

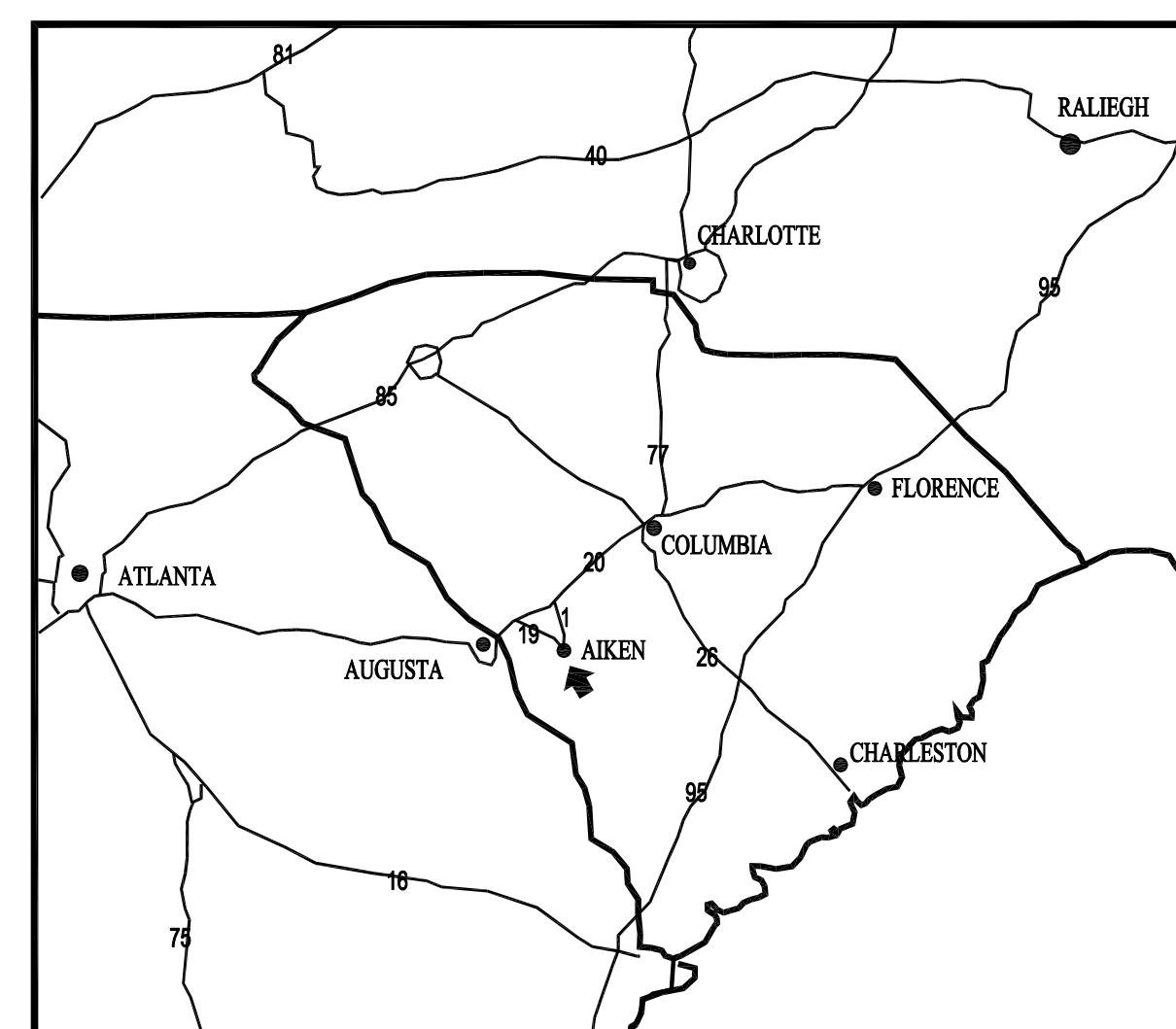
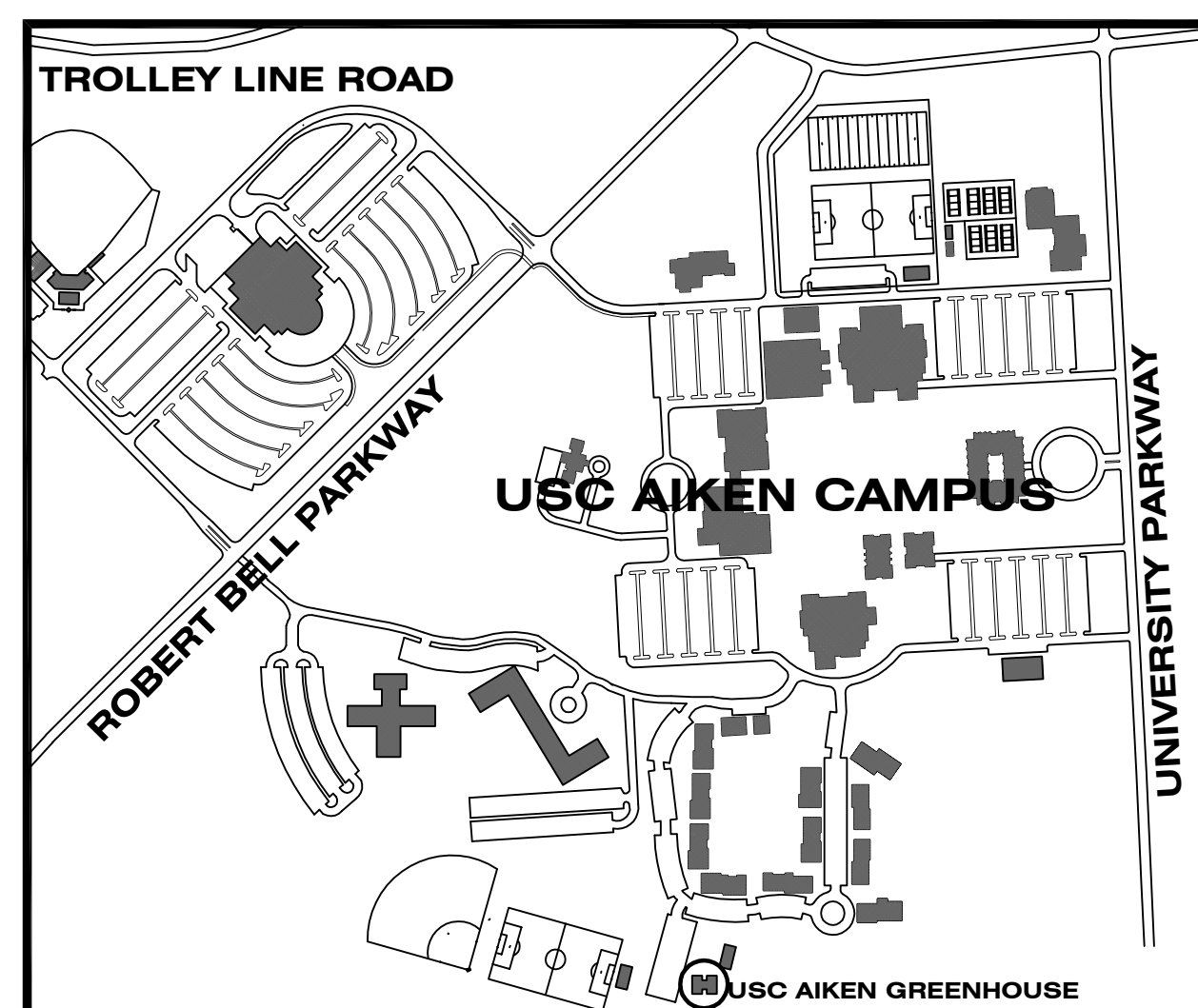
UNIVERSITY OF  
SOUTH CAROLINA  
AIKEN

# USC AIKEN GREENHOUSE REPACKAGING

State Project #H29-I337  
A/E Project #12036.02  
JUNE 10, 2014  
OWNER REVIEW

Prepared by:  
**GMK**  
ASSOCIATES, INC.  
Architects/Engineers/Planners  
1201 Main Street  
Columbia, South Carolina 29201-3299  
tel. 803-256-0000 fax 803-255-7243

