Pivot

A TURNING POINT FOR YOUTH

PIVOT CENTER

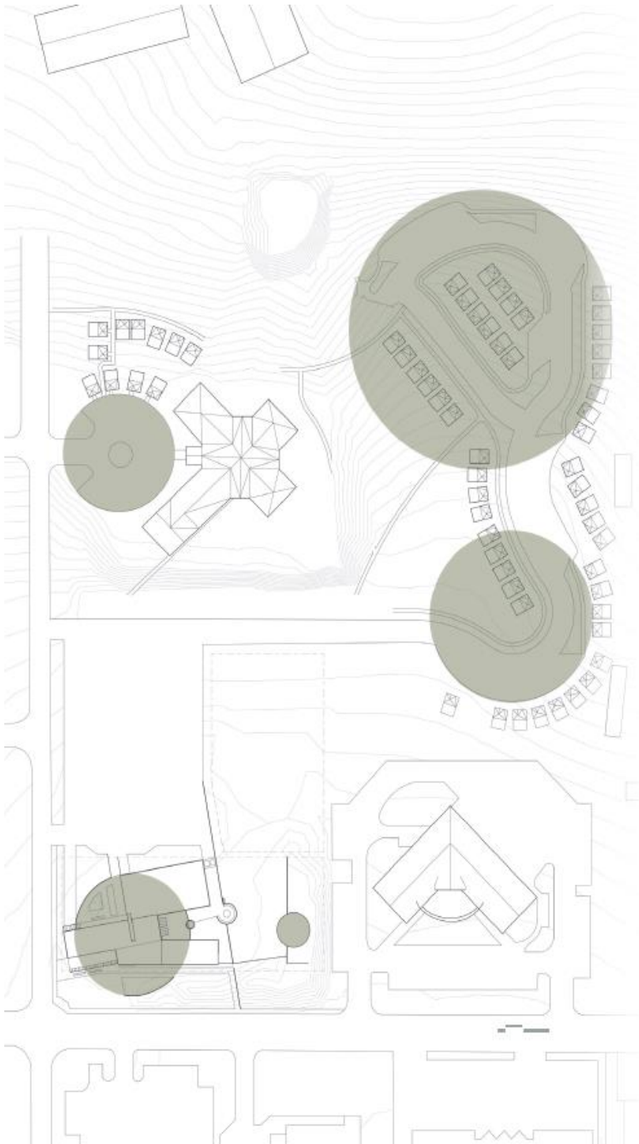
ARCH 5226 – Willem Garrison

CONTENT PAGE

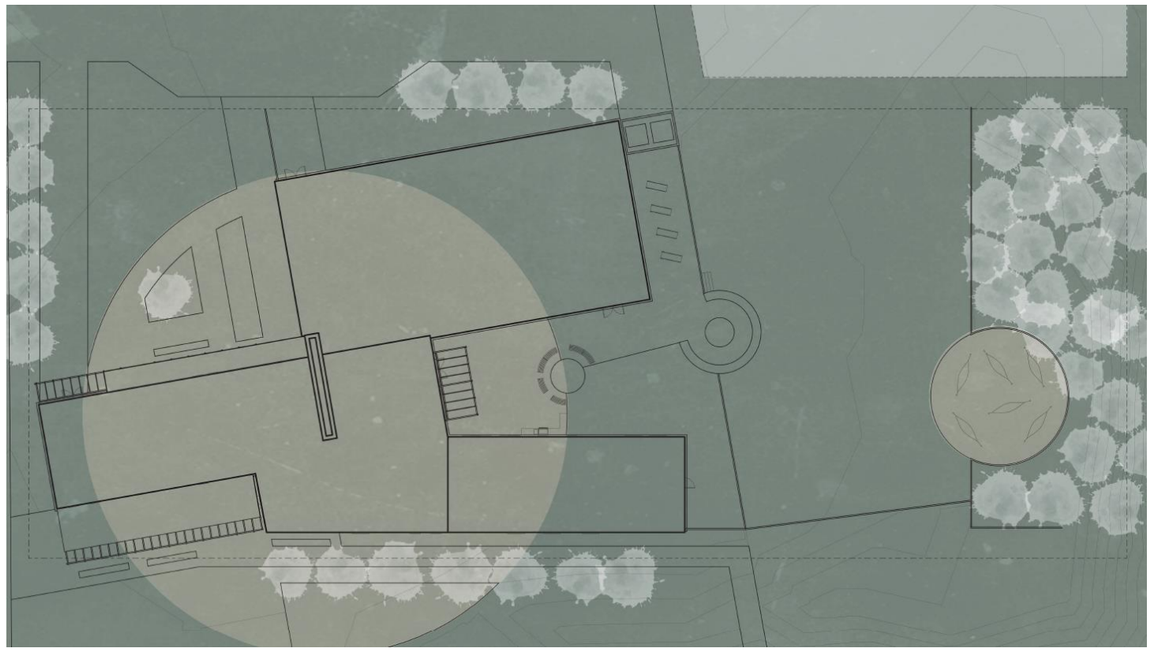
PROJECT SCOPE

Pivot is a non-profit organization that aims to nurture the growth of homeless teens through education, mentoring and job assistance. The current center focuses on providing housing and basic needs to the teens. This project aims to replace Pivot's current facility to better serve the teens and individuals who need it. The new center will provide counseling spaces, coaching spaces, classrooms , a teaching kitchen, a multipurpose room which doubles as an overnight emergency shelter, as well as a food pantry and clothing store. When my project team visited the current facility it was apparent that improvements could be made to assist the staff of pivot in achieving its mission while benefiting and aiding the teens on their journey. Therefore, it was critical that the center efficiency respond to the needs of the staff while simultaneously focusing on the safety and healing of the teenagers.

SITE AND CONTEXT



In the early development stage on the design my team heavily depended on the layout of the context plan. With the idea of safety in mind it made sense for the building to provide a barrier between the street and the rest of the pivot campus. As shown on the overall context plan the pivot campus displays a few circular nodes, which my team started to translate into the building site. These nodes helped us inform our site design and reinforce our concept by placing the new building and key elements at the heart of those nodes.



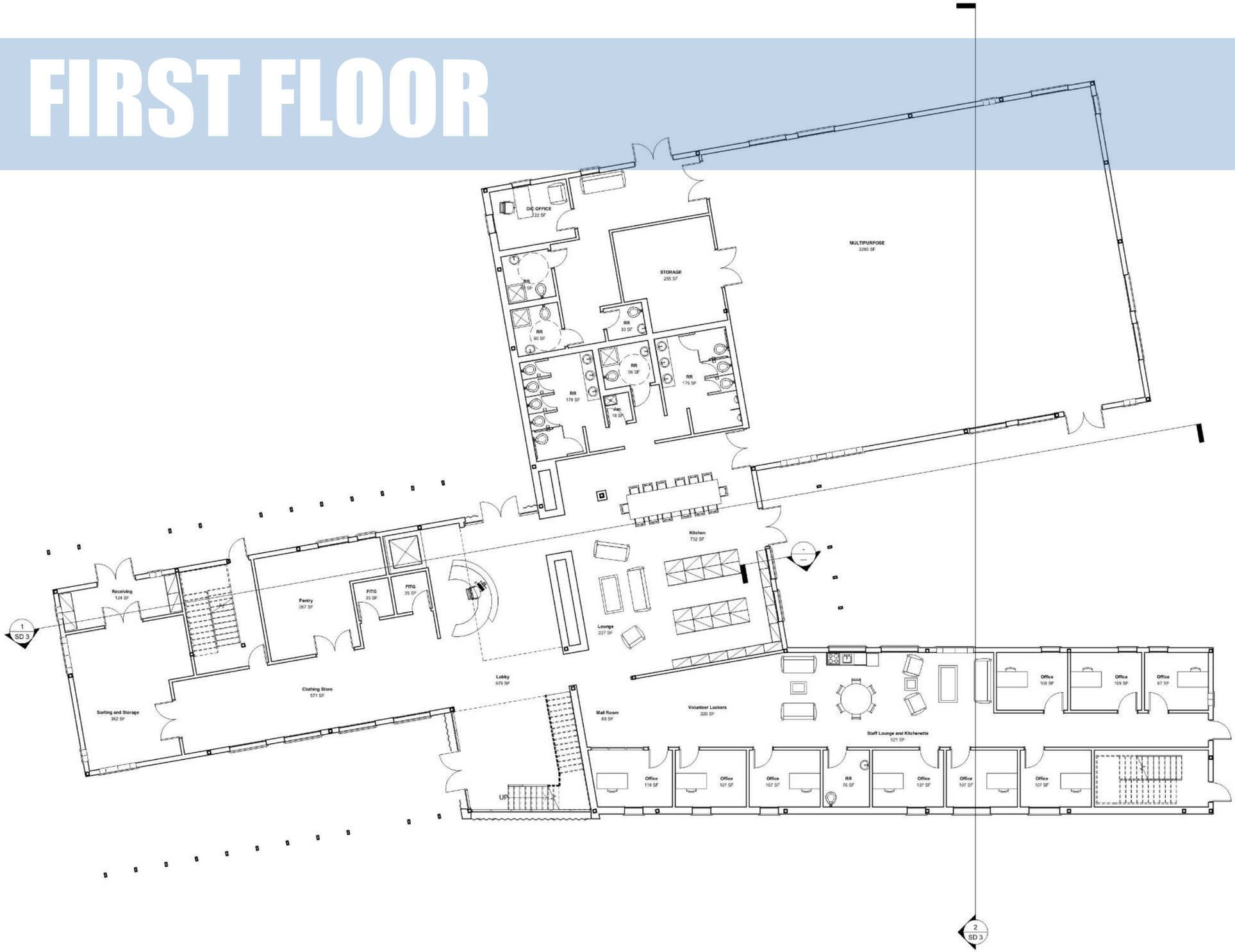
CONCEPT PARAGRAPH

To accomplish the goal of efficiency, safety and healing, the design was founded around the idea of home, with a rectangular plan radiated around the hearth of a brick fireplace. The exterior mass is of a modern house comprised of basic cubic shapes extruded to form a series of three single pitch roofs interrupted by the fireplace. The oak colored façade is contrasted by two long, massive brick walls radiated from the heart of the home. These brick walls continue onto the site to enclose the back yard while guiding visitors to the front and back doors. Various small-scale windows pierced through the façade at irregular intervals and support flower boxes to create moments of home.

