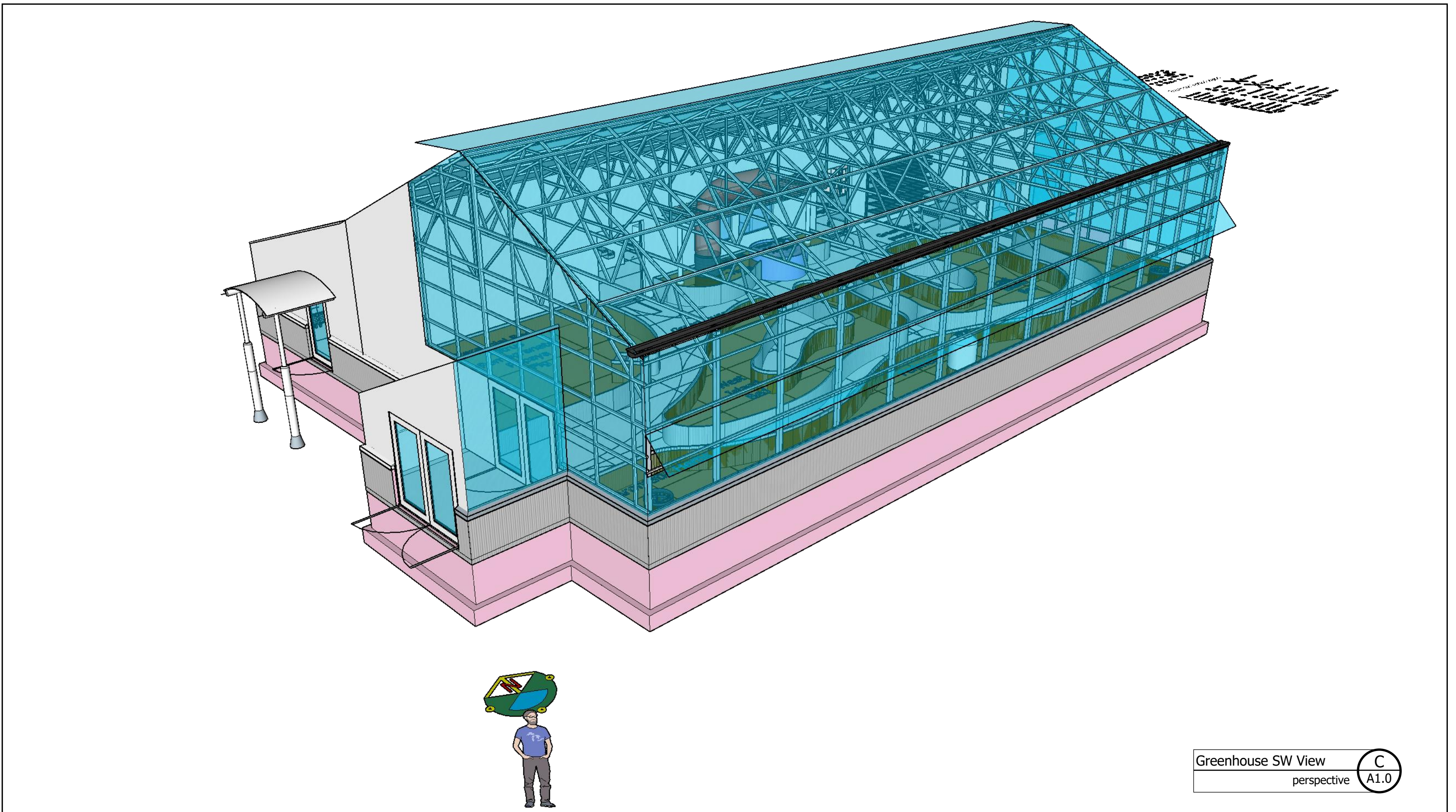
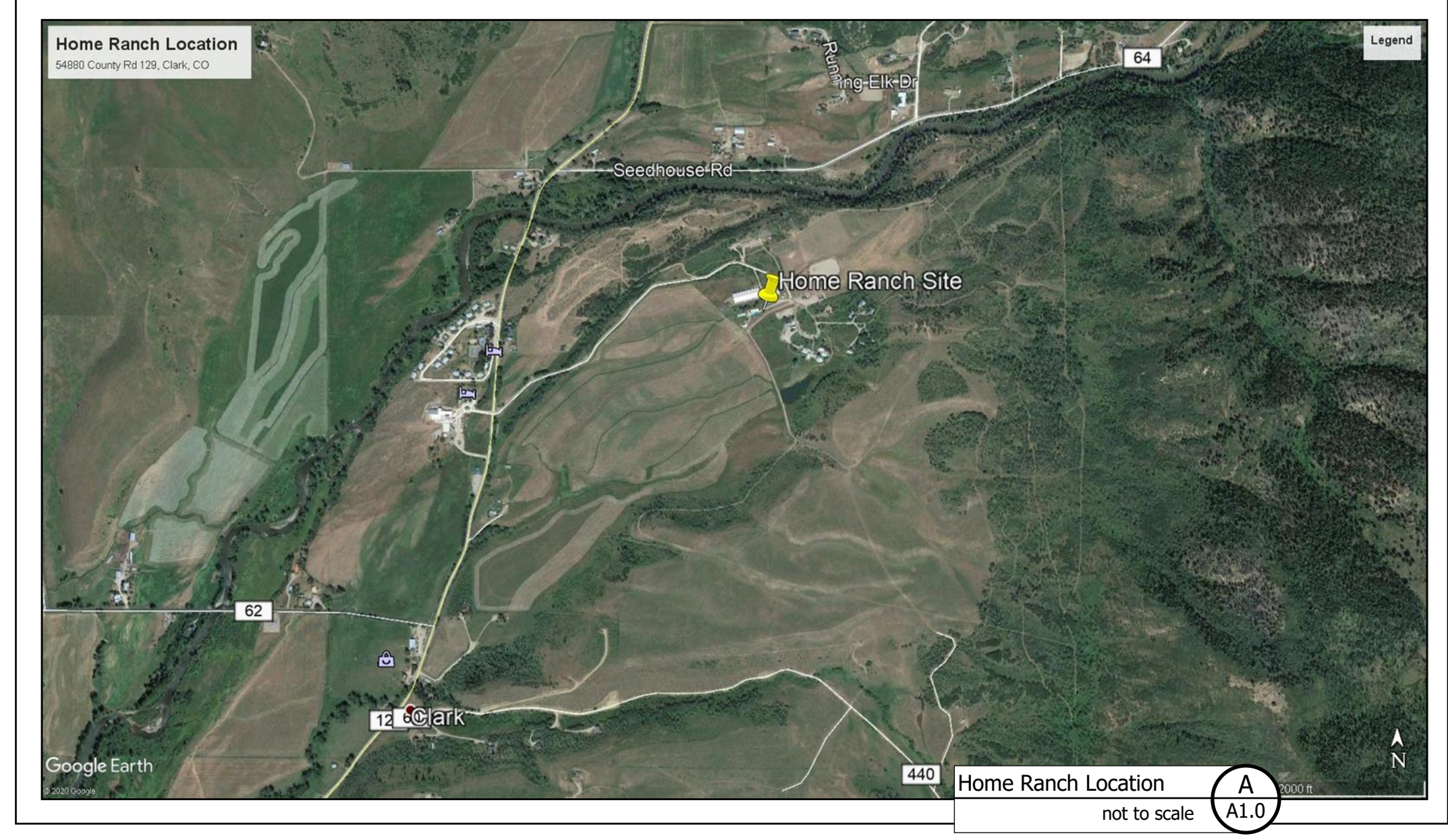
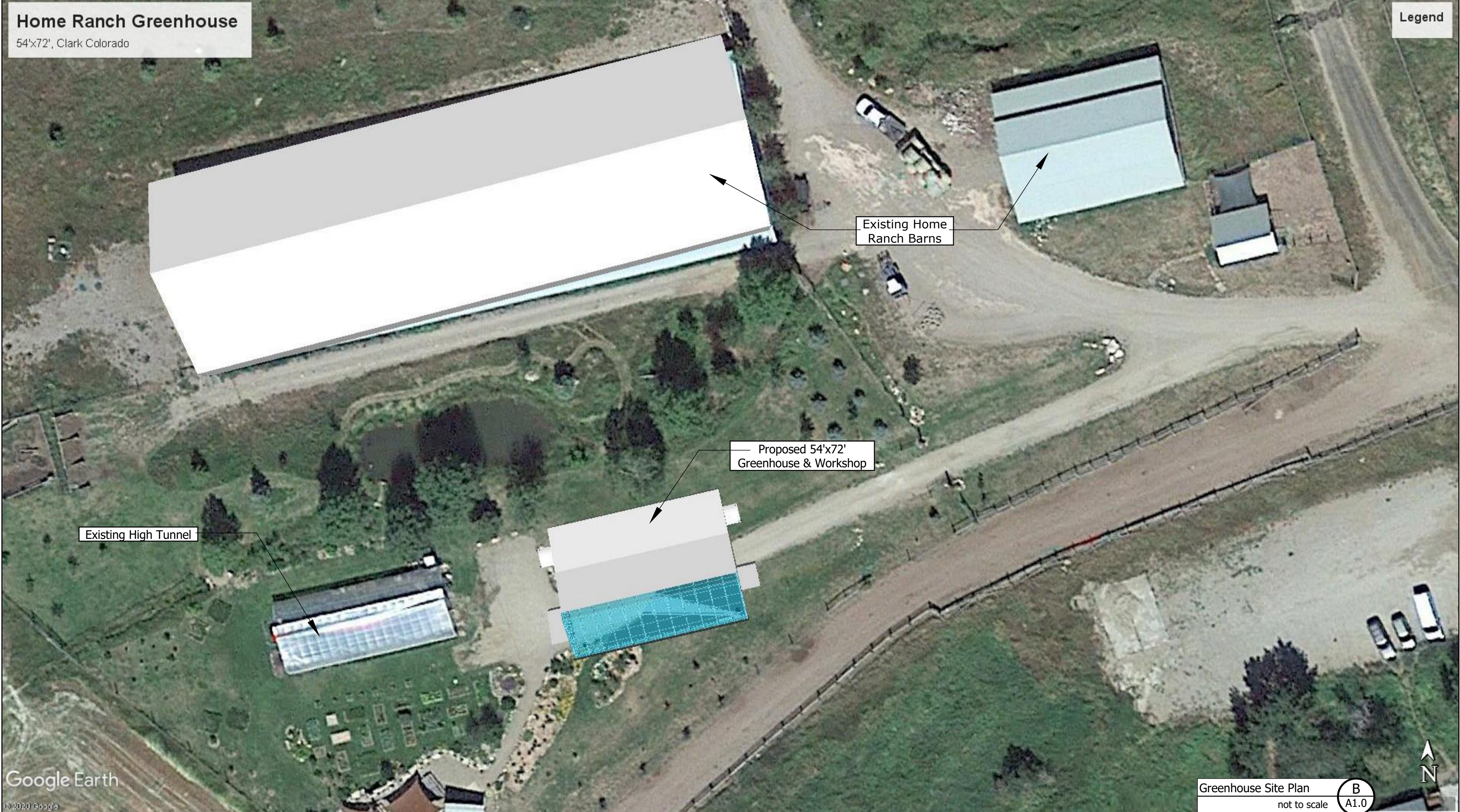


Home Ranch Greenhouse
54'x72', Clark Colorado



DRAWING LEGEND:

INCL	→	A1.0	SITE PLAN, LOCATION
INCL	→	A2.1	CLIMATE BATTERY PLAN
INCL	→	A2.2	GREENHOUSE FLOOR PLAN
INCL	→	E2.3	ELECTRICAL & CONTROLS PLAN
INCL	→	A2.4	GREENHOUSE ROOF PLAN
INCL	→	A3.1	GREENHOUSE ELEVATIONS
INCL	→	A3.2	GREENHOUSE ELEVATIONS
INCL	→	A4.1	GREENHOUSE SECTIONS
INCL	→	A4.2	CLIMATE BATTERY DETAILS
INCL	→	A5.1	CLIMATE BATTERY INSTALLATION
INCL	→	A5.2	CLIMATE CONTROL SPECS
INCL	→	A5.3	KITCHEN APPLIANCES
INCL	→	A6.1	PLANTING BED LAYOUT & DETAILS