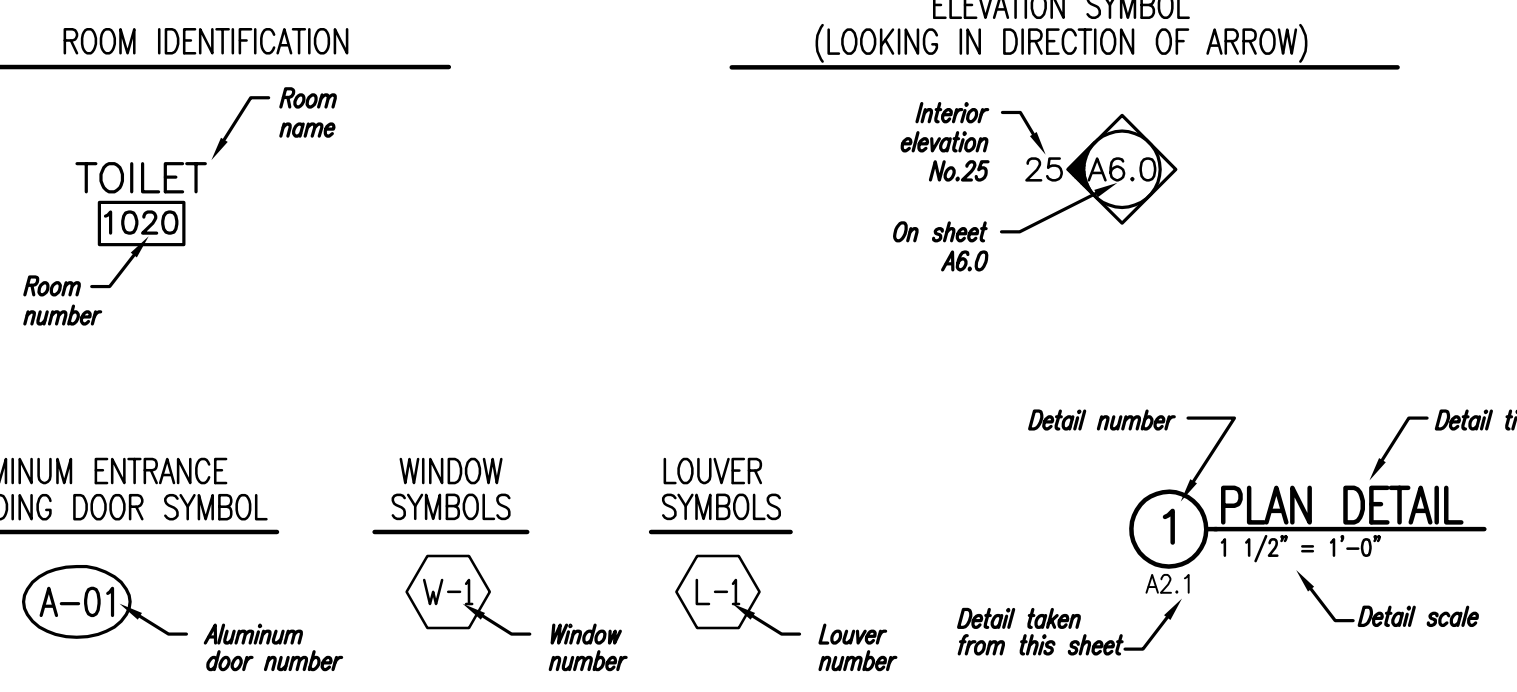
## LOCATOR MAPS



## 1 GENERAL NOTES

- NOTIFY THE ARCHITECT IMMEDIATELY UPON DISCOVERY OF EXISTING CONDITIONS THAT ARE CONTRARY TO THOSE REPRESENTED WITHIN THE DRAWINGS.
- ALL NEW VERTICAL AND HORIZONTAL DUCTS, PIPES, CONDUITS, ETC. (WHETHER SHOWN OR NOT) IN FINISHED ROOMS OR AREAS THROUGHOUT BUILDING, NOT ENCASED IN MASONRY, METAL OR WOOD CONSTRUCTION SHALL BE FLURRED IN, THE FLURRING FINISHED TO MATCH ROOM FINISH.
- ALL NEW PARTITIONS, UNLESS OTHERWISE SHOWN OR DETAILED, SHALL BE METAL STUDS OF THICKNESS TO ADEQUATELY COVER PIPING, CONDUITS, ETC.
- PROVIDE AN EDGE STRIP, AS DETAILED, UNDER ALL DOORS WHERE NEW OR EXISTING FINISHES AND ADJACENT FLOOR ARE AT DIFFERENT LEVELS AND WHERE ADJACENT FLOOR FINISHES ARE OF DIFFERENT MATERIALS. SEE DETAIL 6/A0.0.
- OFFSET ALL DOORS IN METAL STUD WALLS 6" FROM ADJACENT WALLS 6" IN CMU WALLS UNLESS OTHERWISE NOTED.
- PROVIDE ACCESS PANELS, 24" X 24", OR OF SIZES REQUIRED, WHERE PLUMBING AND HEATING VALVES, WATER SWITCHES, OXYGEN PRESSURE SWITCHES, VENTILATION SPLITTER DAMPERS, ETC. ARE SHOWN ON PLUMBING, HEATING, AND VENTILATION DRAWINGS. SUCH ACCESS PANELS TO BE INSTALLED IN THE FOLLOWING:
  - SUSPENDED PLASTER OR GYPSUM WALLBOARD CEILINGS
  - METAL STUD OR MASONRY PARTITIONS
- WALL ASSEMBLIES SHALL BE MAINTAINED AT ALL RECESSED FIRE EXTINGUISHER CABINETS AND ALL RECESSED EQUIPMENT.
- PROVIDE FIRE EXTINGUISHING CABINETS OF THE TYPE SPECIFIED. REFER TO FLOOR PLANS (A2-SERIES) FOR LOCATIONS.
- SUPPLY BLOCKING AT ALL WALL HUNG EQUIPMENT (I.E. GRAB BARS, CASEWORK MEDICAL EQUIPMENT, ETC.)
- THE FIRE RATINGS OF ALL FIRE RATED WALLS SHALL BE STENCILED ABOVE CEILINGS, EACH SIDE OF WALL, BOTH SIDES OF CORRIDORS AND AS REQ'D BY IBC.

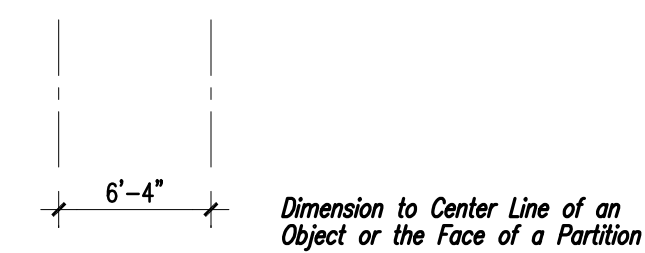
The reference system uses a number for each detail or item on a sheet combined with the sheet number on which it is located. Each detail or item on a sheet will be numbered.



## 2 REFERENCE SYSTEM

NEW PARTITION TO REMAIN

## 3 PARTITION SYMBOLS

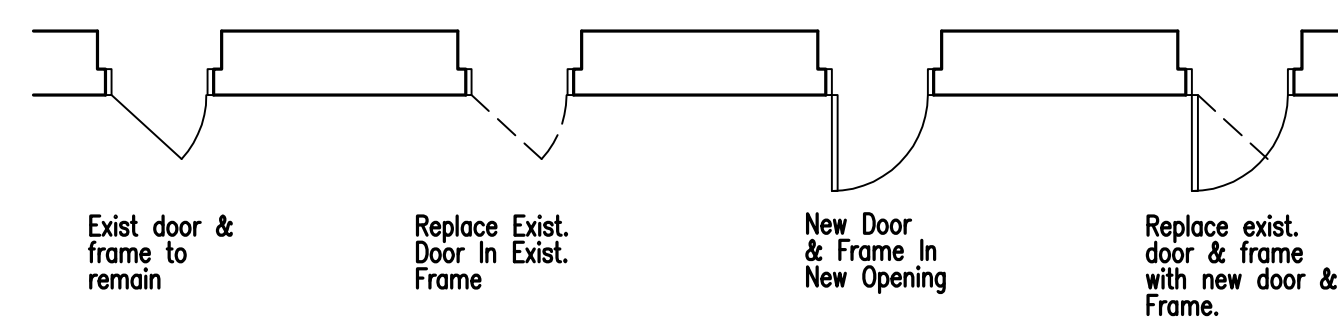


## 4 DIMENSION CONVENTIONS

N.T.S.

## 5 NOT USED

## DOOR & FRAME PLAN SYMBOLS



## DOOR NUMBERING LEGEND

Rooms with multiple doors have "A", "B", etc. designations. Doors shown at the right would be scheduled as "1020A" and "1020B", related to the room where (A) and (B) are shown.

Rooms with only one door have no door indication. The door number in the schedule will be the same as the room number.

In locations where necessary to avoid confusion, full door numbering is shown on plan.

## 6 INTERIOR OPENING SYMBOLS DOORS & VIEW WINDOWS

N.T.S.

## DRAWING INDEX

### CIVIL

C-101 STAKEOUT AND WATER PLAN  
C-102 GRADING, DRAINAGE AND UTILITY PLAN

### ARCHITECTURAL

A2.1 FLOOR PLAN, ROOF PLAN, ELEVATIONS AND TYPICAL WALL SECTION

### PLUMBING

P1.0 GREENHOUSE PLAN PLUMBING PIPING, SCHEDULES, NOTES, SYMBOLS AND ABBREVIATIONS

### ELECTRICAL

E2.0 GREENHOUSE SCHEDULES, POWER AND LIGHTING PLANS

### VENDOR - INFORMATION ONLY

V1.0 GOTHIC GREENHOUSE SHOP DRAWINGS  
V2.0 GOTHIC GREENHOUSE SHOP DRAWINGS  
V3.0 GOTHIC GREENHOUSE SHOP DRAWINGS

### ALTERNATES

THE FOLLOWING ALTERNATES WILL BE DEDUCTIVE ALTERNATES. THE DRAWINGS AS SHOWN ARE THE BASE BID.