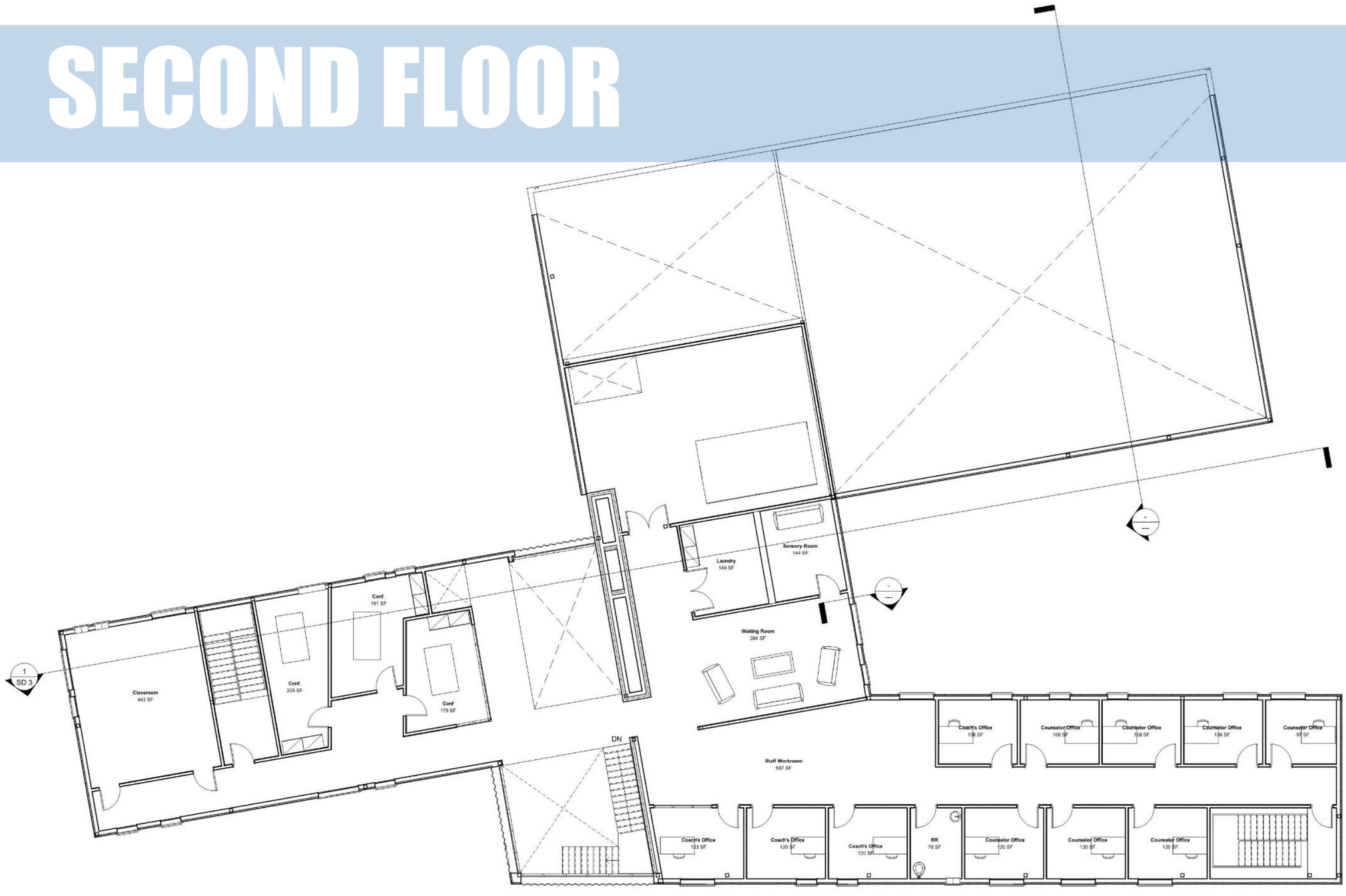
The front and back doors are covered by timber porches and highlighted by glass curtain walls. A metal skin system protects these curtain walls from direct light while the porches create intimacy leading to the doors. The tall brick wall and the roaring fire greet the visitors in an open lobby which leads to a combined living, dining, and kitchen area synonymous with the communal space of a home. The double height ceiling and grand staircase present in the lobby both physically and visually connect the heart of the home to the learning and healing spaces on the second floor. The clothing store, food pantry and a large multipurpose space are directly adjacent to the lobby to facilitate visitor access to basic needs.

The receiving, sorting and storage spaces are arranged in succession to make the donation and organization processes efficient. Partial partition walls provide the offices with visual privacy from the communal spaces but feed directly from the lobby to facilitate staff and client interaction. By emulating residential form, scale, and materiality, my team hoped the Pivot Center will perform efficiently but feel like a stable home.

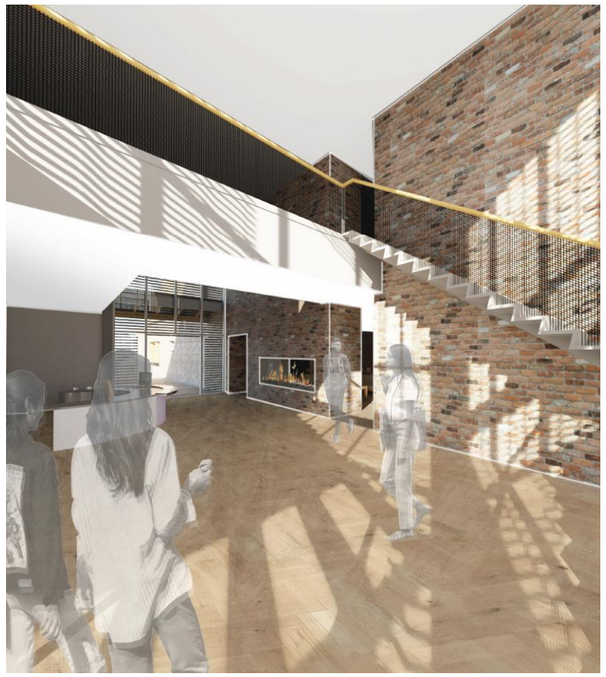
FIRST FLOOR


DIC OFFICE
122 SF
STORAGE
256 SF
MULTIPURPOSE
3285 SF
RR
RR
90 SF
RR
33 SF
RR
56 SF
RR
179 SF
RR
175 SF
Kitchen
732 SF
Receiving
124 SF
Pantry
287 SF
FITG
35 SF
FITG
35 SF
Lounge
227 SF
1
SD 3
Clothing Store
571 SF
Lobby
979 SF
Sorting and Storage
382 SF
Mail Room
89 SF
Volunteer Lockers
326 SF
Office
108 SF
Office
108 SF
Office
57 SF
Staff Lounge and Kitchenette
521 SF
Office
119 SF
Office
107 SF
Office
107 SF
RR
70 SF
Office
137 SF
Office
107 SF
Office
107 SF
UP
2
SD 3

SECOND FLOOR



PERSEPCTIVES



This SD rendering shows a perspective of the lobby as that a visitor would see upon entering the south main entrance of the building. Immediately, the fireplace greets the visitor and the basics needs of shelter is met.

To the left is the clothing store and the food pantry which fulfill the other two basic needs. The lounge and teaching kitchen behind the fireplace support the concept of residential imagery by making the communal space of the home easily accessible.

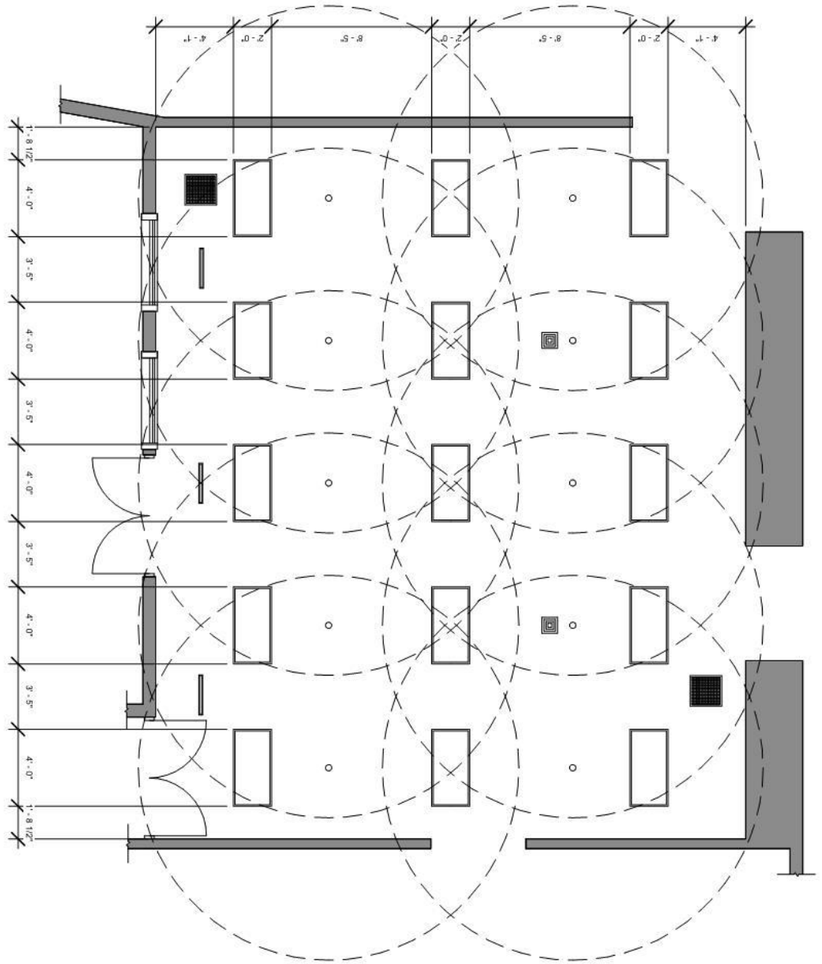
Finally, the height ceiling and grand staircase in the lobby visually and physically connect the visitors to the spaces of learning and counseling.