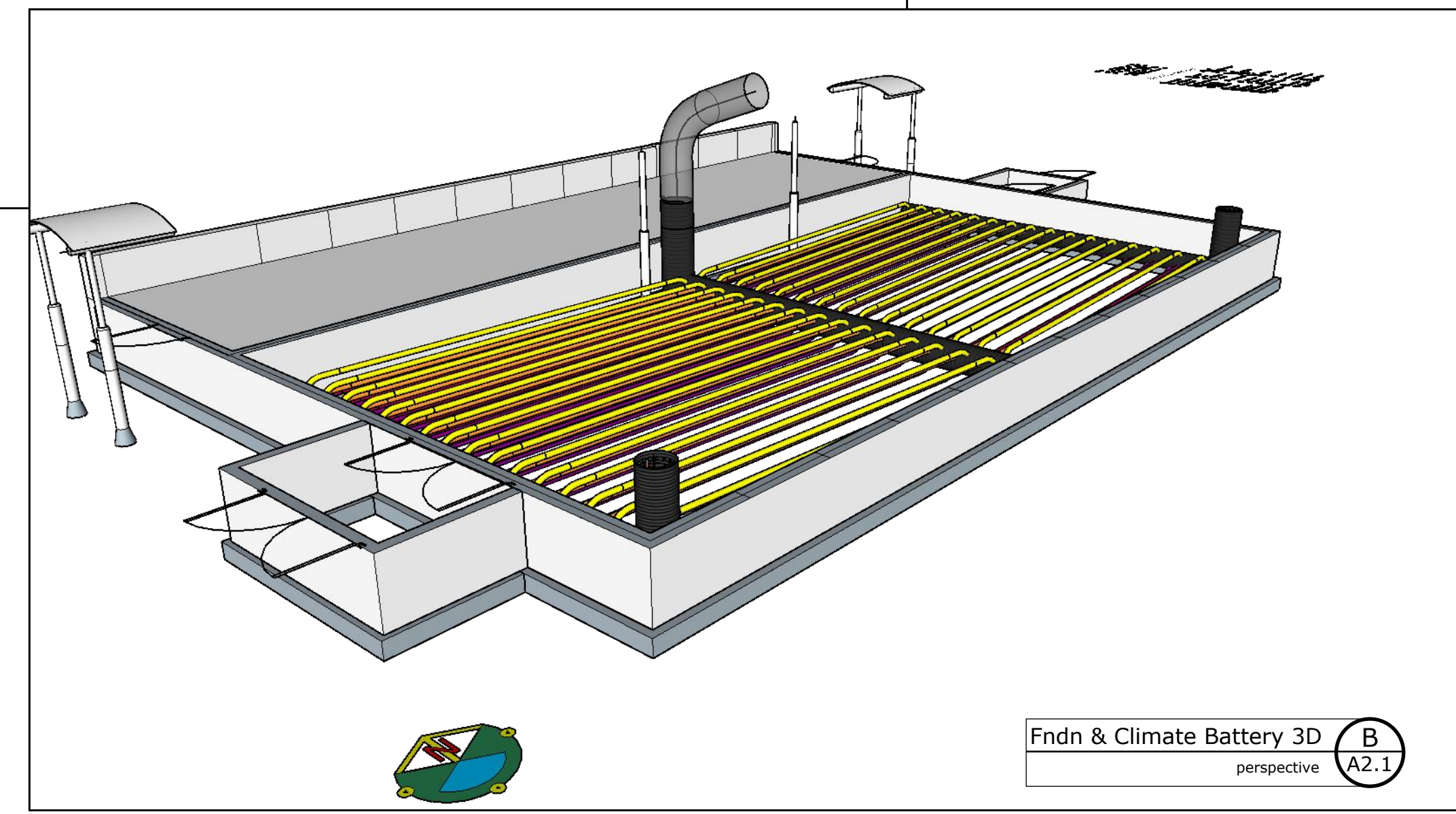
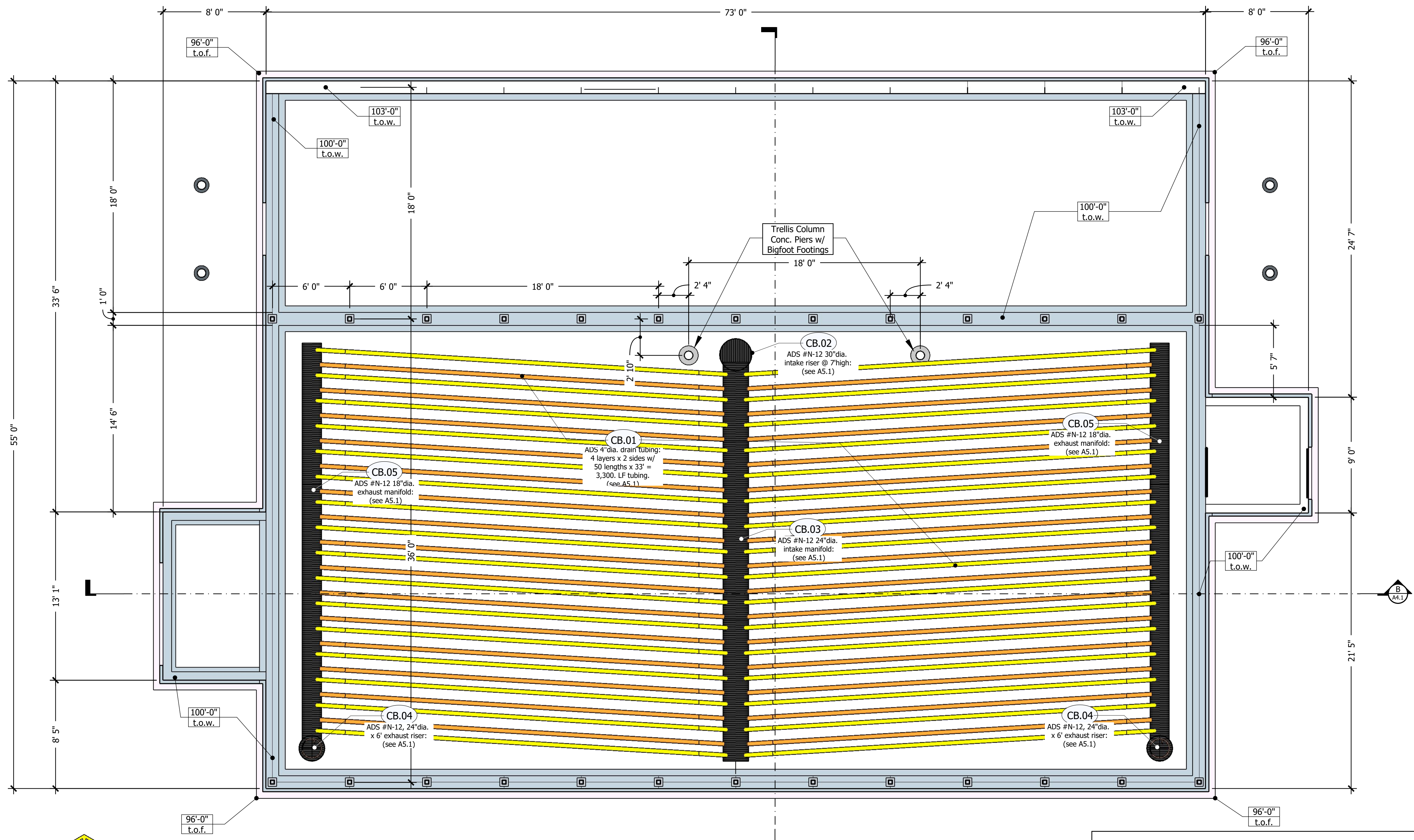
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Home Ranch Greenhouse

54880 County Rd 129, Clark, CO 80428



Fndn & Climate Battery Plan
View scale: 3/16\"/>

Fndn & Climate Battery 3D
perspective scale: 3/16\"/>

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Climate Battery Plan

A2.1

KITCHEN EQUIPMENT / APPLIANCES:

- DOUBLE SINK: A
- WORK TABLE @ 30" X 48": B
- DISHWASHER: C
- EXHAUST HOOD: D
- WORK TABLE 30" X 96": E
- REFRIGERATOR: G
- FREEZER: F
- WORK TABLES 30" X 72": H
- HAND WASHING SINK: I

PROPAGATION EQUIPMENT:

- COMPOST TEA BREWERS (2) H
- PROPAGATION RACKS (5) J
- TOOL RACKS (2) K
- WORKING TABLE (1) @ 36" X 96" L
- WORKING TABLES (3) @ 36" X 72" M
- WORKING TABLE (1) @ 36" X 48" N

RESTROOM FIXTURES:

- VANITY SINKS & FAUCETS (2) O
- VANITY CABINET & TOP 24" x 54" P
- TOILET (1) Q
- SHOWER (1) @ 36" X 72" R

PLANTING BEDS:

- NW PERIMETER BED: 1
- 40.LF BEDWALL, 357.SF, 26.CY SOIL;
- NORTH PERIMETER BED: 2
- 25.LF BEDWALL, 74.SF, 6.CY SOIL;
- SOUTH PERIMETER BED: 3
- 85.LF BEDWALL, 460.SF, 34.CY SOIL;
- EAST ISLAND BED: 4
- 92.LF BEDWALL, 263.SF, 20.CY SOIL;
- WEST ISLAND BED: 5
- 123.LF BEDWALL, 268.SF, 20.CY SOIL;

TOTALS:

365.LF BEDWALL, 106.CY SOIL.

DOORS:

- DOUBLE EXTERIOR DOORS: W
- 2 Pairs 6'-0 x 7'-0, Insul.Metal w/ Light;
- SINGLE EXTERIOR DOORS: X
- 4 Doors 3'-0 x 7'-0, Insul.Metal w/Light;
- SINGLE INTERIOR DOORS: Y
- 2 Doors 4'-0 x 7'-0, Insul.Metal w/Light;
- SINGLE INTERIOR DOORS: Z
- 5 Doors 3'-0 x 7'-0, Solid Core Wood;

WINDOWS:

TWO-PANEL GLIDER (Marvin Essential): U
3 Units @ 1'-6"H x 3'-0" W.

MO (mm)	2'-6" (762)	3'-0" (914)
RO (mm)	2'-6" (762)	3'-0" (914)
FS (mm)	2'-5 1/2" (749)	2'-11 1/2" (902)
DLO (mm)	11 5/16" (287)	14 5/16" (363)

ESGL2616 ESGL3016

INTERIOR GREENHOUSE WINDOWS: V
2 Units fixed glass @ 3'-0"H x 5'-0" W.

CODE OCCUPANCIES:

North Wing: Kitchen, Restroom, Office, Workshop:
18x72=1,296.sf / "B" Occupancy 200.sf / occupant = < 7.occupants

Greenhouse Wing:
36x72=2,592.sf / "U" occupancy 300.sf / occupant = < 9.occupants

**TABLE 1004.6
MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT
FUNCTION OF SPACE**

FUNCTION OF SPACE	OCCUPANT LOAD FACTOR
Accessory storage areas, mechanical equipment room	300 gross
Agricultural building	300 gross
Kitchens, commercial	200 gross

1006.2.1 Egress based on occupant load and common path of egress travel distance. Two exits or exit access doorways from any space shall be provided where the design occupant load or the common path of egress travel distance exceeds the values listed in Table 1006.2.1. The cumulative occupant load from adjacent rooms, areas or spaces shall be determined in accordance with Section 1004.2.

**TABLE 1006.2.1
SPACES WITH ONE EXIT OR EXIT ACCESS DOORWAY
MAXIMUM COMMON PATH OF EGRESS TRAVEL DISTANCE (feet)**

OCCUPANCY	MAXIMUM OCCUPANT LOAD OF SPACE	Without Sprinkler System (feet)		With Sprinkler System (feet)
		OL ≤ 50	OL > 50	
A, E, M	49	75	75	75
B	49	100	75	100
U	49	100	75	75

**SECTION 304
BUSINESS GROUP B**
Food processing establishments and commercial kitchens not associated with restaurants, cafeterias and similar dining facilities not more than 2,500 square feet (232 m²) in area

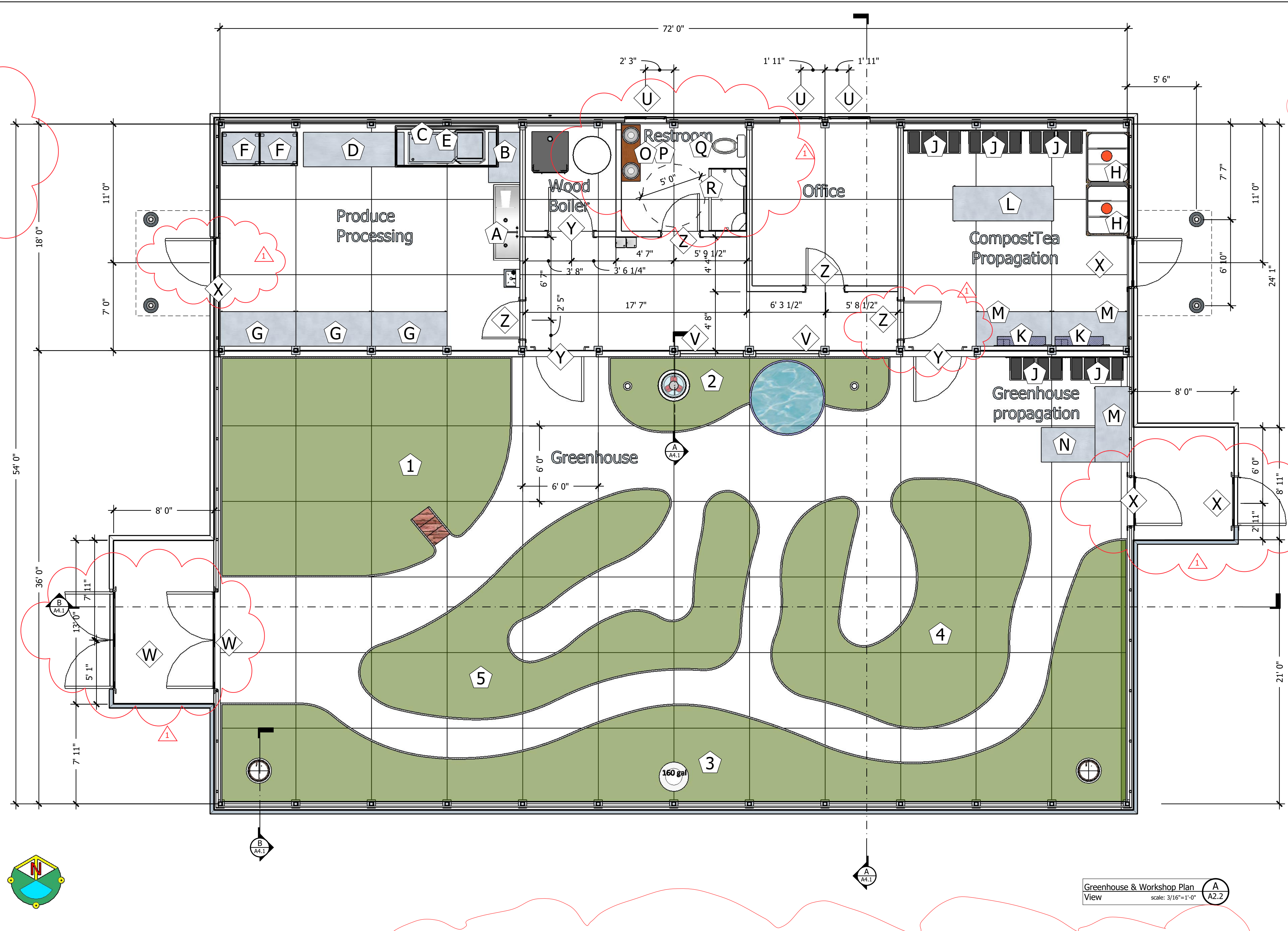
**SECTION 312
UTILITY AND MISCELLANEOUS GROUP U**
312.1 General. Buildings and structures of an accessory character and miscellaneous structures not classified in any specific occupancy shall be constructed, equipped and maintained to conform to the requirements of this code commensurate with the fire and life hazard incidental to their occupancy. Group U shall include, but not be limited to, the following:
Agricultural buildings

**TABLE 1006.3.4(2)
STORIES WITH ONE EXIT OR ACCESS TO ONE EXIT FOR OTHER OCCUPANCIES**

STORY	OCCUPANCY	MAXIMUM OCCUPANT LOAD PER STORY	MAXIMUM EXIT ACCESS TRAVEL DISTANCE (feet)
	H-2, H-3	3	25
	H-4, H-5, I, R-1, R-2 ^a	10	75
	S ^b	29	75
Second story above grade plane	B, F, M, S ^c	29	75
Third story above grade plane and higher	NP	NA	NA

For SI: 1 foot = 304.8 mm
NP = Not Permitted
NA = Not Applicable
a. Buildings classified in Group R-2 equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and provided with emergency escape and rescue openings in accordance with Section 1010.
b. Group B, F and S occupancies in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 shall have a maximum exit access travel distance of 100 feet.
c. This table is used for R-2 occupancies consisting of sleeping units. For R-2 occupancies consisting of dwelling units, use Table 1006.3.4(1).
d. The length of exit access travel distance in a Group S-2 open parking garage shall be not more than 100 feet.

**SECTION 1008
MEANS OF EGRESS ILLUMINATION**
1008.1 Means of egress illumination. Illumination shall be provided in the means of egress in accordance with Section 1008.2. Under emergency power, means of egress illumination shall comply with Section 1008.3.
1008.2 Illumination required. The means of egress serving a room or space shall be illuminated at all times that the room or space is occupied.
Exceptions:
1. Occupancies in Group U.