**ALTERNATE #1**  
THE ELECTRICAL CONTRACTOR'S SCOPE OF WORK SHALL CONSIST OF FURNISHING AND INSTALLING ALL ELECTRICAL ELEMENTS AS SHOWN IN WEATHERHEAD DETAIL 2/E2.0 AND POWER RISER DIAGRAM AS SHOWN ON SHEET E2.0. THIS SHALL INCLUDE AND NOT BE LIMITED TO 225A PANEL "P1" AND ALL CIRCUIT BREAKERS, CT METER, WEATHERHEAD AND ALL ASSOCIATED CONDUIT AND WIRE REQUIRED FOR A COMPLETE INSTALLATION.

**ALTERNATE #2**  
THE ELECTRICAL CONTRACTOR'S SCOPE OF WORK SHALL CONSIST OF FURNISHING AND INSTALLING ALL THE ELECTRICAL ELEMENTS AS SHOWN IN WEATHERHEAD DETAIL 2/E2.0 AND POWER RISER DIAGRAM AS SHOWN ON SHEET E2.0. THIS SHALL INCLUDE AND NOT BE LIMITED TO 225A PANEL "P1" AND ALL CIRCUIT BREAKERS, CT METER, WEATHERHEAD AND ALL ASSOCIATED CONDUIT AND WIRE REQUIRED FOR A COMPLETE INSTALLATION. THE ELECTRICAL CONTRACTOR SHALL ALSO FURNISH AND INSTALL ALL MATERIALS AND LABOR TO UPFIT GREENHOUSE #2 AND THE CONNECTOR GREENHOUSE STRUCTURE AS WELL. THIS SHALL INCLUDE AND NOT BE LIMITED TO ALL LIGHT FIXTURE NOT INCLUDED IN THE GREENHOUSE KIT, LIGHT SWITCHES, RECEPTACLES, DISCONNECT SWITCHES, JUNCTION BOXES AND ALL ASSOCIATED CONDUIT AND WIRING REQUIRED FOR A COMPLETE INSTALLATION PER THE DESIGN AS INDICATED ON THE ELECTRICAL DRAWINGS AS SHOWN ON SHEET E2.0, V1.0, V2.0 AND V3.0.

**ALTERNATE #3**  
ALL LABOR AND MATERIALS ASSOCIATED WITH THE INSTALLATION OF THE TWO 1" DATA CONDUITS INDICATED ON DRAWING C-101 SHALL BE DELETED FROM THE SCOPE OF WORK INCLUDING THE TRENCHING, ASPHALT PATCHES, HANDHOLES, CONDUIT, ETC.

