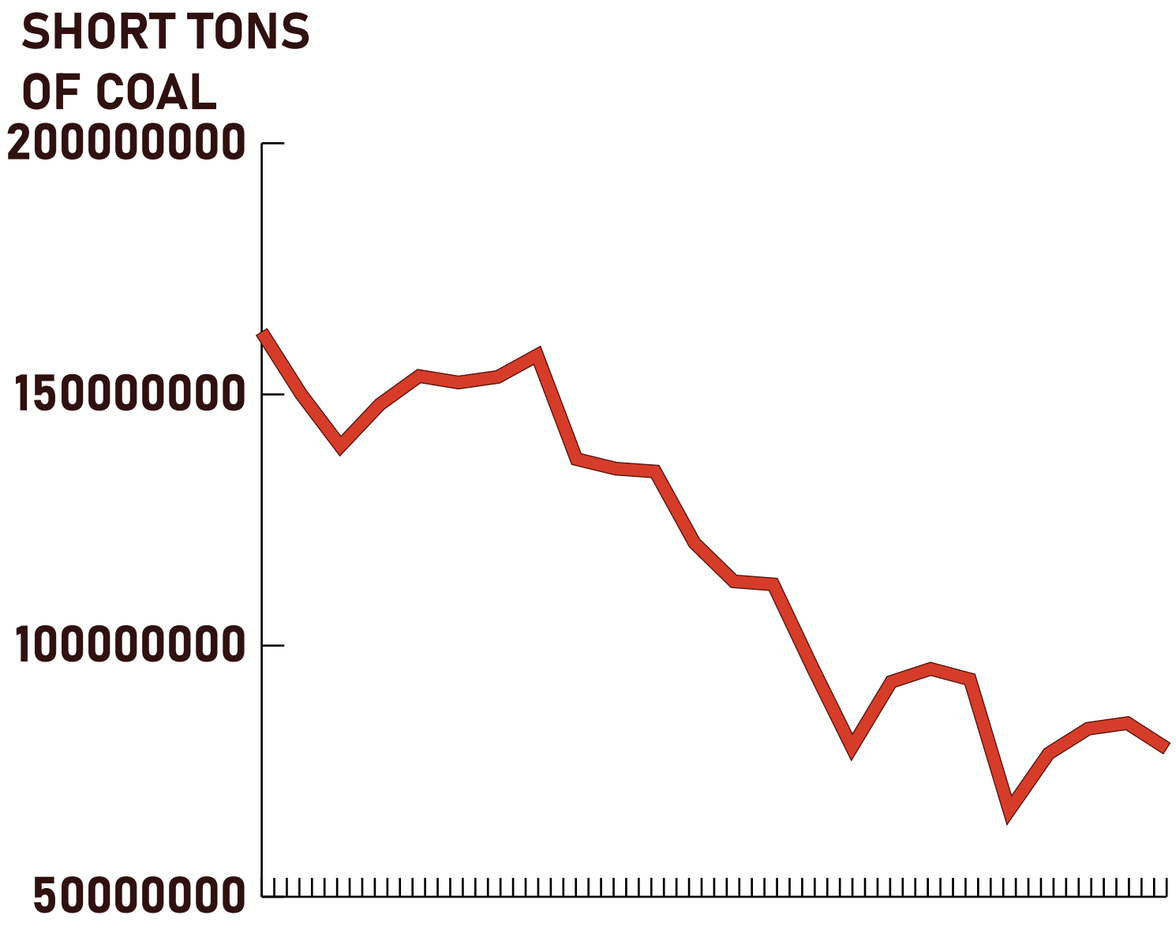


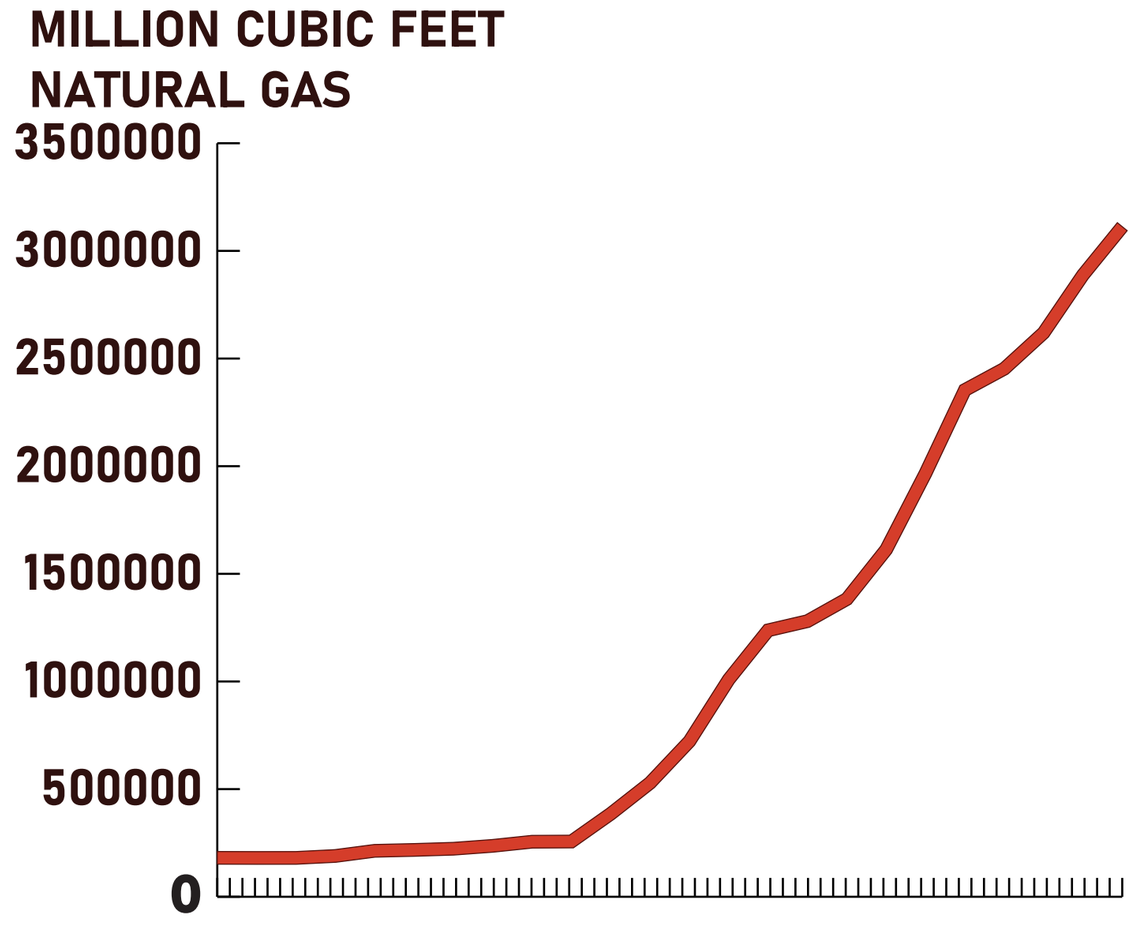
A job that once took a town to do, can now be done by a squad of men, and a cavern of machines.



West Virginia has 67 underground mines, and 97 Surface mines,
along with thousands of natural gas well heads.

2001-2024





The only constant is

The march of “progress”,

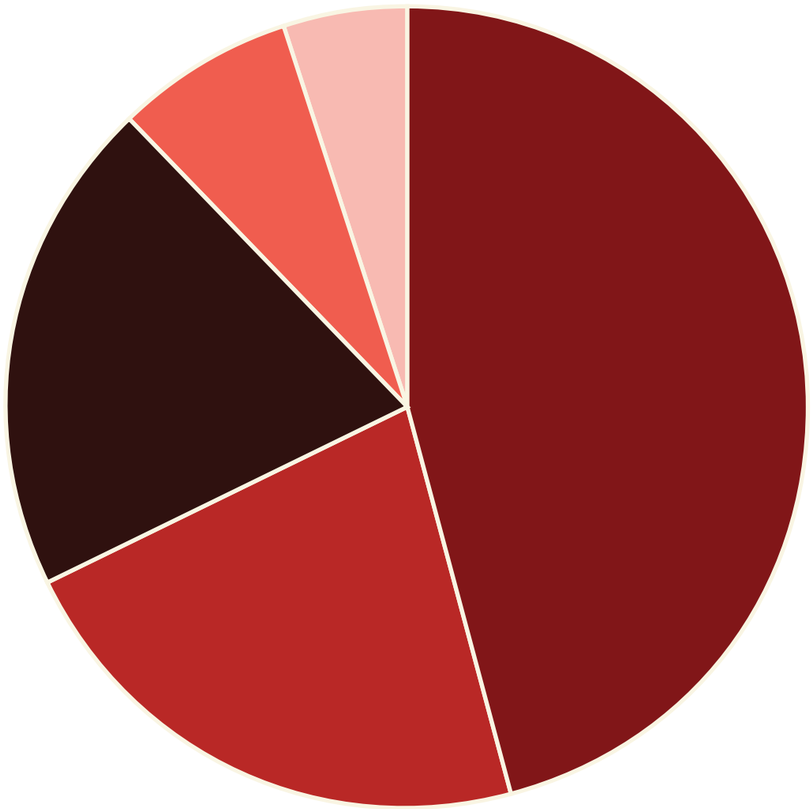
The new burries the old,

Thus the new becomes old.



EDUCATION

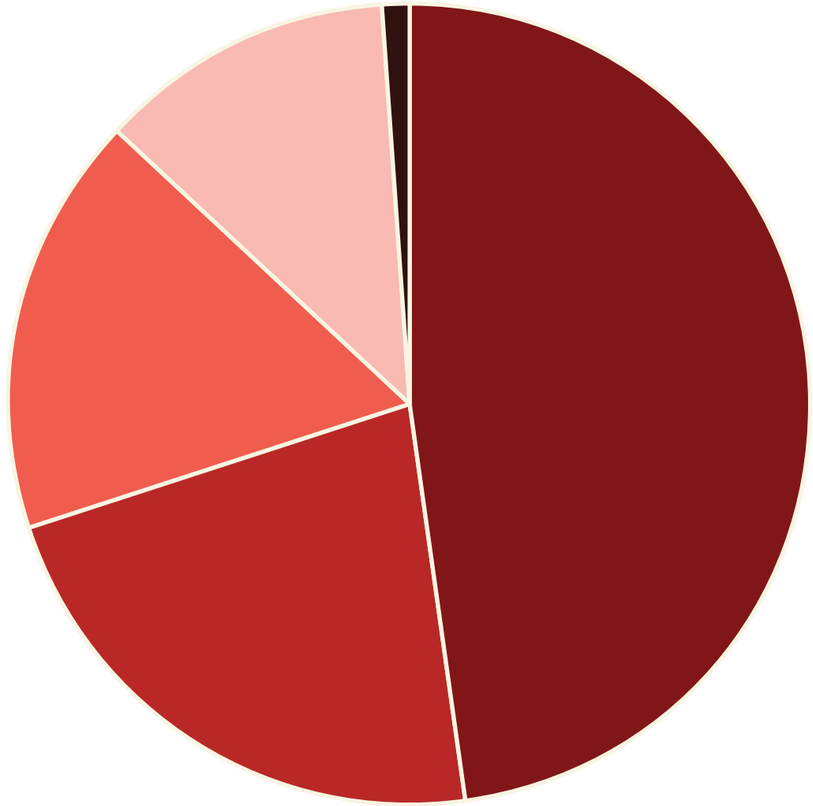
REGIONAL



Education shapes the workforce,
in capability and opprotunites

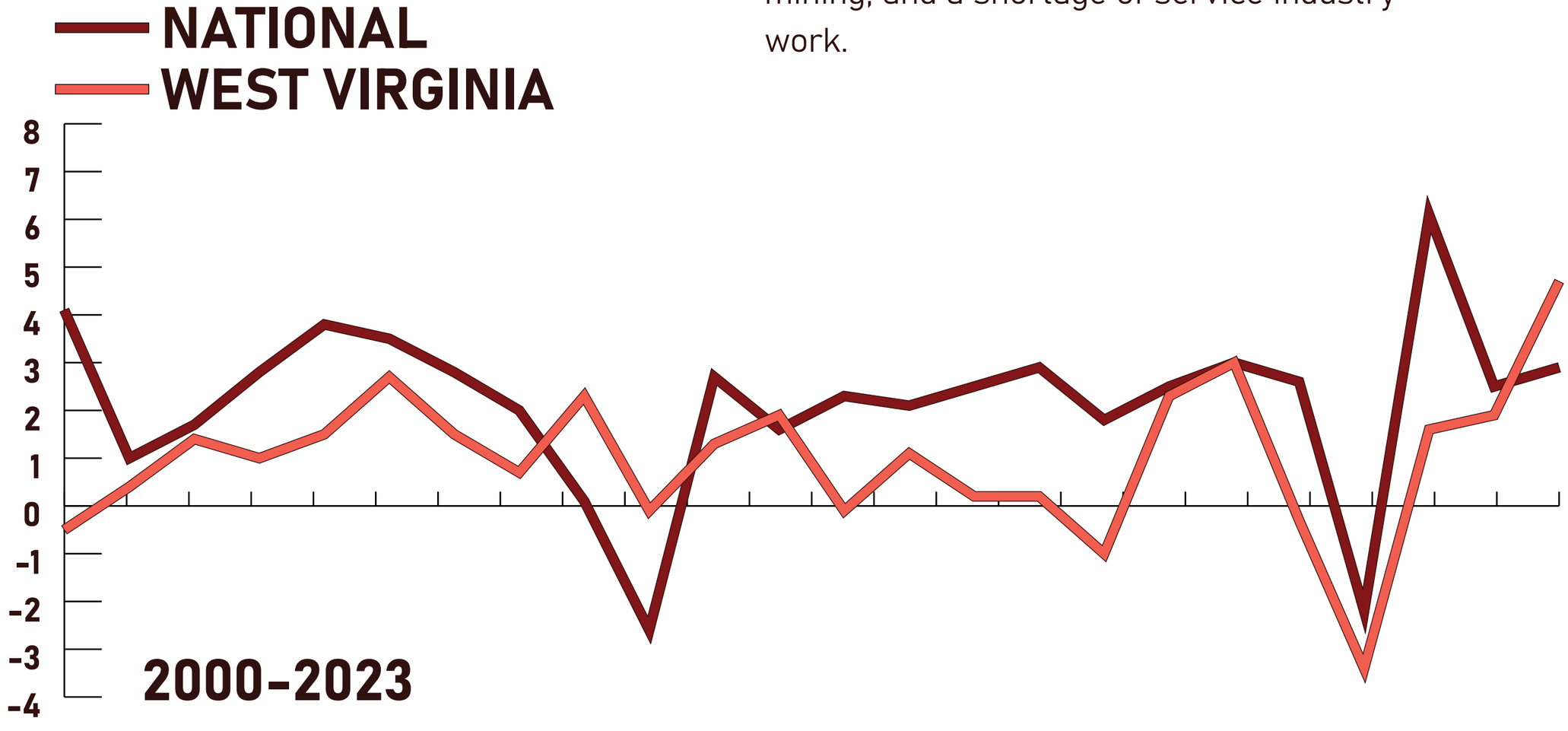
- Graduate
- Bachelors
- Some Degree
- High School
- No Degree

STATE WIDE



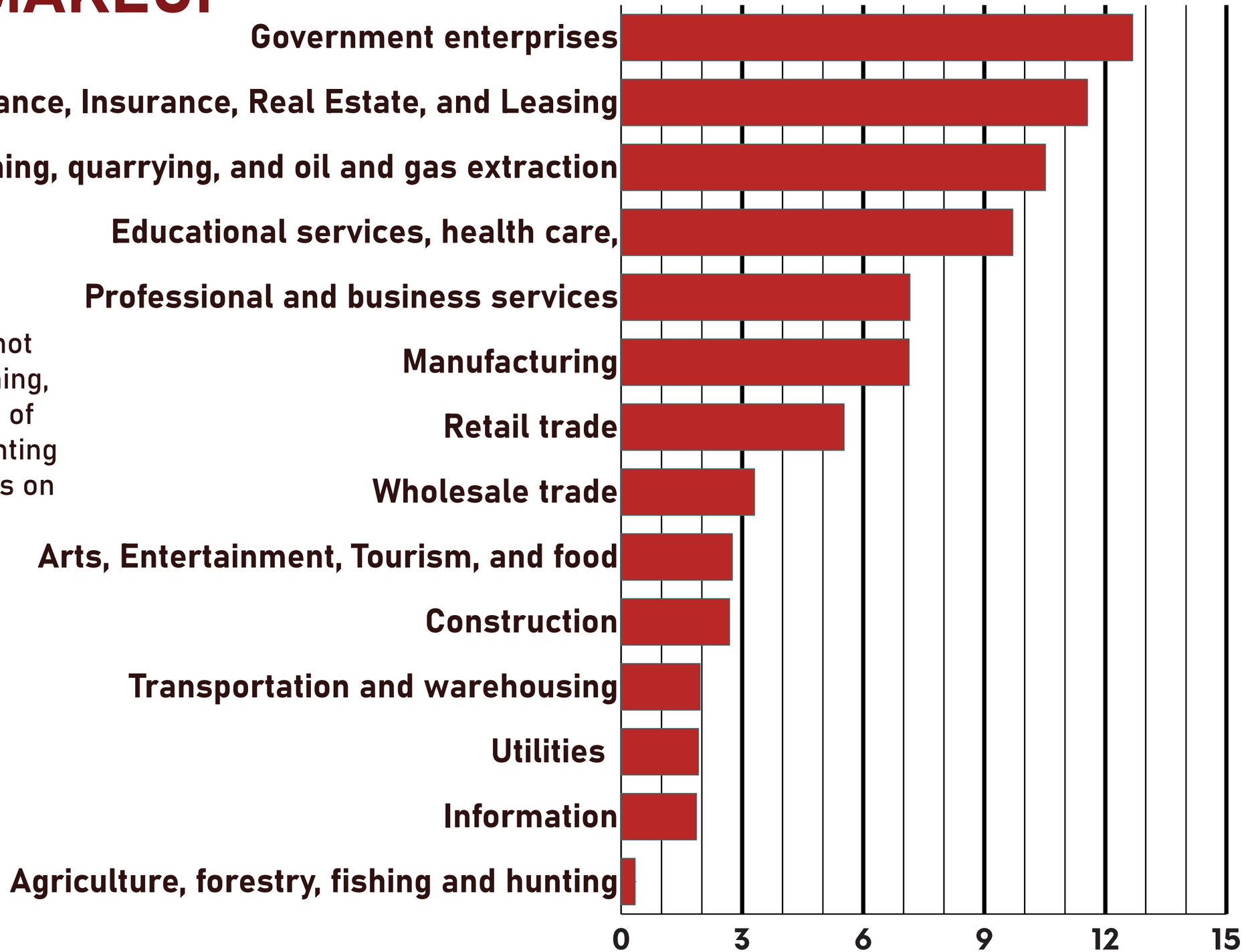
ECONOMIC GROWTH

West Virginia consistently lags behind the national average for GDP growth. This lagging econmey is systemic of a system that inadequitly adresses the problems it faces, and suffers from a lack of diverse productive forces, with a heavy focus on mining, and a shortage of service industry work.



ECONOMIC MAKEUP

The only GDP source driven not primarily by investment is mining, with all other export sources of GDP falling well below, highlighting just how reliant West Virginia is on its mining industry.