Greenhouse & Workshop Plan A
View A2.2
scale: 3/16"=1'-0"



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Home Ranch Greenhouse

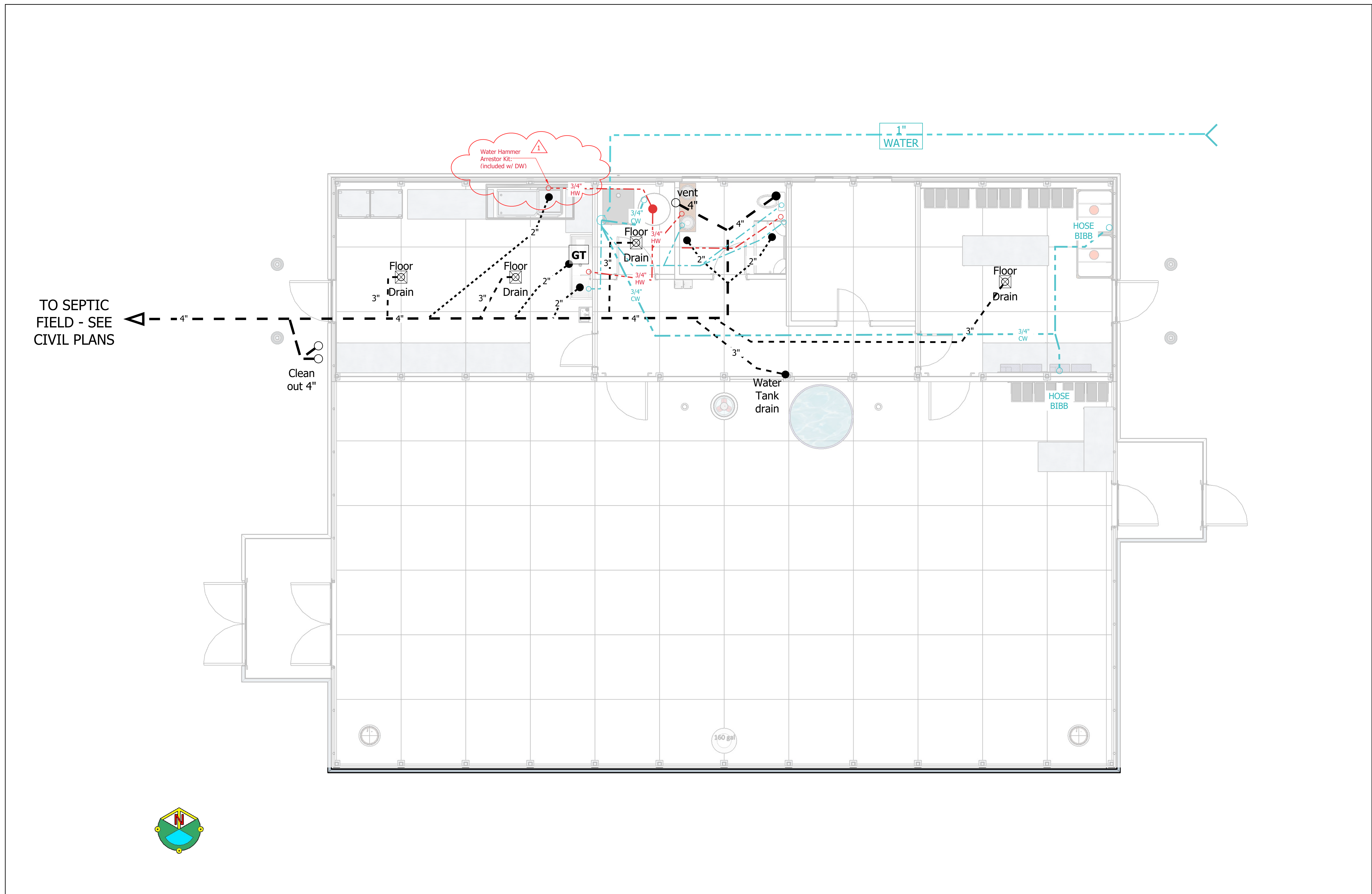
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Plumbing
Plan

P2.3



TO SEPTIC
FIELD - SEE
CIVIL PLANS

Clean
out 4"

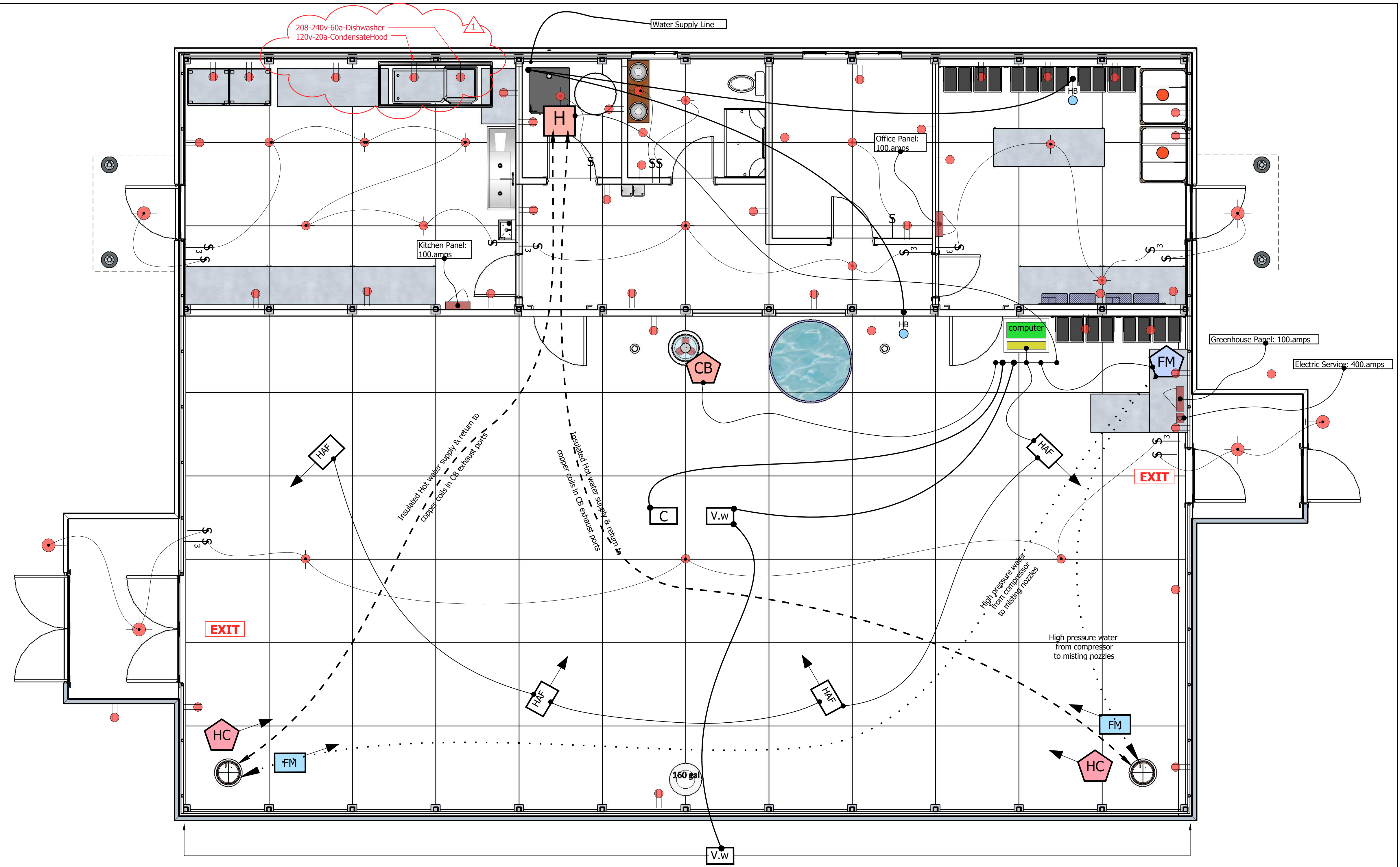




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- ELECTRICAL SYSTEMS:**
- Power supply panel ~ 100.amps AC
 - Cage Lights - see A5.2
 - 110.V Duplex Receptacle
 - 240.V Power Receptacle
 - Climate Controls - see A5.2
 - Climate Battery Fans - see A5.2
 - Backup Heater & Heat Coil - see A5.2
 - Fogging Mister evap.cooling - see A5.2
 - Horizontal Air Flow fan - see A5.2
 - Ventilation Panels - roof & sidewalls, by GH mfr. automated by Climate Controller
 - Automated Insulating Curtain - see A5.2
 - Backlit EXIT sign per code

- PLUMBING SYSTEMS:**
- Hose Bibb - Outdoor freeze-proof faucet
- Plant irrigation system and layout will be determined with planting and succession layouts, in accordance with best practices in regenerative agriculture, as determined by farm managers.



- KITCHEN PANEL:**
BREAKER IN: 200.Amps
- Kitchen Lights: 110.V 15.Amps
 - Dishwasher: 110.V 20.Amps
 - Range/Oven: 240.V 50.Amps
 - Refrigerator/Freezer: 110.V 20.Amps
 - North Power Outlets: 110.V 20.Amps
 - South Power Outlets: 110.V 20.Amps

- OFFICE PANEL:**
BREAKER IN: 100.Amps
- Office/Prop.Lab Lights: 110.V 15.Amps
 - Restroom/Boiler Lights: 110.V 15.Amps
 - Prop.Lab Power Outlets: 110.V 20.Amps
 - Restroom/Boiler Outlets: 110.V 20.Amps
 - Hallway Power Outlets: 110.V 20.Amps

- GREENHOUSE PANEL:**
BREAKER IN: 400.Amps
- Out to Office Panel: 100.Amps
 - Out to Kitchen Panel: 100.Amps
 - Greenhouse Controller: 20.Amps
 - ClimateBattery+HAF fans: 110.V 20.Amps
 - Greenhouse Vent Motors: 110.V 20.Amps
 - Greenhouse Curtain: 110.V 20.Amps
 - Backup Heat Water Pump: 110.V 20.Amps
 - Backup Cooling Compressor: 110.V 20.Amps
 - GH Lights + Power Outlets: 110.V 20.Amps



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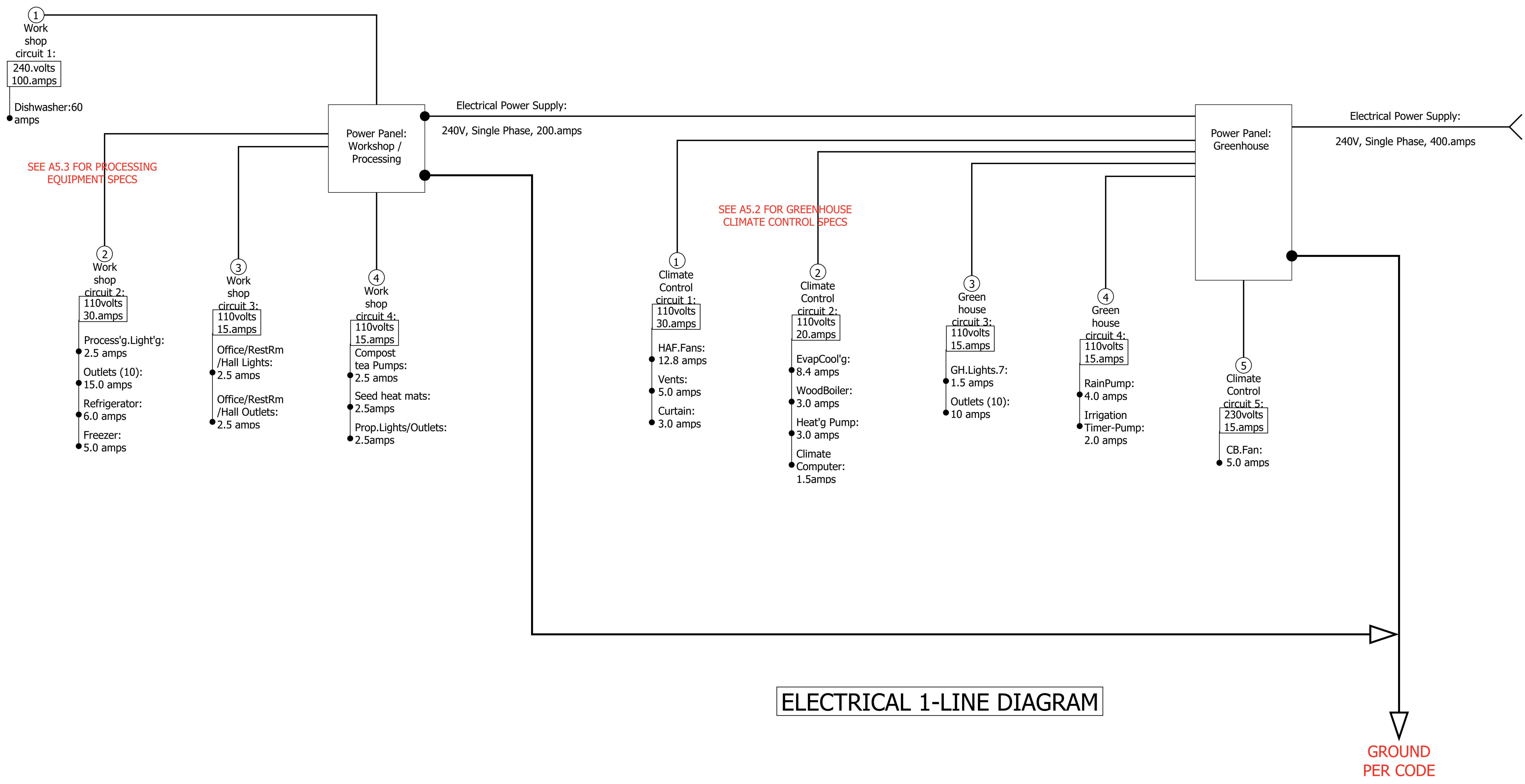
Greenhouse Electrical Plan

E2.3

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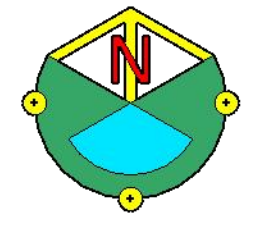
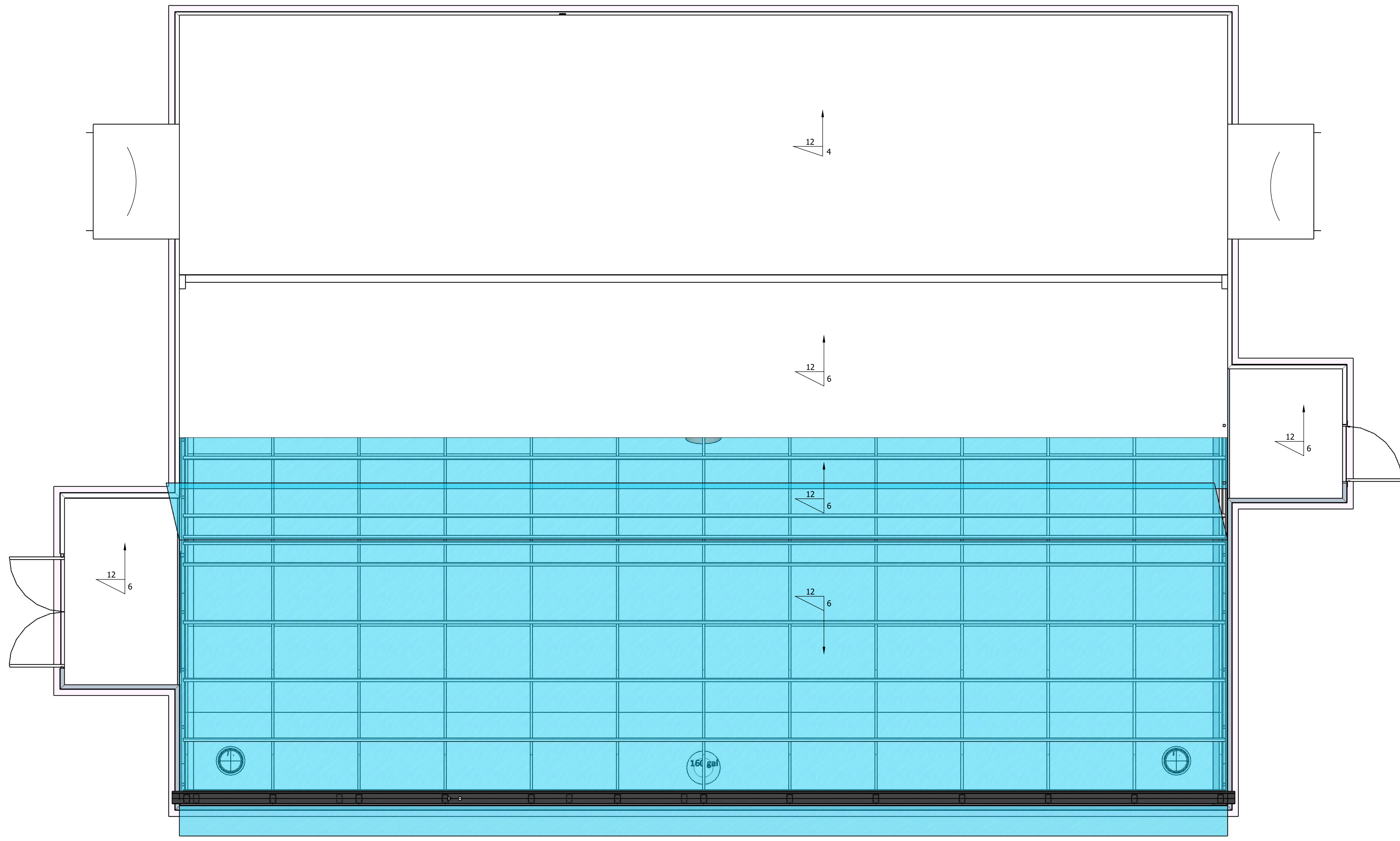
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Electrical Load Diagrams