SET NO. \_\_\_\_\_



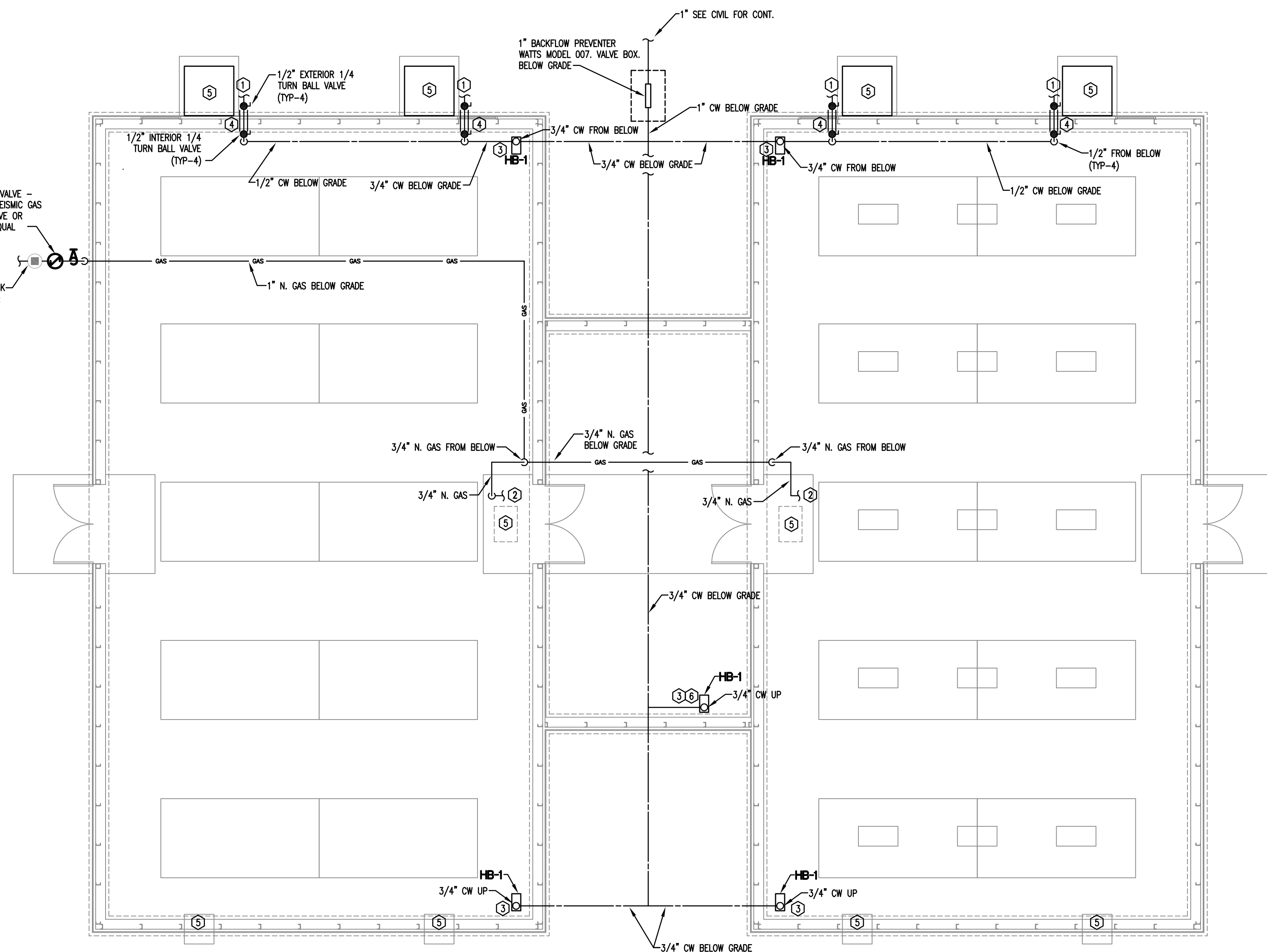








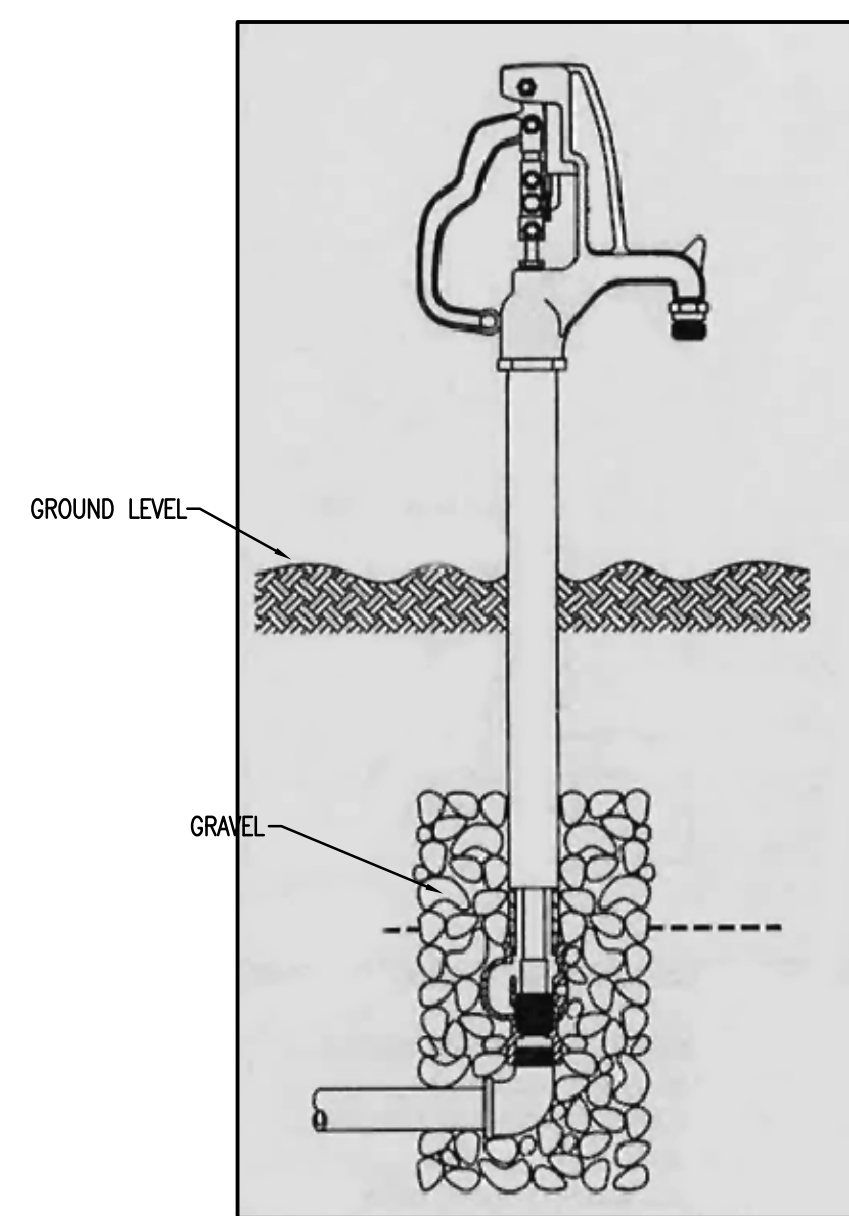




**1 GREENHOUSE PLAN - PLUMBING PIPING**  
1/4"=1'-0"

**KEYNOTES:**

- 1. PROVIDE 1/2" DOMESTIC WATER SUPPLY FOR EVAPORATIVE COOLER. PC SHALL MAKE FINAL CONNECTION. PROVIDE INTERIOR SHUT OFF BALL VALVE AND EXTERIOR DRAIN VALVE BEFORE EQUIPMENT CONNECTION. REFER TO DETAIL #3 THIS SHEET FOR EXTERIOR SUPPLY DRAIN DETAIL. EVAPORATIVE COOLERS VENDOR SUPPLIED.
- 2. PROVIDE 3/4" NATURAL GAS SUPPLY TO VENDOR SUPPLIED UNIT HEATER. PC SHALL MAKE FINAL GAS CONNECTION. ENSURE SUPPLY SIDE GAS COCK AND SEWMENT TRAP AT UNIT CONNECTION. PROVIDE UNIT HEATER VENT AND METAL THIMBLE AT GREENHOUSE WALL PENETRATION. REFER TO MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR CONTINUATION.
- 3. INSTALL WATER HYDRANTS ACCORDING TO MANUFACTURERS RECOMMENDATIONS. ENSURE APPROVED BACKFLOW PREVENTION DEVICE AT HOSE CONNECTION.
- 4. EXTERIOR WALL PENETRATION TO BE SLEEVED AS NECESSARY. SEAL EXTERIOR WALL PENETRATION TO GREENHOUSE MANUFACTURER'S RECOMMENDATIONS.
- 5. GC SHALL BE RESPONSIBLE FOR COORDINATION OF INSTALLATION FOR VENDOR SUPPLIED EQUIPMENT. INSTALLATION TO INCLUDE BUT NOT LIMITED TO CUTTING, CLEARANCE, PATCHING, SECURING, SEALING AND SUPPORTS. REFER TO VENDOR DRAWINGS AND MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR ALL EQUIPMENT.
- 6. ENSURE INSTALLATION OF WATER HYDRANT LOCATION TO AVOID CONFLICT WITH VENTS, CONDUIT OR CONTROL PANELS.



**2 HYDRANT DETAIL**  
NTS

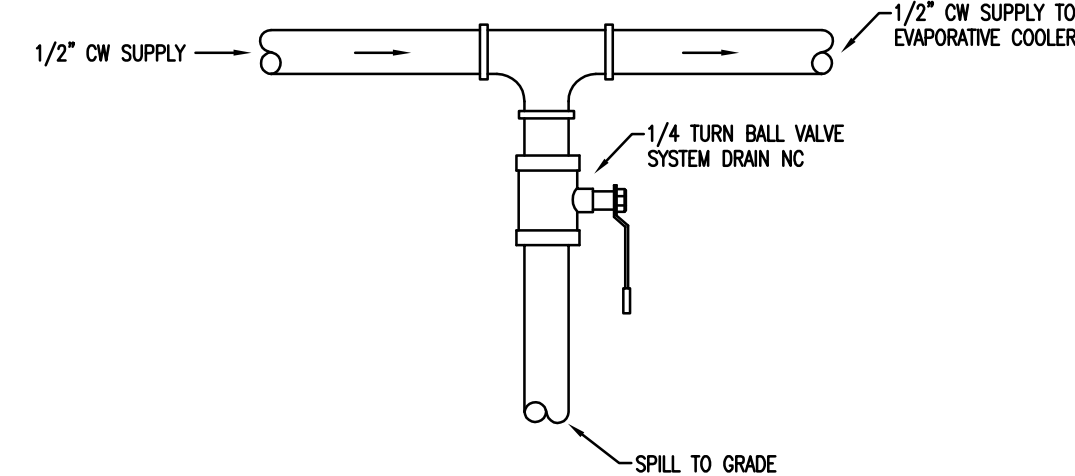
**PLUMBING FIXTURE SCHEDULE**

HB-1; HOSE BIB / YARD HYDRANT (FROST PROOF)	
1. TYPE	A. WOODFORD #1/2 BACKFLOW PROTECTED HYDRANT
2. FINISH	A. GALVANIZED
3. HANDLE	A. LEVER HANDLE
4. INLET	A. 3/4" CW.
5. OUTLET	A. 3/4" HOSE.
6. BACKFLOW PREVENTER	A. FOLLOW MANUFACTURERS RECOMMENDATIONS FOR INSTALLATION AND DEPTH OF BURY.
7. MOUNTING	B. HOSE OUTLET 28-1/2" AFG

**PIPE IDENTIFICATION SCHEDULE**

SERVICE TYPE	DECAL IDENTIFICATION	TAPE COLOR
COLD WATER SERVICE	COLD WATER SUPPLY	GREEN

- 1. PIPE SIZES 1-1/4" TO 6", USE 2-1/4" LETTERING.
- 2. PIPE SIZES 1" OR LESS, USE 1-1/4" LETTERING.



**3 EVAPORATIVE COOLER SUPPLY DRAIN DETAIL**  
NTS

- PLUMBING GENERAL NOTES**
- CONTRACTOR SHALL COMPLY WITH THE FOLLOWING CODES AND STANDARDS INsofar AS THEY APPLY: NFPA 54, 2012 INTERNATIONAL BUILDING, GAS AND PLUMBING CODES.
  - LOCATE SHUT-OFF VALVES IN LOCATIONS ACCESSIBLE FOR SERVICE. LOCATION SHALL COMPLY WITH THE REQUIREMENTS OF ALL CODES REFERENCED HEREIN.
  - CONTRACTOR SHALL REFERENCE PLANS AND THE SPECIFICATIONS SHOWN ON THIS SHEET AND EQUIPMENT SCHEDULE FOR PLUMBING FIXTURES, EQUIPMENT AND MATERIALS.
  - IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THAT ITEMS TO BE FURNISHED FIT THE SPACE AVAILABLE.
  - THESE DRAWINGS ARE SCHEMATIC IN NATURE AND DO NOT SHOW EXACT LOCATIONS OF FIXTURES AND EQUIPMENT. ALL OFFSETS AND FITTINGS FOR COMPLETE INSTALLATION MAY NOT BE DEFINED ON THE DRAWINGS. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING EXACT DIMENSIONS AT THE BUILDING AND ANY NECESSARY CHANGES MADE IN ACCORDANCE WITH STRUCTURAL CONDITIONS. EQUIPMENT TO BE INSTALLED AND COORDINATE WITH OTHER SYSTEMS. IF CONFLICTS CANNOT BE RESOLVED THEY SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER.
  - CONTRACTOR SHALL SECURE ALL PERMITS, INSPECTIONS, LICENSES AND TESTS REQUIRED FOR THIS WORK AND PAY ALL FEES IN CONNECTION THEREWITH.
  - ALL MATERIALS SHALL BEAR THE MANUFACTURER'S NAME, TRADE NAME AND BE ULL LABELED IF REQUIRED, UNLESS SPECIFICALLY INDICATED OTHERWISE. ALL EQUIPMENT AND MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER. ALL EQUIPMENT OF A SIMILAR TYPE SHALL BE OF THE SAME MANUFACTURER.
  - CONTRACTOR SHALL PROVIDE AND LOCATE SLEEVES AND INSERTS REQUIRED BEFORE THE FLOOR AND WALLS ARE BUILT OR SHALL BE RESPONSIBLE FOR THE COST OF CUTTING AND PATCHING REQUIRED FOR PIPES WHERE SLEEVES AND INSERTS WERE NOT INSTALLED OR WHERE THEY WERE INCORRECTLY LOCATED.
  - THE ENGINEER SHALL NOT BE RESPONSIBLE FOR THE MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES OF CONSTRUCTION SELECTED BY THE CONTRACTOR OR OF THE SAFETY PRECAUTIONS AND PROGRAMS INCIDENTAL TO THE WORK OF THE CONTRACTOR. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR THE FAILURE OF THE CONTRACTOR TO PERFORM THE CONSTRUCTION WORK IN ACCORDANCE WITH THE DRAWINGS.
  - IT IS THE INTENT AND MEANING OF THE DRAWINGS TO PROVIDE COMPLETE AND OPERABLE PLUMBING SYSTEM.
  - ALL PLUMBING LINE SIZE REDUCTIONS SHALL BE MADE WITH REDUCERS AND/OR REDUCING FITTINGS.
  - COORDINATION WITH VENDOR DRAWINGS AND OTHER DISCIPLINES IS MANDATORY.
  - THERE SHALL BE NO CONNECTIONS TO THE COLD WATER SERVICE PIPE THROUGHOUT THE STRUCTURE OTHER THAN WHAT IS INDICATED ON THE DRAWINGS. THERE ARE TO BE NO POTABLE WATER CONNECTIONS TO THE COLD WATER SERVICE THROUGHOUT THE STRUCTURE.