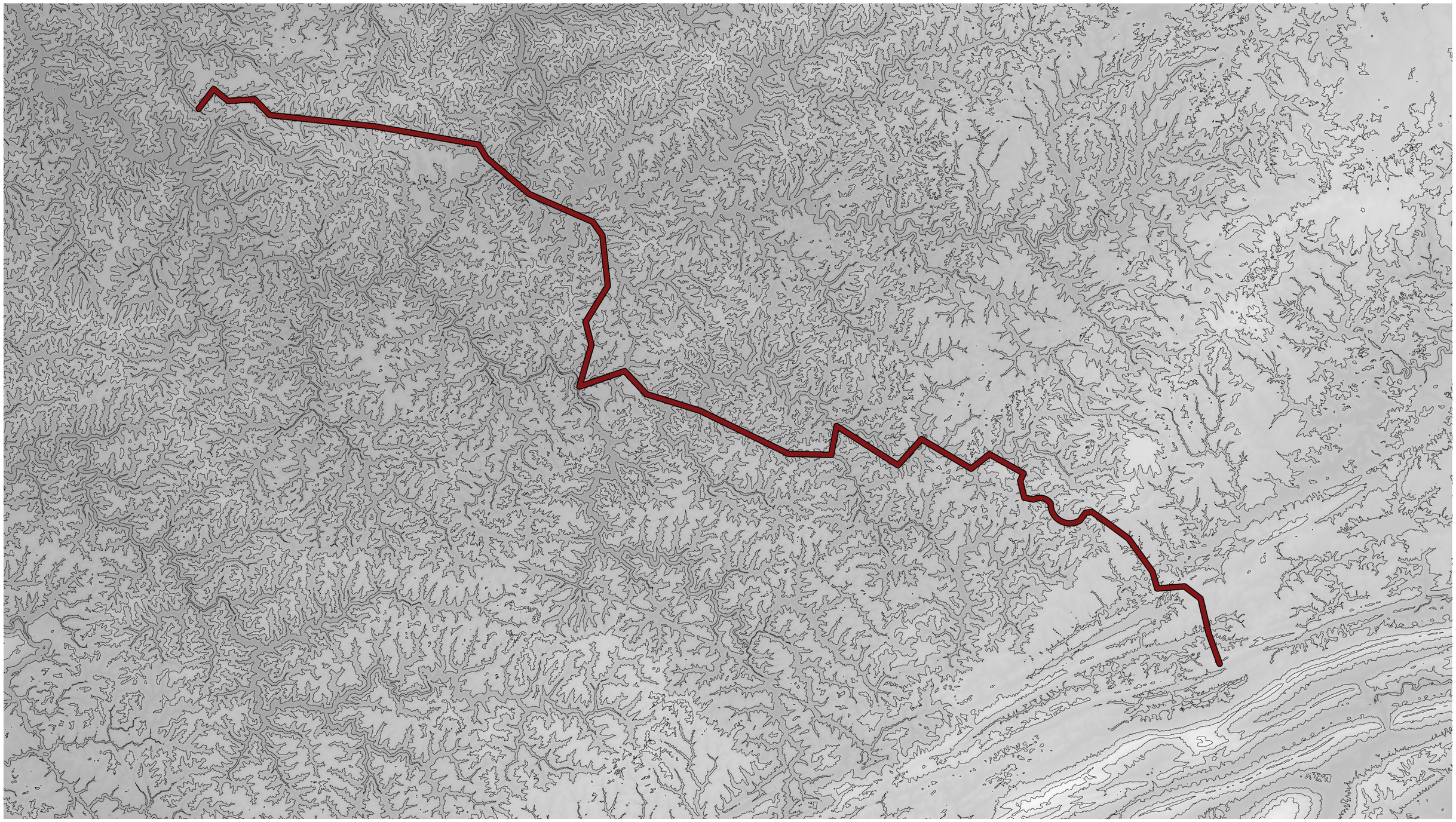


Most of the small shops that serviced the hollows, and towns throughout the valleys have since been swept away by change, by the modern world streamlining into one big super center shop, taking away jobs, opportunities, the culture of those shops. The do it your self, make your own parts and tools of the region is slowly being eroded as skills are lost, and the stores that offer the chance to learn them and apply the skills just don't exist anymore, unable to keep up with the rate of change in an ever changing world, regions like this fall behind.

INDUSTRY BROUGHT RAIL,
RAIL BROUGHT PATHS,
PATHS BROUGHT CORRIDORS



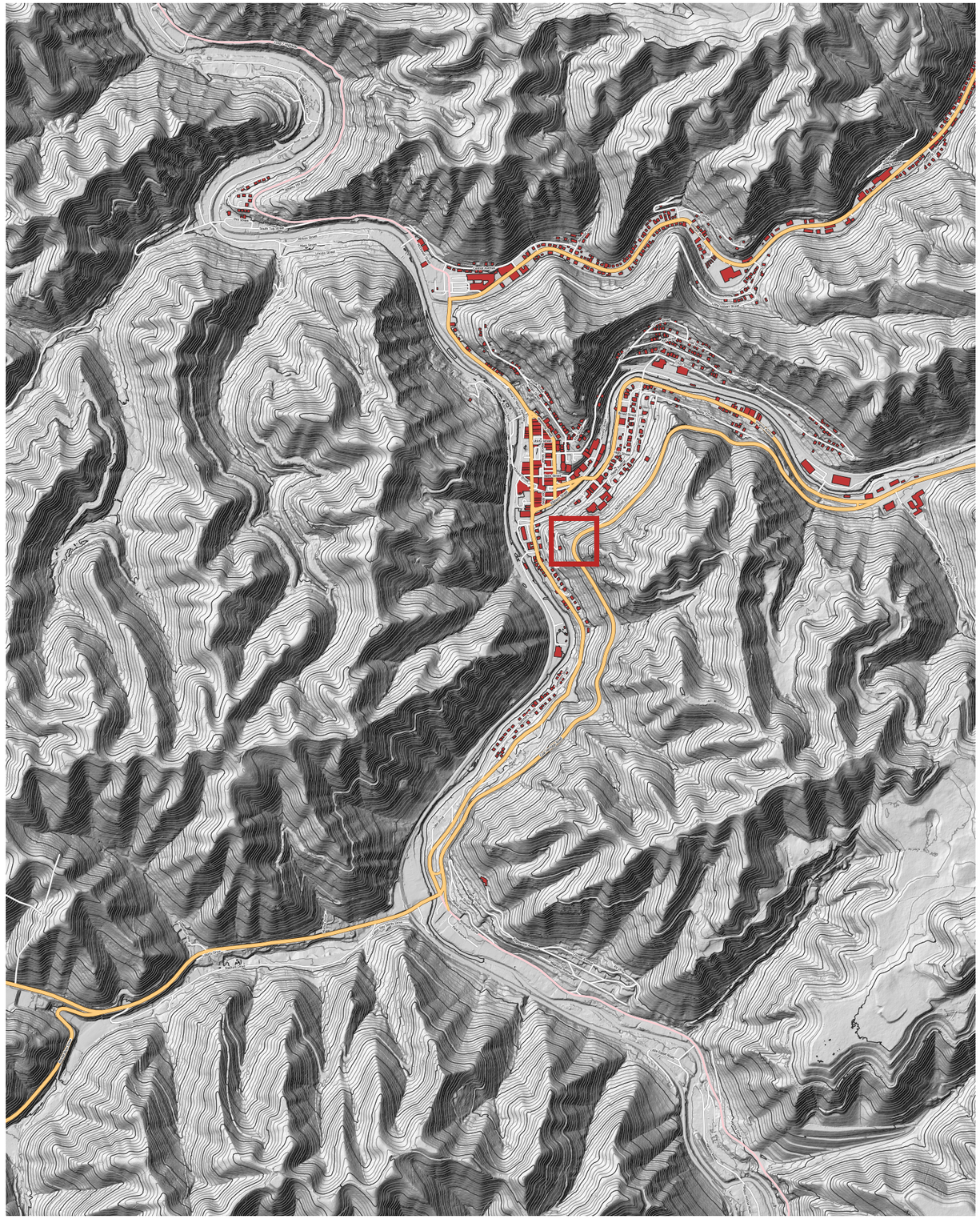
CORRIDOR

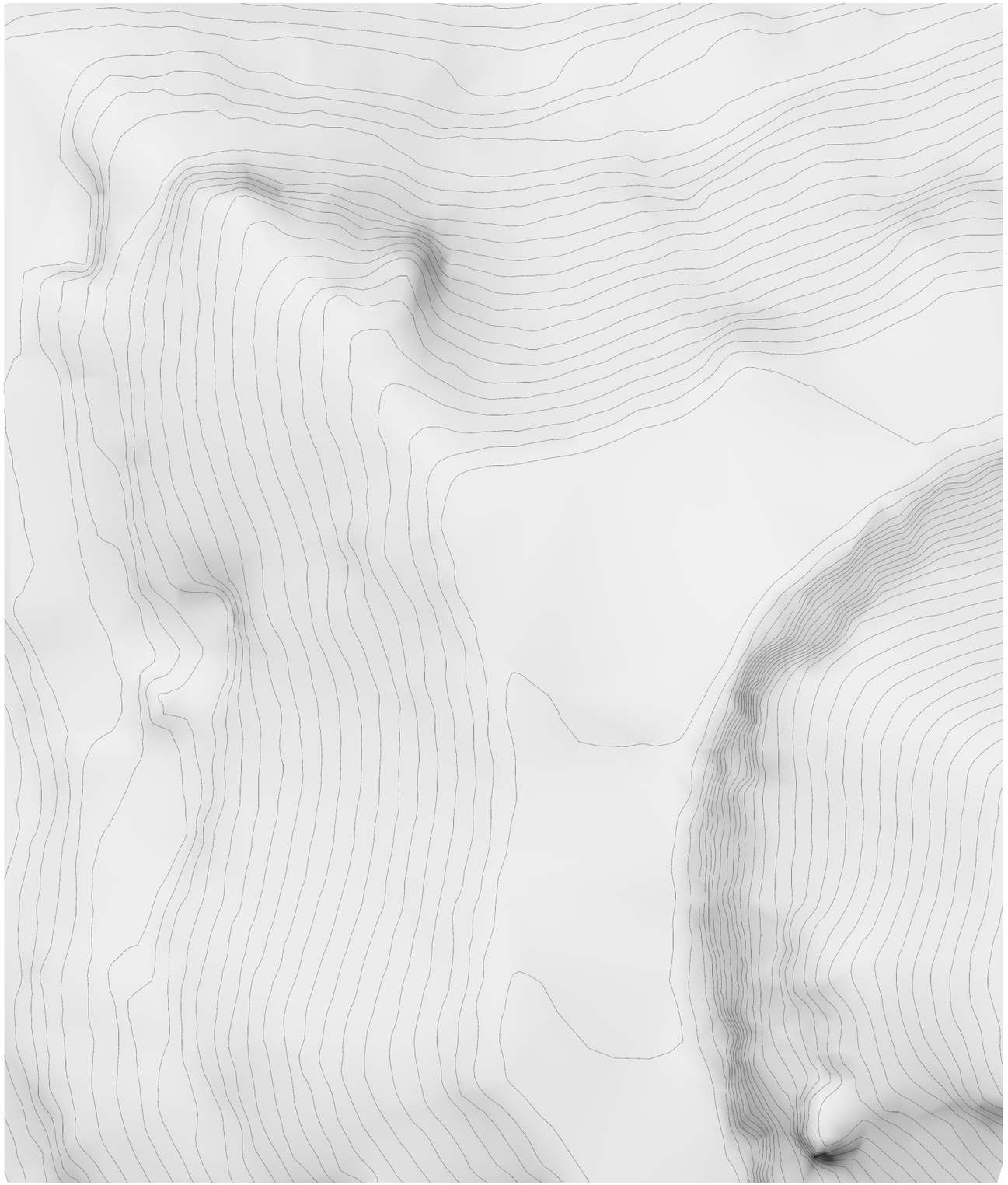


WELCH, WV

Welch, is located at the junction of Route 52 and 16, its situated along the tug fork and features several rail lines, this central location made Welch a premier cultural center of the region, featuring a main street and a population of 3600. This central location makes it the perfect spot for reaching out into the valleys to be able to help bolster the region in this changing world.





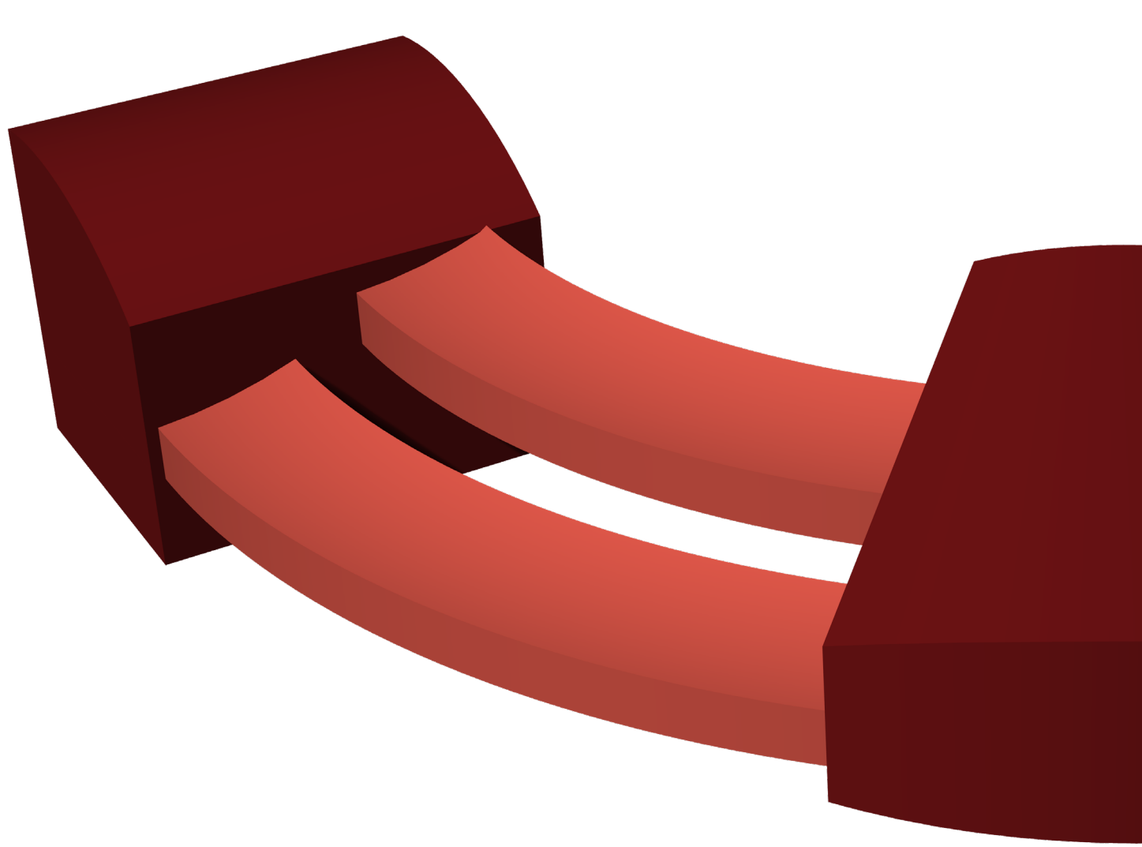


SCENEIC OVERLOOK

Located on Coal Heritage Road, the site is home to a scenic overlook that gives an amazing vantage point over Welch below.

Coal Heritage Road is apart of Route 52, acting as a bypass to avoid downtown welch on commutes and serving as the vital link between the North South Route 16 and East West Route 52. The point offers excellent access for those along Route 52, as well as the adjoining valleys and communities. The point also features amazing views of the town below as well as a view at the mountains across the valley offering a contrast to the cramped dark mines.

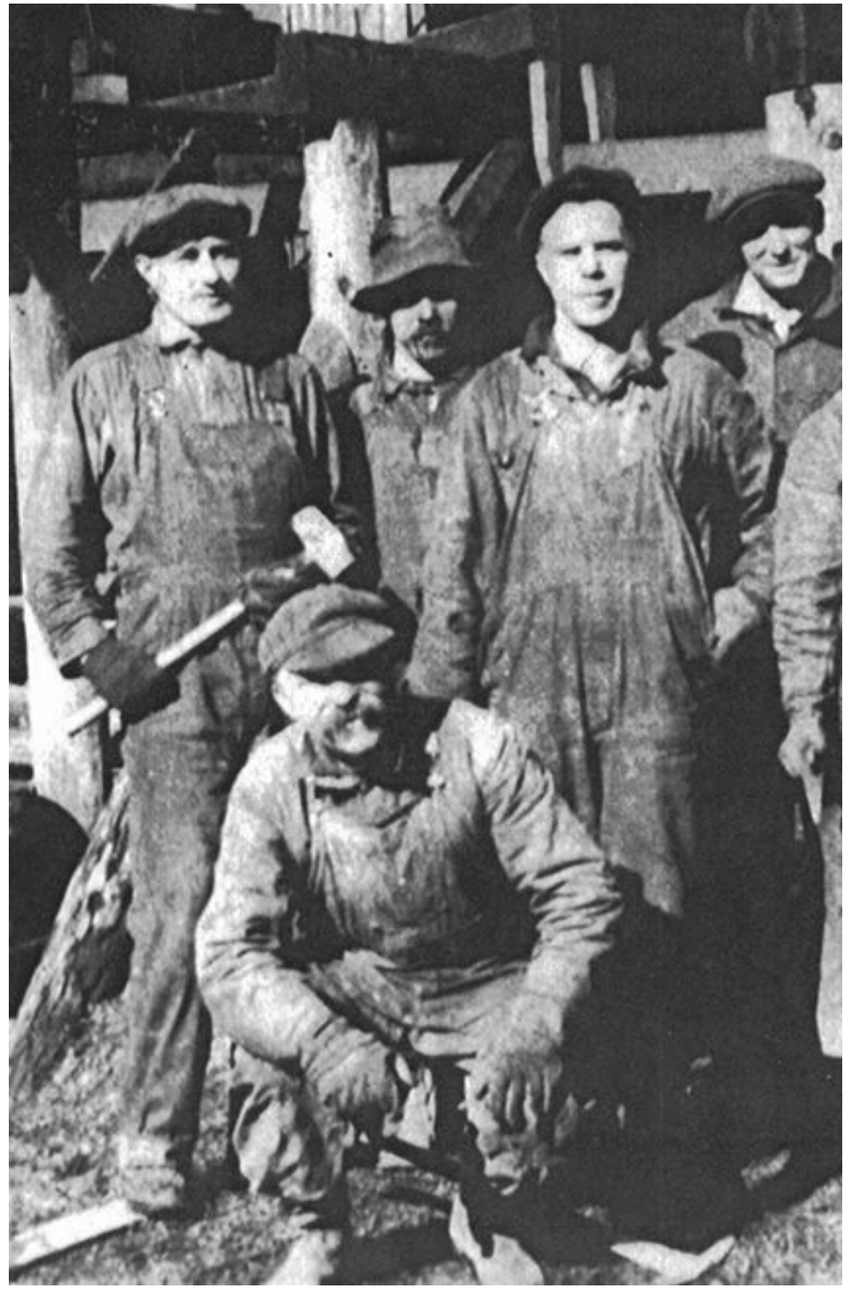
PROGRAM MASSING



PROGRAM INTENT

As the world shifts away from coal, to cleaner fossil fuels, and eventually green energy. The people, families, and communities, that gave the souls and bodies to doing the labor to keep the nation fueled are being left behind. These are a proud people who have made their living off working with there hands and forming communities with those they work with. These communities are greater than the miners themselves, they incorporate all the workers from mechanics, to truck drivers, down to the local stores who sell to the miners. As the world shifts away from coal its not only the miners who are at risk.

From this background the goal was clear, to create a program to help those leaving the mining industry as well as offer opportunities for those looking to enter the trades or pursue hands on skills. The core elements of this program had to be to be an ability to reach those working in the mines or adjacent sectors, a program that offered different disciplines within the trades, and A flexible environment to facilitate different trades and projects. With this goal a series of communal workspaces that could be adjusted to suit the needs of the work being done, along with class room spaces made a sensible approach to offer the communal environment to help learn, and maintain the sense of community.