E2.4



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Home Ranch Greenhouse
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Area Description	Finish Material Description	Dimensions (WxLxH)	Area (ft ²)
Exterior roof		73' x 31'- 8 5/16"	2313.57ft ²
exterior vestibule roof(1 vestibule)		8' x 10' -3/4"	80.5 ft ²
Exterior awning finish (1 awning)		6' x 8'-3 15/16"	49.96 ft ²

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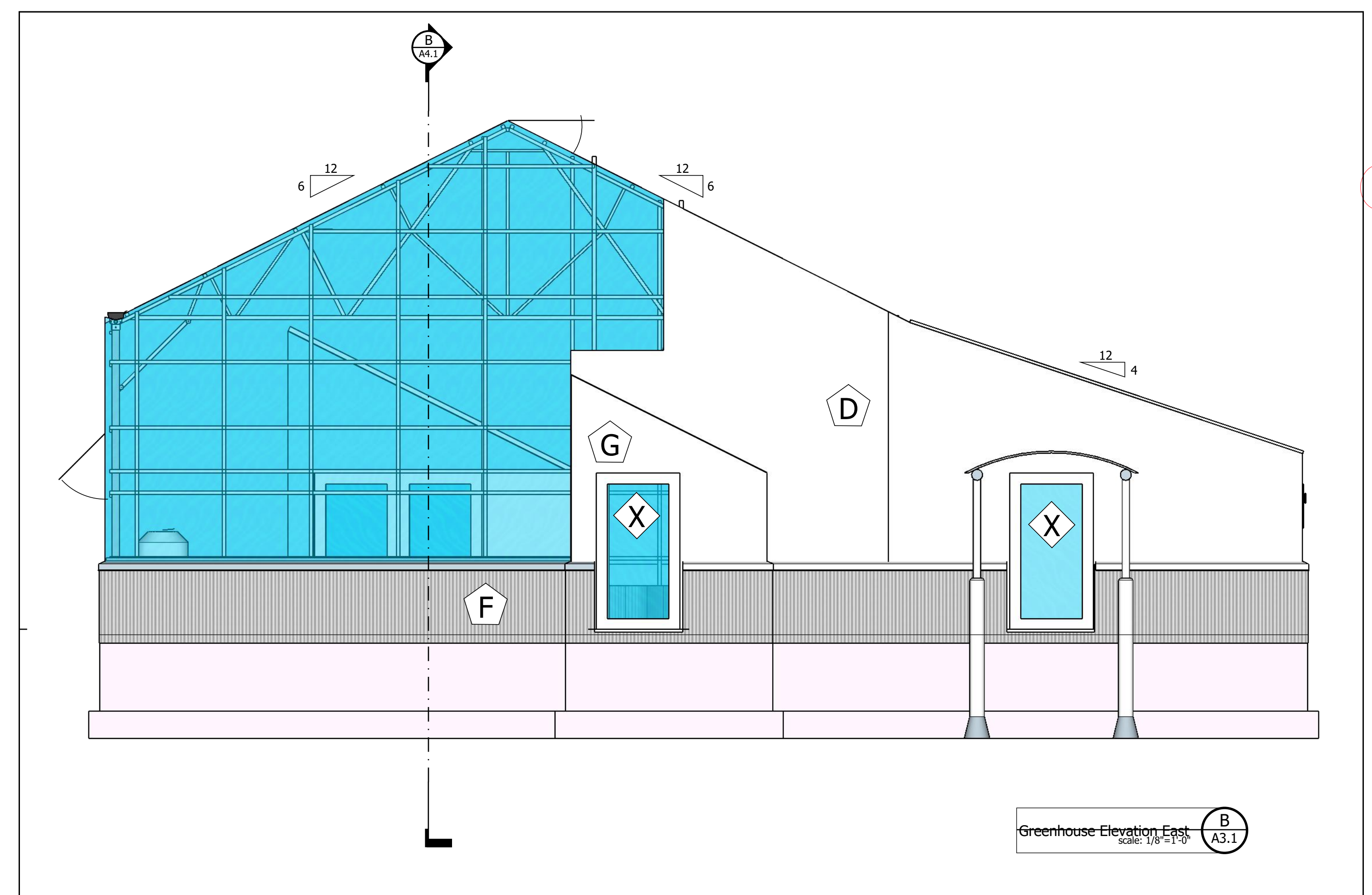
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Greenhouse
Roof Plan

A2.4

Area Description	Finish Material Description	Dimensions (WxLxH)	Area (ft ²)
exterior east & west wall surfaces		34' x 16'-8"	782ft ²
Exterior north wall surface		73' x 4'-11 1/4"	352 ft ²
Exterior siding	corrugated metal	274'-7" x 3'-8"	990 ft ²
Exterior vestibule finish (door side)		9' x 8' - 9"	58 ft ²
Exterior vestibule finish (north side)		8' - 4' x 5"	58 ft ²

D
E
F
G
H



DOORS:

- DOUBLE EXTERIOR DOORS:**
- 2 Pairs 6'-0 x 7'-0, Insul.Metal w/ Light; W
- SINGLE EXTERIOR DOORS:**
- 4 Doors 3'-0 x 7'-0, Insul.Metal w/Light; X
- SINGLE INTERIOR DOORS:**
- 2 Doors 4'-0 x 7'-0, Insul.Metal w/Light; Y
- SINGLE INTERIOR DOORS:**
- 5 Doors 3'-0 x 7'-0, Solid Core Wood; Z

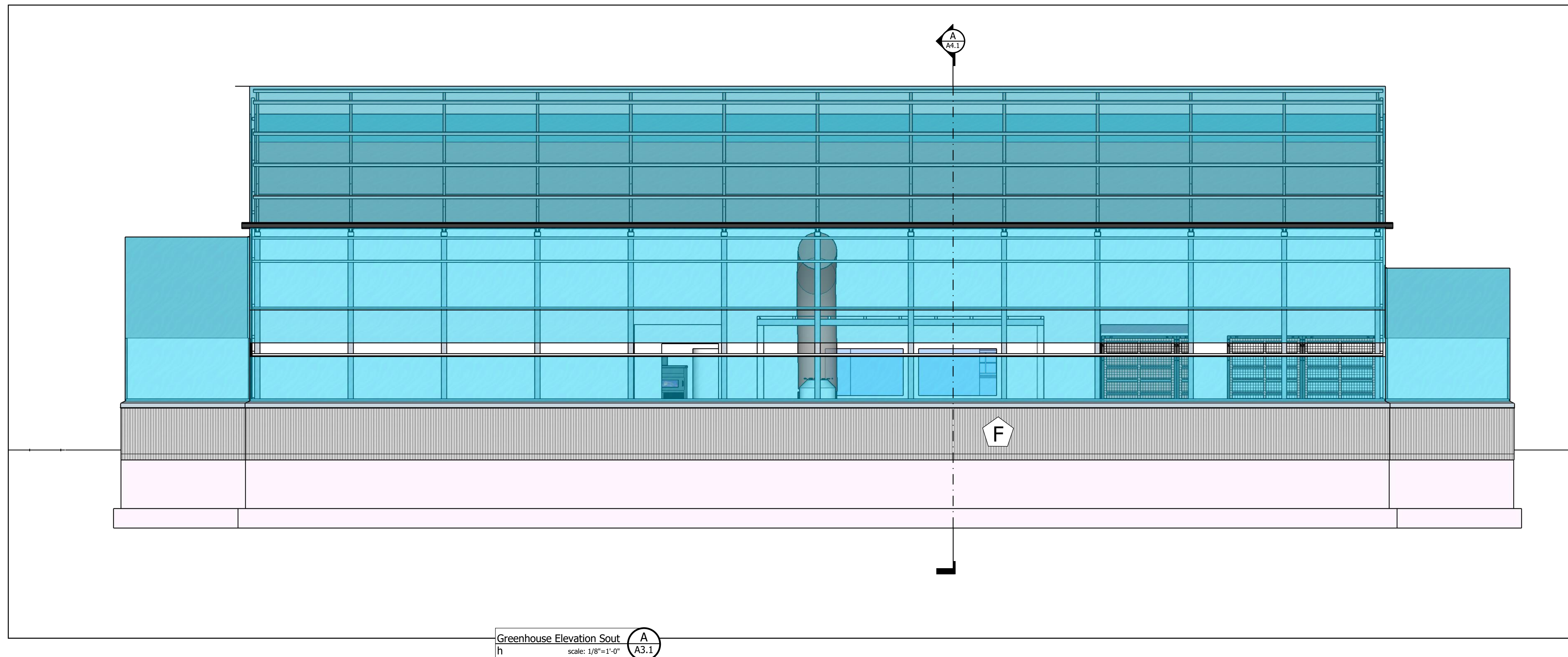
WINDOWS:

TWO-PANEL GLIDER (Marvin Essential):
3 Units @ 1'-6"H x 3'-0" W. U

MO (mm)	2' - 6" (762)	3' - 0" (914)
RO (mm)	2' - 6" (762)	3' - 0" (914)
FS (mm)	2' - 5 1/2" (749)	2' - 11 1/2" (902)
DLO (mm)	11 5/16" (287)	14 5/16" (363)

1'-5 3/4" (451)	ESGL2616	ESGL3016
1'-5 1/2" (445)		
12 9/16" (319)		

INTERIOR GREENHOUSE WINDOWS:
2 Units fixed glass @ 3'-0"H x 5'-0" W. V



Greenhouse Elevation South A
h A3.1
scale: 1/8"=1'-0"



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Home Ranch Greenhouse
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Greenhouse
Elevations

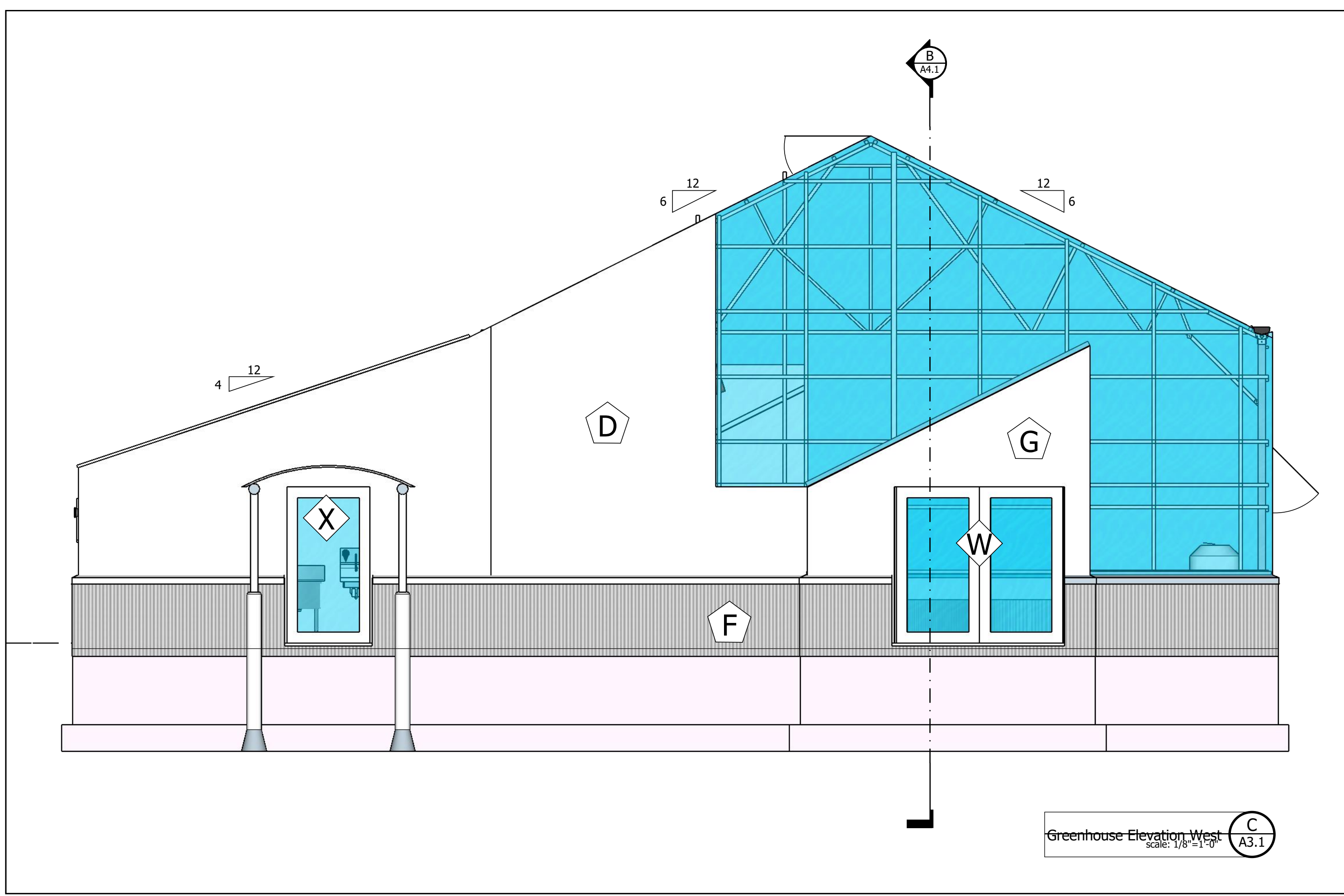
A3.1



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Area Description	Finish Material Description	Dimensions (WxLxH)	Area (ft ²)
exterior east & west wall surfaces		34' x 16'-8"	782ft ²
Exterior north wall surface		73' x 4'-11 1/4"	352 ft ²
Exterior siding	corrugated metal	274'-7" x 3'-8"	990 ft ²
Exterior vestibule finish (door side)		9' x 8' - 9"	58 ft ²
Exterior vestibule finish (north side)		8' - 4' x 5"	58 ft ²

D
E
F
G
H



DOORS:

DOUBLE EXTERIOR DOORS:
2 Pairs 6'-0 x 7'-0, Insul.Metal w/ Light; W

SINGLE EXTERIOR DOORS:
4 Doors 3'-0 x 7'-0, Insul.Metal w/Light; X

SINGLE INTERIOR DOORS:
2 Doors 4'-0 x 7'-0, Insul.Metal w/Light; Y

SINGLE INTERIOR DOORS:
5 Doors 3'-0 x 7'-0, Solid Core Wood; Z

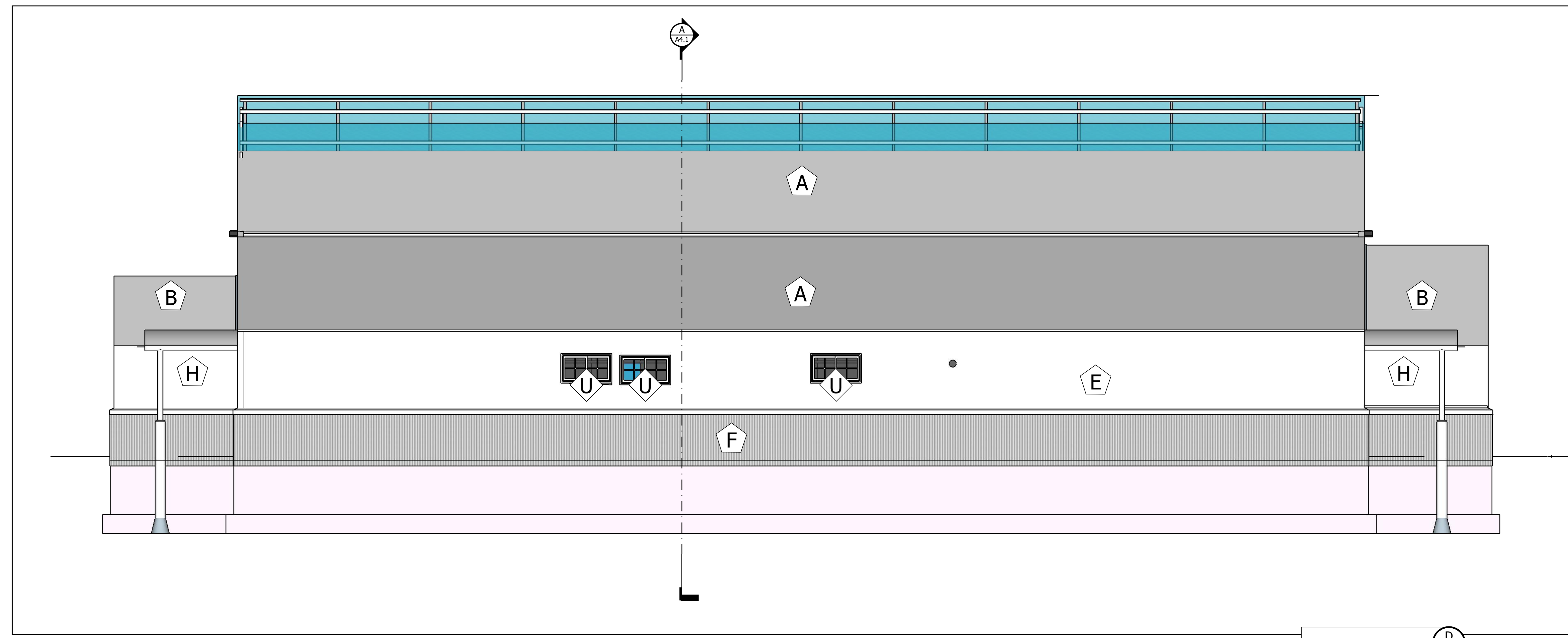
WINDOWS:

TWO-PANEL GLIDER (Marvin Essential):
3 Units @ 1'-6"H x 3'-0" W.