**PLUMBING LEGEND**

SYMBOL	DESCRIPTION
---	COLD WATER LINE - (CW)
---	NATURAL GAS LINE - (N. GAS)
○/○	PIPE DOWN OR DROP (DN OR DROP)
○	PIPE UP
---	PIPE BREAK OR CONTINUATION
●	BALL VALVE
⌵	PRV

**ABBREVIATIONS \***

ABV	Above	NC	Normally Closed
AD	Access Door	NG	Natural Gas
AF	Above Finished Floor	NIC	Not in Contract
BFP	Backflow Preventer	NO	Normally Open
CA	COMPRESSED AIR	NPT	National Pipe Thread
CI	Cast Iron	NTS	Not To Scale
COL	Column Line	OFST	Over Flow Storm Drain
CONN	Connection	OX	Oxygen
CW	Cold Water	PC	Plumbing Contractor
DI	Delaminized Water	P-#	Pump - No.
DN	Down	PRV	Pressure Reducing Valve
EC	Electrical Contractor	PSI	Pounds Per Square Inch
ELEV	Elevation	RD	Roof Drain
ET	Expansion Tank	SA	Shock Absorber
EW-#	Emergency Eyewash	SH-#	Shower
EW-C-#	Electric Water Cooler	SK-#	Sink
EXIST	Existing	SS	Stainless Steel
FD	Floor Drain	ST	Storm Drain
FL	Floor	STD	Standard
FT	Feet	TEMP	Temperature
GC	General Contractor	TYP	Typical
GPH	Gallons Per Hour	TOS	Top of Steel
GPM	Gallons Per Minute	U-#	Urinal
HW	Hot Water	VAC	Vacuum
HWR	Hot Water Return	VB	Vacuum Breaker
IE	Invert Elevation	V	Sanitary Vent
L-#	Lavatory	VTR	Vent Thru Roof
MA	Medical Air	W	Sanitary Waste
MAX	Maximum	WB-#	Wall Box
MC	Mechanical Contractor	WC-#	Water Closet
MIN	Minimum	WTS	Water Tight Sleeve
MPT	Mop Pipe Thread		
MSB-#	Mop Sink Basin		
N/A	Not Applicable		