PROGRAM OBJECTIVES

TRADE CLASSES

Focused courses on various trades from, electrical to framer

MODULAR APPROACH

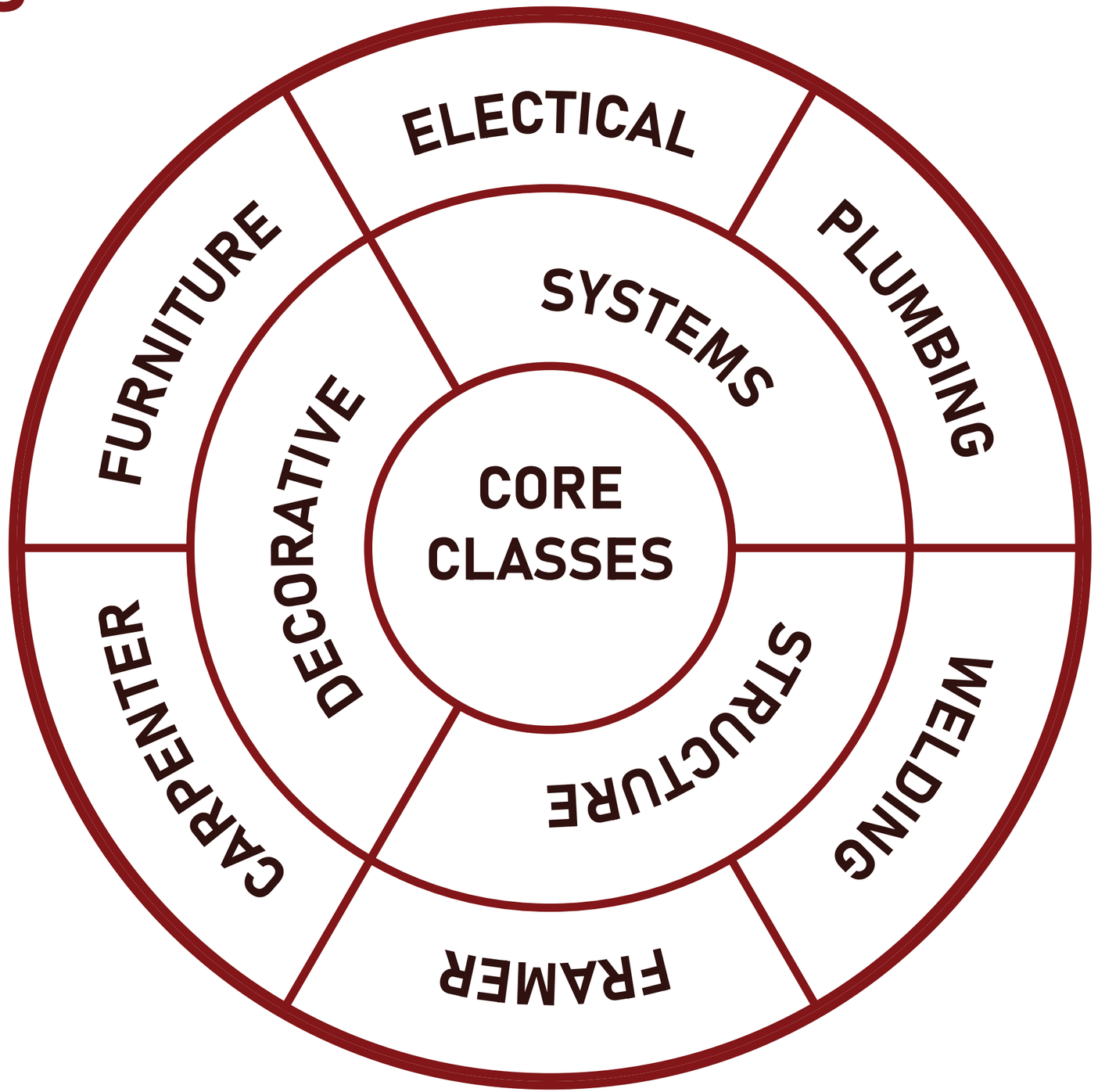
Adjustable workshops to suit the need of the moment rather than a static approach

DUAL CLASSES

Several learning space to facilitate several trades to be taught at once to maintain community between trades

COMMUNITY OUTREACH

Furniture classes and workshop hours when classes arent running to allow the local community to get expirence and recreation

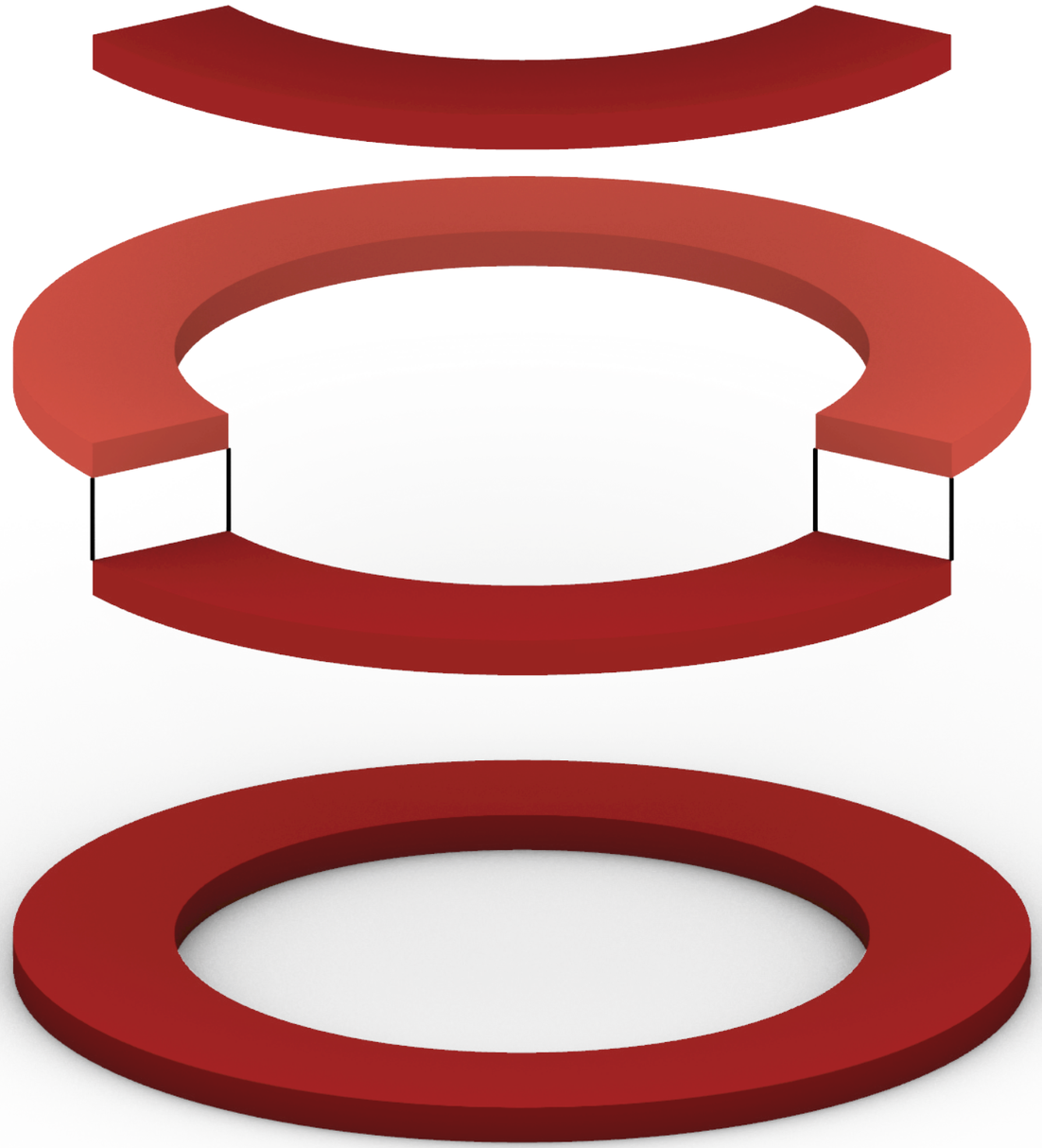


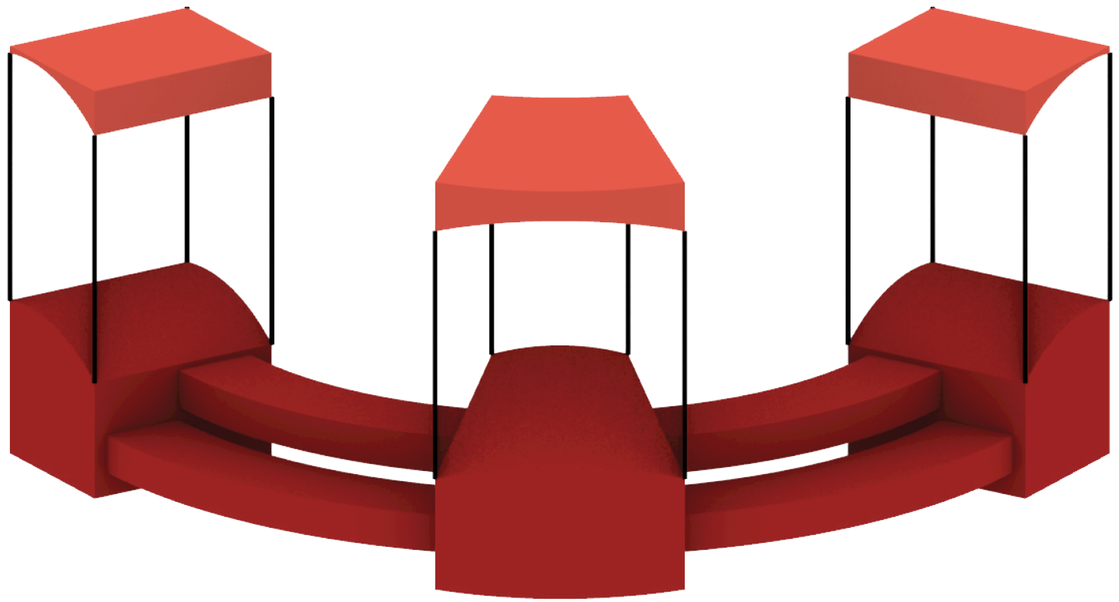
MASSING

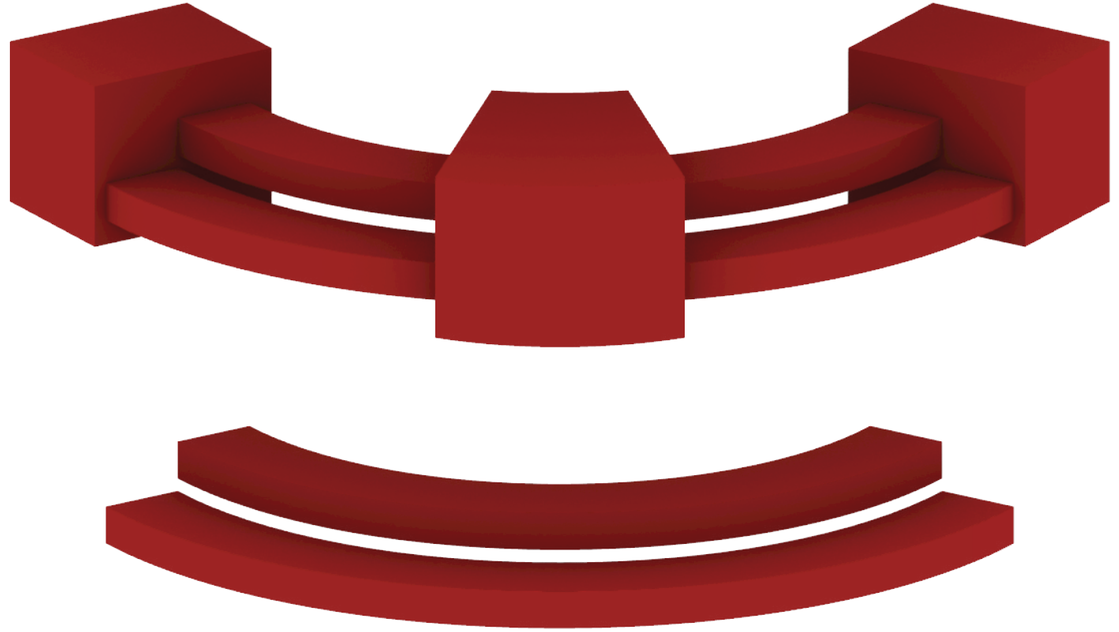
FINAL ARC FORM

TRIMMING CIRCLE TO ARC TO CONFORM TOHILL SIDE AND

RADIAL FORM



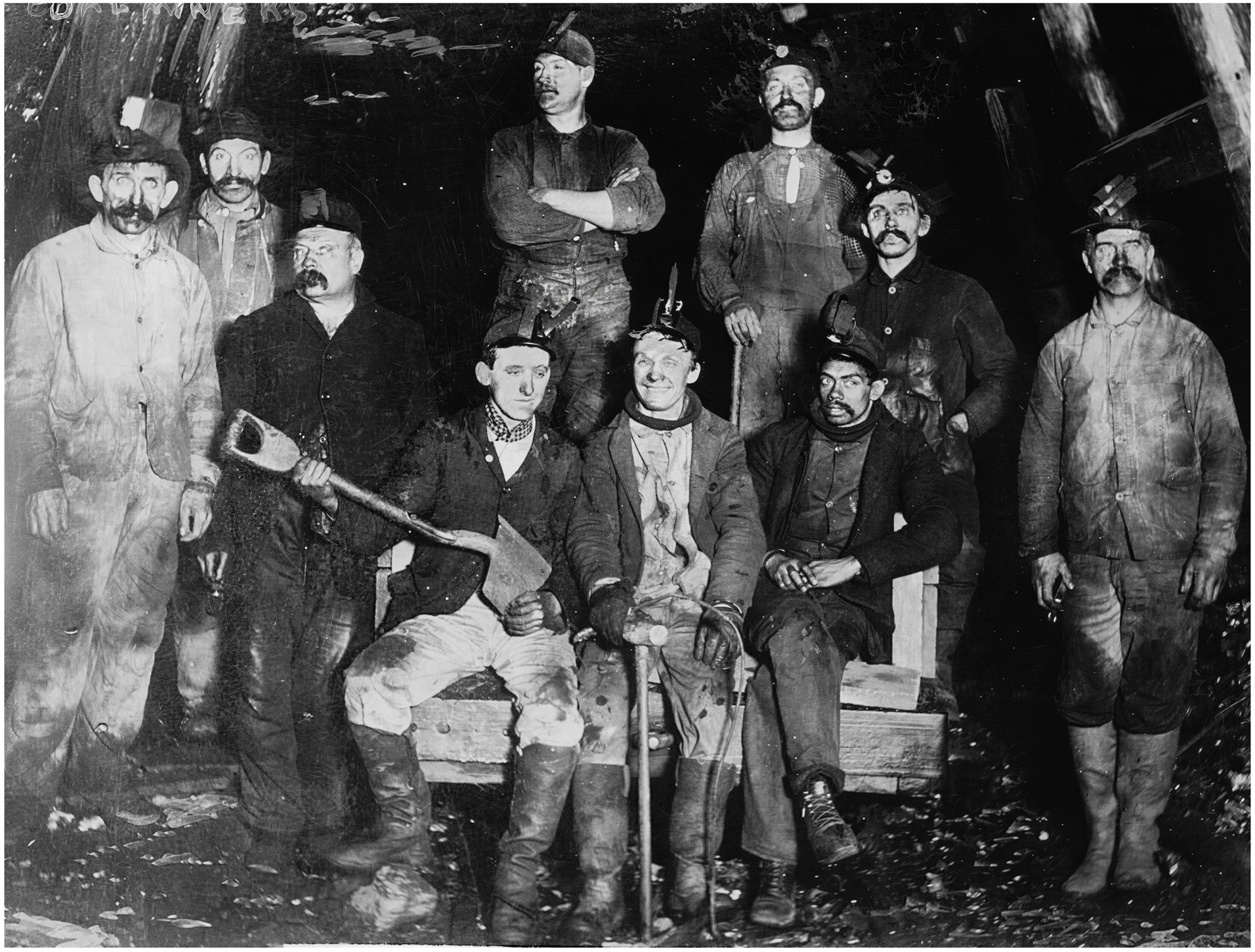




- ROUNDED OFF ROOFS TO KEEP ROUND LANGUAGE THROUGHOUT

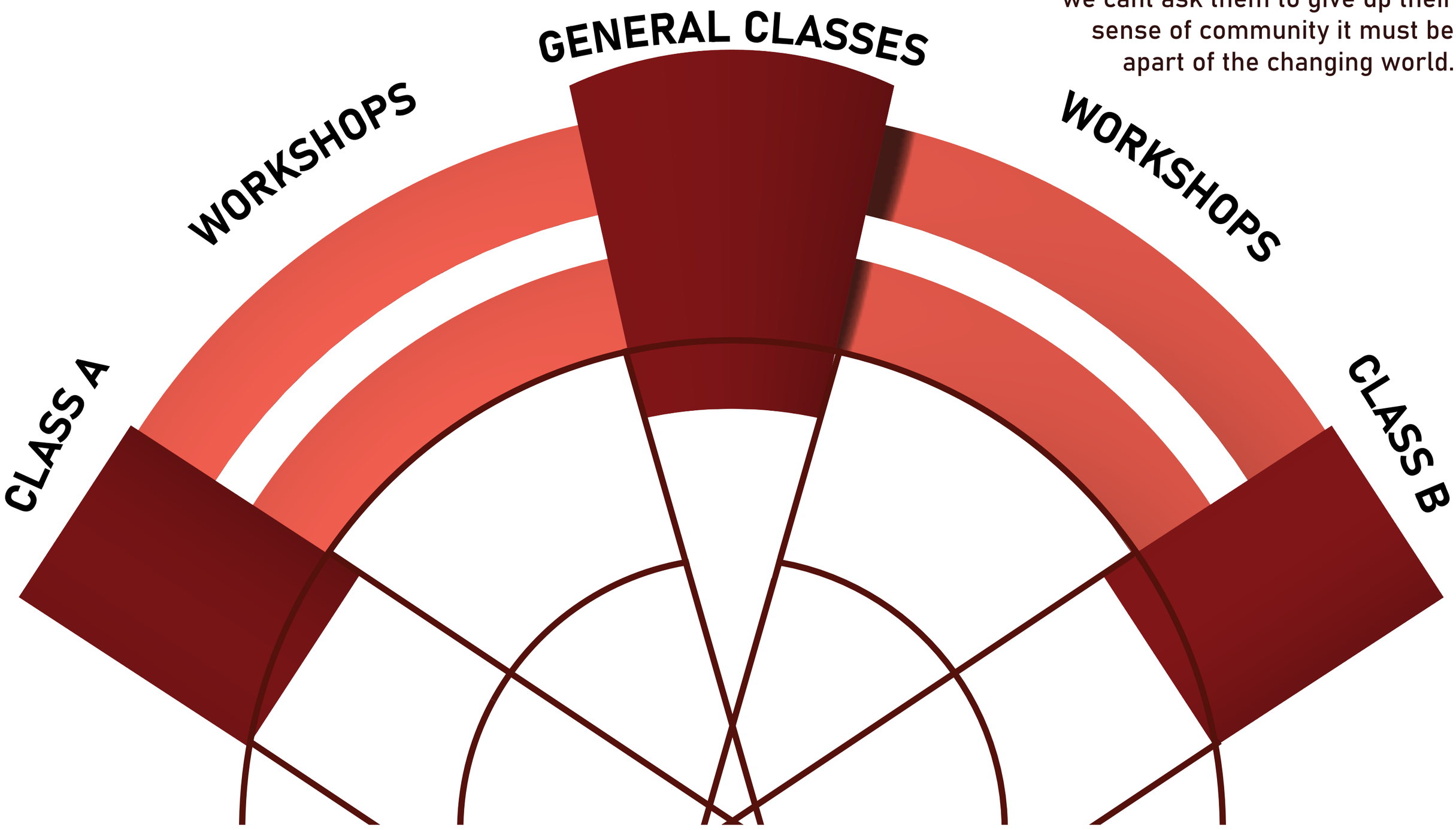
- ANCHOR BUILDINGS TO HOLD CLASSES AND PROGRAM

- TERRACE FORM TO FIT HILL, ALONG WITH MORE SUN


COAL MINERS

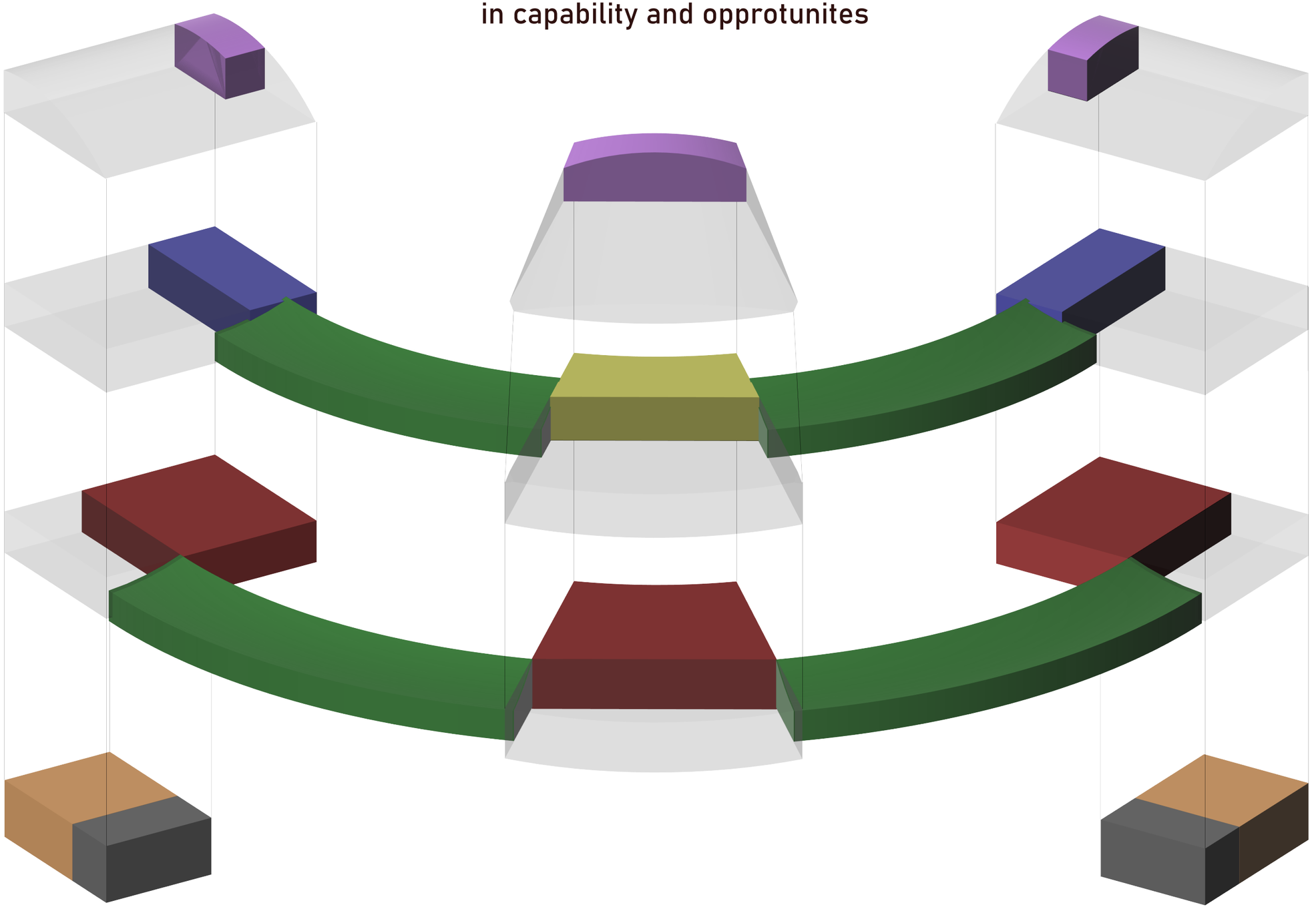
CONNECTIVITY

Community and interconnecteness lay at the heart of this program.
Within the mines community is everywhere,
you must count upon every man,
we cant ask them to give up their
sense of community it must be
apart of the changing world.