MO (mm)	2' - 6" (762)	3' - 0" (914)
RO (mm)	2' - 6" (762)	3' - 0" (914)
FS (mm)	2' - 5 1/2" (749)	2' - 11 1/2" (902)
DLO (mm)	11 5/16" (287)	14 5/16" (363)

ESGL2616 ESGL3016

INTERIOR GREENHOUSE WINDOWS:
2 Units fixed glass @ 3'-0"H x 5'-0" W. V



Greenhouse Elevation North
scale: 1/8"=1'-0" A3.1

Home Ranch Greenhouse
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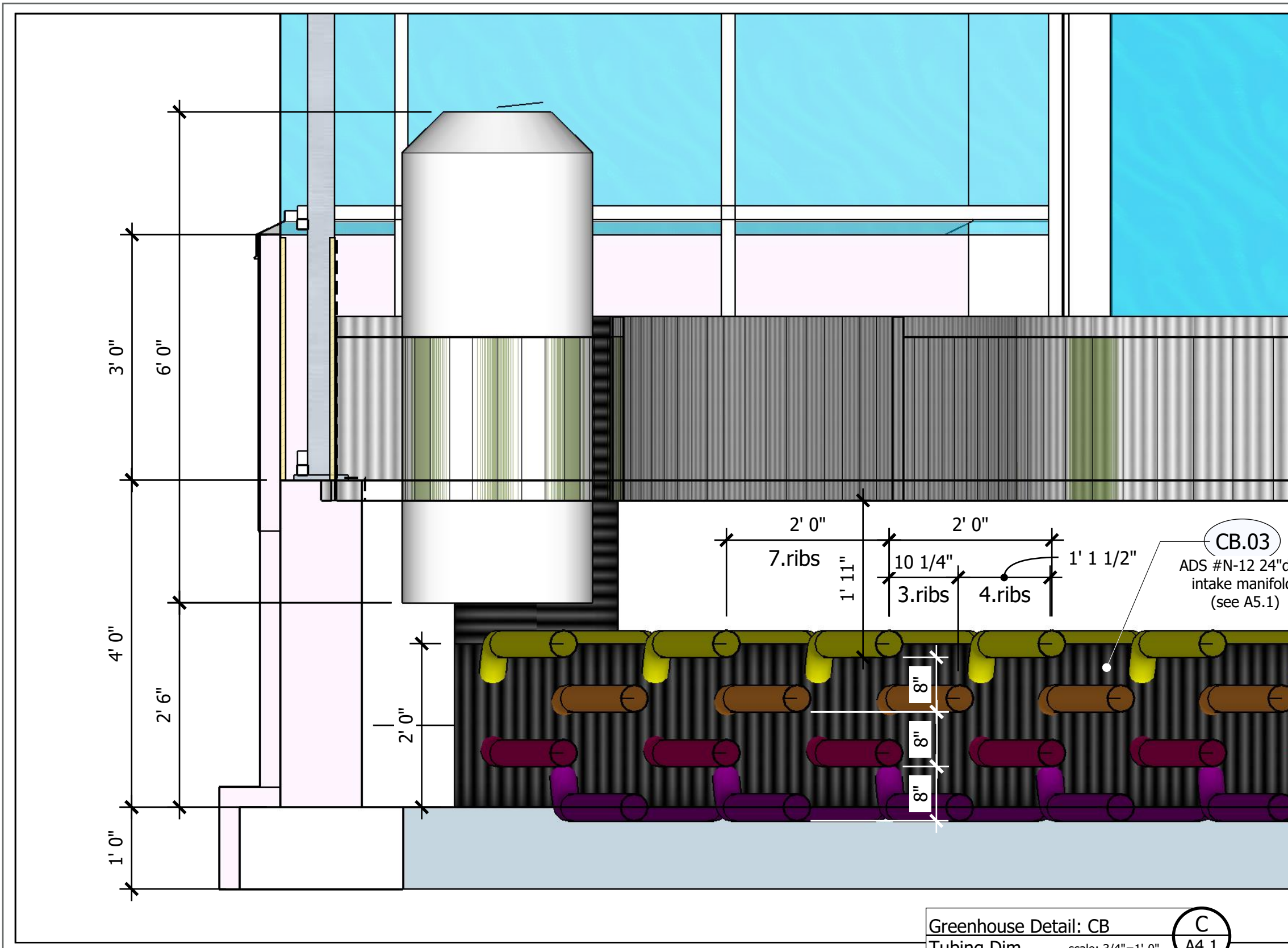
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Greenhouse
Elevations

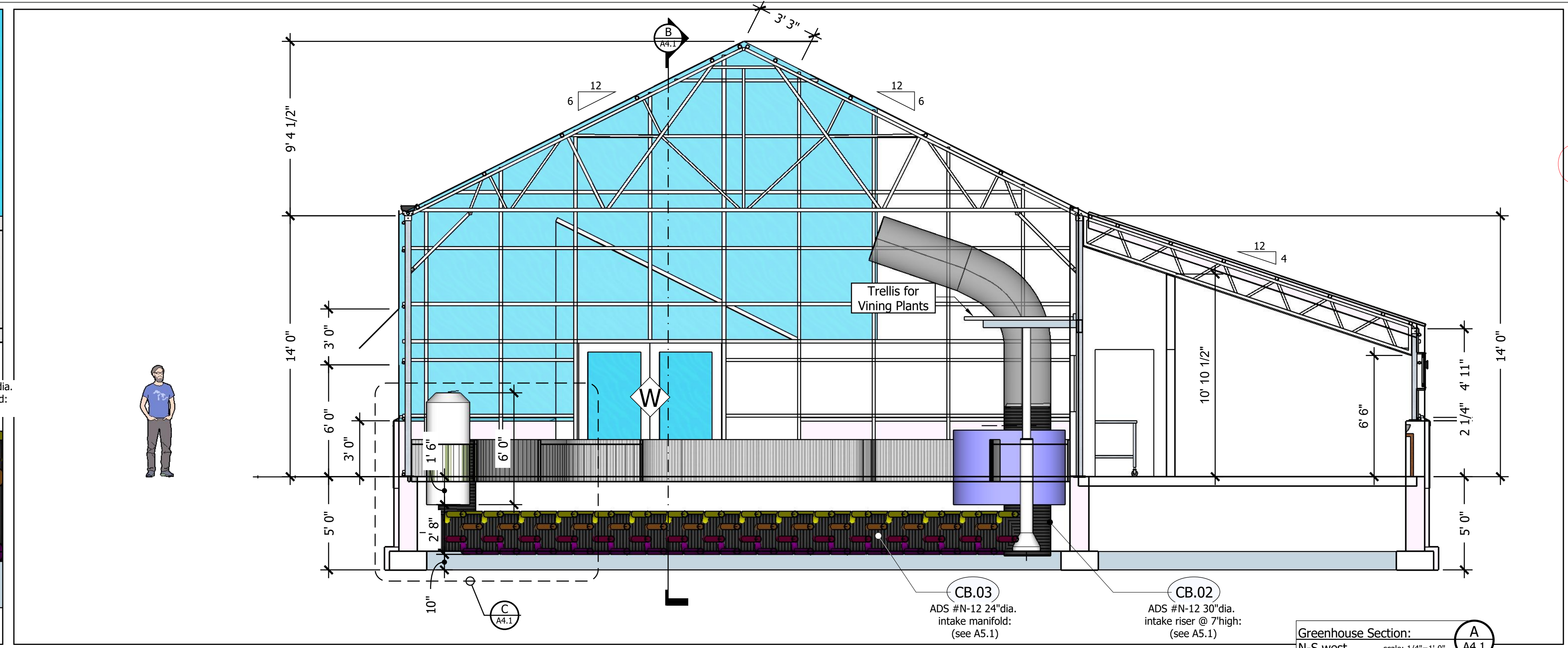
A3.2



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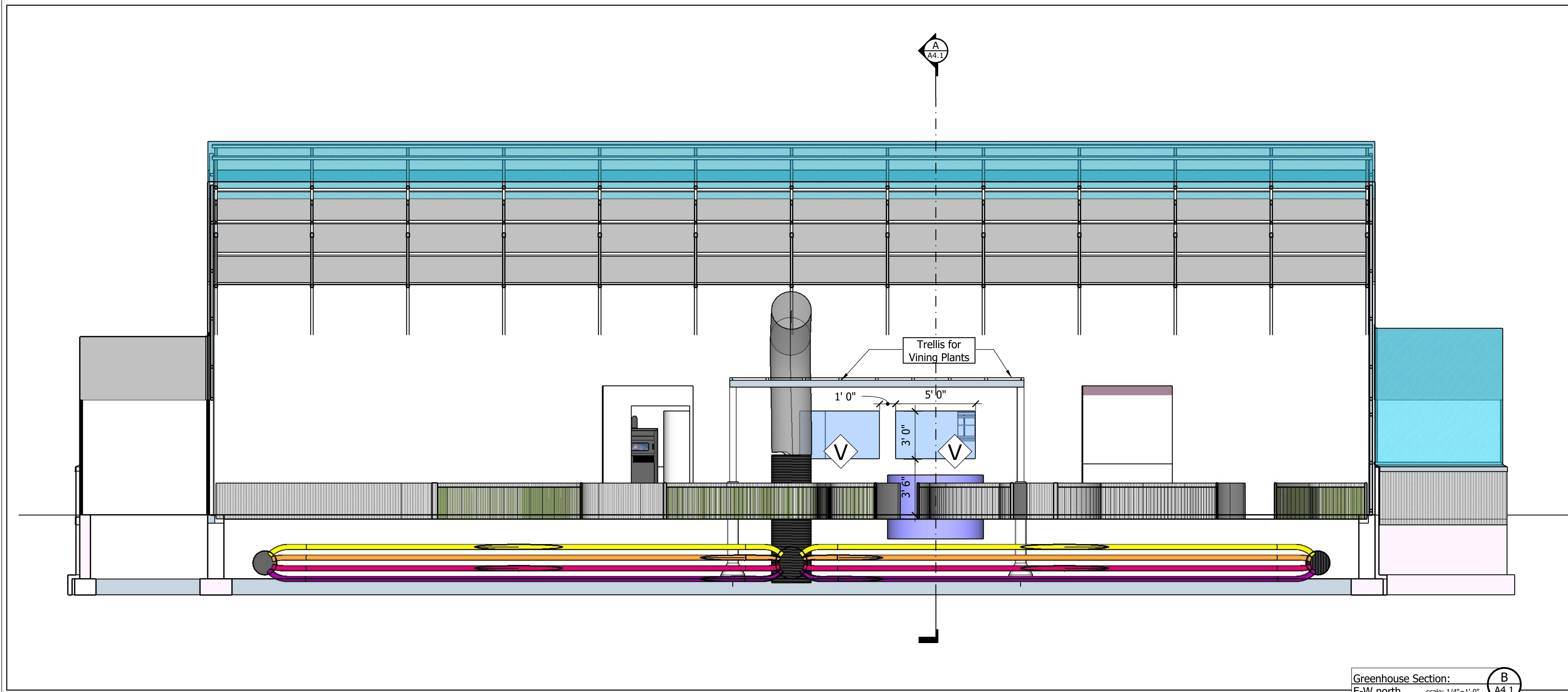