\* Not All Abbreviations Used

**FIXTURE SIZE SCHEDULE**

MARK	WASTE	VENT	CW	HW
HB-1	----	----	3/4"	----

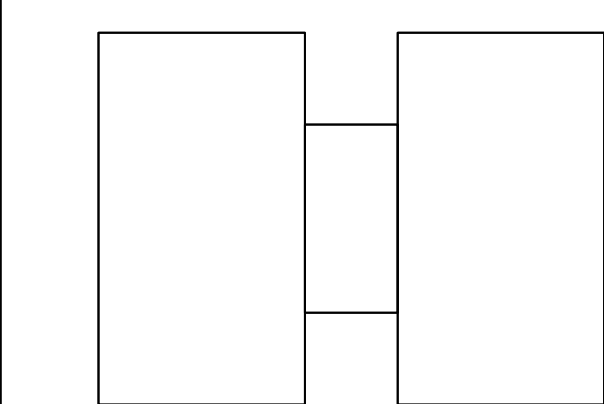
NOTE: USE THIS SIZE FOR FIXTURE CONNECTIONS UNLESS NOTED OTHERWISE

issued for  
**OWNER REVIEW**

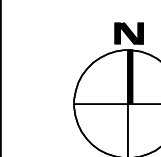
date  
**MAY 29, 2014**

number	item	date

key plan



USC AIKEN GREENHOUSE



sheet title  
**GREENHOUSE PLAN  
PLUMBING PIPING  
SCHEDULES, NOTES, SYMBOLS  
AND ABBREVIATIONS**

sheet number

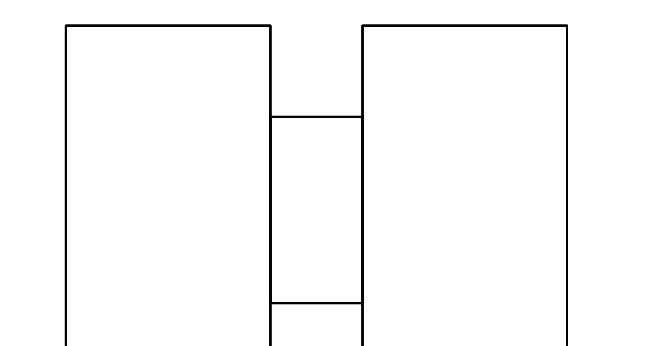
**P1.0**

drawn by **JJR**  
checked by **RLW, JWB**



number	item	date

key plan



USC AIKEN GREENHOUSE

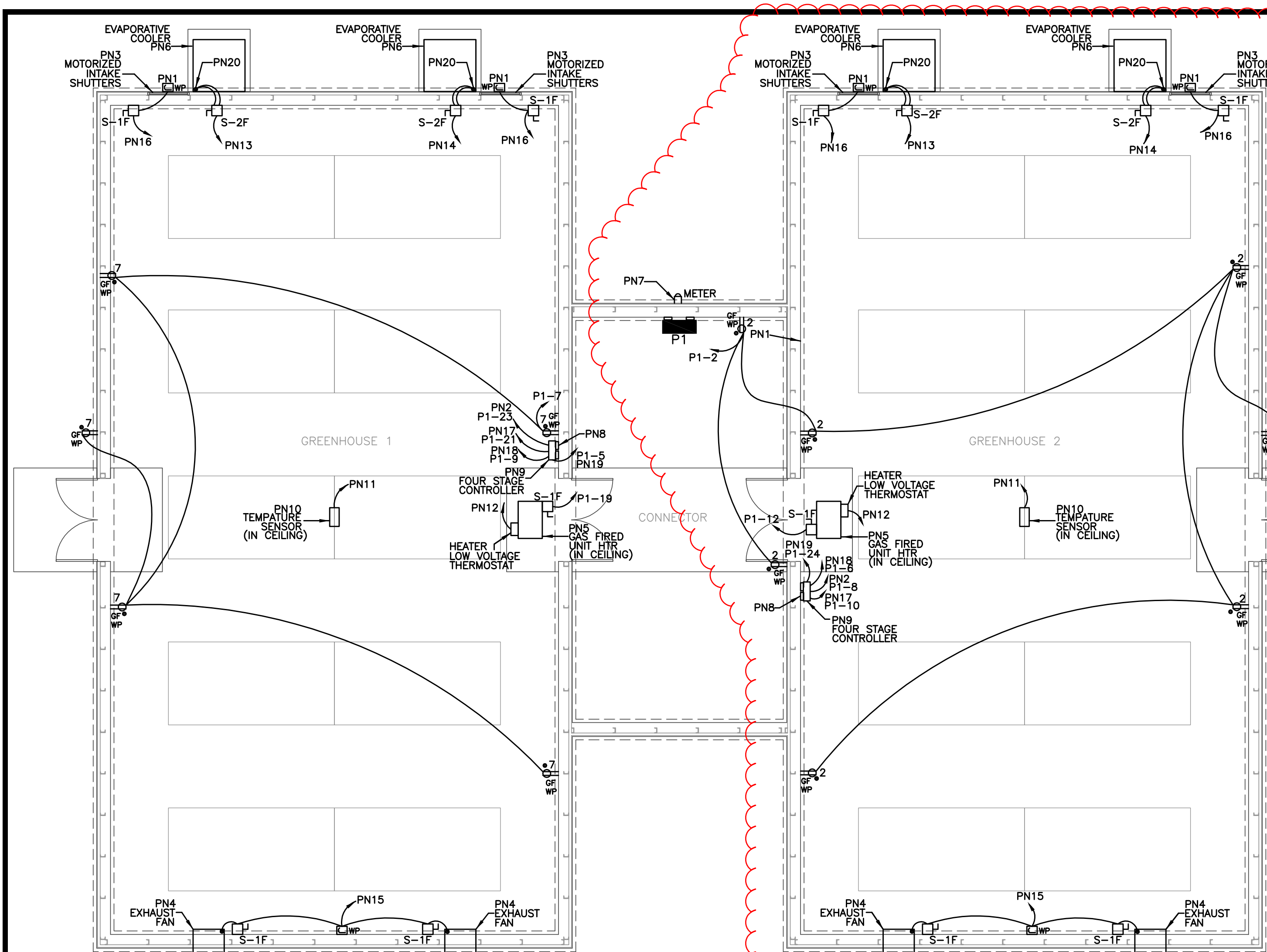


sheet title  
**GREENHOUSE SCHEDULES, POWER AND LIGHTING PLANS**

sheet number

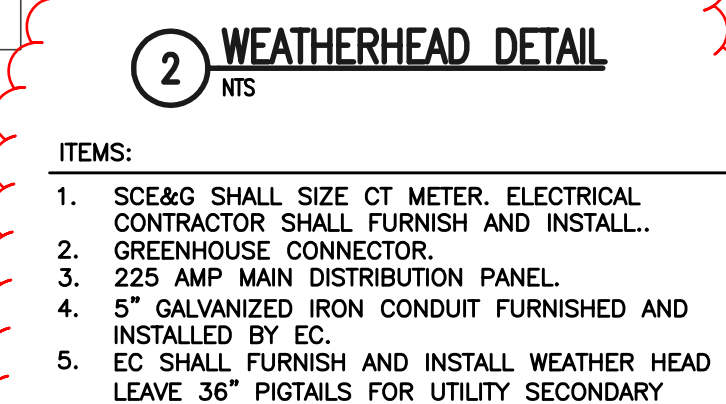
**E2.0**

drawn by TLK  
checked by JBF

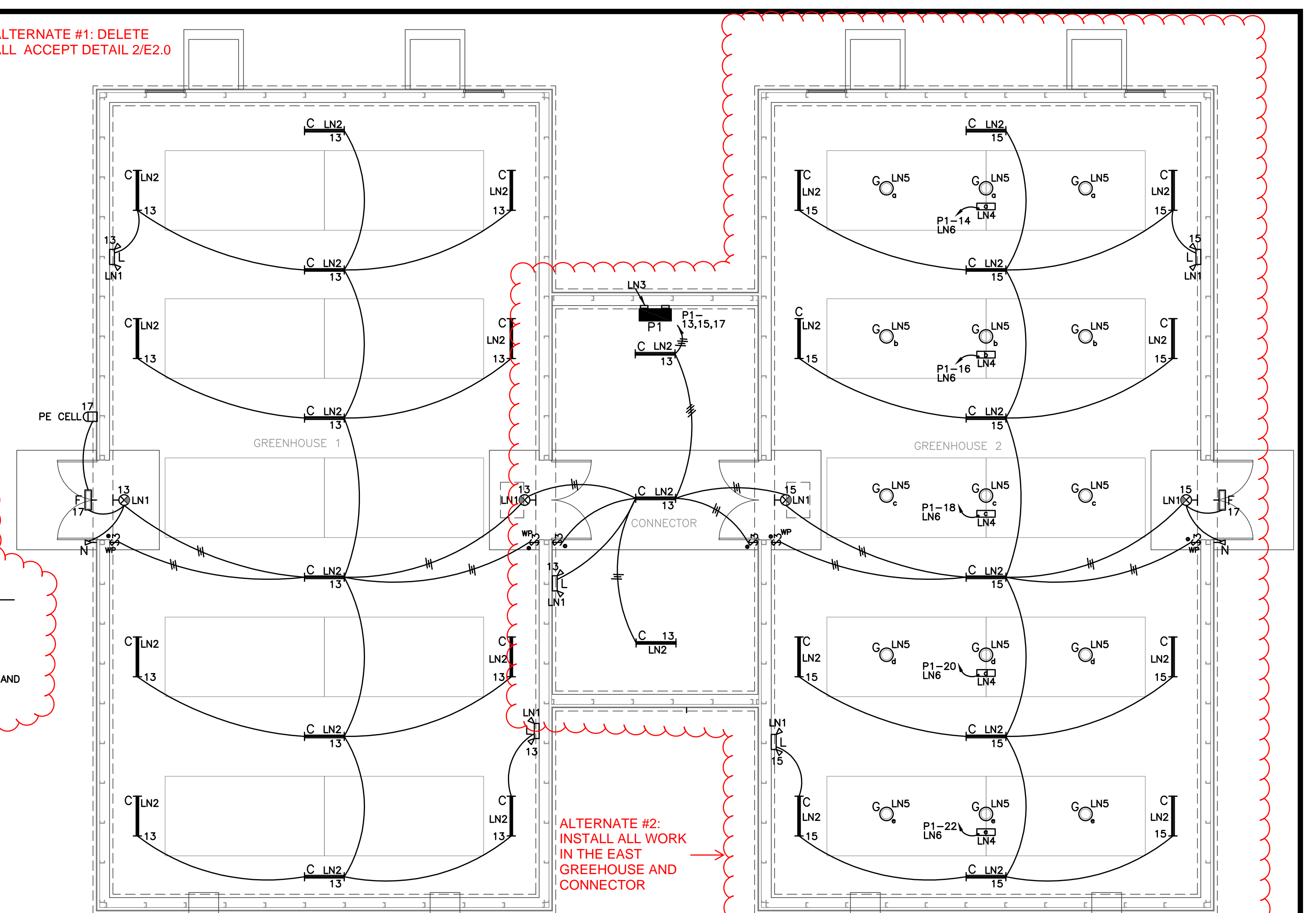


PANEL NAME : P1	PANEL NAME : P1		
TYPE : AD, SURFACE	RMS SIM AMPS 42K AIC		
BUS AMPS : 225 AMPS	SYSTEM : NORMAL		
MAINS : MAIN BREAKER (225A/3P/208V)			
VOLTAGE : 120-208V/3Ø/4W/5S			
LOAD NAME	NO. OF CIRCUITS	NO. OF CIRCUITS	LOAD NAME
SPARE	1	2	G2-RECEPTACLES
G1-4 STAGE CONTROLLER	3	4	SPARE
G1-RECEPTACLES	7	8	G2-EVAPORATIVE COOLER
G1-EXHAUST FANS	9	10	G2-EVAPORATIVE COOLER
SPARE	11	12	G2-GAS FIRED UNIT MTR
G1-STRIP LIGHTING	13	14	GROW LIGHT CONTRLS-A
G2-STRIP LIGHTING	15	16	GROW LIGHT CONTRLS-B
OUTDOOR LIGHTING	17	18	GROW LIGHT CONTRLS-C
G1-GAS FIRED UNIT MTR	19	20	GROW LIGHT CONTRLS-D
G1-EVAPORATIVE COOLER	21	22	GROW LIGHT CONTRLS-E
G1-EVAPORATIVE COOLER	23	24	G2-4 STAGE CONTROLLER
SPACE	25	26	
	27	28	30 SURGE SUPPRESSOR
	29	30	
	31	32	1 20
	33	34	SPACE
	35	36	
	37	38	
	39	40	
	41	42	