PROGRAM AXON

Education shapes the workforce,
in capability and opprotunites



1600 SQFT

ENTRY

Lockers to store gear in, Office for admin, Vertical Circulation, Bulletin Boards.

14740 SQFT

WORKSHOPS

Modular Workshops 15'x15', Built in storage for small tools, Hi power pluggs for Heavy machines, Dividing Doors

3030 SQFT

TOOLSHOP

Heavy Machines, Metal Cutting Tools, Tool Checkout Stations

1900 SQFT

LAB

Fire Testing, Smoke Testing, Water Testing, Durability Testing, Plastics.

9840 SQFT

CLASSROOMS

Classes, Computer Labs, Communal Work Space. Specilty Classes.

3200 SQFT

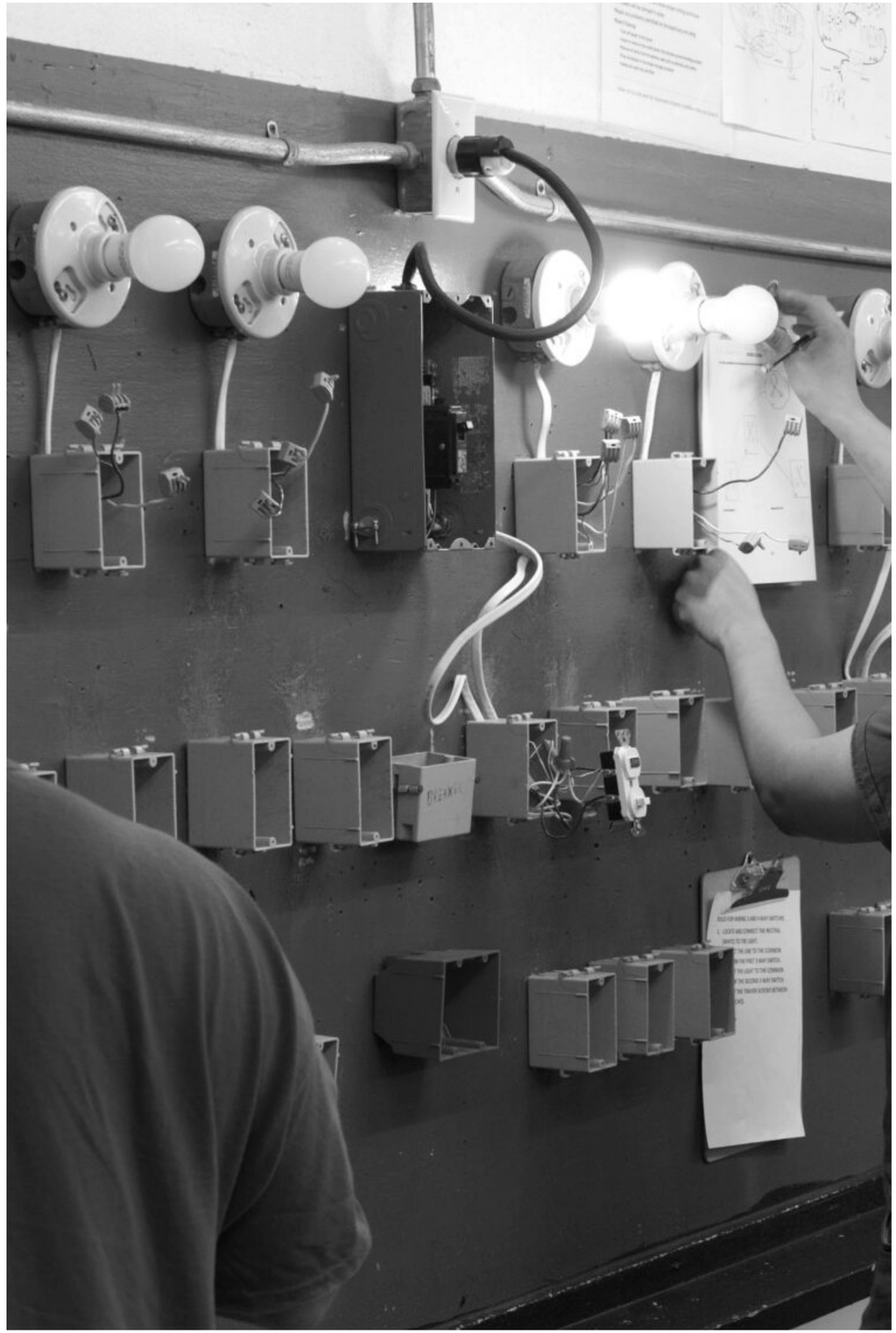
STORAGE

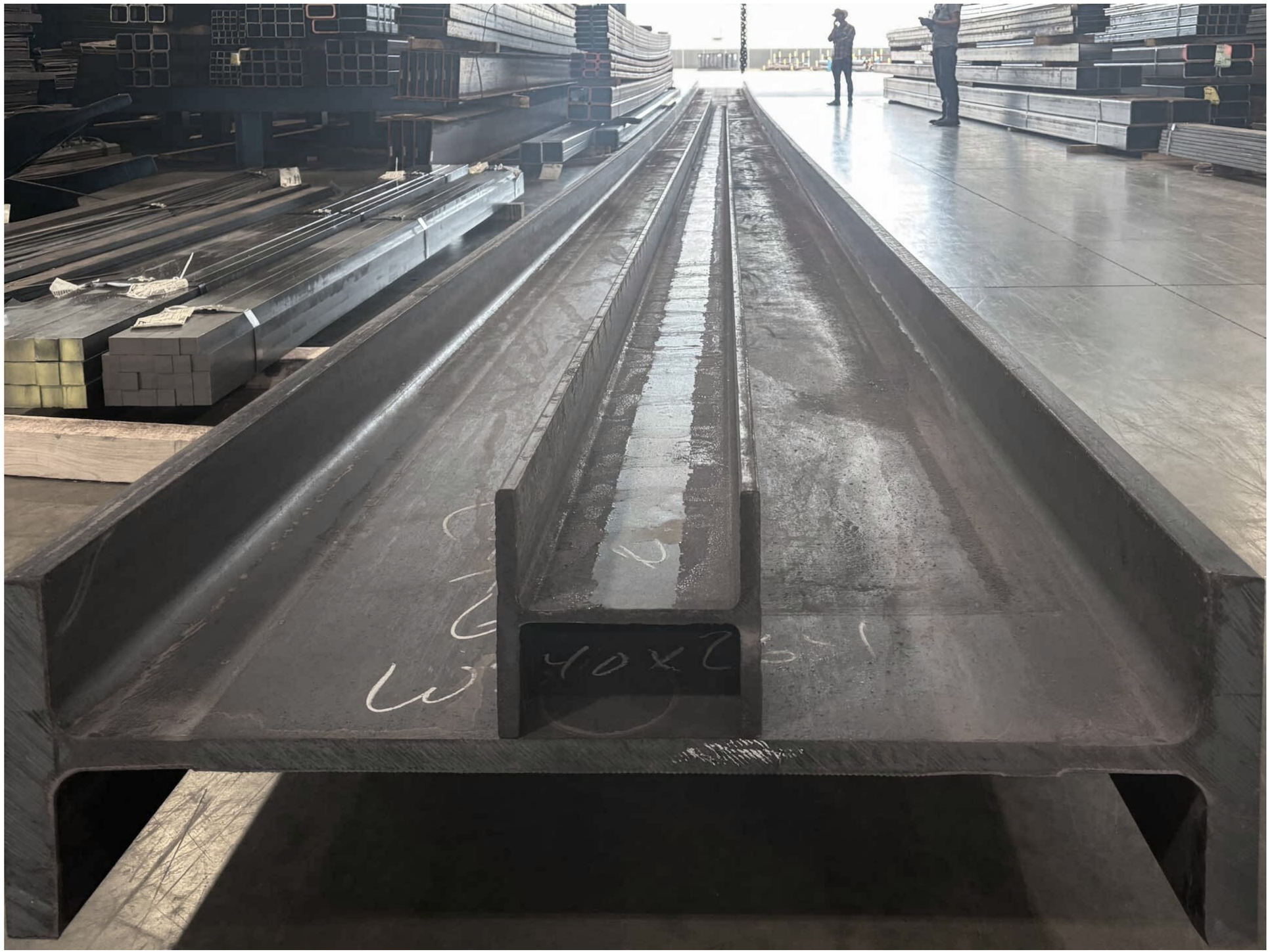
Material Storage, Complete Works, Demo Models, Spare Tools and Machine Parts

1600 SQFT

MECHANICAL

HVAC, Elevator Pumps, Filtration System, Dust collection, Electical




40x2

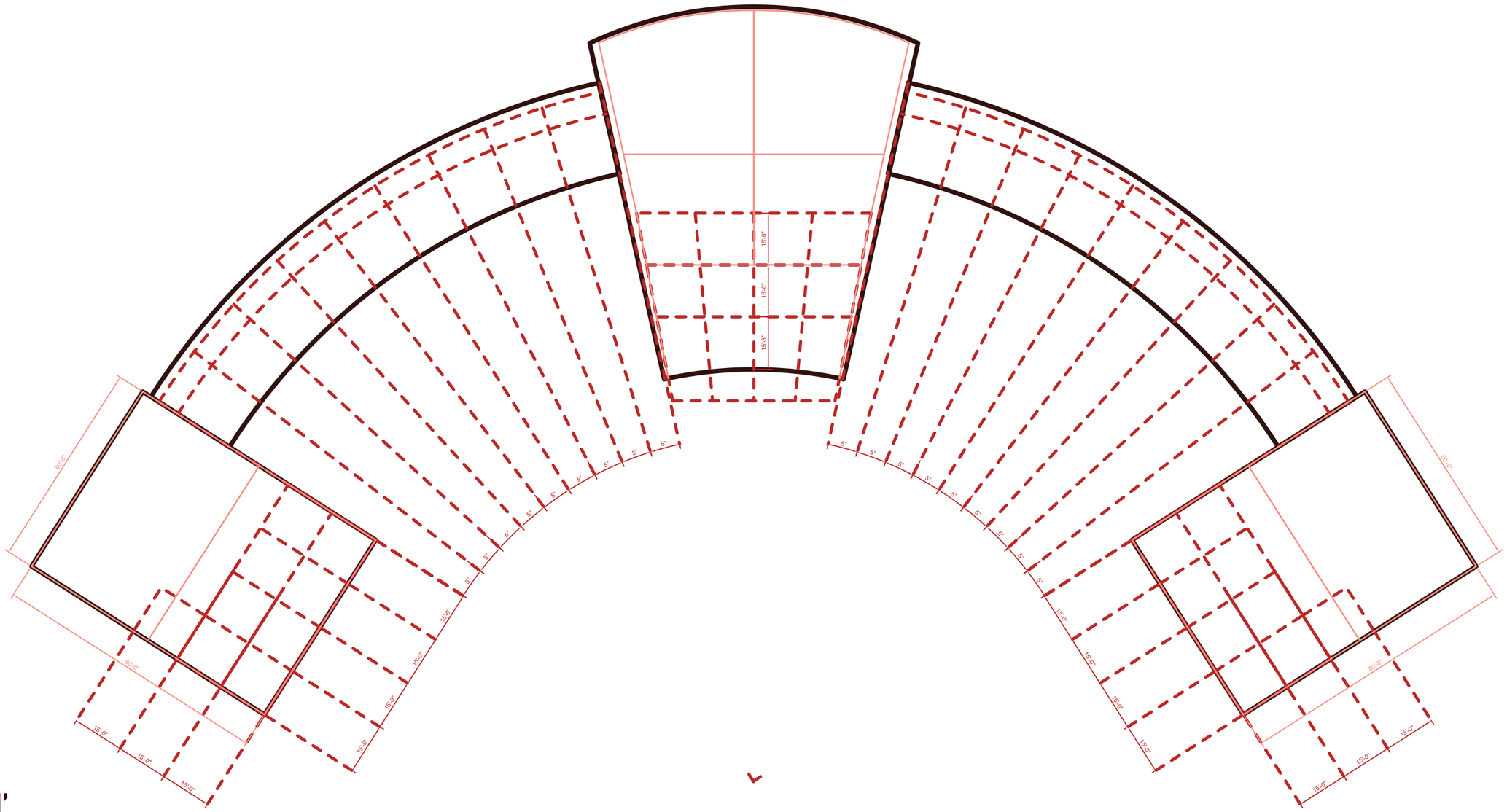
3

STRUCTURAL SYSTEMS



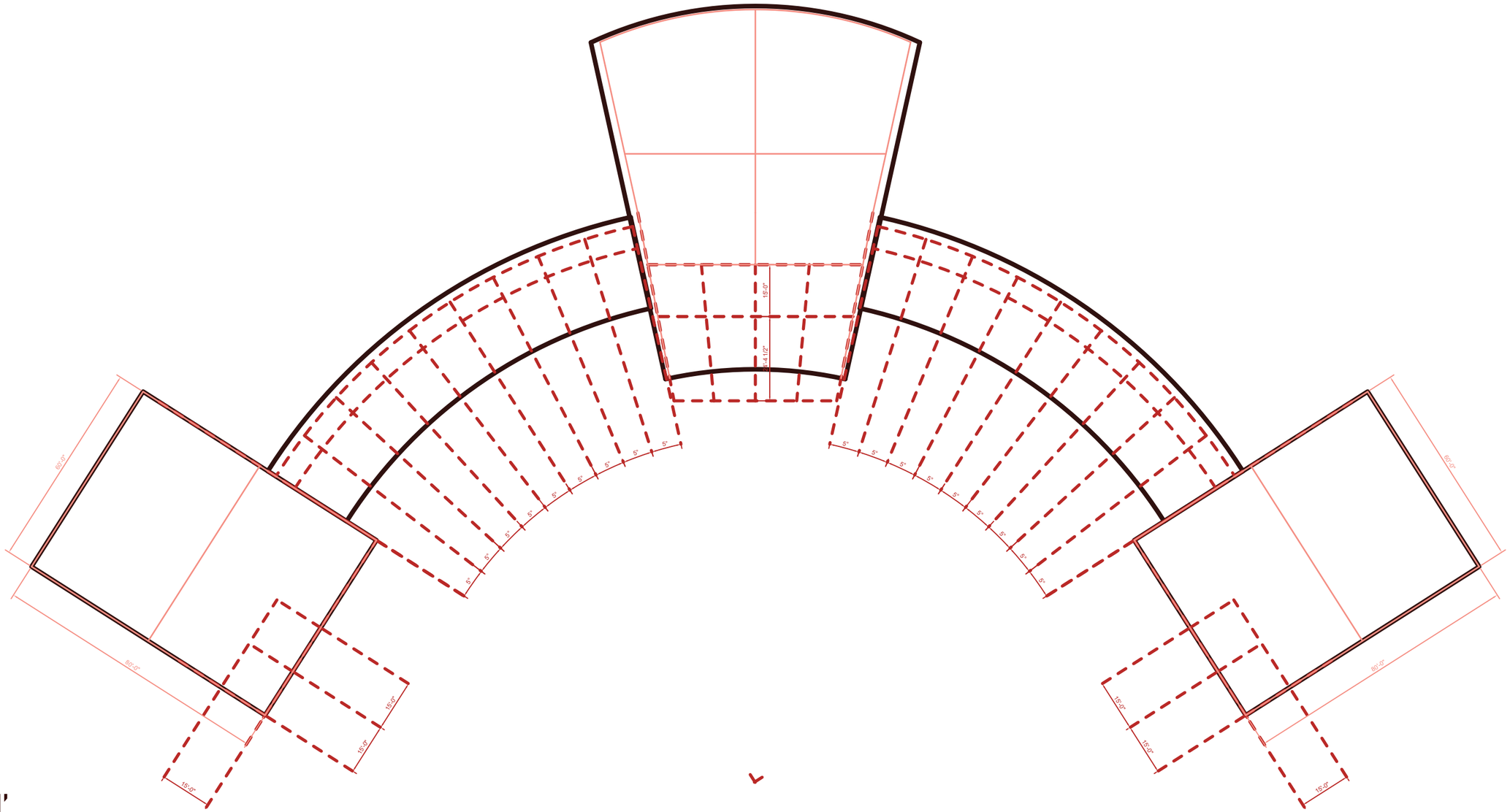
STRUCTURAL GRID

1st Floor


15'-0"
15'-0"
5"
5"
5

STRUCTURAL GRID

2nd Floor

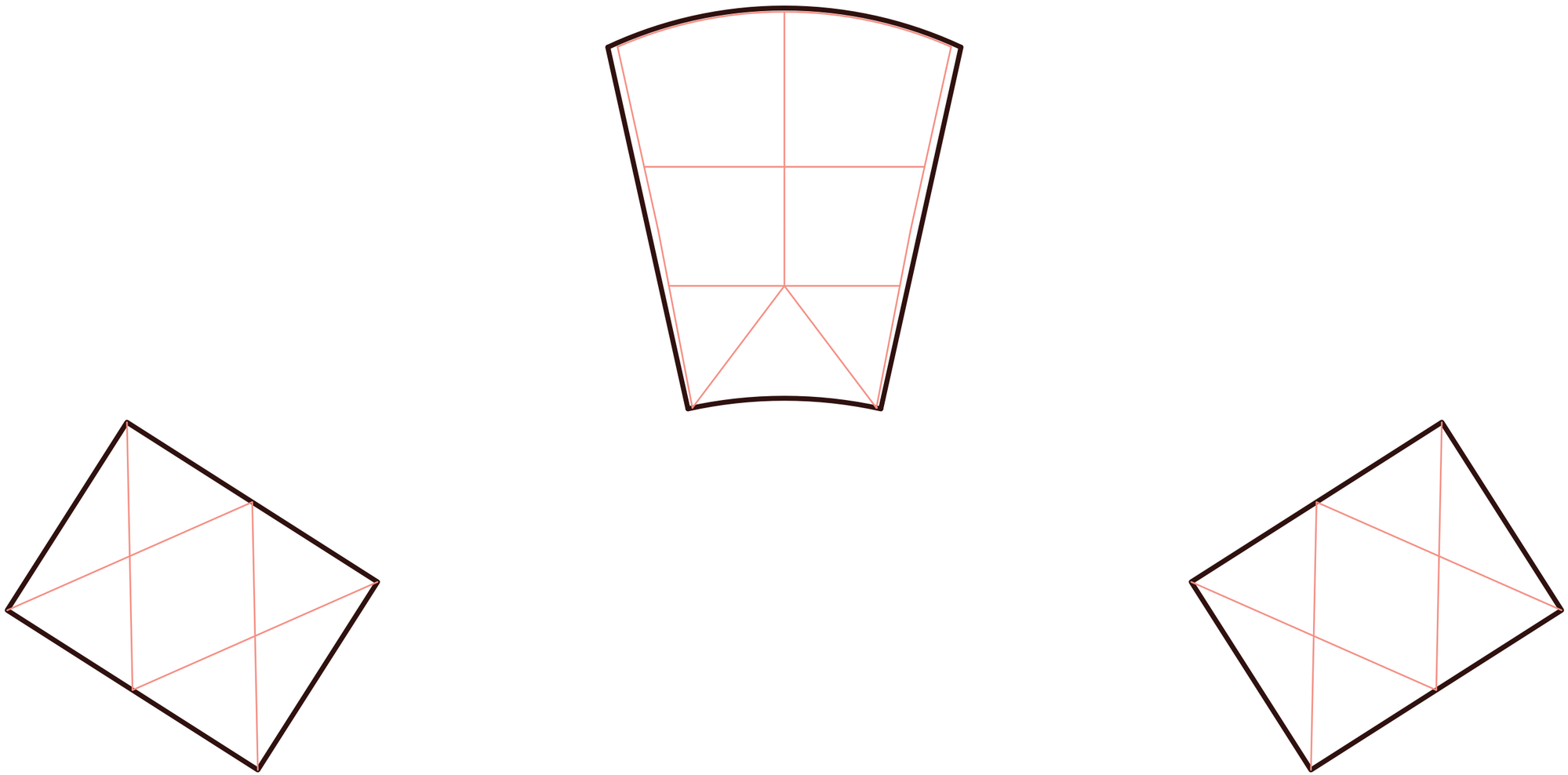


1/32" = 1'

32'	48'	64'	72'	80'