Greenhouse Detail: CB
Tubing Dim. scale: 3/4"=1'-0" A4.1

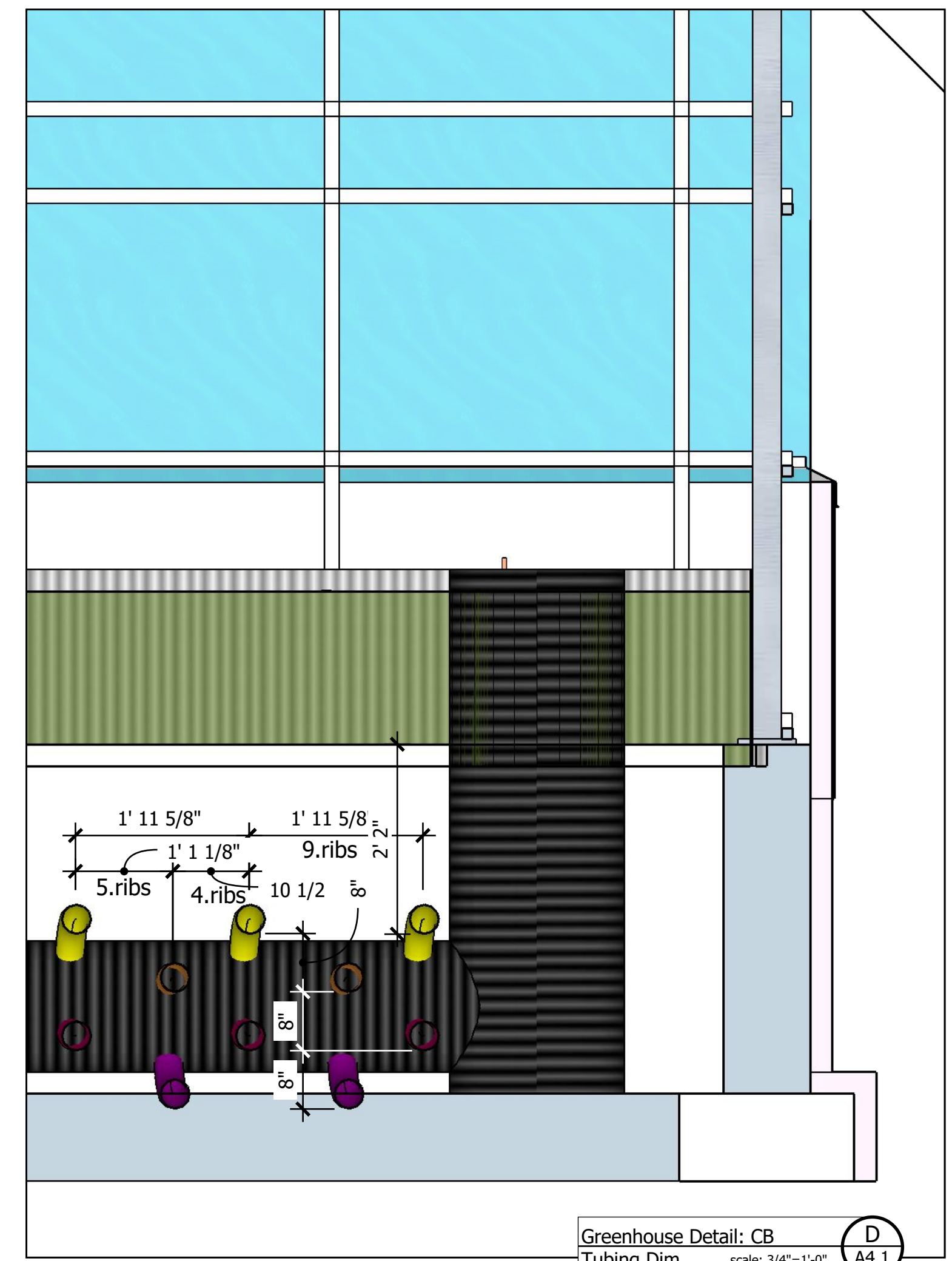


Greenhouse Section:
N-S. west scale: 1/4"=1'-0" A4.1

INTERIOR GREENHOUSE WINDOWS:
2 Units fixed glass @ 3'-0" H x 5'-0" W. V



Greenhouse Section:
E-W. north scale: 1/4"=1'-0" A4.1



Greenhouse Detail: CB
Tubing Dim. scale: 3/4"=1'-0" A4.1

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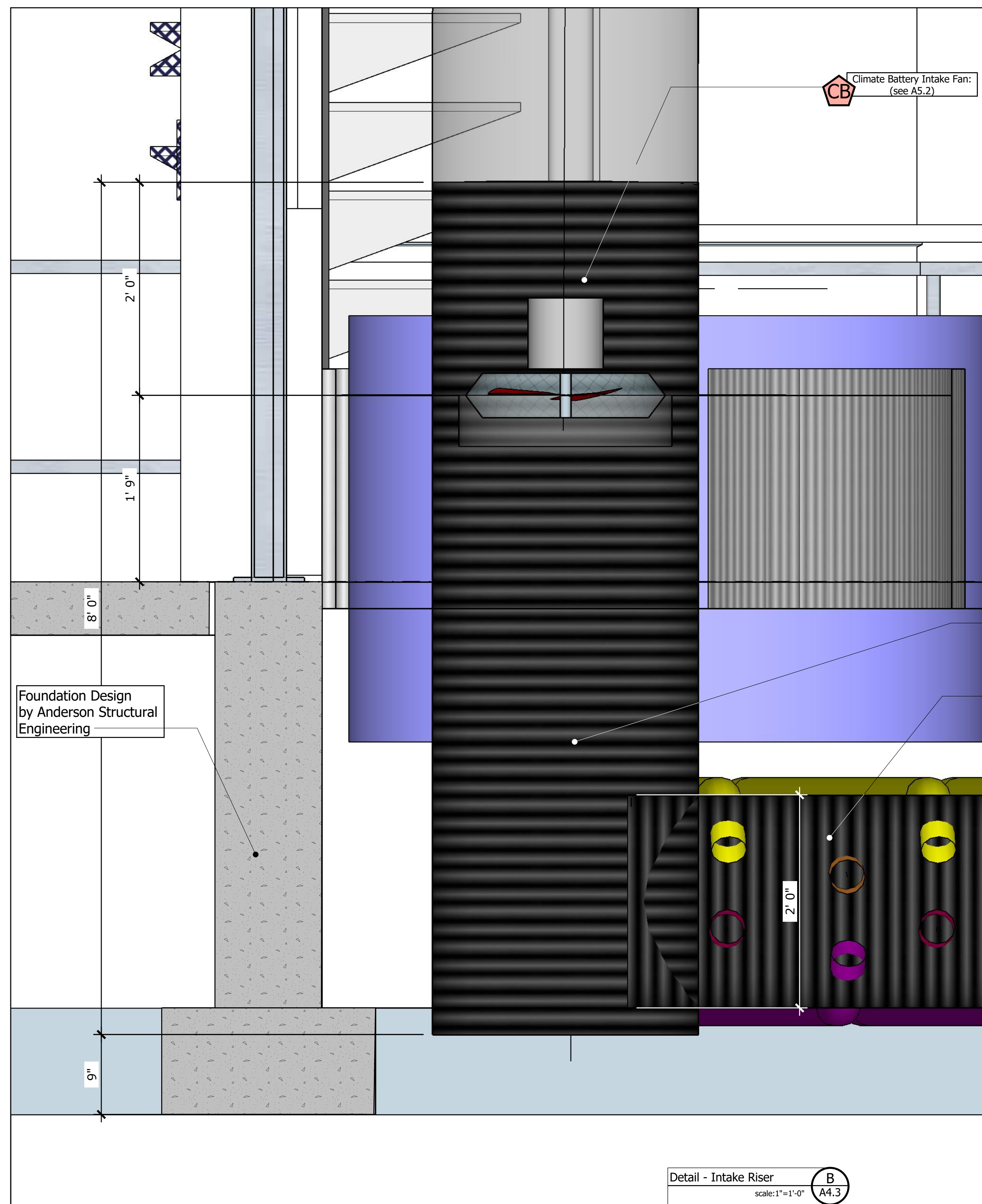
Greenhouse
Sections

A4.1

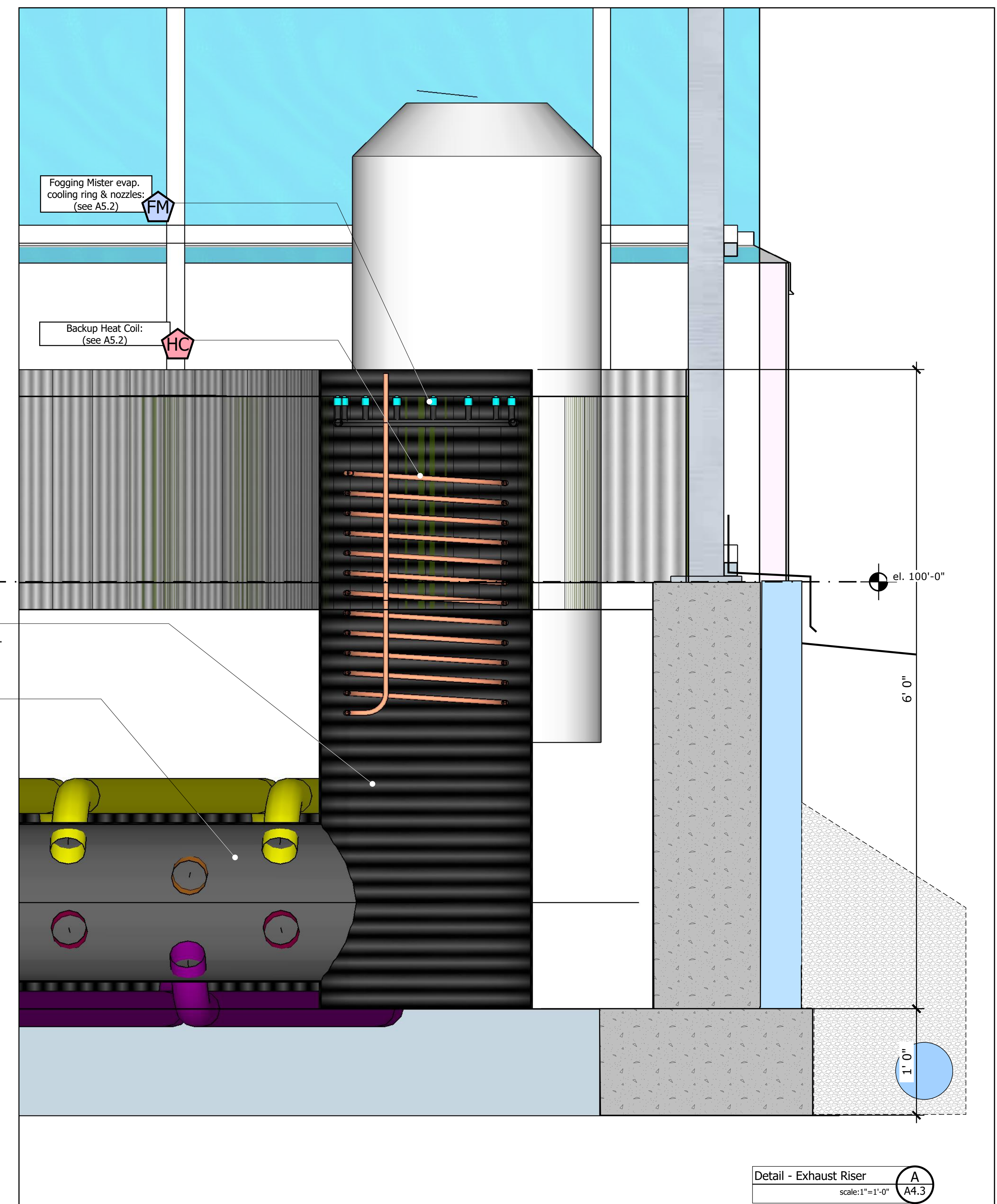
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- CB.02
ADS #N-12 30" dia.
intake riser @ 7" high:
(see A5.1)
- CB.03
ADS #N-12 24" dia.
intake manifold:
(see A5.1)



- CB.04
ADS #N-12, 24" dia.
x 6' exhaust riser:
(see A5.1)
- CB.05
ADS #N-12 18" dia.
exhaust manifold:
(see A5.1)

Home Ranch Greenhouse

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prints to scale on
24" x 36" paper.

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Greenhouse
Details

A4.2

Climate Battery Installation Instructions:

Excavate for Climate Battery to the extents shown in the plans, and the depth shown in the sections. Maintain the stability of the undisturbed grade around the perimeter, using shoring if necessary. For a concrete pier foundation, over-dig to 18" outside the line of piers, lay out sonotube forms, set them in place and brace them to plumb, with reinforcing set, and pour concrete to specified elevation. Place anchor bolts into wet concrete, or install expansion anchor bolts for sill plates, after concrete has set.

Install insulation board and rodent barrier as shown around the foundation perimeter of the excavation and brace in place. Pre-shape grade beneath intake and exhaust manifolds before placing them, to assure solid fill beneath and behind them, against the insulation or foundation wall. Cut riser and manifold pipes to length, and fasten manifolds to risers, either with cut detail shown, or with pre-manufactured elbow fittings.

Build Climate Battery:

Use hole-saws (4-3/4" dia holes for tubing with sock, 4-5/8" dia holes for tubing w/o sock) to bore holes through Intake and Exhaust manifold walls, for insertion of 4" dia climate battery tubing. Center each hole on high center of manifold corrugation closest to spacing shown, and alternate holes according to layout shown on Climate Battery plan and details. Place manifolds, riser elbows (or direct cut-in of manifold to riser) and end caps in their locations, with tubing hole pattern facing the opposite manifold. Secure manifolds in place as necessary with backfill, while leaving tubing holes accessible. If manifold pipes need to be curved to fit a dome layout, place a rope from end to end of manifold pipe and tighten to bend pipe as needed, before securing in place with backfill.

Measure and pre-cut 4" ADS tubing to length, and insert end of each tube into holes in intake manifold and in exhaust manifold. If using tubing with sock, or fabric covers, be sure not to allow sock to cover ends of tubing inside manifold, by rolling ends back over tubing end, to maintain proper air flow in the tube. Repeat until lowest layer of tubes are all in place and evenly spaced across the span between intake and exhaust manifolds.

Backfill Climate Battery:

If backfill soil or site subsoil is suspected of toxic content or radon gas emissions, test as required before building the climate battery. If the climate battery needs to be isolated from surrounding soil, consult with local installers of subterranean radon mitigation systems to install the necessary system prior to installing climate battery. If mild radon is detected under a battery for a well-ventilated greenhouse, there may be little need for concern or mitigation. Consult with local health and building officials as required.

Backfill soil should be composed of no more than 15-20% clay, remaining balance silt and sandy soil. If perennial plant roots are intended to grow in the battery soil, then an organic soil of sandy loam is desired. Do not use soil with more than 15% of "sticky clay", as shown in this soil testing video:

<https://youtu.be/hh211b8b5FE>

Soil should be damp, but not wet or muddy, when being placed and compacted. If soil is too dry, moisten as necessary with water spray as it is being placed and compacted. Compaction should be to light-medium density if plants will be growing in the battery soil, made using manual flat-plate compaction only.

Backfill inside and outside of foundation simultaneously. Backfill with sufficient soil to cover tubes, compacting soil manually, just enough to hold tubing in place. Backfill with more soil and compact manually or with a flat-plate compactor, until backfill level reaches the bottom of the tubing layer above, then place next tubing layer and repeat until finished installing tubing, then backfill and compact until reaching top of soil level. If metal raised planting beds are to be installed, fill only to within 3" of final surface.

Mount Climate Battery Fans inside Intake Risers:

Mount Fan on plywood ring cut to fit inside 24" riser, with hole in center for 12" fan (measure in field to ensure fit). Air seal around fan and plywood mounting ring with foam pipe insulation, fit snugly against inside of ADS riser to prevent back flow of air. Mount plywood on plastic-tube covered, 3/8" threaded rod as shown, with washers and nuts to fasten rods to ADS Riser. Fan mounts motor up, forcing air down.

Intake Extension Ducts:

Install extension ducts to ADS intake risers, as shown in the drawings. Hang Indoor Air Intake duct extensions securely from Greenhouse truss frame using nylon cord or galvanized strap, taking warm air from high up in the greenhouse.

ADS #N-12 18" dia. 2 exhaust manifolds: (see A2.1)

ADS #N-12 24" dia. intake manifold and 2 exhaust risers: (see A2.1)

ADS #N-12 30" dia. intake riser: (see A2.1)

ADS 4" dia. drain tubing: 4 layers x 2 sides w/ 50 lengths x 33" = 3,300. LF tubing. (see A5.1)

Perforated		Solid	
1891 - 0020"	STICK W/SOCK (1824HA)	1895 - 0010"	
1893 - 0020"	N-12 W/GRAIN-AIRE	1895 - 0013"	
1884 - 0020"		1895 - 0020"	

Perforated		Solid	
2491 - 0020"	STICK W/SOCK (2424HA)	2495 - 0010"	
2493 - 0020"	N-12 W/GRAIN-AIRE	2495 - 0020"	
2484 - 0020"			

Perforated		Solid	
3091 - 0020"		3095 - 0010"	
		3095 - 0020"	

ADS 4" ID. ASTM F 405			
Perforated		Solid	
0401 - 0050"	COIL	0451 - 0050"	
0401 - 0100"	COIL	0451 - 0100"	
0401 - 0250"	COIL	0451 - 0250"	
0401 - 3000"	MUCK	0451 - 3000"	
0402 - 0100"	COIL (LEACH BED)		
0402 - 0250"	COIL (LEACH BED)		
0402 - 0100 OS	4 LEACH BED PERF NEW STYLE		
0402 - 0250 OS	4 LEACH BED PERF NEW STYLE		
0402 - 0010 OS	4 LEACH BED BUNDLES NEW STYLE		
0405 - 0100"	COIL (WHITE)	0455 - 0100"	
0405 - 0250"	COIL (WHITE)	0455 - 0250"	
0405 - 3000"	COIL (WHITE)		
0406 - 0100"	COIL (MUCK)		
0406 - 0250"	COIL (MUCK)		
0409 - 0100"	4 FINE SLOT PERF		
0409 - 0250"	4 FINE SLOT PERF		
0409 - 3000"	4 FINE SLOT PERF		
0472 - 0100"	COIL W/CEREX (0414HA)		
0472 - 0250"	COIL W/CEREX (0414HA)		
0473 - 0100"	COIL W/SOCK (0424HA)		
0473 - 0250"	COIL W/SOCK (0424HA)		
0473 - 3000"	COIL W/SOCK (0424HA)		
0476 - 3000"	COIL (MUCK) W/CEREX		
0477 - 3000"	COIL (MUCK) W/SOCK		

402 LEACH BED (3 HOLES)

406 MUCK (3 HOLES AT 120 DEG.)

401 PERFORATED (SLOTS)

404 BUNDLES (BELL-END) (SLOTS)

402 LEACH BED (3 HOLES)

406 MUCK (3 HOLES AT 120 DEG.)

401 PERFORATED (SLOTS)

404 BUNDLES (BELL-END) (SLOTS)

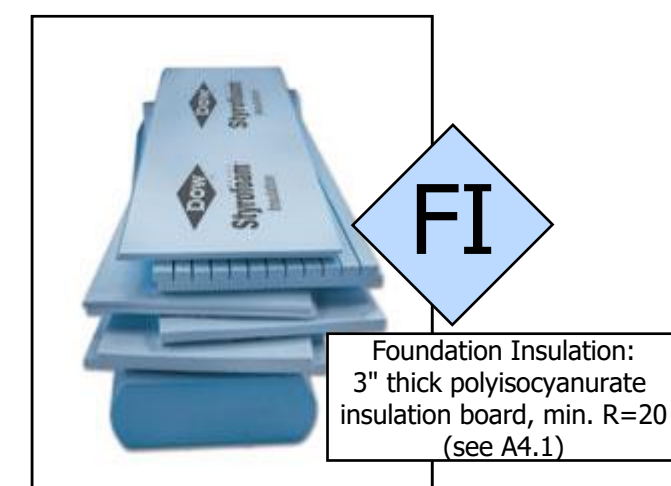
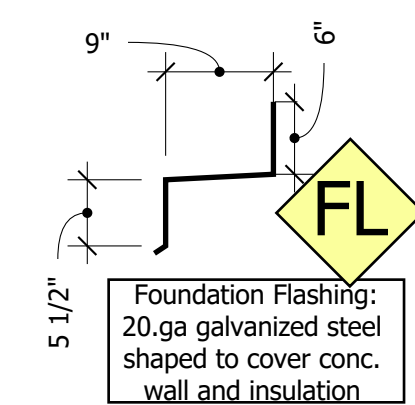
ADS #N-12 18" dia. Rib Spacing = 3-3/8" o.c.