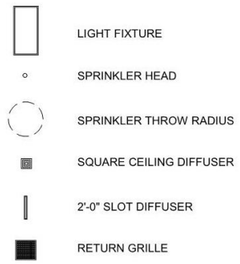
The SD renderings on the left show perspectives of the south and north façade (top and bottom respectively). One of the biggest challenges my team faced in early design development was providing the size of building required to fit the programmed spaces and preserving a large portion of the site for landscaping while simultaneously emulating residential imagery.

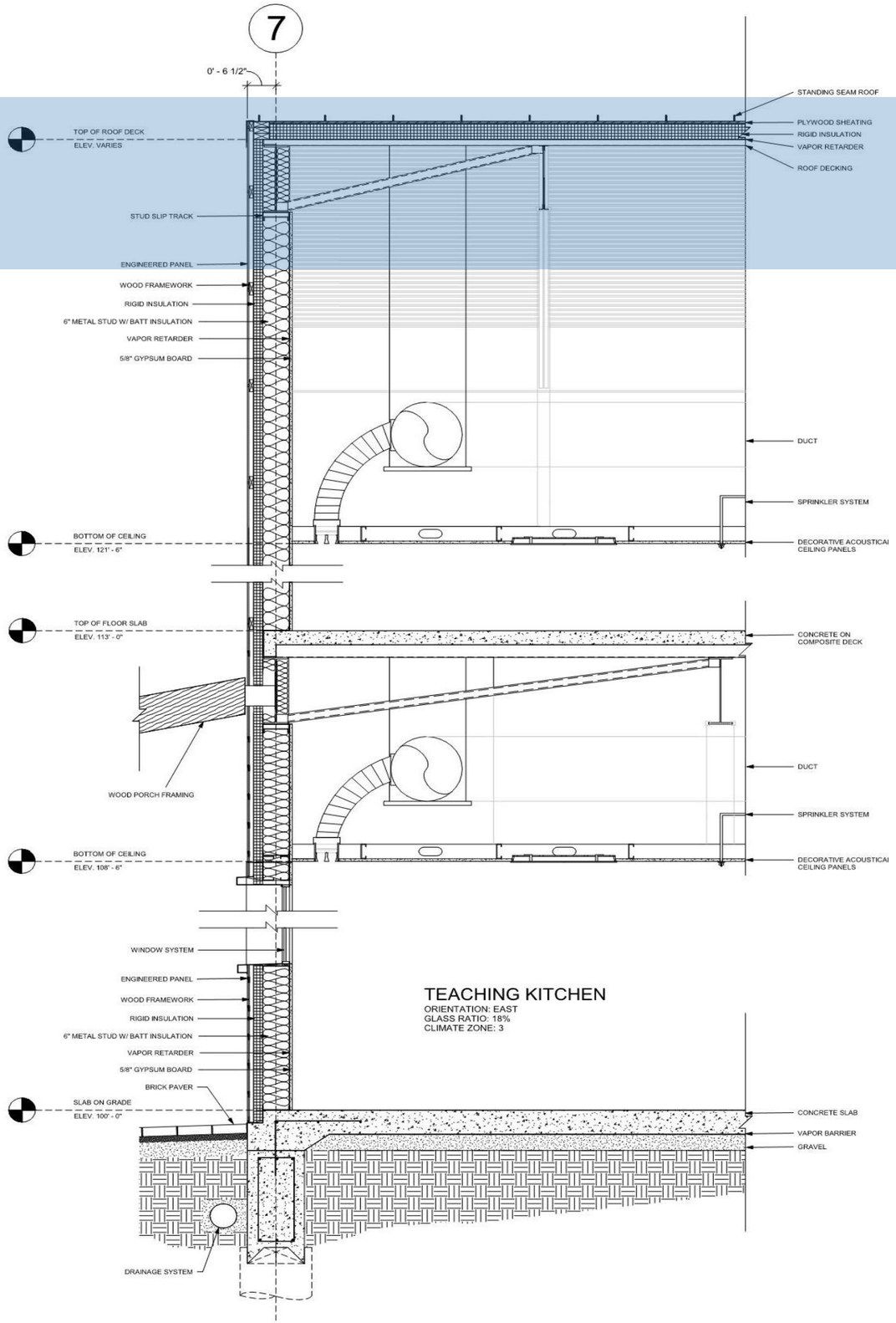
This was challenging because it pushed the project in the direction of a two-story structure for functionality but lead us astray from the scale required to provide the feelings of safety and comfort that would support the concept. The approach taken to resolve the issue of scale used a combination of mid-scale elements and a careful selection of materials.

As shown on the images, timber porches were added to break down the scale of the entrances and small-scale windows were used to provide variation in the façade to make it appear less intimating. Other elements were used to support the concept such as window flower boxes and the use of brick and wood paneling as the façade materials.

FOCUS SPACE

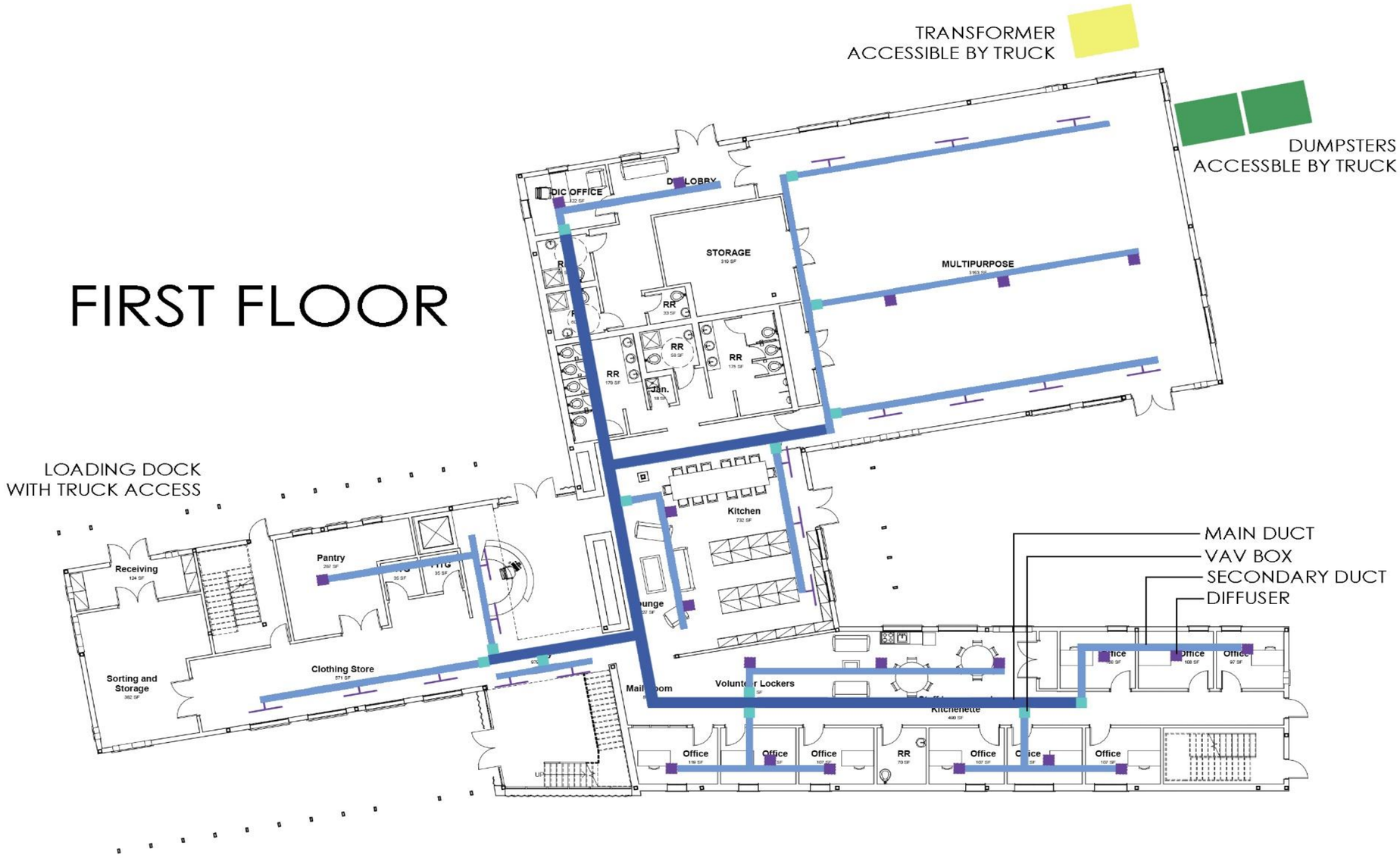






The focus I selected to further my study of the mechanical, lighting and envelope systems was the teaching kitchen. I selected this space for its importance to the concept of home. Using R-value and U-value calculations the code compliance of the envelope was checked. The lighting components as well as the diffuser amounts were calculated and placed on the ceiling plan for coordination with the fire suppression system. This process was straight forward as the systems were not exposed in response to the concept of home. Working in section was challenging was the team had worked solely on plan for long period of time. It was nonetheless beneficial as it helped resolve coordination issues and guided me in process of finalizing my architectural design.