STRUCTURAL GRID

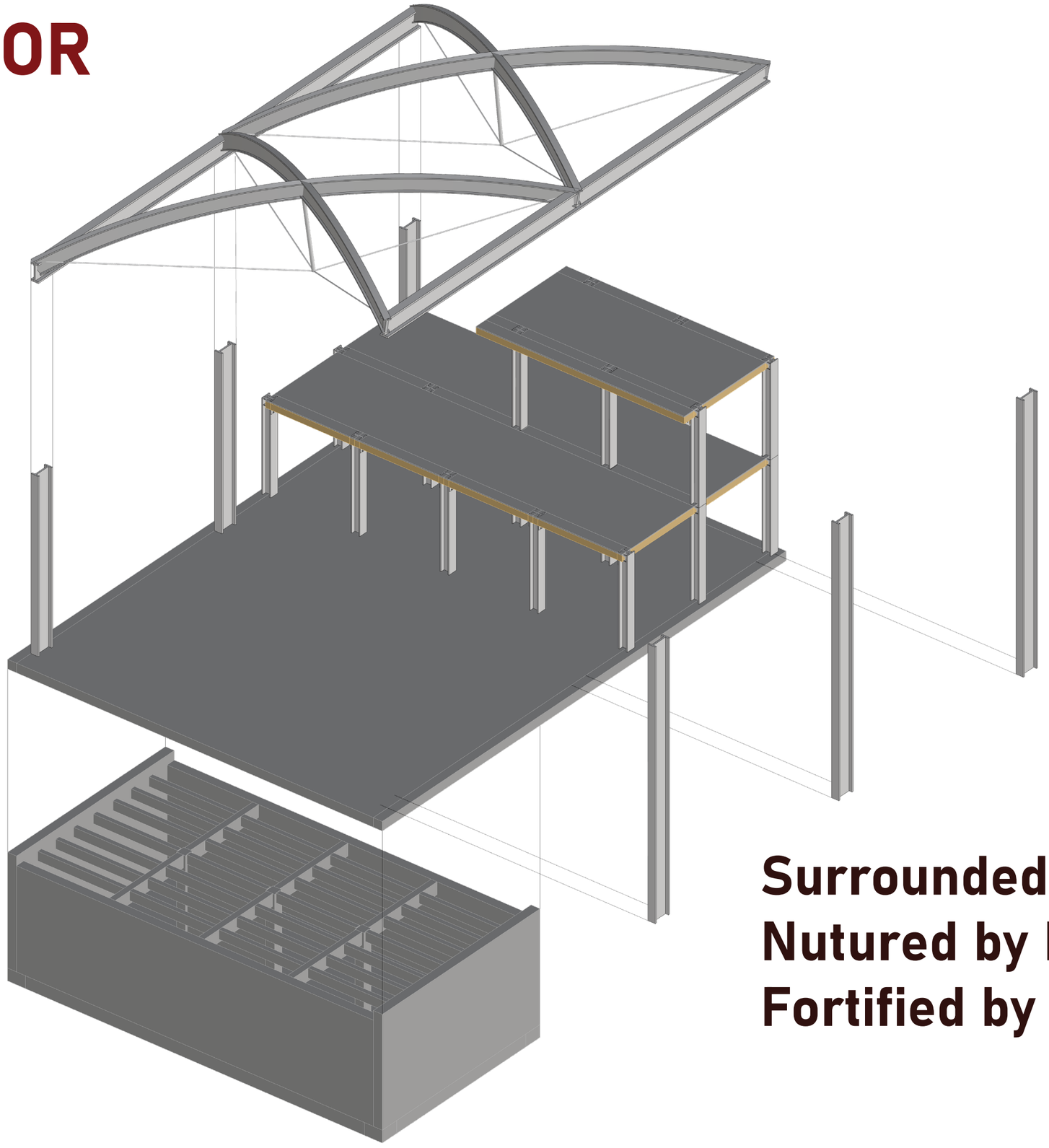
Roof



1/32" = 1'

32'	48'	64'	72'	80'

ANCHOR

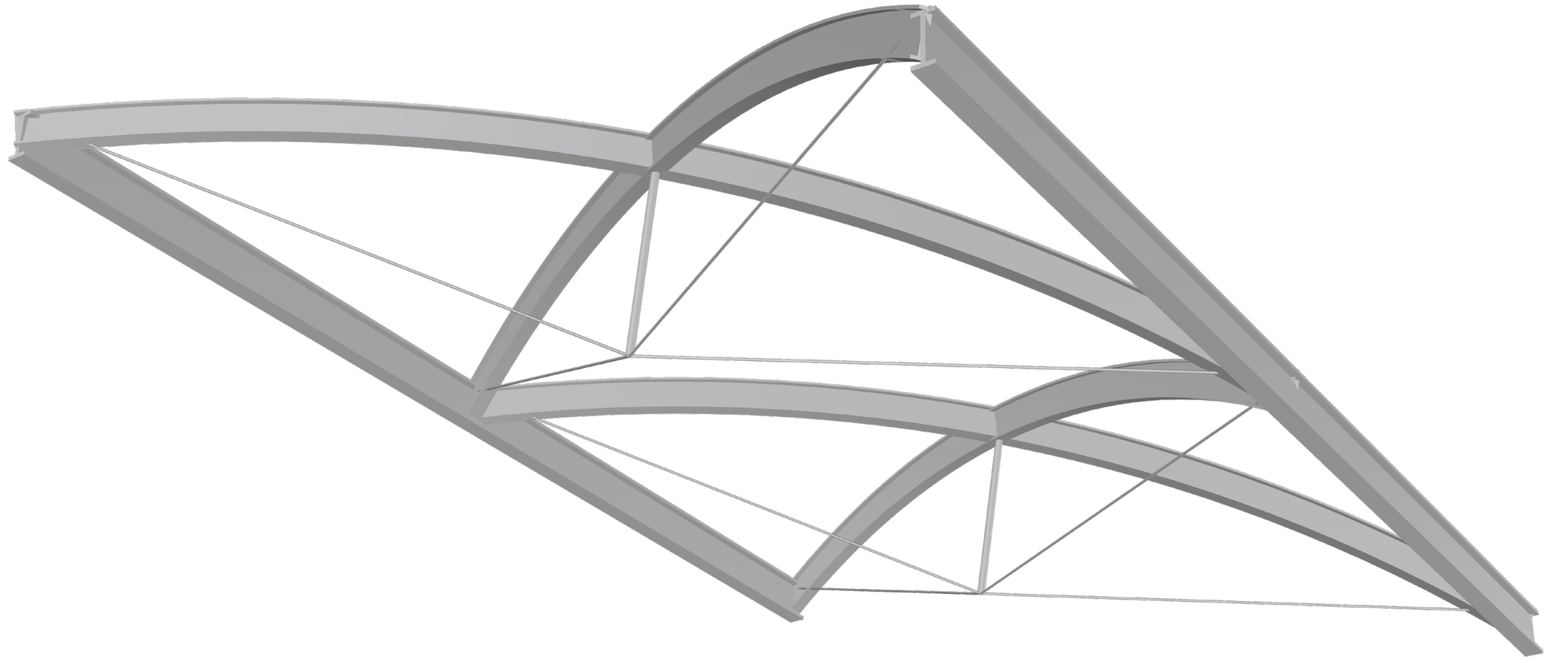


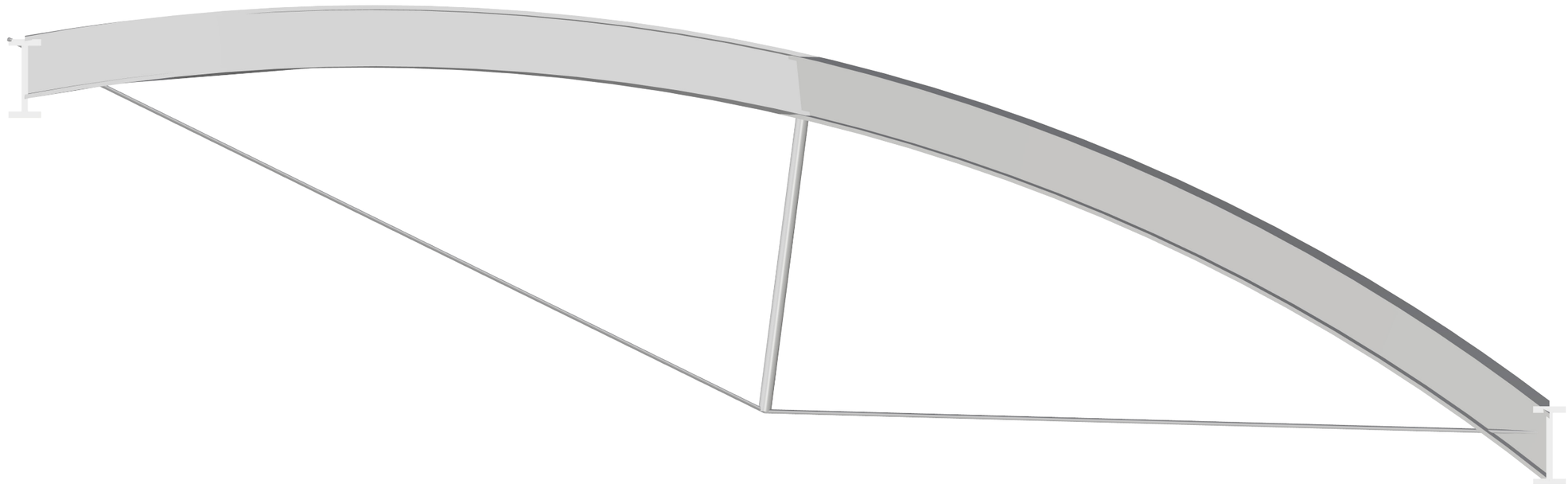
With the Anchors being the entry into the building and housing the tailored class enviorments. It felt right to have the materials tell a story. Steel of the industry fueled by this region and the world they are entering into, Wood to bring nature to them after being down in mines, and concrete a solid ground material designed for durability like the miners who live in this region.

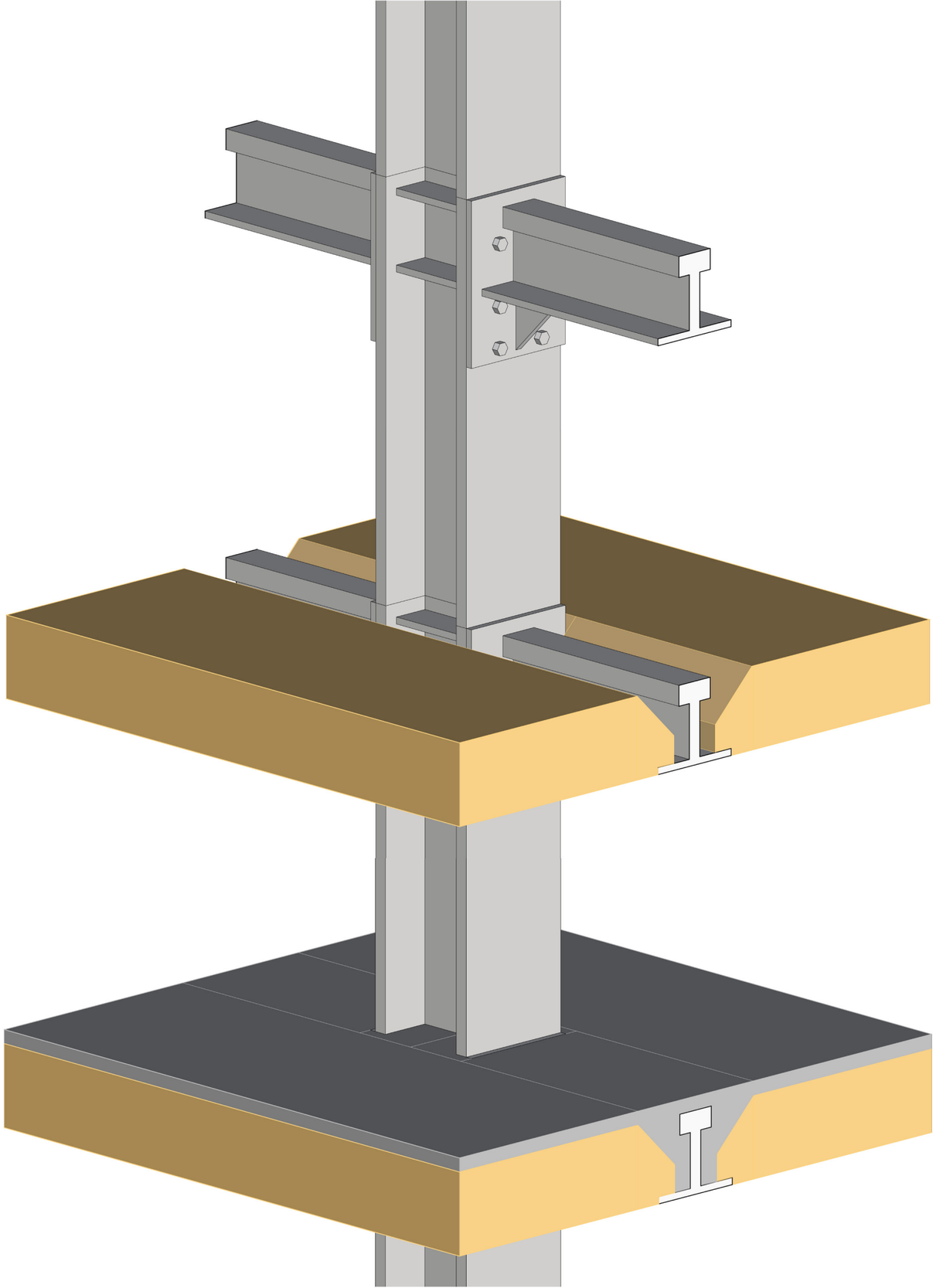
Surrounded by Industry,
Nutured by Nature,
Fortified by Solid Ground.

ROOF STRUCTURE

WIDE FLANGE STEEL SUPPORTED BY AN INVERTED KING POST TRUSS ALLOWS THE ANCHOR TO HAVE THIS FEELING OF ENTERING INTO A VAST SPACE UPON ENTERING AS OPPOSED TO A CRAMPT CLASS SPACE.





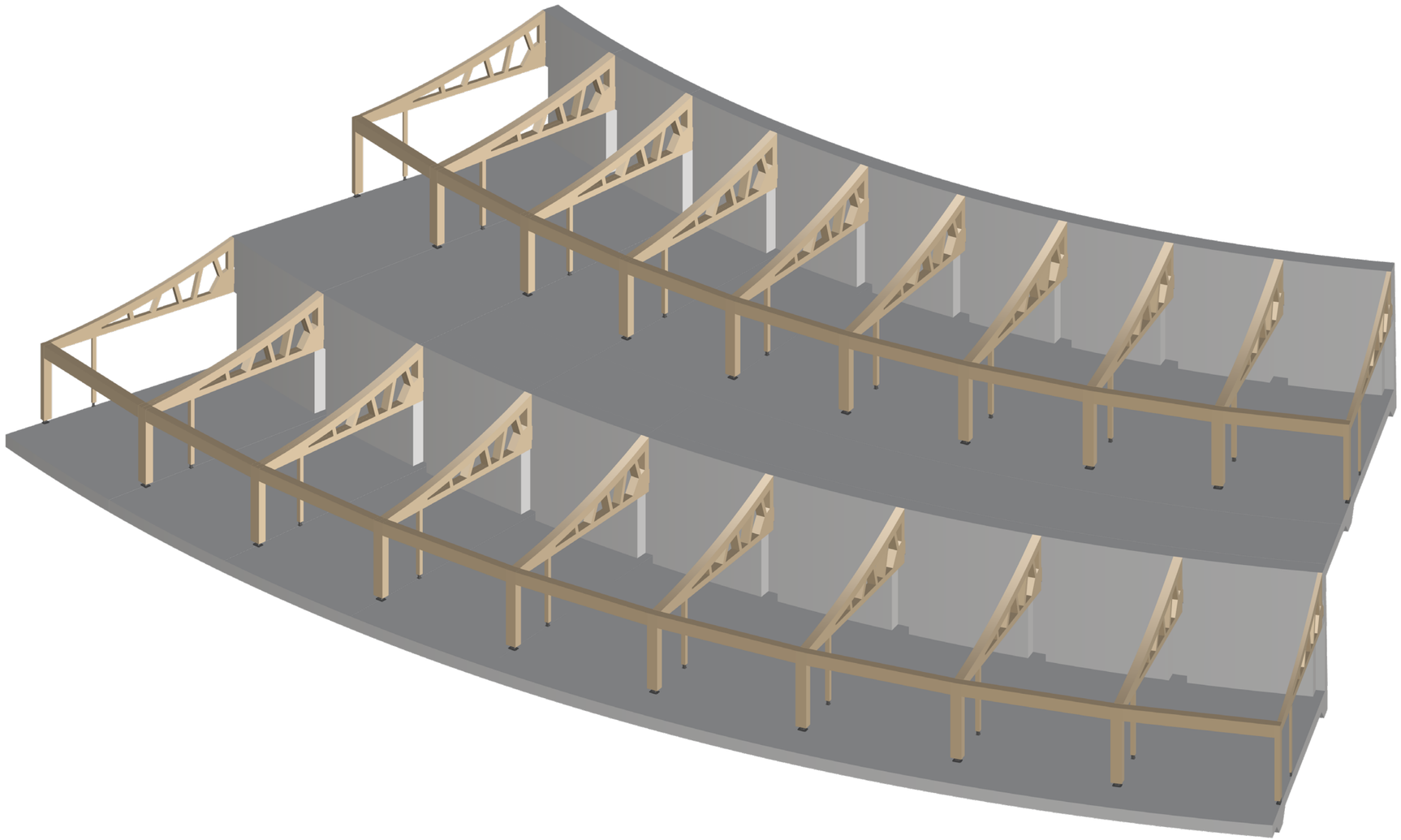


ANCHOR STRUCTURE

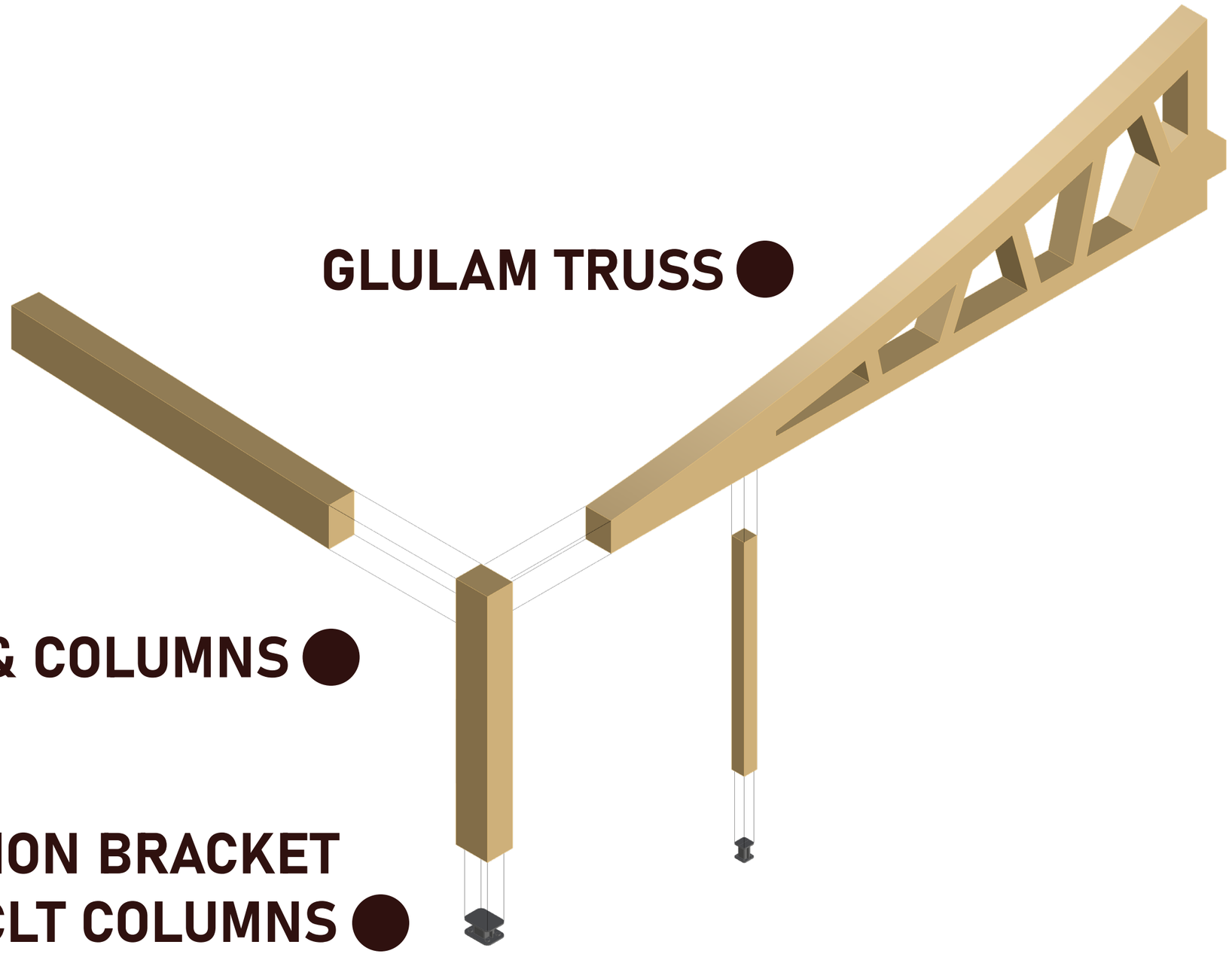
- WIDE FLANGE COLUMN WITH STEEL BEAMS FOR CLT PANEL
- 9 PLY CLT PANEL SPANNING BETWEEN STEEL BEAMS
- 2” CONCRETE TOPPER FOR ADDED DURABILITY AND STRUCTURE