ADS #N-12 24" dia. Rib Spacing = 2-5/8" o.c.

Fasten cut flanges onto inside wall of Riser Pipe w/ self-tapping SM screws

Use 4-5/8" dia hole saw to open holes for 4" drain tubing w/ sock sleeve

Segment manifold pipe end flange, cut hole & fit into Riser.



Mylar Ducting

Home for All Your Ducting Needs
www.mylarducting.com

1-877-432-8601
or 720-663-7379

Item Number	Description	Price
CH-024	Flex Duct, 24 Inch Diameter x 25 Feet Long	\$117.21 Each



Home Ranch Greenhouse
54880 County Rd 129, Clark, CO 80428


Printer: this drawing prints to scale on 24" x 36" paper.

Date: 2021.February.3
Issue: Permit Revisions

Climate Battery Installation

A5.1

DAYTON
21" Tubeaxial Fan, Motor HP 1, Voltage 230, 1 Phase
 Item # 4TM84 Mfr. Model # 166004A Catalog Page # 2941 UNSPSC # 40101604



Your Price **\$1,590.00 / each**

This item requires special shipping, additional charges may apply.

One Time Delivery
 Auto Reorder

1
 Add to Cart
 + Add to List |

Add Extended Protection Plan for \$375.00 each. Plan Details & Exclusions

Jump to: Replacement Parts

Shipping Weight **90.5 lbs.**

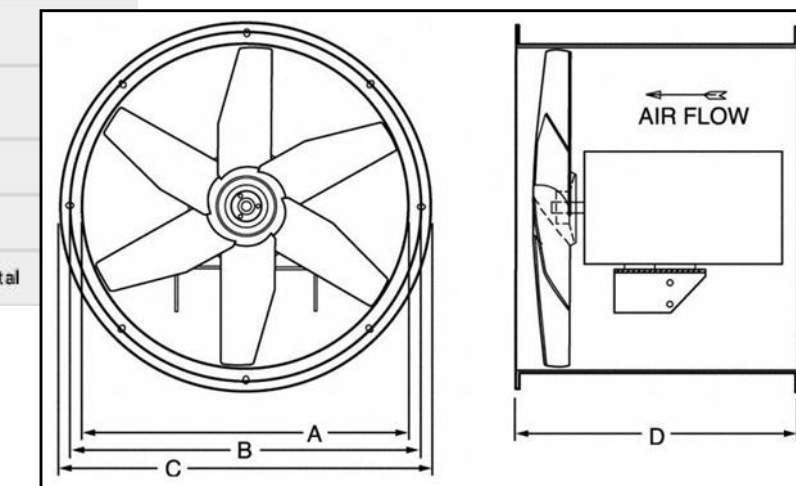
How can we improve our Product Images?
 Compare

Technical Specs

Item	Tubeaxial Fan
Voltage	230
Phase	1
Number of Speeds	2
Blade Dia.	21"
CFM @ 0.000 in. SP	6193/4106
CFM @ 0.125 in. SP	5970/3760
CFM @ 0.250 in. SP	5738/2341
CFM @ 0.375 in. SP	5489/2167
CFM @ 0.500 in. SP	5211
Speeds @ 0.250 in. SP @ 8 ft	26/15.2
Full Load Amps	5/3
Motor HP	1
Max. BHP	1.1/0.33
Motor RPM	1750/1160

Hr	60
Max. Inlet Temp.	104 Degrees F
Max. Ambient Temp.	104 Degrees F
Motor Type	Capacitor Start
Motor Enclosure	Totally Enclosed Air Over
Fan RPM	1750/1160
Bearing Type	Ball
Drive Type	Direct
Height	23-7/8"
Width	23-7/8"
Max. Depth	16"
Housing Dia. w/Mtg. Flange	23-7/8"
Housing Dia. w/o Mtg. Flange	21-5/16"
Inlet Dia.	21-1/4"
Outlet Dia.	21-1/4"
Mounting Position	Vertical/Horizontal

Housing Material	Steel
Housing Finish	Baked Enamel
Number of Blades	6
Blade Material	Aluminum
Companion Flange Stock No.	1LW9
Dimension A	21-5/16"
Dimension B	22-19/32"
Dimension C	23-7/8"
Dimension D	16"
Standards	UL Listed and AMCA Certified



Schaefer Air Ventilation System

The Features & Benefits of a Plant - Air Ventilation System for Horizontal Air Flow

The engineers at Schaefer Fan Company have been innovators in air circulation technology since 1951. The Plant Air system was created with this experience, vigorously tested and patented. The Schaefer Plant Air Circulation Fan is much more efficient in air-to-energy usage than other fans. The Schaefer guards are wider, with less restrictive wire spacing, allowing for twice the air flow of typical basket fans. The Plant Air fan design spreads air currents to insure efficient air circulation and optimum distribution of mist, fog, CO₂, and spray chemicals. The Plant Air fan is no-maintenance. The totally enclosed motor never needs oiling and uses heavy-duty moisture resistant bearings for long life.

Air, light, water...

...you know what it takes to make your greenhouse thrive. Schaefer Plant Air Circulation Fans are your solution to healthy air circulation and healthy plant growth. Use Schaefer Plant Air Circulation Fans to implement Horizontal Air Flow (HAF) patterns throughout the greenhouse. The HAF system places small circulation fans strategically in the greenhouse creating a 'race-back' air flow pattern. This system created with Schaefer Plant Air fans encourages plant performance by:

- Prevent mildew and disease
- Encourage healthy plant growth
- Reduce heat loss from conduction through wet glazing.

Improving carbon dioxide availability:

- Improve photosynthesis by increased fresh air flow across plant leaf surface.
- Lower Levels of additional CO₂ needed.

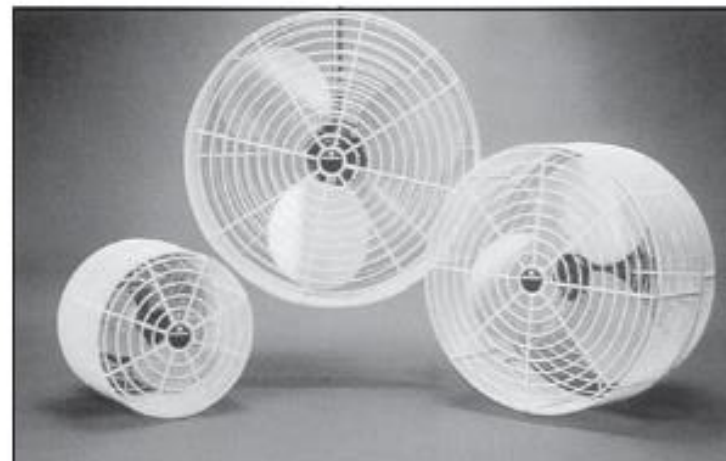
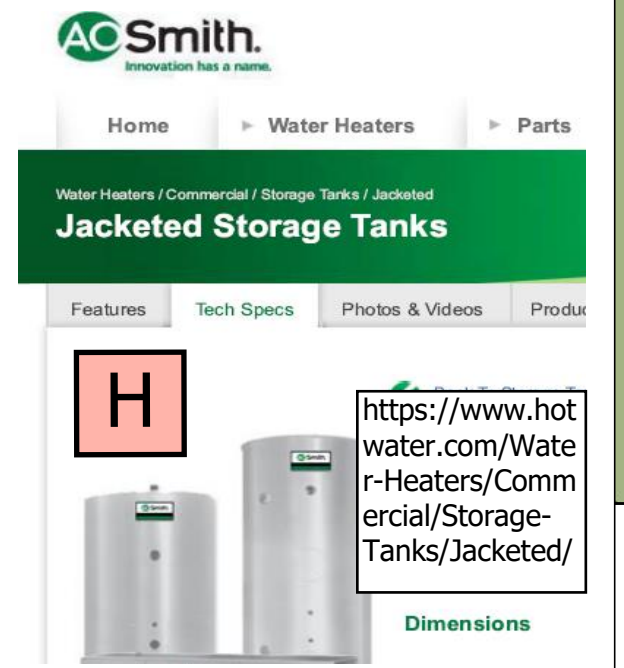
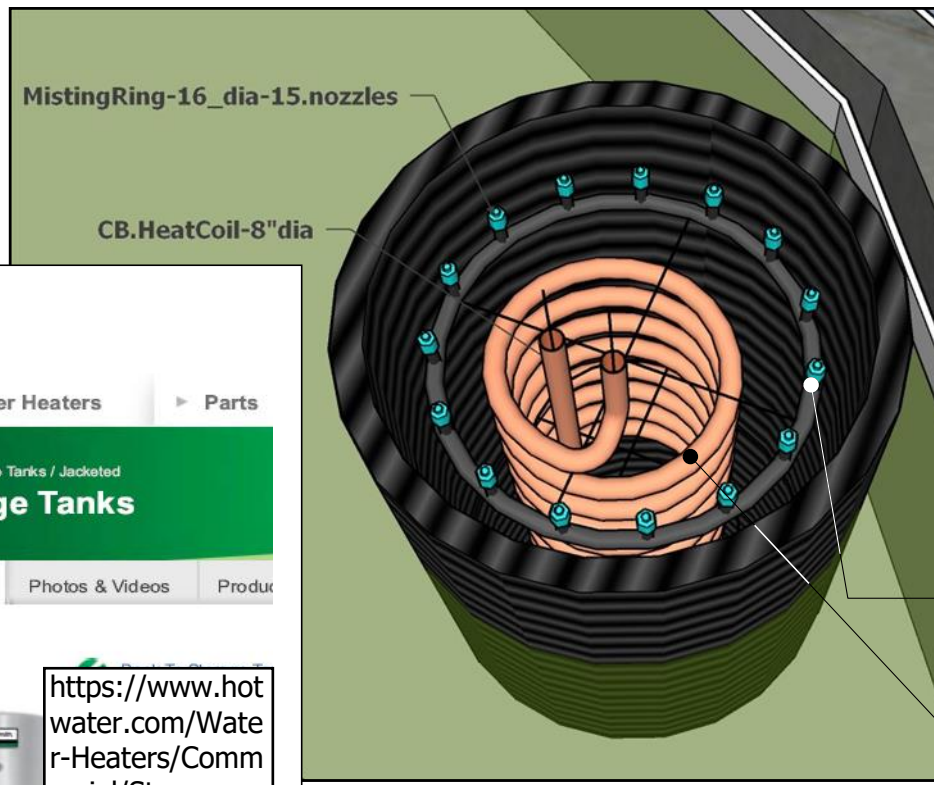

Equalizing greenhouse temperature:

- Eliminate air stratification - moving hot air down from the peak.
- Uniform temperature, lower thermostat settings - save up to 5% in heating costs.
- Reduce burning of exposed leaves, flowers or fruit on warm days.

HAF x4

- Maintain consistent greenhouse temperatures.
- Motor mount provides for each installation.
- Solid aluminum blades.
- Moisture resistant variable speed motor.
- White vinyl housing prevents shadowing.
- Fan holes are larger than traditional basket fans and provide double the circulation of traditional models.
- The fan's heavy duty bearing motors are maintenance-free and highly energy efficient.
- Noise levels are low-well below OSHA noise level requirements for plant environments.
- The fan mounts closer to the ceiling trusses for more headroom clearance.

Model#	Size	CFM	HP	Volts	Amps	Vax. Speed
GAVS12	12"	2,600	1/10	115/230	9/4.5	Yes
GAVS20	20"	6,000	1/3	115/230	3.8/1.9	Yes
GAVS24	24"	8,500	1/2	115/230	4.0/2.0	Yes
GAVS36	36"	11,000	1/2	115/230	6.0/3.0	No

ROYALL
 325 South Park Street
 Reedsburg, WI 53959
 800-944-2516
 info@royalboiler.com

6200 NS
 Indoor Wood/Coal Boiler Specifications

Our **TIME HONORED INDOOR BOILER**

https://www.royalboiler.com/wood-boiler/6200-NS-indoor-wood-boiler.htm

https://www.hotwater.com/Water-Heaters/Commercial/Storage-Tanks/Jacketed/Dimensions


https://www.northernbrewer.com/collections/wort-chillers/products/copperhead-wort-chiller-50-ft

Copperhead® Wort Chiller - 50 ft.
 ★★★★★ 5 reviews
 \$139.99 & FREE SHIPPING Details
 or 4 interest-free payments of \$35.00 with Affirm \$62216 ID

Climate Control Computer:
 Wadsworth SEED Controller:
 https://wadsworthcontrols.com/controls/seed/

Sensors:
 Weather station
 Soil sensors T & RH

Controls:
 Climate Battery Fan
 HAF circulation fans
 Passive vent panels
 Energ Curtain



Home Ranch Greenhouse: Climate Control Equipment:	MFR:	MODEL:	Quantity:	Volts:	Amps:	Watts:
Climate Battery Fan:	Dayton	4TM84	1	230	6.0	1,380
HAF Fans:	Schaefer	GAVS20	4	115	3.8	1,748
Wadsworth Roof Vent:	Wadsworth	VC-2000	1	115	2.5	288
Wadsworth Sidewall Vent:	Wadsworth	VC-100A	1	115	0.7	78
Wadsworth Energy Curtain:	Wadsworth		1	115	2.5	288
Backup Heating Boiler:	Royall	6200-NS	1	115	3.0	345
Backup Heating Tank & Pump:	AO.Smith	500.gal	1	115	5.0	575
Backup Cooling Compressor & Pump:	AMS	1000.psi	1	115	9.0	1,035
Total Power:					32.5	5,736