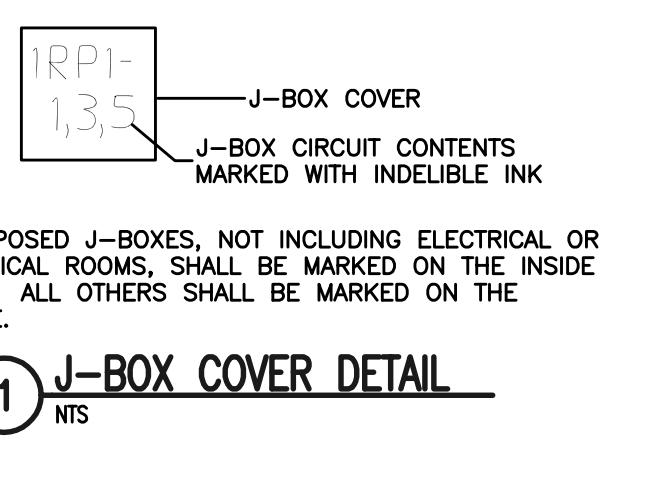
**POWER NOTES (PN):**  
PN1. MOTORIZED INTAKE SHUTTER J-BOX, FLEX AND CONNECT. COORDINATE EXACT LOCATION.  
PN2. EVAPORATIVE COOLER #2 BRANCH FEEDER FROM 4 STAGE CONTROLLER TERMINAL BLOCK SPACE #5.  
PN3. MOTORIZED INTAKE SHUTTER FURNISHED BY GREENHOUSE PROVIDER. INSTALLED BY GENERAL CONTRACTOR. WIRED BY ELECTRICAL CONTRACTOR PER MANUFACTURER INSTALLATION DRAWINGS.  
PN4. EXHAUST FAN FURNISHED BY GREENHOUSE PROVIDER. INSTALLED BY GENERAL CONTRACTOR. WIRED BY ELECTRICAL CONTRACTOR PER MANUFACTURER INSTALLATION DRAWINGS.  
PN5. GAS FIRED UNIT HEATER FURNISHED BY GREENHOUSE PROVIDER. INSTALLED BY GENERAL CONTRACTOR FROM ROOF STRUCTURE. WIRED BY ELECTRICAL CONTRACTOR PER MANUFACTURER INSTALLATION DRAWINGS.  
PN6. EVAPORATIVE COOLER FURNISHED BY GREENHOUSE PROVIDER. INSTALLED BY GENERAL CONTRACTOR. WIRED BY ELECTRICAL CONTRACTOR PER MANUFACTURER INSTALLATION DRAWINGS.  
PN7. SC2860 SMALL SIZE, ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL CT METER. SEE DETAIL #2 THIS SHEET.  
PN8. MOUNT TO 2"x4" CHANNEL UNISTRUT FOR BOTH SIDES.  
PN9. WADSWORTH ELECTRONIC FOUR STAGE CONTROLLER FURNISHED BY GREENHOUSE PROVIDER. INSTALLED AND WIRED BY ELECTRICAL CONTRACTOR. CONTROLLER SHALL CONNECT TO AND CONTROL (2) EXHAUST FANS, (2) INTAKE SHUTTERS, (2) EVAPORATIVE COOLERS, AND A GAS FIRED UNIT HEATER. ALL EQUIPMENT INTERCONNECTIONS, CONDUIT, CONTROL WIRING, POWER CONNECTIONS, AND ANY OTHER REQUIRED EQUIPMENT SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR PER MANUFACTURER WIRING DIAGRAMS AND REQUIREMENTS. COORDINATE.  
PN10. 4 STAGE CONTROLLER TEMPERATURE SENSOR FURNISHED BY GREENHOUSE PROVIDER. INSTALLED AND WIRED BY ELECTRICAL CONTRACTOR CEILING SUSPENDED SIX FEET BELOW GREENHOUSE CEILING. COORDINATE WITH MANUFACTURER INSTALLATION DRAWINGS.  
PN11. ONE PAIR 75' SHIELDED CABLE TO 4 STAGE CONTROLLER TERMINAL BLOCK SPACES #14 AND #15. CABLE FURNISHED BY GREENHOUSE PROVIDER AND INSTALLED IN CONDUIT BY ELECTRICAL CONTRACTOR.  
PN12. CAROL CABLE #C-2830 TO 4 STAGE CONTROLLER TERMINAL BLOCK SPACES #12 AND #13. EC SHALL FURNISH AND INSTALL CABLE IN CONDUIT. COORDINATE.  
PN13. 2#12, 1#12 GND, 1/2" TO 4 STAGE CONTROLLER TERMINAL BLOCK SPACES #10 AND #11. COORDINATE.  
PN14. 2#12, 1#12 GND, 1/2" TO 4 STAGE CONTROLLER TERMINAL BLOCK SPACES #8 AND #9. COORDINATE.  
PN15. 2#12, 1#12 GND, 1/2" TO 4 STAGE CONTROLLER TERMINAL BLOCK SPACE #7. COORDINATE.  
PN16. 2#14, 1#14 GND, 1/2" TO 4 STAGE CONTROLLER TERMINAL BLOCK SPACE #6. COORDINATE.  
PN17. EVAPORATIVE COOLER #1 BRANCH FEEDER FROM 4 STAGE CONTROLLER TERMINAL BLOCK SPACE #4. COORDINATE.  
PN18. EXHAUST FAN #1 AND #2 BRANCH FEEDER FROM 4 STAGE CONTROLLER TERMINAL BLOCK SPACES #3. COORDINATE.  
PN19. 4 STAGE CONTROLLER BRANCH FEEDER 2#14, 1#14 GND, 1/2" FROM TERMINAL BLOCK SPACES #1 AND #2. COORDINATE.  
PN20. EC SHALL DISCONNECT AND REMOVE EXISTING POWER CORD. EC SHALL PROVIDE KNOCKOUTS IN EXISTING SWITCH BOX ENCLOSURE FOR PUMP AND FAN POWER CONNECTIONS. COORDINATE AND VERIFY ALL CONNECTIONS WITH MANUFACTURER AND GREENHOUSE CONTROLLER INSTALLATION DRAWINGS.



ALTERNATE #2: INSTALL ALL WORK IN THE EAST GREENHOUSE AND CONNECTOR



**LIGHTING NOTES (LN):**  
LN1. CONNECT TO THE LINE SIDE OF ANY SWITCHING.  
LN2. MOUNT FIXTURE FROM GREENHOUSE STRUCTURE. COORDINATE EXACT MOUNTING HEIGHT OF CHAIN HUNG FIXTURE WITH OWNER.  
LN3. MOUNT ELECTRICAL EQUIPMENT TO 2" UNISTRUT. COORDINATE.  
LN4. 120V/1P, 24HR HELIOS-1 4000W GROW LIGHTING CONTROLLER FURNISHED BY GREENHOUSE PROVIDER. INSTALLED AND WIRED BY ELECTRICAL CONTRACTOR. EACH CONTROLLER SHALL CONTROL (3) GROW LIGHTS OVER A SINGLE WORK BENCH IN GREENHOUSE #2. EACH GROW LIGHT SHALL HAVE A 20 FOOT 120V CORD TO PLUG INTO DESIGNATED GROW LIGHT CONTROLLER. SEE GROW LIGHTING CONTROLLER DETAIL THIS SHEET. MOUNT CONTROLLER TO UNISTRUT ABOVE WORK BENCH. COORDINATE. 400W LAMP 120V SUN SYSTEM2 GROW LIGHT FURNISHED BY GREENHOUSE PROVIDER. INSTALLED AND WIRED BY ELECTRICAL CONTRACTOR. MOUNT FIXTURE 5' ABOVE WORK BENCH. LETTER SUBSCRIPT ON FIXTURE CORRESPONDS TO HELIOS-1 GROW LIGHT CONTROLLER MOUNTED TO GREENHOUSE BUILDING UNISTRUT ABOVE FIXTURE.  
LN5. 400W LAMP 120V SUN SYSTEM2 GROW LIGHT FURNISHED BY GREENHOUSE PROVIDER. INSTALLED AND WIRED BY ELECTRICAL CONTRACTOR. MOUNT FIXTURE 5' ABOVE WORK BENCH. LETTER SUBSCRIPT ON FIXTURE CORRESPONDS TO HELIOS-1 GROW LIGHT CONTROLLER MOUNTED TO GREENHOUSE BUILDING UNISTRUT ABOVE FIXTURE.  
LN6. 2#6, 1#8 GND, 3/4".



MiniSTEP FOUR STAGE CONTROLLER EQUIPMENT SEQUENCE CHART

EQUIPMENT	STAGE 1	STAGE 2	STAGE 3	STAGE 4
UNIT HEATER		X	X	X
SHUTTERS		X	X	X
EXHAUST FANS		X	X	X
EVAP. COOLERS - LOW SPEED			X	X
EVAP. COOLERS - HIGH SPEED			X	X
EVAP. COOLERS - PUMPS			X	X

**WADSWORTH FOUR-STAGE CONTROLLER SEQUENCE CHART NTS**

FOUR STAGE CONTROLLER SEQUENCE NOTES:  
1. ELECTRICAL CONTRACTOR SHALL SETUP AND PROVIDE ALL NECESSARY SEQUENCING AS SHOWN IN CHART ABOVE. COORDINATE WITH CONTROLLER MANUFACTURER.