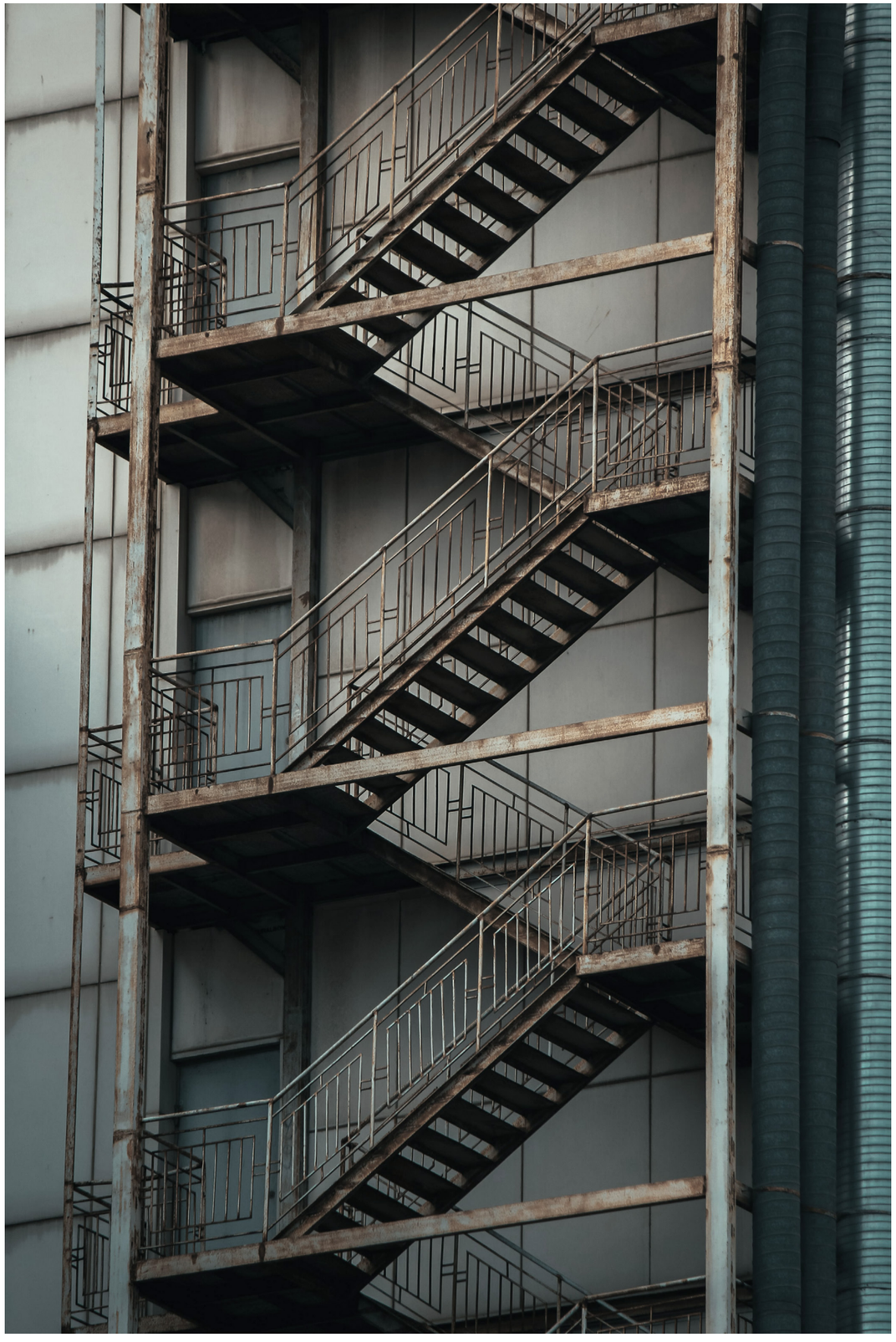
HALLWAY

With Trade schools its more about the hands on learning and showing the ability to know the trade and mastery of skills, most time would be spent in the workshop space on projects. The workshop space being the main space for learning leans into it being wood as a more calm and relaxed enviorment opposed to the mines, brining nature into the enviorment rather than burrowing away from it



HALLWAY STRUCTURE





4

CODE & FIRE EGRESS

USE & OCCUPANCY
FIRE & EGRESS

The IBC codes serve as the minimum requirments for building saftey, they govern the max occupancy, egress distances, building heights, and fire rating

TABLE 1006.3.2
MINIMUM NUMBER OF EXITS OR ACCESS TO EXITS PER STORY

OCCUPANT LOAD PER STORY	MINIMUM NUMBER OF EXITS OR ACCESS TO EXITS FROM STORY
1-500	2
501-1,000	3
More than 1,000	4

TABLE 1017.2
EXIT ACCESS TRAVEL DISTANCE[a]

OCCUPANCY	WITHOUT SPRINKLER SYSTEM (feet)	WITH SPRINKLER SYSTEM (feet)
A, E, F-1, M, R, S-1	200[c]	250[b]
I-1	Not Permitted	250[b]
B	200	300[c]
F-2, S-2, U	300	400[c]
H-1	Not Permitted	75[d]
H-2	Not Permitted	100[d]
H-3	Not Permitted	150[d]
H-4	Not Permitted	175[d]
H-5	Not Permitted	200[c]
I-2, I-3	Not Permitted	200[c]
I-4	150	200[c]

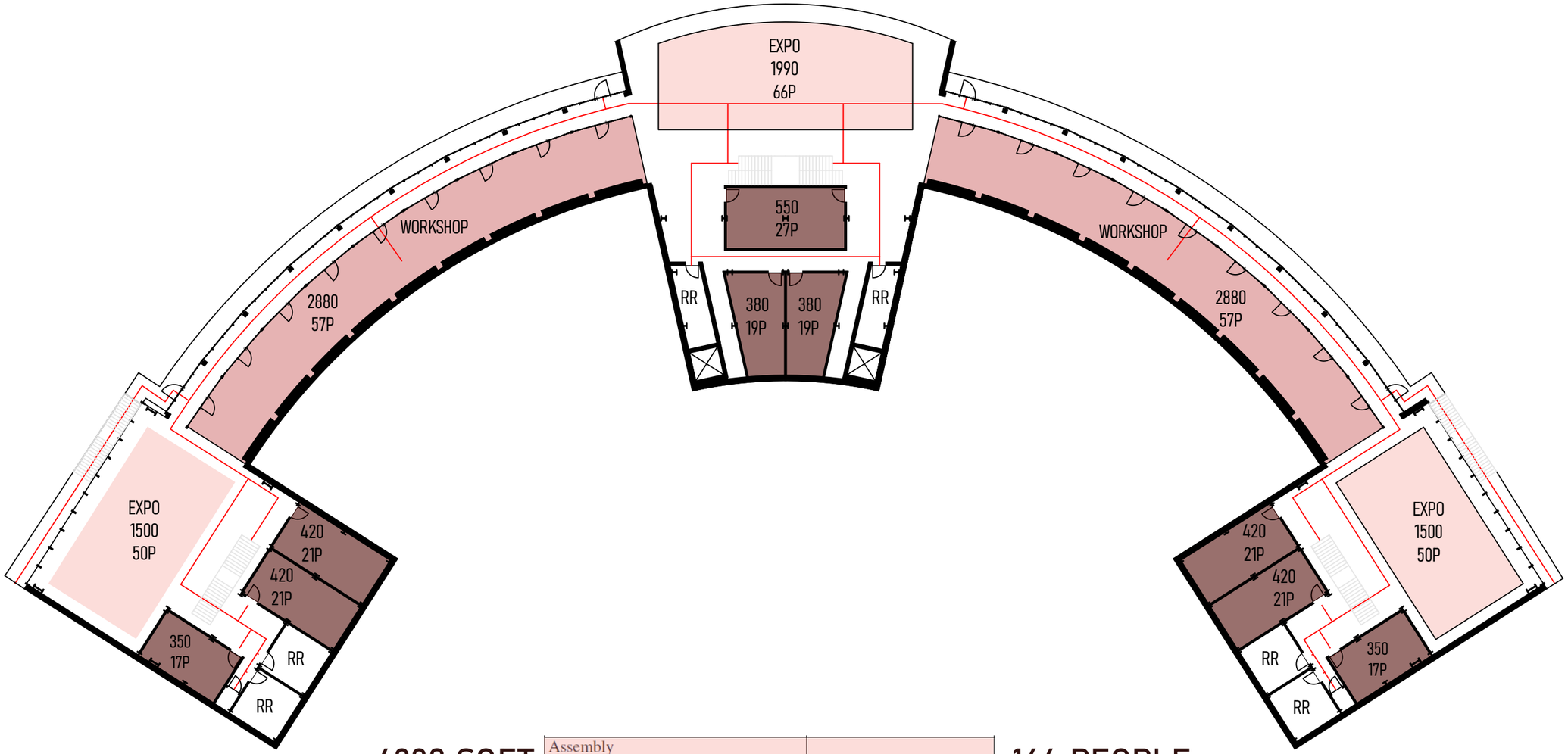
TABLE 1006.2.1
SPACES WITH ONE EXIT OR EXIT ACCESS DOORWAY

OCCUPANCY	MAXIMUM OCCUPANT LOAD OF SPACE	MAXIMUM COMMON PATH OF EGRESS TRAVEL DISTANCE (feet)		
		Without Sprinkler System (feet)		With Sprinkler System (feet)
		Occupant Load		
		OL ≤ 30	OL > 30	
A[c], E, M	49	75	75	75[a]
B	49	100	75	100[a]
F	49	75	75	100[a]
H-1, H-2, H-3	3	NP	NP	25[b]
H-4, H-5	10	NP	NP	75[b]
I-1, I-2[d], I-4	10	NP	NP	75[a]
I-3	10	NP	NP	100[a]
R-1	10	NP	NP	75[a]
R-2	20	NP	NP	125[a]
R-3[e]	20	NP	NP	125[a, g]
R-4[e]	20	NP	NP	125[a, g]
S[f]	29	100	75	100[a]
U	49	100	75	75[a]

FUNCTION OF SPACE	OCCUPANT LOAD FACTOR[a]
Accessory storage areas, mechanical equipment room	300 gross
Agricultural building	300 gross
Aircraft hangars	500 gross
Airport terminal Baggage claim Baggage handling Concourse Waiting areas	 20 gross 300 gross 100 gross 15 gross
Assembly Gaming floors (keno, slots, etc.) Exhibit gallery and museum	 11 gross 30 net
Assembly with fixed seats	See Section 1004.6
Assembly without fixed seats Concentrated (chairs only—not fixed) Standing space Unconcentrated (tables and chairs)	 7 net 5 net 15 net
Bowling centers, allow 5 persons for each lane including 15 feet of runway, and for additional areas	7 net
Business areas Concentrated business use areas	150 gross See Section 1004.8
Courtrooms—other than fixed seating areas	40 net
Day care	35 net
Dormitories	50 gross
Educational Classroom area Shops and other vocational room areas	 20 net 50 net
Exercise rooms	50 gross
Group H-5 fabrication and manufacturing areas	200 gross
Industrial areas	100 gross
Institutional areas Inpatient treatment areas Outpatient areas Sleeping areas	 240 gross 100 gross 120 gross
Kitchens, commercial	200 gross
Library Reading rooms Stack area	 50 net 100 gross
Locker rooms	50 gross
Mall buildings—covered and open	See Section 402.8.2
Mercantile Storage, stock, shipping areas	60 gross 300 gross
Parking garages	200 gross
Residential	200 gross
Skating rinks, swimming pools Rink and pool Decks	 50 gross 15 gross
Stages and platforms	15 net
Warehouses	500 gross

OCCUPANCY & EGRESS

1st Floor

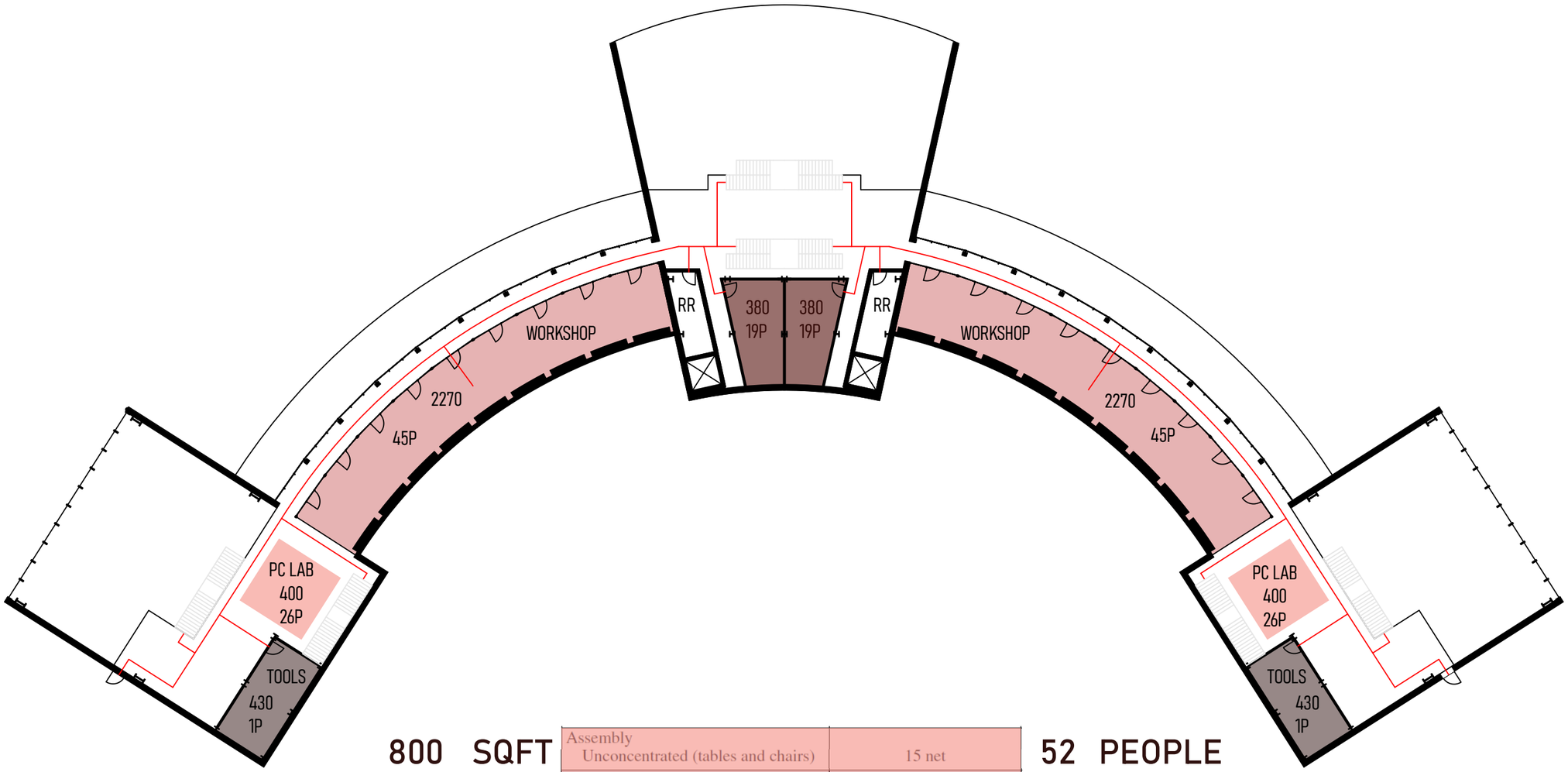


1/32" = 1'

4990 SQFT	Assembly Exhibit gallery and museum	30 net	166 PEOPLE
5760 SQFT	Educational Shops and other vocational room areas	50 net	115 PEOPLE
3690 SQFT	Educational Classroom area	20 net	184 PEOPLE
			465 PEOPLE

OCCUPANCY & EGRESS

2nd Floor



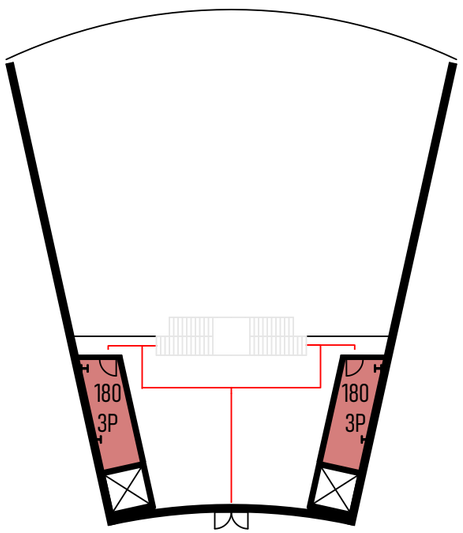
1/32" = 1'

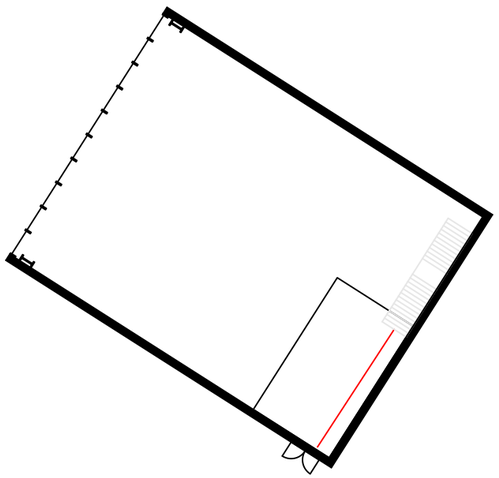
32'	48'	64'	72'	80'

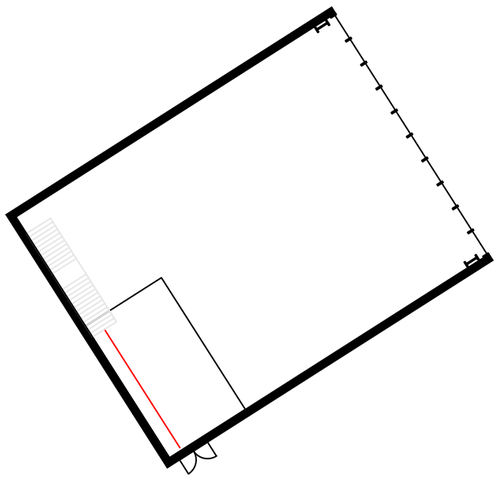
800 SQFT	Assembly Unconcentrated (tables and chairs)	15 net	52 PEOPLE
4540 SQFT	Educational Shops and other vocational room areas	50 net	90 PEOPLE
760 SQFT	Educational Classroom area	20 net	38 PEOPLE
860 SQFT	Accessory storage areas, mechanical equipment room	300 gross	2 PEOPLE
			182 PEOPLE

OCCUPANCY & EGRESS

3rd Floor

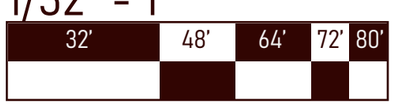






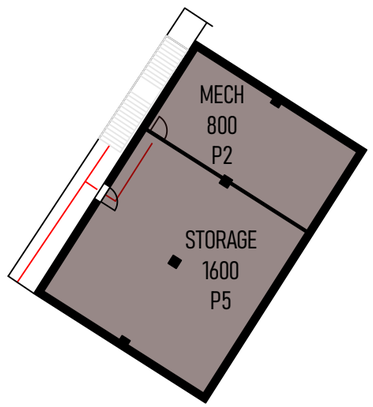
360 SQFT | Locker rooms | 50 gross | 6 PEOPLE

1/32" = 1'