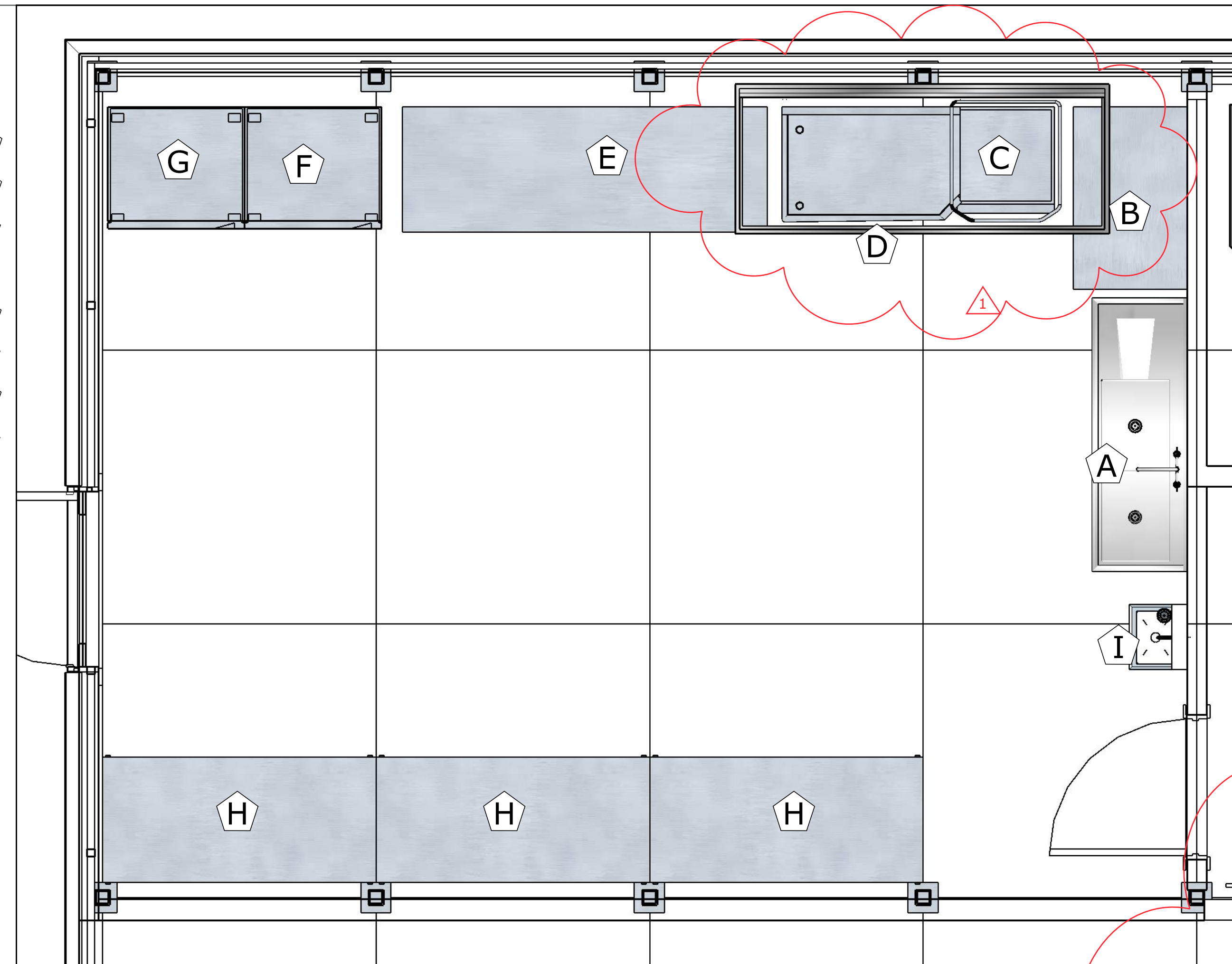
WINTER TEMPERATURE SETTINGS:	Greenhouse Temperature °F:	Climate Battery:	Vents:	HAF Fans:	Energy Curtain:	Fogging Mister:	CB Heat Coils:	Backup Heater:
Cooling Stage 3:	90	ON	OPEN 2/3	ON	CLOSED	off	off	off
Cooling Stage 2:	85	ON	OPEN 1/3	ON	open	off	off	off
Cooling Stage 1:	80	ON	closed	ON	open	off	off	off
Neutral - everything OFF:		off	closed	off	open	off	off	off
Heating Stage 1:	55	ON	closed	ON	CLOSED	off	off	off
Heating Stage 2:	45	off	closed	ON	CLOSED	off	off	ON

SUMMER TEMPERATURE SETTINGS:	Greenhouse Temperature °F:	Climate Battery:	Vents:	HAF Fans:	Energy Curtain:	Fogging Mister:	CB Heat Coils:	Backup Heater:
Cooling Stage 3:	90	ON	OPEN 3/3	ON	CLOSED	ON	off	off
Cooling Stage 2:	80	ON	OPEN 2/3	ON	open	off	off	off
Cooling Stage 1:	75	ON	OPEN 1/3	ON	open	off	off	off
Neutral - everything OFF:	70	ON	closed	off	open	off	off	off
Heating Stage 1:	50	ON	closed	ON	CLOSED	off	off	off
Heating Stage 2:	40	off	closed	ON	CLOSED	off	off	off



Home Ranch Greenhouse
 54880 County Rd 129, Clark, CO 80428

- KITCHEN EQUIPMENT / APPLIANCES:
- DOUBLE SINK A
 - WORK TABLE @ 30" X 48" B
 - DISHWASHER C
 - EXHAUST HOOD D
 - WORK TABLE 30" X 96" E
 - REFRIGERATOR F
 - FREEZER G
 - WORK TABLES 30" X 72" H
 - HAND WASHING SINK I



HOBART

AM15 TALL ELECTRIC High Temperature Door-Style Dishwashing Machine

Project: _____ SIS # _____
 AIA # _____ Quantity _____ C.S.I. Section 19400

STANDARD FEATURES

- 74 gallons per rack final rinse water
- 58 racks per hour - hot water sanitizing
- NSF pot and pan listed for 2-, 4- & 6-minute cycles
- Timed wash cycles for 1, 2, 4 or 6 minutes
- 27" door opening for 18" x 26" sheet pans or 60 quart mixing bowl
- Solid state, integrated controls with digital status indicators
- Self-draining, high efficiency stainless steel pump and stainless steel impeller
- Spring counterbalanced chamber with polyethylene guides
- Revolving, interchangeable upper and lower antilocking wash arms
- Revolving, interchangeable upper and lower rinse arms
- Startled, self-locating, one-piece scrap screen and basket system
- Automatic fill
- Door actuated start
- Automatic drain closure
- Vent fan control
- External booster activation
- Delime cycle
- Service diagnostics
- Straight-through or corner installation
- Hot water sanitation
- End of cycle audible alarm (field activated)
- Delime notification (field activated)
- 1/2" pressure regulator valve

SPECIFIER STATEMENT

Specified unit will be Hobart model AM15T high temperature door-type dishwashing machine. Features extended 27" door opening, auto-start, digital controls, NSF pot & pan listing, one piece scrap screen and basket system, interchangeable stainless steel wash and rinse arms, rinse 58 racks per hour, 74 U.S. gallons per rack. **1 year parts and labor warranty.**

OPTIONS & ACCESSORIES (available at extra cost)

- ☐ Sense-A-Temp™ 70°F rise electric booster heater
- ☐ Single point electric kit (field or factory installed) for booster equipped machines (3ph only)
- ☐ Peg rack
- ☐ Combination rack
- ☐ Splash panel kit (for corner installations)
- ☐ Flanged and seismic feet
- ☐ Front loading kit (field installation required)
- ☐ Drain water tempering kit
- ☐ Water hammer arrestor kit

16 GAUGE STAINLESS STEEL TWO COMPARTMENT SINKS WITH TWO DRAINBOARDS

ITEM #: _____ QUANTITY: _____
 PROJECT: _____
 APPROVAL: _____
 DATE: _____

REGENCY Tables and Sinks

FEATURES

- Made of high-quality 16 gauge, type 304 stainless steel
- Galvanized 1 1/2" steel legs with sockets
- Adjustable bullet feet for added stability
- Faucet holes pre-punched on 8" centers (faucet sold separately)
- 3/4" IPS drain connection
- Rolled edge contains splashes and overflow

SPECIFICATIONS

ITEM	LENGTH	DEPTH	HEIGHT (TUBS)	HEIGHT (WORK)	BOWL DEPTH	BOWL L TO R	BOWL F TO B	NUMBER OF DRAINBOARDS	SIDE	NET WEIGHT
6005217172G	72"	22 1/2"	44"	36"	12"	17"	17"	2	Both	76.5 LB.

TRUE TRUE MANUFACTURING CO., INC. U.S.A. FOODSERVICE DIVISION

2001 East Terra Lane • O'Fallon, Missouri 63366-4434 • (636)240-2400
 Fax (636)272-2408 • Toll Free (800)325-6152 • Intl Fax (001)636-272-7546
 Parts Dept. (800)424-TRUE • Parts Dept. Fax# (636)272-9471 • www.truemfg.com

Project Name: _____ AIA # _____
 Location: _____ SIS # _____
 Item #: _____ Qty: _____
 Model #: _____

Model: **T-Series: T-49DT-HC**
 Reach-In Solid Swing Door Dual Temperature Refrigerator/Freezer with Hydrocarbon Refrigerant

T-49DT-HC

- ▶ Designed using the highest quality materials and components to provide the user with cooler product temperatures, lower utility costs, exceptional food safety and the best value in today's food service marketplace.
- ▶ Refrigerator located in left section; freezer in the right.
- ▶ Factory engineered, self-contained, capillary tube system using environmentally friendly R290 hydrocarbon refrigerant that has zero (0) ozone depletion potential (ODP), & three (3) global warming potential (GWP).
- ▶ High capacity, factory balanced refrigeration systems that maintains cabinet refrigerator temperatures of 33°F to 38°F (5°C to 3.3°C) and freezer temperatures of -10°F (-23.3°C).
- ▶ Stainless steel solid doors and front. The very finest stainless with higher tensile strength for fewer dents and scratches.
- ▶ Adjustable, heavy duty PVC coated shelves.
- ▶ Positive seal self-closing doors. Lifetime guaranteed door hinges and torsion type closure system.

Bottom mounted units feature:

- ▶ "No stoop" lower shelf.
- ▶ Storage on top of cabinet.
- ▶ Compressors perform in coolest, most grease free area of kitchen.
- ▶ Easily accessible condenser coil for clearing.

ROUGH-IN DATA

Chart dimensions rounded up to the nearest 1/4" (millimeters rounded up to next whole number). Specifications subject to change without notice.

Model	Doors	Shelves	Cabinet Dimensions (inches)			HP	Ref.	Frz.	Voltage	Amps	NEMA Config.	Cord Length (total ft.)	Crated Weight (lbs.)
			W	D	H*								
T-49DT-HC	2	6	54"	29 1/2"	78"	1/4	1/2	115/60/1	6.4	5-15P	9	510	
			1375	750	1991				N/A		2.74	232	

*Height does not include 5" (127 mm) for castors or 6" (152 mm) for optional legs.

WELLS

Specifications: Floor Mount Grease Trap 30 lbs. / 15 GPM

MATERIAL
 Premium 11-Gauge (1/2") Carbon Steel

FEATURES

- Model WF-30-15
- Material: 11-Gauge (1/2") Carbon Steel
- Thick-Rinse Powder Coating for Heavy-Duty Corrosion Protection
- Designed to Minimize Risk of Slip on High-Degradation Environments
- Overall Dimensions: 23" L x 16" W x 14" H
- Bottom To Center Of Opening: 30-3/8" Inches
- Easy to Install
- Flow Mount: Yes
- Weight: 60 lbs.
- Height: 14" (to top)
- PIG Certified

STANDARD RESTAURANT SUPPLY

Commercial Kitchen Faucets / Pre-Rinse Faucets

EasyInstall Pre-Rinse Unit, 6", Brass, W/ Overhanging Rinser, T&S Brass B-0133-BM

\$567.17 \$329.00

T&S RELIABILITY BUILT IN™

8" wall mount mixing faucet with polished chrome plated brass body, add-on faucet with compression cartridge and lever handle, 12" swing nozzle with stream regulator outlet, 18" riser, 44" flexible stainless steel hose with heat resistant handle, 1.15 GPM spray valve, compression cartridges with spring checks, lever handles, 1/2" NPT female inlets, 6" adjustable wall bracket, spray valve holder and overhead spring.

Name of Appliance	Dimensions of appliance	Electrical load requirement
Reach-In Refrigerator, 54", Stainless Steel, 2 Door, True T-49-HC	54" x 30" x 79"	115v/60/1-ph
HOBART AM15-2 AM SELECT DISHWASHER, STAINLESS STEEL (W/BOOSTER HEATER)	27" x 28 1/2" x 77 1/2"	208/240
EasyInstall Pre-Rinse Unit, 6", Brass, W/ Overhanging Rinser, T&S Brass B-0133-BM	91" x 27" x 42"	
ADVANCE TABCO T9-3-54-18RL-X REGALINE SINK, 3-COMPARTMENT, STAINLESS STEEL	57" x 57" x 43"	
ADVANCE TABCO FC-K6-18D-X FABRICATED CORNER SINK, 3-COMPARTMENT L SHAPED, STAINLESS STEEL		
Grease Interceptor Trap 30 lbs. / 15 GPM	23" x 16" x 14"	
Work Table, Stainless Steel, 30" X 36", Falcon WT-3036	30" x 36"	
Stainless Steel Work Table, 30" X 72", Adjustable Undershef, Falcon WT-3072	30" x 72"	
Hand Sink, Wall Mount, Stainless Steel, W/Faucet And Drain Basket, Falcon HS-17	17" x 12" x 14"	

Falcon EQUIPMENT

801.263.339 Ext. 2004

Economy Work Table

www.falconequipment.com
 4340 West 850 South
 Salt Lake City, UT 84104
 Phone: _____

MODEL NUMBER	WIDTH (INCHES)	LENGTH (INCHES)	SHIPPING WEIGHT (LBS)	W/O BACKSPLASH
WT-2424	24	24	38	
WT-2430	24	30	45	
WT-2436	24	36	50	
WT-2448	24	48	60	
WT-2460	24	60	70	
WT-2472	24	72	80	
WT-2484	24	84	90	
WT-2496	24	96	100	
WT-3030	30	24	47	
WT-3036	30	36	53	
WT-3048	30	48	65	
WT-3060	30	60	77	
WT-3072	30	72	89	
WT-3084	30	84	101	
WT-3096	30	96	113	

MODEL NUMBER	WIDTH (INCHES)	LENGTH (INCHES)	SHIPPING WEIGHT (LBS)	1-1/2" BACKSPLASH
WT-2424-BS	24	24	43	
WT-2430-BS	24	30	48	
WT-2436-BS	24	36	53	
WT-2448-BS	24	48	63	
WT-2460-BS	24	60	73	
WT-2472-BS	24	72	85	
WT-2484-BS	24	84	97	
WT-2496-BS	24	96	114	
WT-3036-BS	30	12	52	
WT-3048-BS	30	18	58	
WT-3060-BS	30	30	67	
WT-3072-BS	30	36	74	
WT-3084-BS	30	48	85	
WT-3096-BS	30	60	96	
WT-3072-BS	30	72	108	
WT-3084-BS	30	84	121	
WT-3096-BS	30	96	134	

Falcon EQUIPMENT

WALL MOUNTED HAND SINKS WITH GOOSE NECK FAUCETS

FEATURES & CONSTRUCTION:

- Single Bowl with 1-1/2 IPS drain Basket
- Easy-to-install 8" gooseneck faucet included
- Holes Punched on 4" centers
- 6" backsplash
- 20 gauge type 304 stainless steel
- NSF Listed

Model # _____ **Spec** _____

MODEL #	SPEC	UNIT SIZE			BOWL SIZE			Shipping Weight
		L	D	H	A	B	C	
HS-17	STAMPED	12"	17"	13.5"	14"	10"	5.5"	15 lbs.
HS-12	STAMPED	12"	12"	10"	9"	9"	4"	10 lbs.
HS-17-W	WELDED	12"	17"	10"	14"	10"	5.5"	15 lbs.
HS-12-W	WELDED	12"	12"	10"	9"	9"	4"	10 lbs.
HS-17-SS	STAMPED W/SIDE SPLASH	12"	17"	10"	14"	10"	5.5"	15 lbs.
HS-12SS	STAMPED W/SIDE SPLASH	12"	12"	10"	9"	9"	4"	10 lbs.

eco systems design, inc.

permaculture design in harmony with nature

124 e north drive
 PO box 631
 baset, co 81621

phone: 970-456-3480
 fax: 970-274-0634

Home Ranch Greenhouse
 54880 County Rd 129, Clark, CO 80428