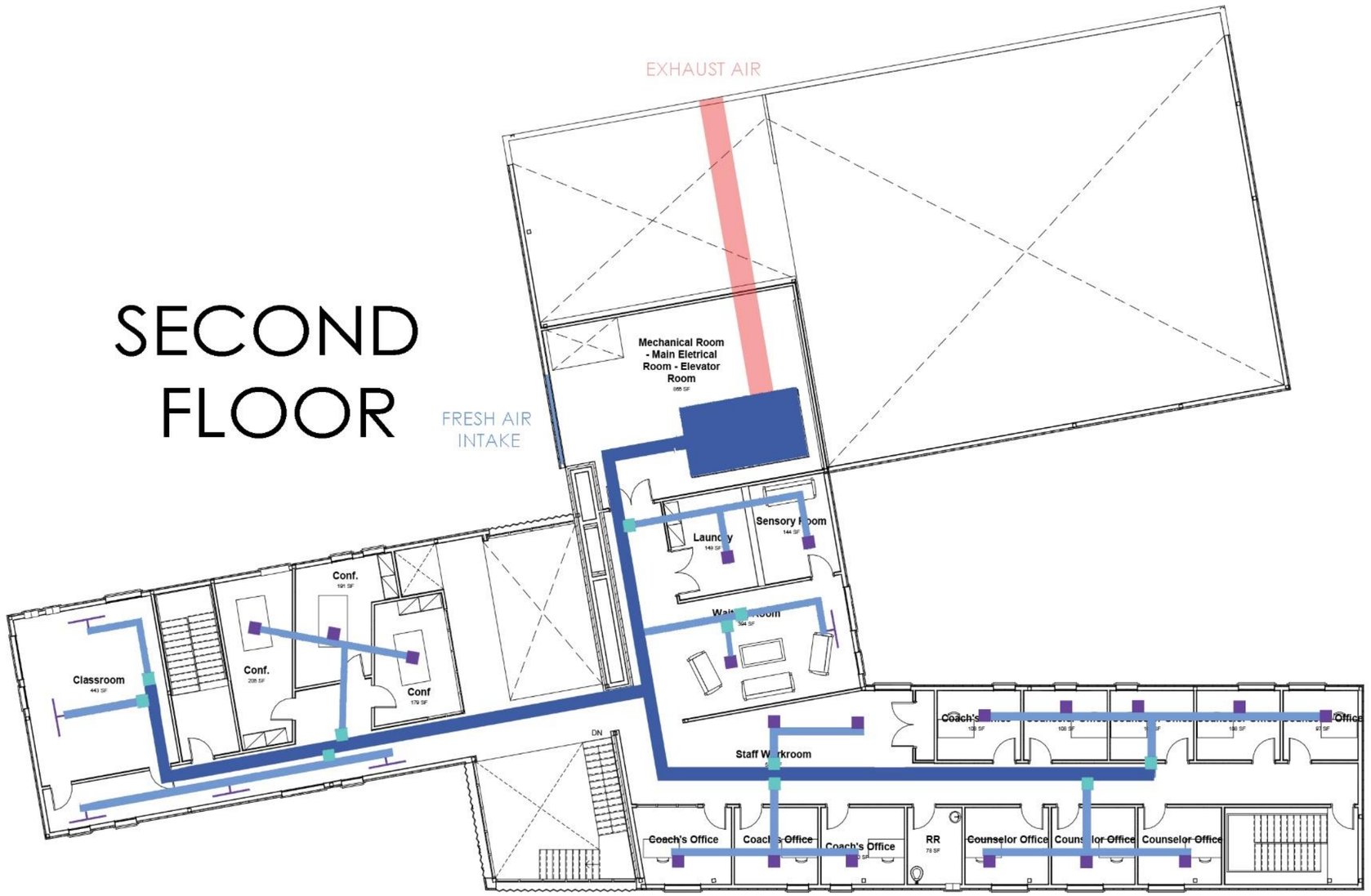
MECHANICAL SYSTEMS



This plan displays the mechanical system coordination throughout the first floor as well as waste disposal, loading, and some components of the electrical system.

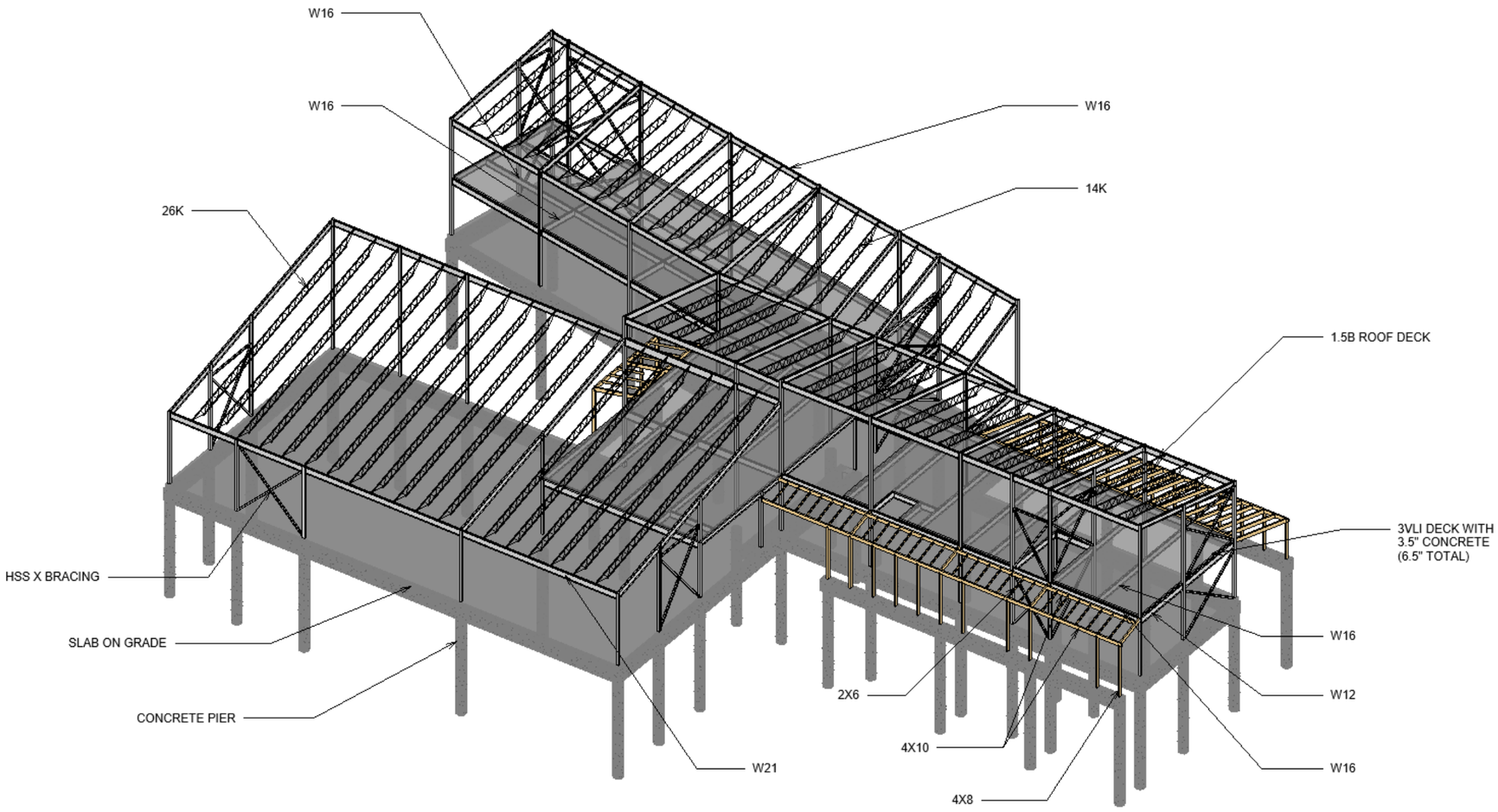
The mechanical system selected for this project was a single air-handling unit with VAV boxes and a ground source heat pump. The heat pump helped minimize the presence of large equipment on site and provided energy saving. A majority of the space were single thermal zone spaces which made the mechanical layout very straight forward.

MECHANICAL SYSTEMS



This plan displays the mechanical system coordination throughout the second floor. The air-handling unit is shown in the mechanical room which also serves as the main electrical room and the hydraulic elevator room. The fresh air intake and exhaust for AHU are shown as well.

STRUCTURAL SYSTEMS



Originally my team explored three different structural schemes. Although these three schemes employed steel as the main structural system, they had some slight differences. One employed masonry bearing walls and shear walls, another employed steel floor joists and the third employed a composite deck system. All three system used roof joists.

The team made the decision early on to hide the structural system to support the concept of home. So from an aesthetic standpoint none of the three systems had an advantage over one another; However the composite deck system would provide reduced member depths, which would help reduce the overall scale of the building while maximizing floor to ceiling heights. Additionally, the built-in capacity of the composite system would allow the owners of the building to reframe the spaces if they needed in the future.

Ultimately, a composite deck was used at the floor, with a roof joist system and square HSS columns. The lateral resisting system uses square HSS x-bracing and the foundation uses a pier and grade beam system. Although the small loads of the building do not necessarily call for such a foundation system, the elongated and fragmented shape of the building could result in differential settling. A pier and grade beam foundation will prevent this issue from arising.

SECTION 1: GENERAL INFORMATION AND DESIGN CRITERIA

SECTION 1.1 - DOCUMENTS

1.1.1 Structural Construction Documents consist of Project Specifications and Structural Drawings. Structural drawings include General Notes and Typical details in addition to plans, sections and details.

1.1.2 General Notes and Typical Details describe general criteria that apply to all similar conditions throughout the project regardless of whether or not they are specifically referenced in the plans or details.

1.1.3 Do not scale plans for construction purposes. Strength or fit of materials

1.1.4 The structural documents are protected by U.S. Copyright Laws. They shall not be used for any purpose other than construction of the structure noted on the Architectural Drawings.

1.1.5 The design represented by these documents is only for the building site and the purposes shown on the Architectural Drawings.

1.1.6 The GEOTECHNICAL REPORT is a separate document (not part of contract documents) furnished by the project owner. The contractor is urged to obtain a copy of the report for reference as it describes sub-surface conditions that may be encountered during installation of foundations and contains other information pertinent to construction of the project.

1.1.7 The contractor must coordinate Structural Documents with other trades and disciplines including; architectural, mechanical, electrical, HVAC and fire protection. Every attempt is made to coordinate drawings prior to issue, however, some requirements are not known prior to issue, and change may occur during construction as layout and fabrication drawings are developed.

1.1.8 Promptly report deviations and interferences with structural components for resolution by the Engineer.

1.1.9 Verify dimensional location and depth of slab recesses and offsets with Architectural Drawings.

1.1.10 Verify weights, location and details of structurally supported mechanical equipment prior to construction of the supporting structure. Report deviations from assumed conditions to the Engineer prior to fabricating materials.