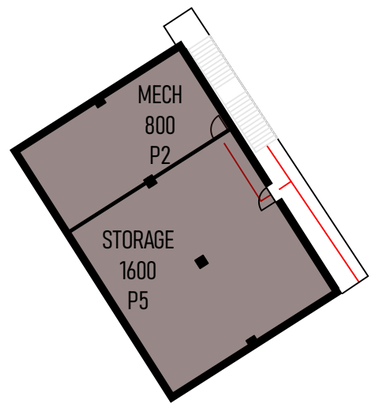


OCCUPANCY & EGRESS

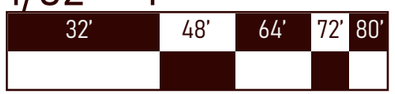
Basement



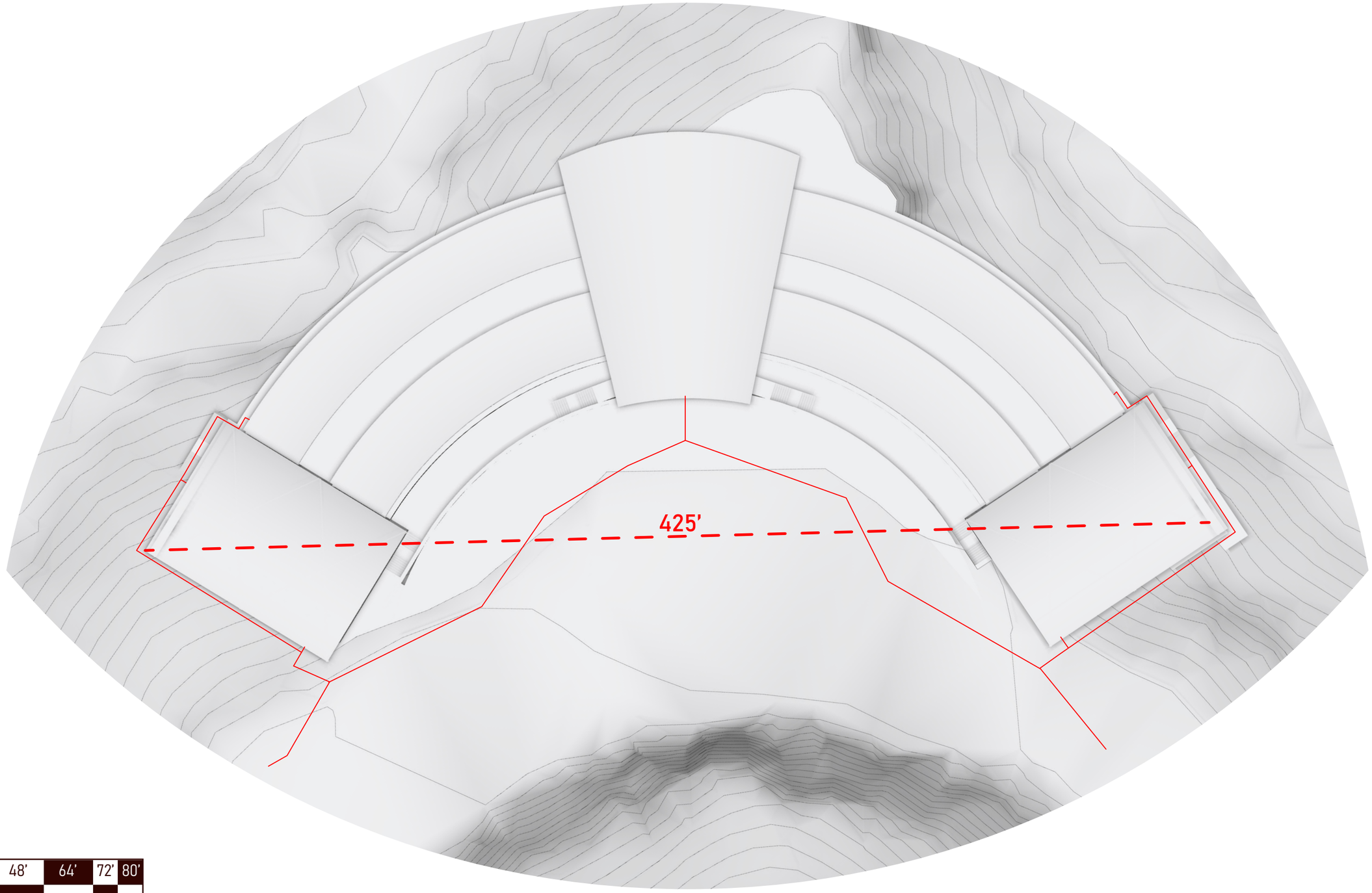
4800 SQFT | Accessory storage areas, mechanical equipment room | 300 gross | 14 PEOPLE



1/32" = 1'



SITE EGRESS



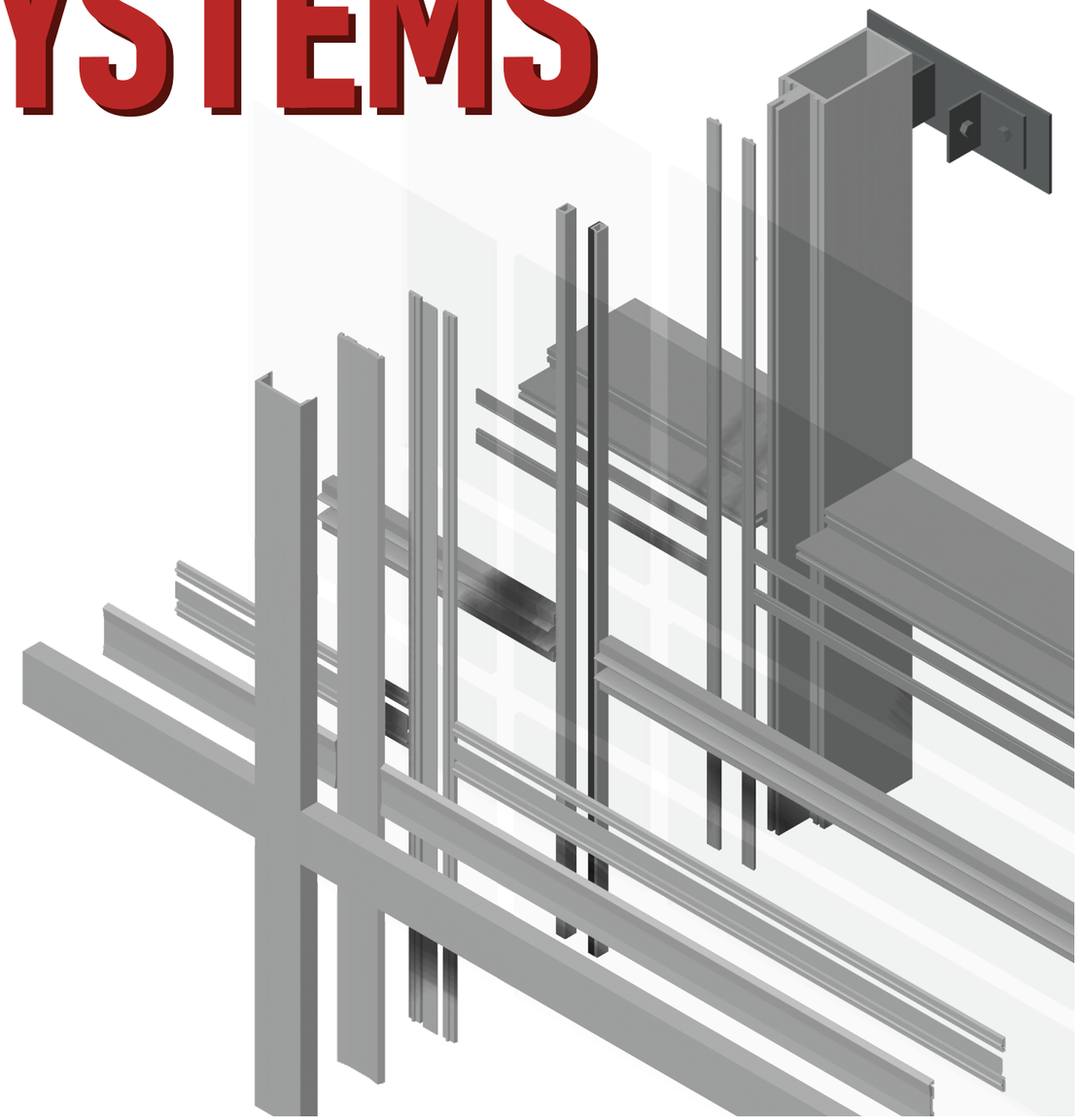
1/32" = 1'

32'	48'	64'	72'	80'

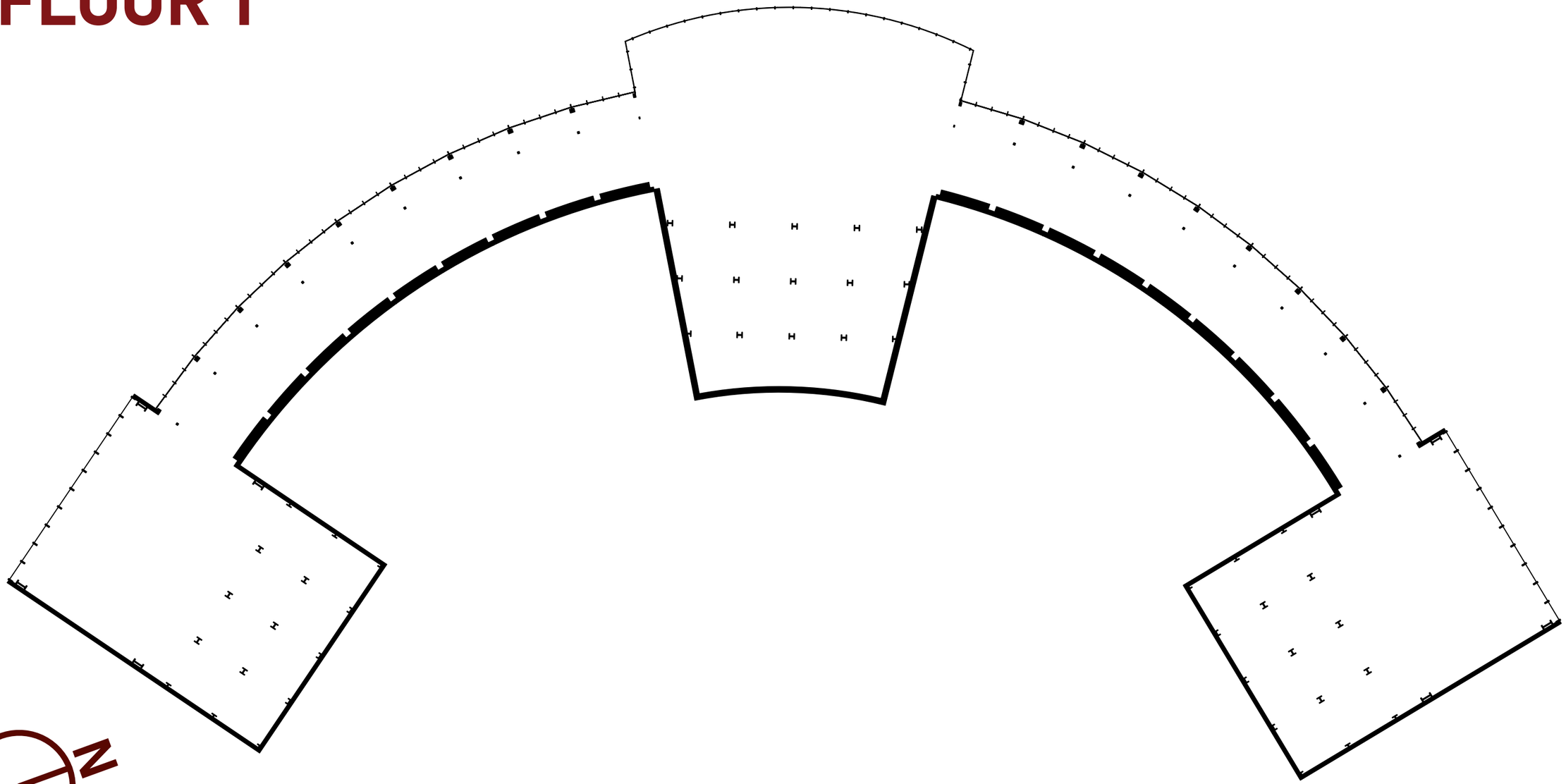


5

ENVELOPE SYSTEMS



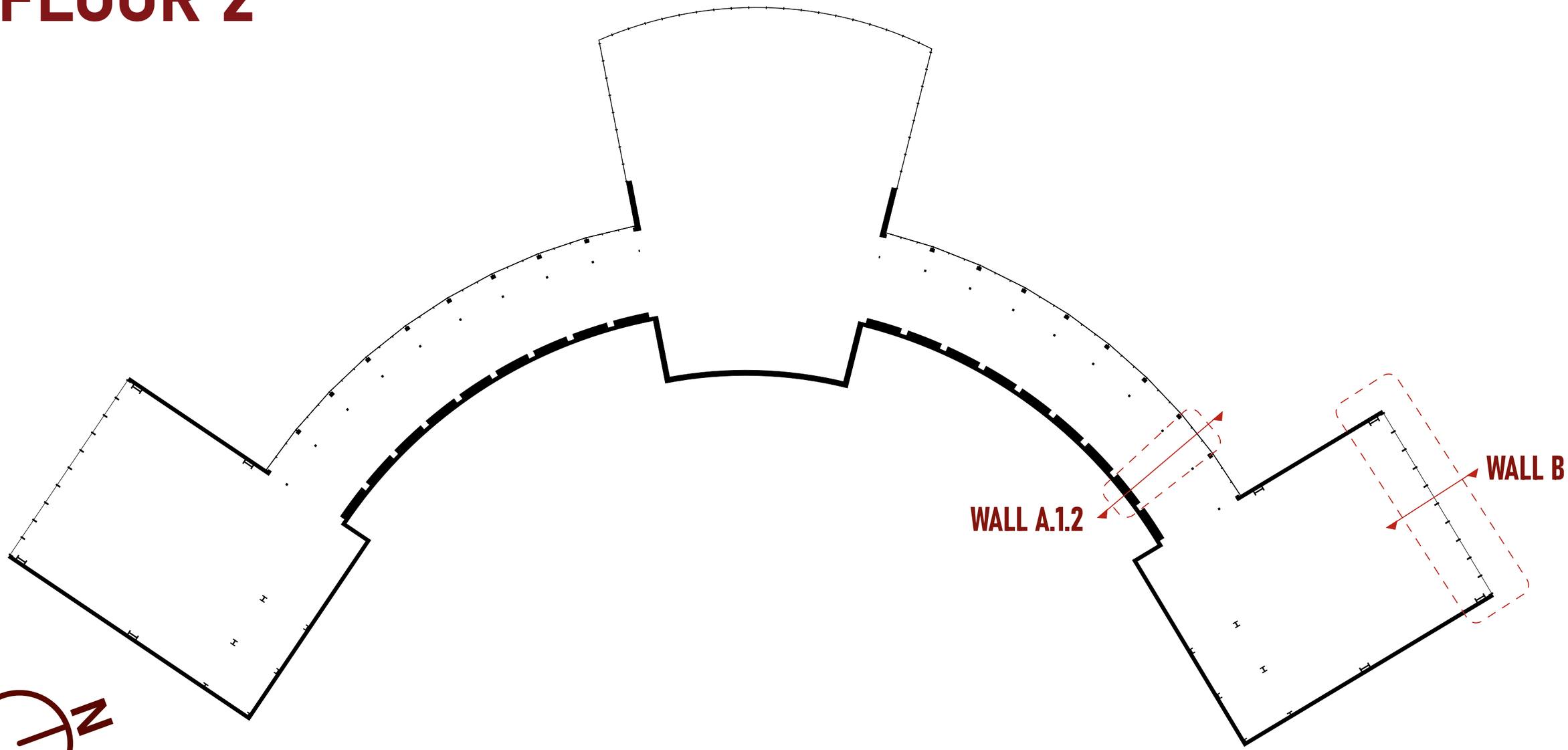
OVERALL ENVELOPE
FLOOR 1



1/32" = 1'

32' 48' 64' 72' 80'

OVERALL ENVELOPE
FLOOR 2



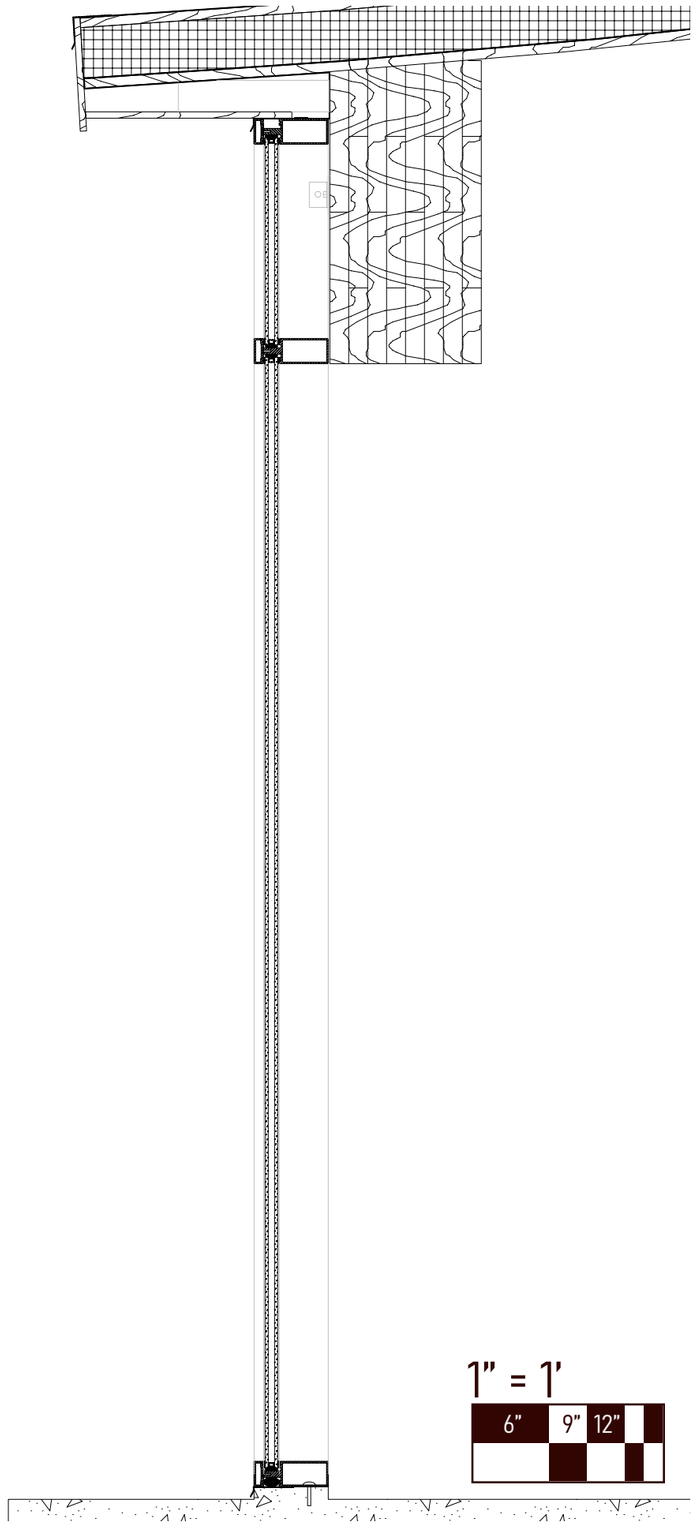
N

1/32" = 1'

32'	48'	64'	72'	80'