1.1.11 Verify the location, size and detail of roof openings and curbs for mechanical equipment prior to fabricating materials. Report deviations from assumed conditions to the Engineer before proceeding with work.

1.1.12 Verify location and size of floor and roof penetrations and sleeves for mechanical and electrical components. Openings in beams, girders, columns and slabs must be submitted for approval.

1.1.13 Verify dimensions, details, plumbness and squareness of existing structures meeting or tieing into new construction.

1.1.14 Heights of floor and roof decks and various framing components are given on the drawings relative to a reference elevation of 100'-0". This reference elevation is equivalent to a Mean Sea Level Elevation of 2702.

SECTION 1.2 - CODES AND STANDARDS

1.2.1 Building Code: 2015 International Building Code (IBC)

1.2.2 Concrete Code: American Concrete Institute ACI 318-14

1.2.3 Steel Code: AISC Steel Construction Manual, 14th edition

1.2.4 Wood Code: National Design Specification (NDS), 2015

SECTION 1.3 - DESIGN LOADS

1.3.1 Live Loads:

Public Stairs	100	psf
Corridors	100	psf
Mechanical Room	125	psf
Offices, Typical Floors	50	psf (1)
Roof, Slope Less than 4:12	20	psf

Notes:
(1) Plus partition loading (see Dead Loads)

1.3.2 Dead Loads:

6 1/2" Composite Floor System	63	psf
Flooring	4	psf
Typical Ceilings	4	psf
Floor Collateral	7	psf (1)
Floor Sprinklers	3	psf (3)
Partition Loading	15	psf (4)
Roof Collateral	7	psf (1)
Roof Insulation	2	psf
Roof Sprinklers	3	psf (3)
Roofing System	12	psf (2)

Notes:
(1) Collateral loads include; lighting, ductwork, miscellaneous framing.
(2) Roofing system weight is the maximum unit weight of roofing materials and ballast (where applicable) for which the roof structure is designed.
(3) Sprinkler loadings are for distribution lines and heads, exclusive of mains, which are included Separately as concentrated dead loads.
(4) Applied where noted under "Live Loads".

1.3.3 Wind Loads: MWFRS

Base Mean Wind Velocity	115	mph
Wind Exposure Classification	B	
Wind Importance Factor	1.0	
Analysis Procedure -	MWFRS	

1.3.4 Seismic Loads:

Mapped Spectral Response Acceleration, Ss	0.26
Mapped Spectral Response Acceleration, S1	0.077
Spectral Response Coefficient, Sds	0.208
Spectral Response Coefficient, Sd1	0.087
Site Class	C
Seismic Importance Factor, Ie	1.0
Seismic Use Group	II
Seismic Design Category, SDC	B
Seismic Response Coefficient, Cs	0.064
Basic Seismic Force Resisting System	OCBF
Response Modification Factor, R	3.25
Deflection Amplification Factor, Cd	3.25
System Over Strength, Ωo	2.0
Design Base Shear	86.71 K

Analysis Procedure - Equivalent Lateral Force Procedure

SECTION 2: FOUNDATIONS AND RELATED EARTHWORK

GEOTECHNICAL REPORT

2.1 Design of foundations and structural components in contact with soil is based on the recommendations given in the following:

Report by : TERRACON
Date of Report : April 22, 2005

2.2 Refer to the geotechnical report for subsoil conditions that may be encountered during installation of foundations, and other information pertinent to foundation and site prep

2.3 Design of soil-supported slabs is based on a [illegible] of soil movement [illegible] recommendations in the Geotechnical Report.

2.4 [illegible] supported buildings.

RETENTION S

2.5 The design of earth retention systems is not included in Structural Documents. Refer to the Technical Specifications for requirements.

STRAIGHT SHAFT PIERS

2.6 Bearing Stratum: Weathered siltstone/shale
Allowable End Bearing: 20,000psf
Positive Side Friction: 2,000psf
Upheaval Side Friction: 2,000psf
Negative Side Friction: 2,000psf
Minimum Penetration of Strata: 10ft

2.7 Pier depths indicated are for bidding purposes only. Actual pier depths may vary depending on depth to bearing stratum.

2.8 Steel dowels at tops of piers or footings shall extend 30 bar diameters above and below top of pier unless noted otherwise (noted as "LAP" on Typical Details).

2.9 Top of pier elevations given are relative to reference elevation 100'-0".

2.10 Over-pour at tops of piers ("mushrooms") shall be removed to the required pier diameter.

SECTION 3: STRUCTURAL CONCRETE

3.0.1 Composite deck system shall be shored in accordance with manufacturer's requirements. Shoring is to remain in place until concrete has reached 75% of specified compressive strength. In addition, shoring is to remain in place until all levels have been placed and have reached 75% of specified compressive strength.

3.0.2 At support points and edge of deck locations, composite deck shall be attached to load bearing walls and structural steel support beams with Hilti Flex Screws, Type 12-14x7/8 HWH #3, at 12" o.c., UNO.

3.0.3 Deck shall span between supports. No midspan splicing of the deck is permitted. Provide #10 tek screw side fasteners at 24" o.c.

SECTION 3.1 - CONCRETE FORMS

3.1.1 Formed Voids - Provide retained void spaces between bottom of structural members and sub grade as follows:

Grade Beams	6 inches
Structural Slabs	10 inches
Basement Walls	6 inches

3.1.2 Grade Beams - shall be formed both sides unless specifically shown or noted otherwise in the details.

SECTION 3.2 - STEEL REINFORCING

STEEL REINFORCING

3.2.1 All bars shall be deformed in accordance with ASTM A615. Reinforcing indicated to be welded shall conform to ASTM A796.

3.2.2 Strength of bars shall be as follows:

All Bars Grade 60

SPLICING OF REINFORCING BARS

3.2.3 Top bars in beams, slabs or joists shall be spliced at midspan between supports, unless noted otherwise.

3.2.4 Bottom bars in beams, slabs or joists shall be spliced at supports, unless noted otherwise.

3.2.5 Vertical bars in walls shall be spliced at top of concrete above floors, unless noted otherwise.

3.2.6 Column reinforcing shall be spliced at top of concrete above floors, unless noted otherwise.

LAPPED SPLICE LENGTHS

3.2.7 Lap reinforcing 30 bar diameters at splices unless noted or detailed otherwise.

CONCRETE COVER TO REINFORCING

3.2.8 Clearance from face of concrete to face of reinforcing:

Piers	3"
Footings	3"
Formed Grade Beams	1-1/2" top, 2" sides, 3" bottom
Columns	1-1/2" interior, 2" exterior exposure
Walls	1" interior, 2" exterior exposure
Slabs	3/4"
Beams	1-1/2" interior, 2" exterior exposure
Basement Walls	1" inside face, 2" outside face

PLACEMENT OF REINFORCING

3.2.9 Offsets in reinforcing bars shall be bent at a ratio of 1 (normal to bar axis) to 6 (parallel to bar axis).

3.2.10 Provide corner bars at intersections of beams and walls in accordance with Typical Details.

3.2.11 Provide dowels from grade beams or foundation equal in size and spacing to vertical bars in walls or pilasters and extend one splice length above and below joint line, unless noted otherwise.

3.2.12 Start stirrup spacing in beams 2 inches outside of face of supports.

3.2.13 Place first bar of slab reinforcing parallel to side 2 inches from a free edge or half of required bar spacing from face of edge beam.

3.2.14 Single layer reinforcing in walls shall be placed at center of walls unless noted otherwise.

3.2.15 Place welded wire reinforcing in slabs in toppings, or in slabs poured on metal deck at center of slab unless noted otherwise.

SECTION 3.3 - CONCRETE MIX DESIGNS

3.3.1 Concrete Mix Schedule:

a) "HRC" refers to hardrock concrete having air dry unit weight of approximately 145 PCF [illegible]
b) [illegible]
c) [illegible]
d) [illegible]
e) [illegible]

Class	Strength	Type	Agg. Size	Slump inches	W/C	Notes
A	3000	HRC	1-1/2"	5-7	---	
B	3000	HRC	1"	3-5	---	
C	3500	HRC	1"	2-4	---	
D	4500	HRC	1"	3-5	---	
E	3000	HRC	3/4"	2-4	---	
F	4000	HRC	1"	3-5	---	

3.3.2 Mix Usage Schedule:

Concrete Description of Use	Class	Air Content
Drilled Piers	A	------
Footings	A	------
Grade Beams	B	4.5-6%
Interior Slab-on-Grade	C	------
Basement Slab	D	------
Basement Walls	D	------
Retaining Walls	D	4.5-6%
Elevator Pit Walls	B	------
Slab on Composite Metal Deck	E	------
Structural Beams and Slab	D	------
Structural Columns	D	------
PCN Walls, Columns & Slabs	F	------

SECTION 3.4 - CONCRETE SLABS

3.4.1 Slabs Placed on Grade

Location	Thickness	Reinforcing
All	5 inches	#3 @ 18 EW

a) Reinforcement shall be placed 2 inches from top of slab, unless detailed otherwise.
b) Provide construction joints in slabs where indicated on Plans. Allow minimum of 4-day interval between placing adjacent sections of slab.

SECTION 4: STRUCTURAL STEEL

SECTION 4.1 - STRUCTURAL FRAME

4.1.1 Structural Steel Properties:

W-shapes and Tees	ASTM A992
Angles, Channels, Plates, uno	ASTM A36
Pipe Columns	ASTM A53, Grade B
HSS Rectangular	ASTM A500, Grade B
HSS Round	ASTM A500, Grade B
Erection Bolts	ASTM A307
High Strength Bolts	ASTM A325N
Anchor Bolts	ASTM A36 or A307
High Strength Anchor Bolts	ASTM A193 Grade B7
Headed Stud Anchors	ASTM A108

WELDING

4.1.2 Unless otherwise noted, angles, plates, rods, and miscellaneous framing shall be welded at contact joints and supports. Weld sizes shall conform to AWS D1.1 minimum, except where noted otherwise.

4.1.3 Where fillet weld sizes are not indicated on weld symbols, fillet size shall be 1/16th inch smaller than thickness of thinner of materials being joined.

4.1.4 Complete penetration welds are indicated by notation "CP" on weld symbols, partial penetration by "PP".

4.1.5 Edge angles at perimeters of floors and roofs noted as "CHORD MEMBERS" or "CONTINUOUS" on details shall be butt welded at splices to develop full allowable tensile strength of member.

4.1.6 Edge angles supporting floor or roof deck shall be spliced only over supports.

STRUCTURAL BOLTS

4.1.7 Bolts indicated on details shall be ¾" diameter, unless noted otherwise.

4.1.8 Bolts shall be tightened by the AISC "Snug Tight" method unless noted otherwise.

4.1.9 Shelf angles supporting masonry shall have ¼" wide expansion joints spaced not more than 40 feet apart.

SECTION 4.2 - METAL ROOF DECK

4.2.1 Metal Deck Schedule:

Deck Gauge	SDI Deck Type	Deck Depth (In.)	Sheet Width (In.)	Min. Ix (In.4)	Min. Sx(top) (In.3)	Min. Sx(bot) (In.3)
22	WR	1.5	36	0.169	0.192	0.188

4.2.2 Metal Deck Connection Schedule:

Mark	Conn. @ Supports (W/N)	Conn. @ Parallel Edges (In.)	Sidelap Conn. (#/span)	Req'd Shear Capacity (lb/ft)
I	36/5	12	4	287
II	36/7			

4.2.3 Support and parallel edge connections shall be 5/8-inch diameter puddle welds. Sidelap connections shall be #10 hex screws. W/N = sheet width / # connections each sheet.

4.2.4 Roof deck shall be connected as indicated for Mark I unless noted otherwise.

SECTION 4.3 – LIGHT GAUGE METAL FRAMING

4.3.1 Metal stud sizes, spacing, gages, details and connections are minimum requirements based on member section properties of Dietrich Industries. Contractor shall provide complete engineered light gage framing system for exterior and interior metal stud framing.

4.3.2 Lightgage Steel Properties:

Mbr	Material	Grade	Fy	Shop Coat
Studs	ASTM A446	[illegible]	40 ksi	Galvanized (G-60)
Joi	STM A446			(G-60)
Tra	STM A446			(G-60)

[illegible]

4.3.5 Do not weld 20 gage or lighter metal framing unless called for on plans or details.

SECTION 5: STRUCTURAL TIMBER

WOOD TIMBER

5.1.1 Framing shall be Douglas Fir, with grades as follows:

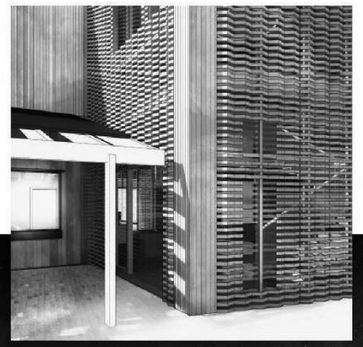
Exterior Structure - No. 1

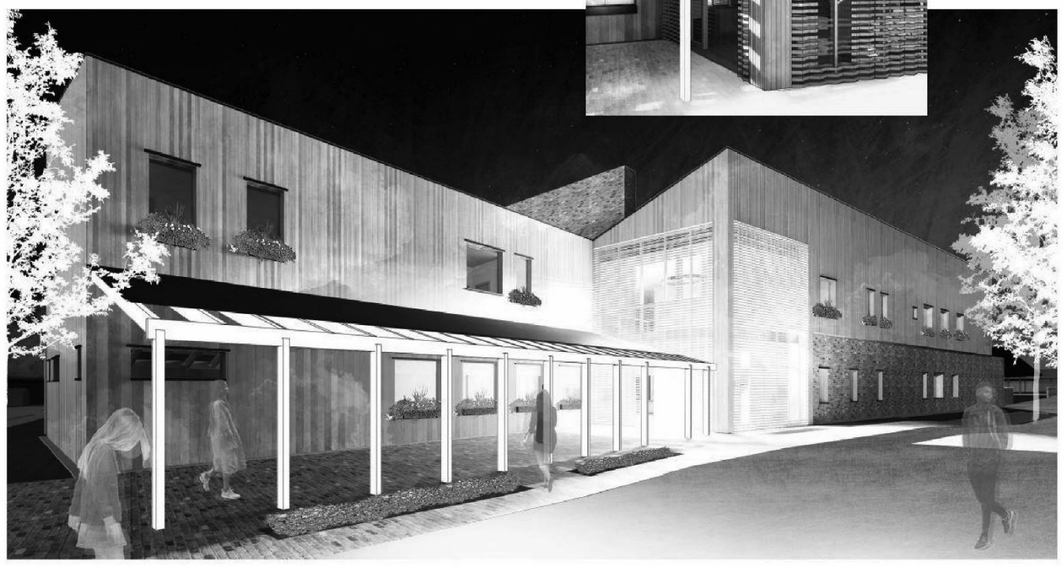
5.1.2 Nailing of wood framing shall be in accordance with "Fastening Schedule" Table 2304.10.1 in the 2015 International Building Code.

5.1.3 Metal connectors referenced on details are "Strong Tie" connectors manufactured by Simpson Co.

Pivot

A TURNING POINT FOR YOUTH





COMPREHENSIVE - PIVOT CENTER

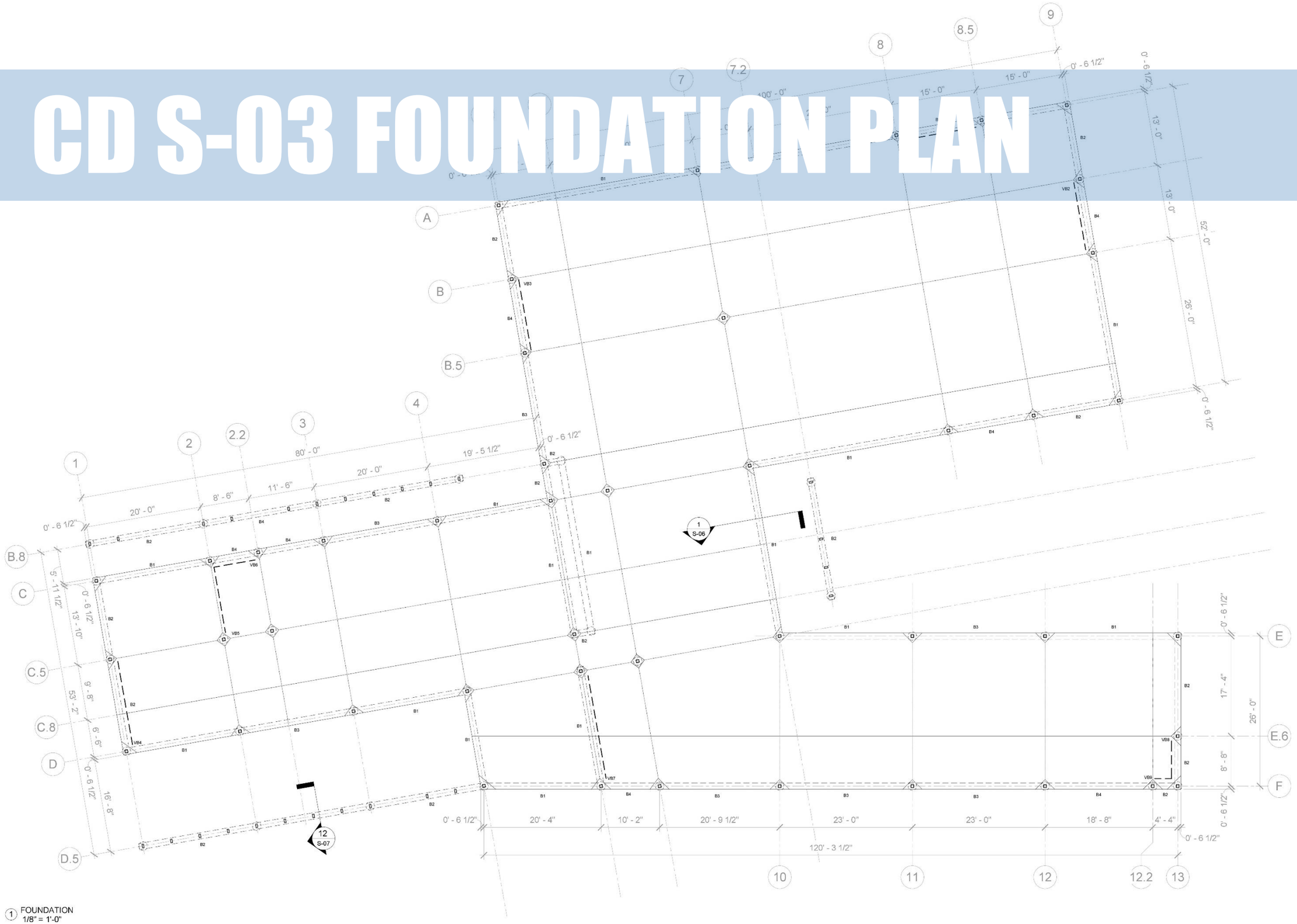
Willem Garrison

201 NE 50th St, OKC, OK 73105

SHEET #

S-01

CD S-03 FOUNDATION PLAN



1 FOUNDATION
1/8" = 1'-0"

FOUNDATION PLAN NOTES

1. FINISH FLOOR ELEVATION IS 100'-0" (RELATIVE TO DATUM 100-0).
2. TOP OF CONCRETE SLAB IS FINISH FLOOR UNLESS SHOWN OTHERWISE.
3. TYPICAL CONCRETE SLAB THICKNESS IS 6", REINFORCED WITH #4 @ 18" O.C.E.W. UNLESS NOTED OTHERWISE.
4. SHEET INDEX:

GENERAL STRUCTURAL NOTES	S-01
TYPICAL DETAILS	S-06 S-07
SCHEDULES	S-08

COMPREHENSIVE - PIVOT CENTER

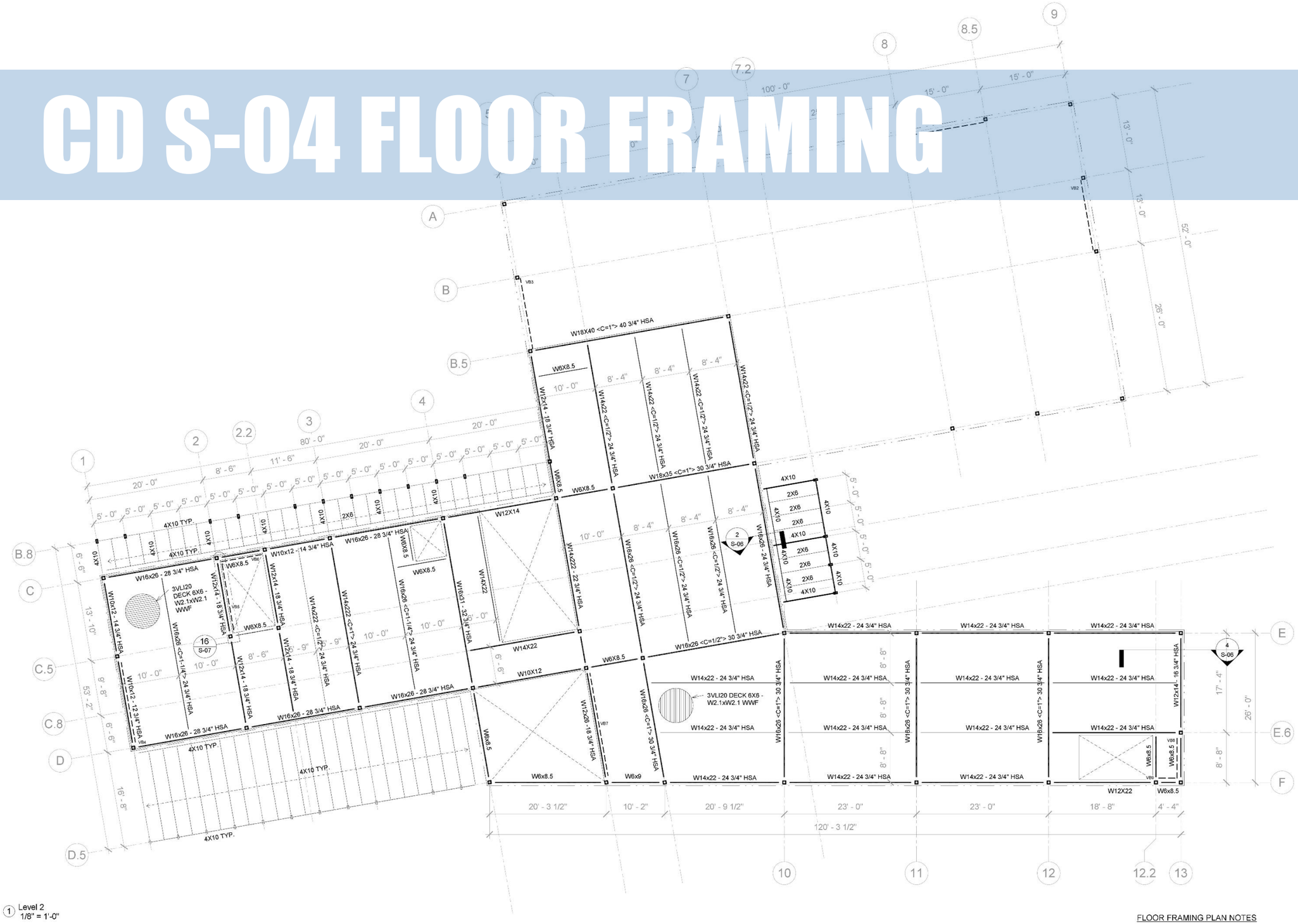
Willem Garrison

201 NE 50th St, OKC, OK 73105

SHEET #

S-03

CD S-04 FLOOR FRAMING



1 Level 2
1/8" = 1'-0"

FLOOR FRAMING PLAN NOTES

1. FINISH FLOOR ELEVATION RELATIVE TO DATUM 100-0) IS: SECOND FLOOR 113
2. TOP OF CONCRETE SLAB IS FINISH FLOOR UNLESS SHOWN OR NOTED OTHERWISE.
3. SLAB THICKNESS IS 3 1/2" NORMAL WEIGHT CONCRETE ON 3" COMPOSITE DECK (6 1/2" TOTAL THICKNESS)
4. SHEET INDEX:
   GENERAL STRUCTURAL NOTES S-01
   TYPICAL DETAILS AND SCHEDULES S-06, S-07, S-08

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Willem Garrison
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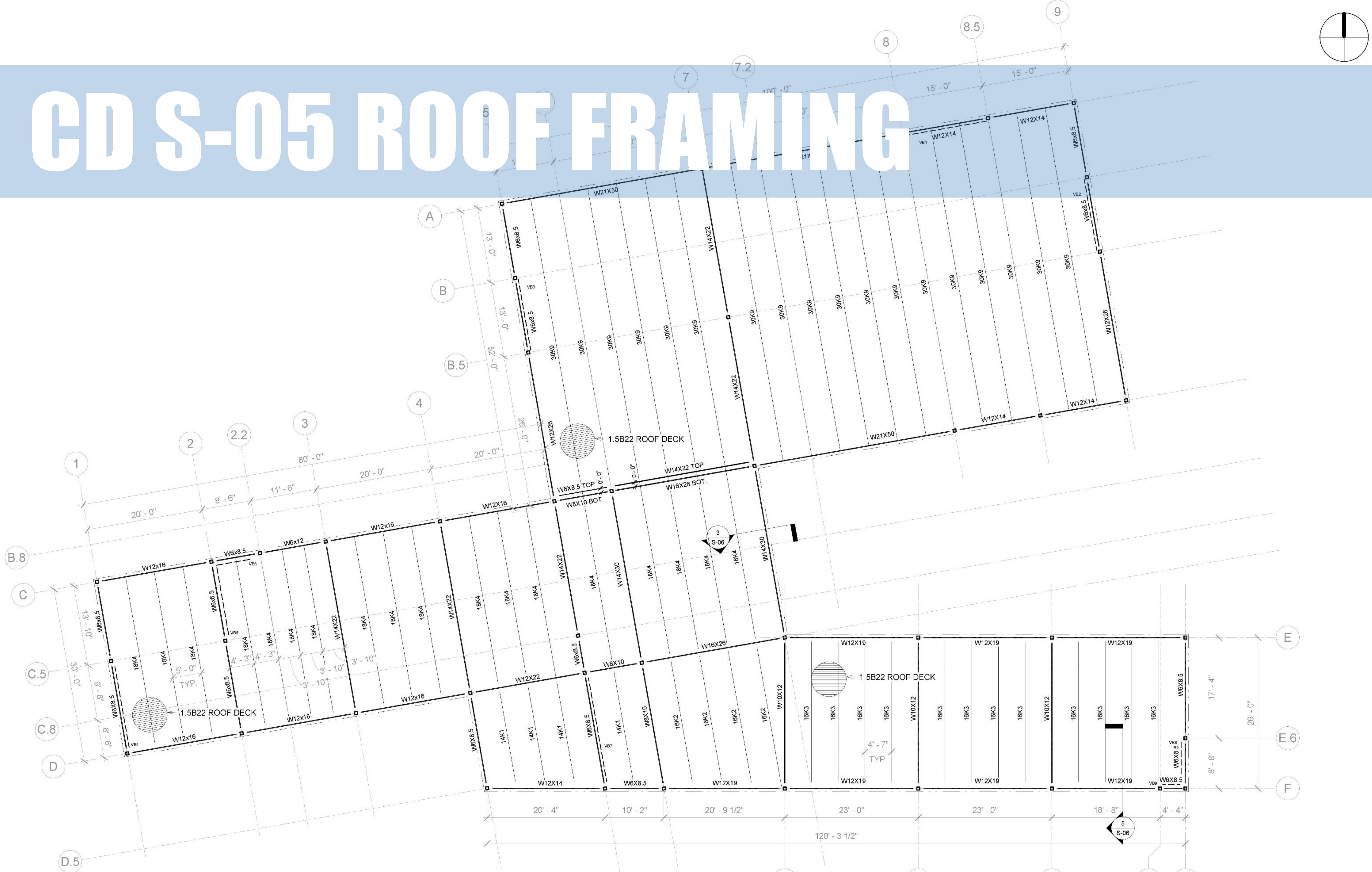
SHEET #
S-04

CD S-05 ROOF FRAMING



1 Top of roof
1/8" = 1'-0"

ROOF FRAMING PLAN NOTES

1. TOP OF ROOF STRUCTURE IS SLOPED FOR DRAINAGE. SEE ELEVATIONS NOTED ON PLAN.
2. UNLESS NOTED OTHERWISE, STEEL JOISTS SHALL BE CENTERED ON AND EQUALLY SPACE BETWEEN COLUMN CENTERLINES.
3. JOISTS SUPPORTING MECHANICAL EQUIPMENT SHALL BE DESIGNED FOR TYPICAL ROOF LOADINGS PLUS A CONCENTRATED LOAD OF 60% OF INDICATED EQUIPMENT WEIGHT PLACE AT ANY PANEL POINT.
4. SHEET INDEX:

GENERAL STRUCTURAL NOTES	S-01
TYPICAL DETAILS	S-06 S-07
SCHEDULES	S-08

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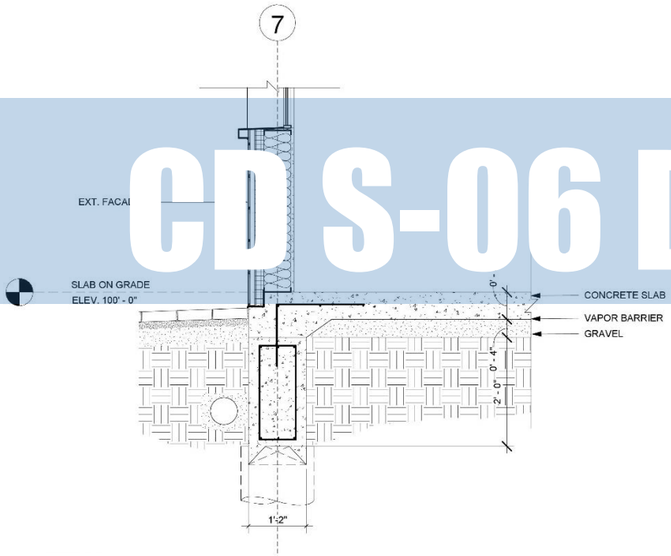
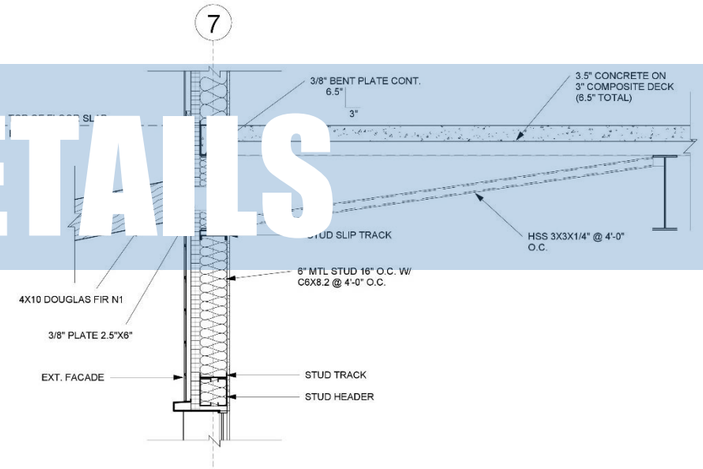
SHEET #

S-05

CD S-06 DETAILS



DETAIL 1



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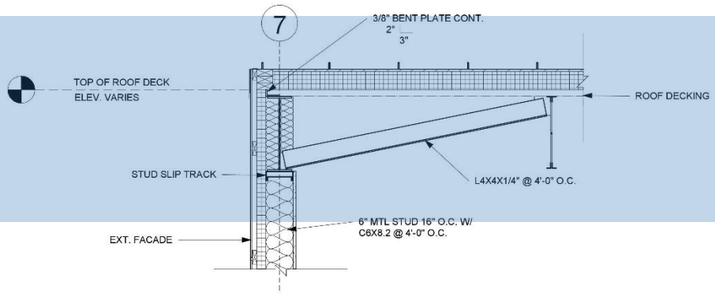

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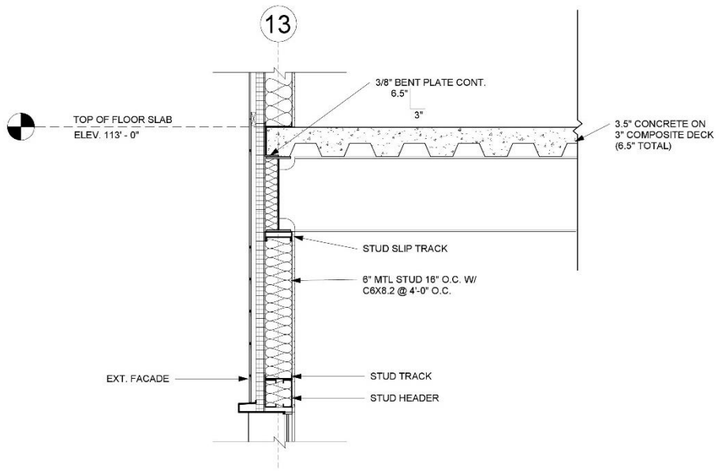
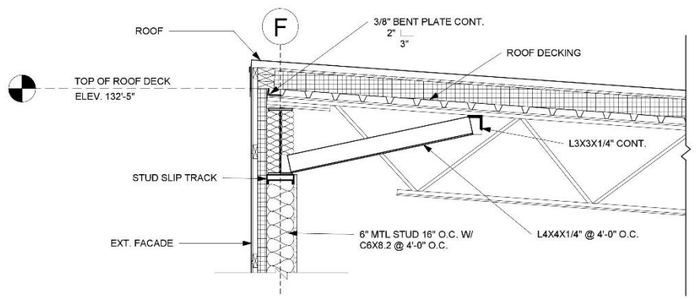
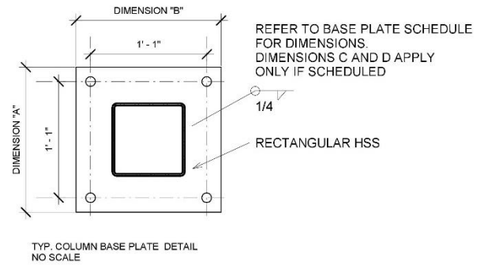


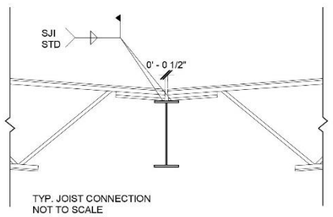
DETAIL 4



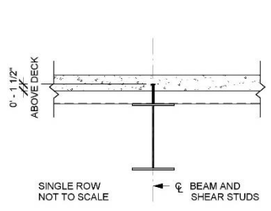
DETAIL 5

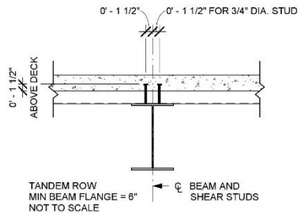


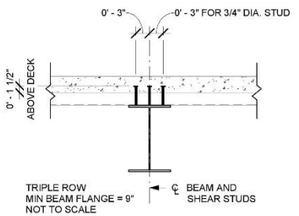
DETAIL 6



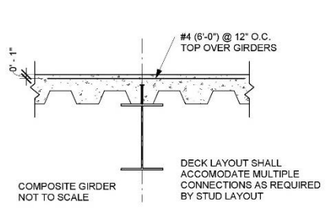
DETAIL 7







DETAIL 8



DETAIL 9

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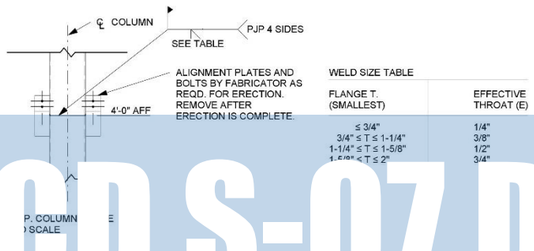
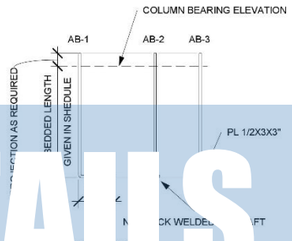
SHEET #

S-06

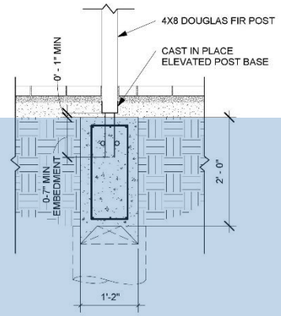
CD S-07 DETAILS



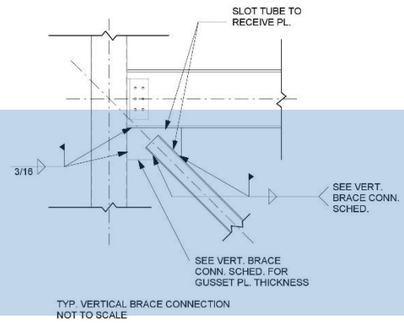
DETAIL 11



DETAIL 12



DETAIL 13



DETAIL 14

DETAIL 15

DETAIL 16

DETAIL 16

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SHEET #

S-07

CD S-08 SCHEDULES

GRADE BEAM SCHEDULE

MARK	SIZE	BAR TYPE (Support … Support)	STIRRUPS TYPE and SIZE	STIRRUPS SPACING	NOTES
	14" X [illegible]	[illegible] #7	#3		
B2	14" X 26"	2 #4 / 2 #4	#3		
B3	14" X 26"	2 #6 / 2 #6	#3		
B4	14" X 26"	2 #4 / 2 #4	#3		

STEEL COLUMN SCHEDULE

Column Location	ALL COLUMNS UNLESS OTHERWISE NOTED
SECOND FLOOR	HSS6X6X1/4"
GROUND FLOOR	HSS6X6X1/4"
BASE PLATE	3/4"X10"X10" 4 - 3/4" DIA. ANCHOR BOLTS

Notes:
1) Refer to Column Splice detail for requirements and locations.
2) Refer to detail 6 for column base plate requirements.

VERTICAL BRACING SCHEDULE

VERTICAL BRACE	VB1	VB2 VB3	VB4 VB5 VB6	VB7	VB8 VB9
SECOND FLOOR			hss6x6x1/4" / hss6x6x1/4"	hss6x6x1/4" / hss6x6x1/4"	hss5x5x1/4" / hss5x5x1/4"
GROUND FLOOR	hss5x5x1/4" / hss5x5x1/4"	hss6x6x1/4" / hss6x6x1/4"	hss5x5x1/4" / hss5x5x1/4"	hss6x6x1/4" / hss6x6x1/4"	hss5x5x1/4" / hss5x5x1/4"

Notes:
1) Refer to Column Splice detail for requirements and locations.
2) Refer to details 13, 14 and 15 for connection.

PIER SCHEDULE

SHAFT DIAMETER	VERTICAL REINFORCING	TIES AND SPACING	PENETRATION INTO BEARING STRATUM
18"	6 - #5	#3 @ 10" o.c.	3'-0"
PIER CONFIGURATION TYPICAL UNLESS OTHERWISE NOTED			

SAWN LUMBER COLUMNS

GROUND FLOOR	ALL COLUMNS 4X10 DOUGLAS FIR N1 UNLESS OTHERWISE NOTED

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SHEET # S-08

CONCLUSION

Early conceptual sketch of the fireplace element.

SD rendered view of the fireplace element.

The scope of this project was fairly simple. Although the process was challenging at times, my team had great work ethics and made a concept selection very early in the design phase. The concept of home may seem simple but translating it into a facility with very different purposes and scale to that of a home had its difficulties. Additionally, understanding what makes a home what it is, took some research from each of my team members.

The work ethics of my team facilitated my workload from a structural standpoint, but it allowed me to majorly contribute to the design process in the SD phase. I greatly enjoyed this project and the challenges I faced to complete it; I can say with confidence that if I were faced with the same project again I would pick the same team and take a very similar route to the one we took.