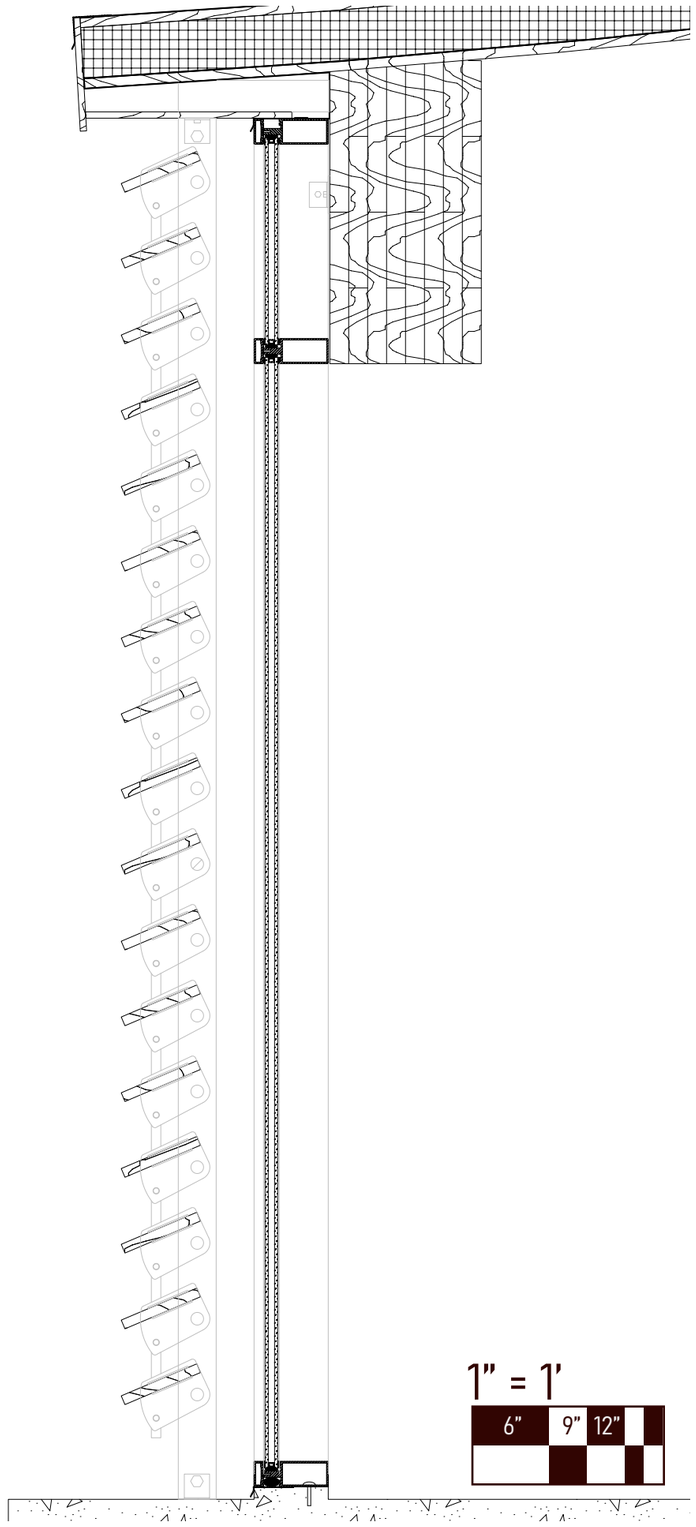
WALL A.1





WALL A.2

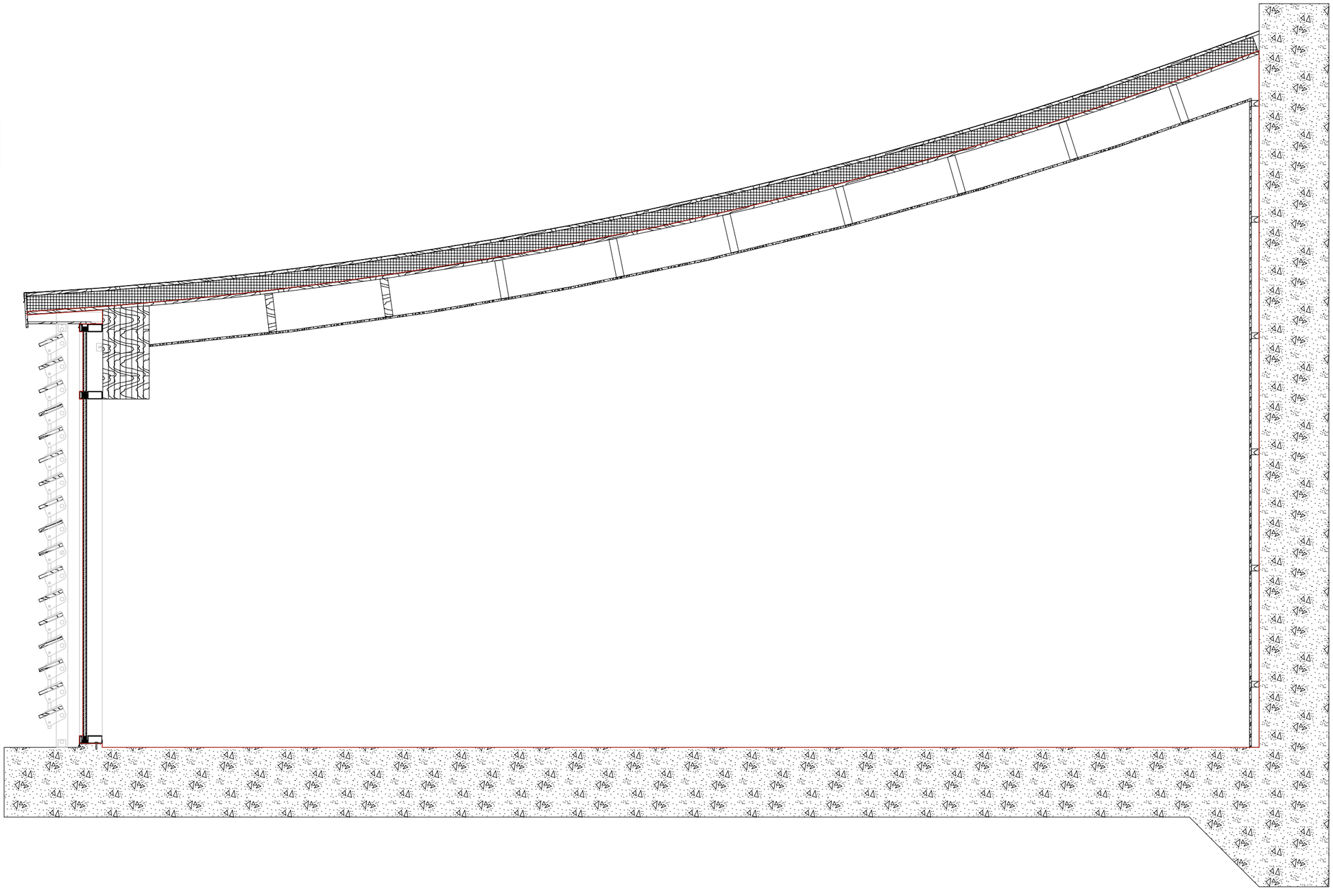




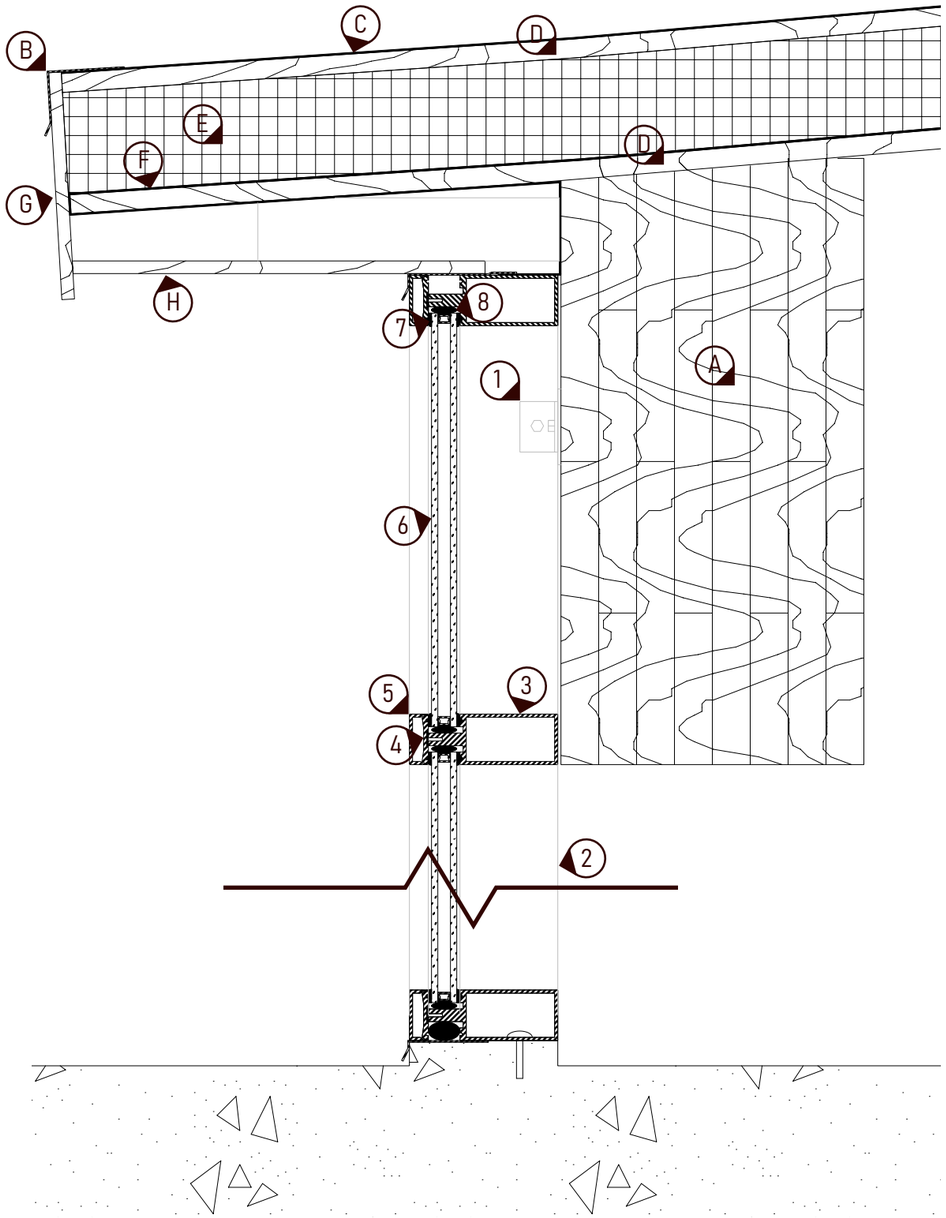
SECTION A

1/2" = 1'

12" 18" 24"



WALL A.1



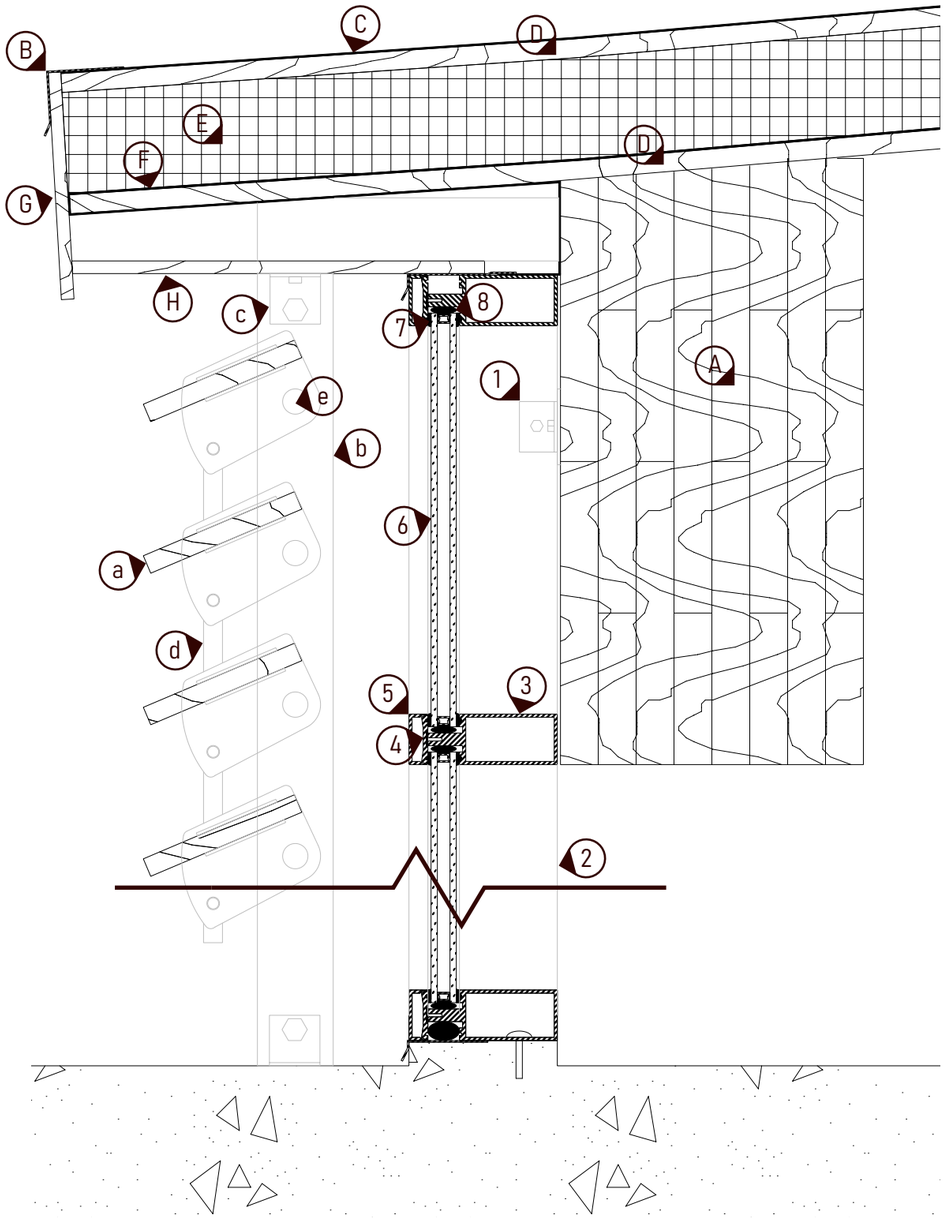
CLT Beam - A
Flashing - B
Membrane - C
Sheathing - D
Rigid Insulation - E
Vapor Barier - F
Facia - G
Soffit - H

Mount Brackets - 1
Mullion - 2
Transom - 3
Preasure Plate - 4
Cover Plate - 5
Glass - 6
Gaskets - 7
Backer Rod - 8

Louver - a
Frame - b
Mount Bracket - c
Adjustment Bar - d
Pivot Point - e

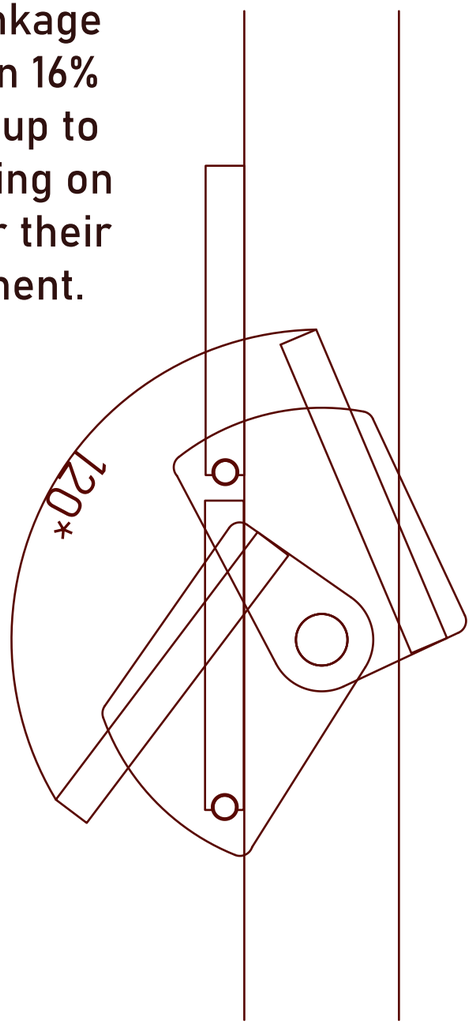
2" = 1'

WALL A.2



LOUVER SYSTEM

The Louver system allows users working in the hall workshops to control how much light enters into the bay they are working in. The louvers are easy to adjust sharing a common linkage bar and offer between 16% coverage all the way up to 95% coverage depending on how they are set, over their 120* range of movement.



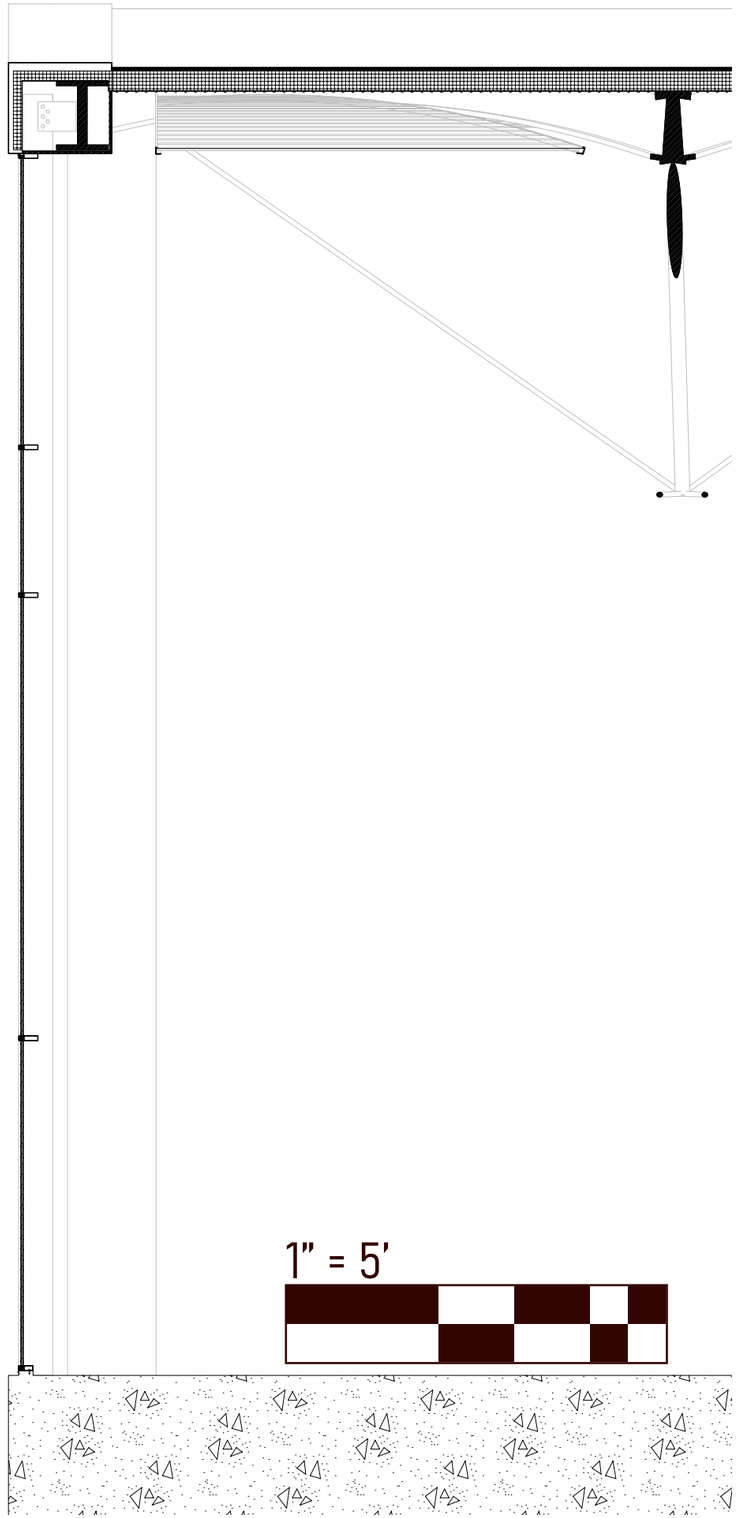




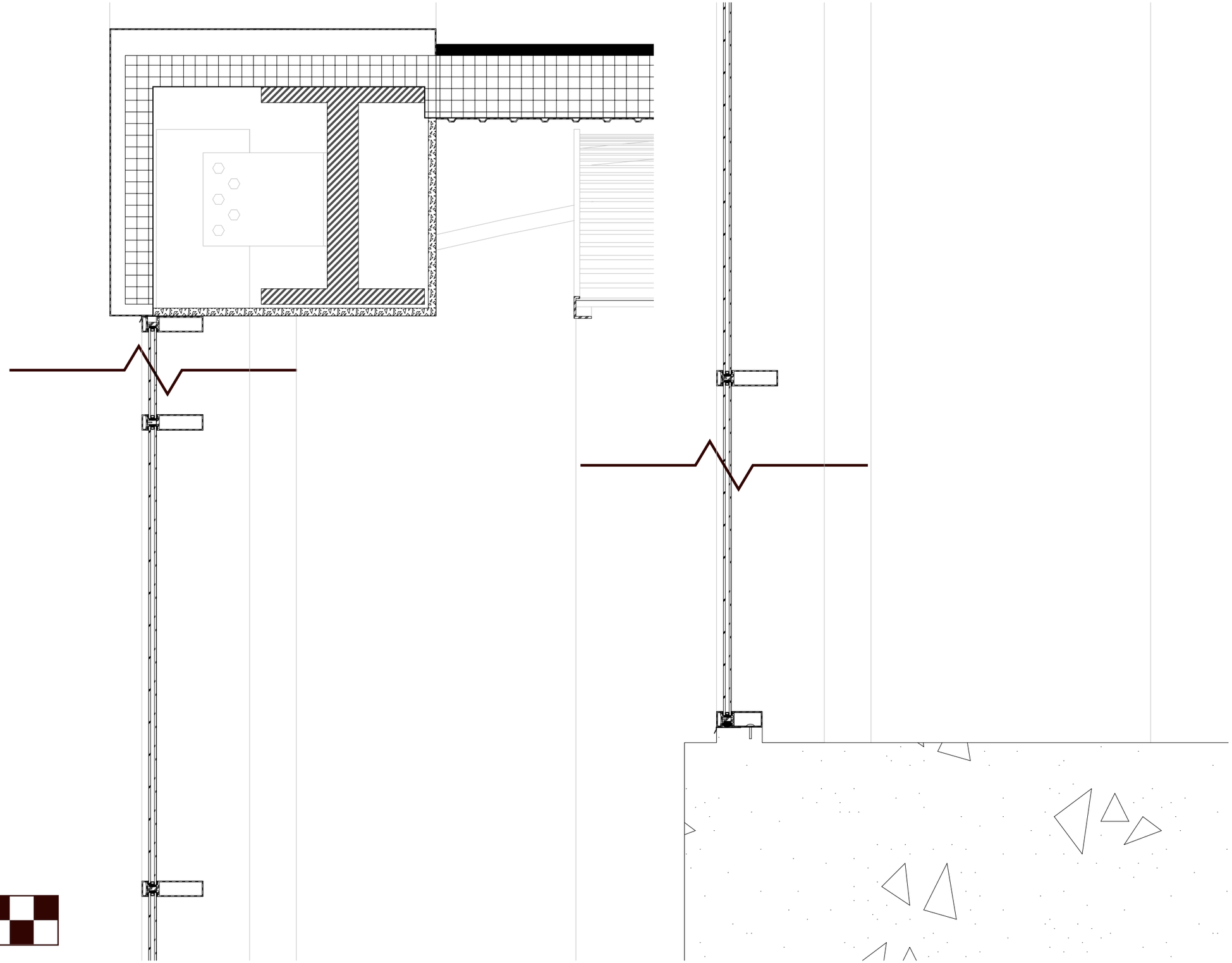
WALL B

The main wings use a large curtain wall to bring light into the space as the mutlipurpose rooms hold events, demonstrations, and exhibitions.





WALL B



1" = 1'



RENDERS













7. RESOURCES



DATA

STATISTA

Data for graphs

EIA REPORTS

Coal Statistics

USGS

Topological Data

WEST VIRGINIA UNIVERSITY

Specific Event information, Historical Photos



SOFTWARE

QGIS
Map Making, Topology Work

RHINO
Model Making, Massing

ILLUSTRATOR
Diagram, Vector Work, Chapter Assembly

PHOTOSHOP
Color Adjustment, Tweaks

INDESIGN
Final Compiling