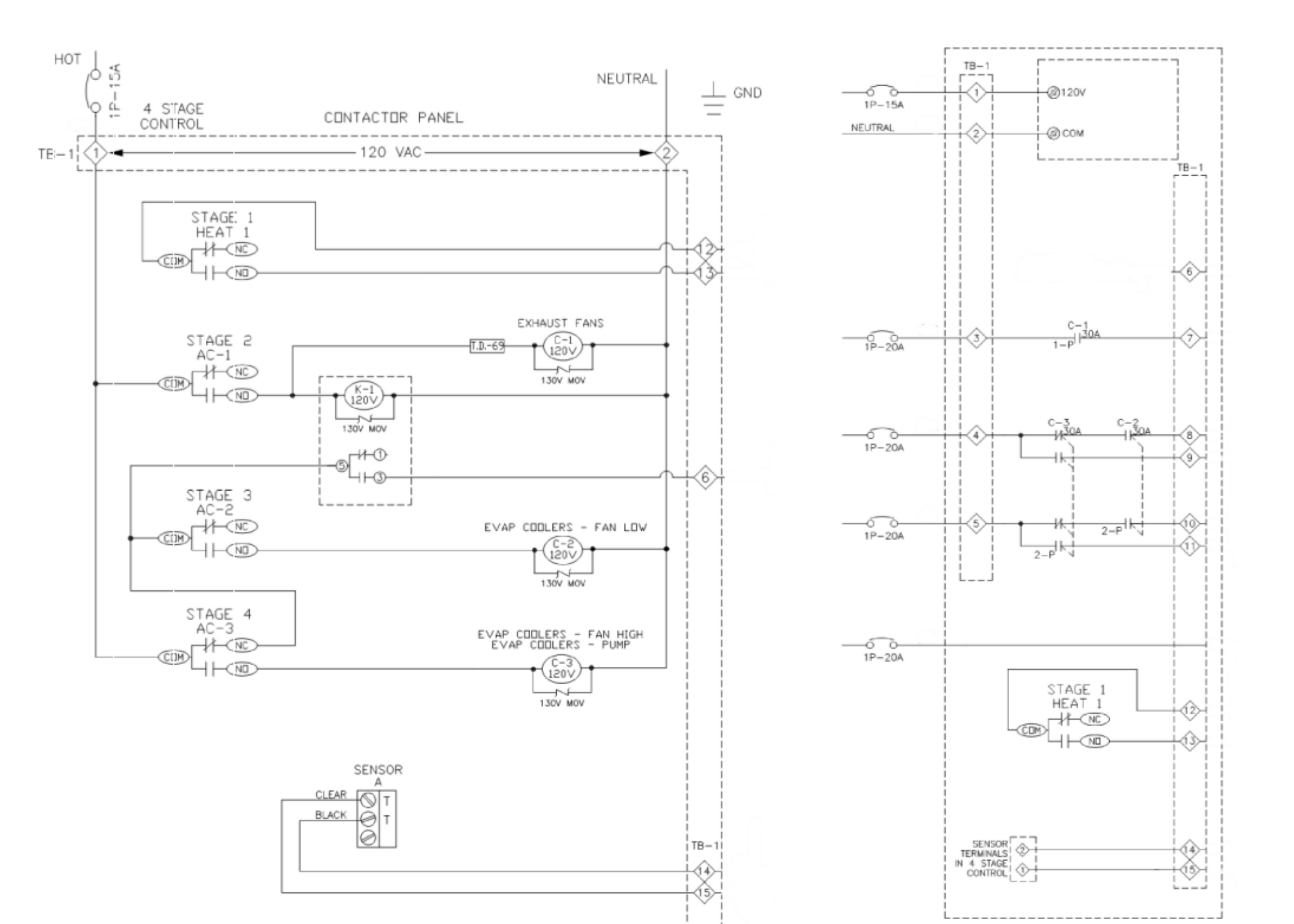
**DISCONNECT SWITCH SCHEDULE**

SWITCH	DESCRIPTION
S-1	20A/1P/2W/120V/NF/NEMA 3R
S-2	30A/2P/2W/240V/NF/NEMA 3R (DOUBLE THROW)

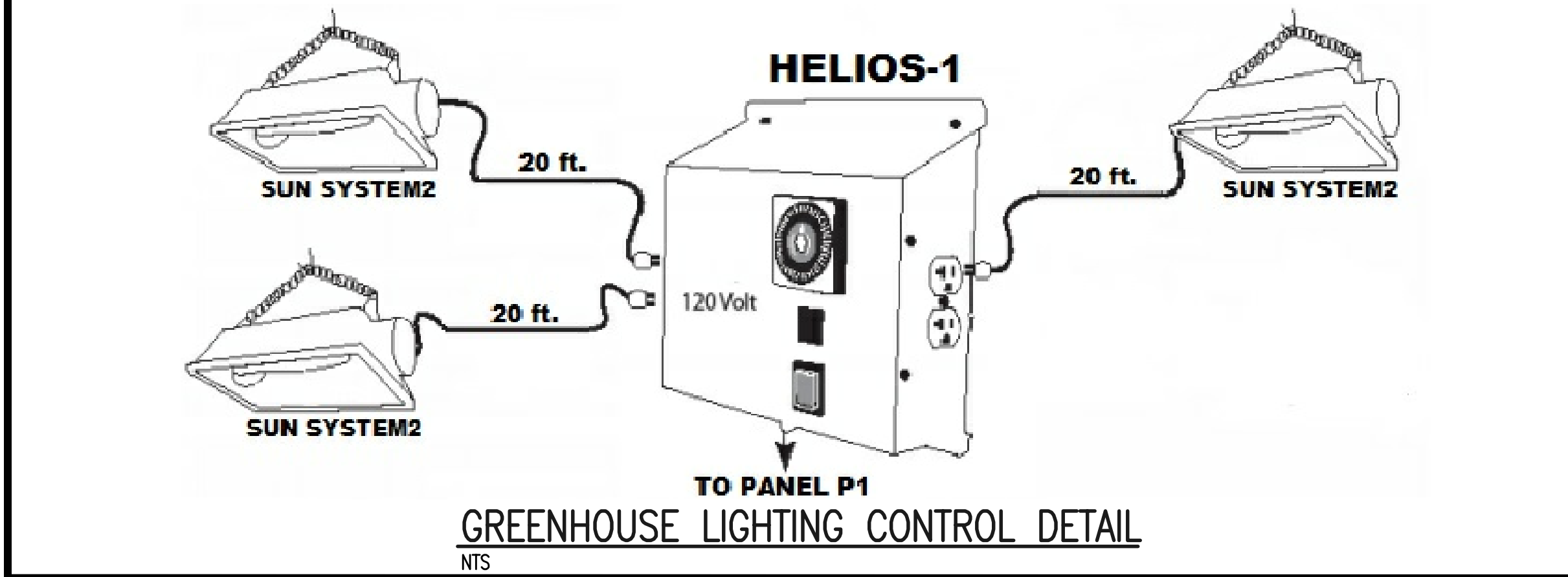
NOTE: MAINTAIN A MINIMUM CLEARANCE IN FRONT OF THE DISCONNECT AS PER NEC.  
NOTE: THE LETTER "T" AFTER THE SWITCH NOTATION DENOTES THAT THE SWITCH IS TO BE FUSED PER THE NAMEPLATE OF THE EQUIPMENT TO BE SERVED, FIELD COORDINATE.

**ELECTRICAL SYMBOL SCHEDULE**

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
LP1-2,4	BRANCH CIRCUIT RACEWAY. RUN CONCEALED IN CEILING OR WALLS. ARROWHEAD DENOTES HOMERUN TO PANEL. CROSSLINES DENOTE NUMBER OF PHASE AND NEUTRAL CONDUCTORS WHEN MORE THAN TWO ARE TO BE INSTALLED. TEXT DENOTES PANEL NAME AND CIRCUIT NUMBERS FOR HOMERUN. INSTALL GROUND WIRE IN ALL RACEWAYS. #12 AWG MINIMUM AND AS PER CODE.	A	AMPERE
LP1-2,4	BRANCH CIRCUIT RACEWAY. RUN IN AND/OR UNDER SLAB. ARROWHEAD DENOTES HOMERUN TO PANEL. CROSSLINES DENOTE NUMBER OF PHASE AND NEUTRAL CONDUCTORS WHEN MORE THAN TWO ARE TO BE INSTALLED. TEXT DENOTES PANEL NAME AND CIRCUIT NUMBERS FOR HOMERUN. INSTALL GROUND WIRE IN ALL RACEWAYS. #12 AWG MINIMUM AND AS PER CODE.	AFT	ABOVE FINISHED FLOOR.
	FLEXIBLE CONDUIT. WEATHERPROOF TYPE WHEN CONNECTED TO MOTORS. CROSSLINES DENOTE NUMBER OF PHASE AND NEUTRAL CONDUCTORS WHEN MORE THAN TWO ARE INSTALLED. INSTALL GROUND WIRE #12 AWG MINIMUM.	ATS	AUTOMATIC TRANSFER SWITCH
	WALL MOUNTED FIXTURE. LETTER DENOTES TYPE OF FIXTURE. SEE FIXTURE SCHEDULE. NUMBER DENOTES CIRCUIT NUMBER. COORDINATE MOUNTING HEIGHT.	BKR	BREAKER
	EXIT SIGN. REFER TO FIXTURE SCHEDULE. DARKENED AREA DENOTES SIGN FACE. NUMBER DENOTES CIRCUIT NUMBER. STEM DESIGNATES WALL MOUNTING. NO STEM DENOTES CEILING MOUNTED.	C	CIRCUIT
	PE CELL. WALL MOUNT 1'-0" BELOW ROOF LINE, UNLESS OTHERWISE NOTED.	EC	ELECTRICAL CONTRACTOR, DIVISION 16.
	LIGHT SWITCH. 3-WAY, 20A, 48" AFF.	EF	EXHAUST FAN
	SURFACE WALL MOUNTED DISCONNECT SWITCH. HEAVY DUTY. NOTATION DENOTES TYPE ON SCHEDULE. ALL OUTDOOR DISCONNECTS SERVING GROUND MOUNTED HVAC UNITS SHALL NOT BE MOUNTED HIGHER THAN 36" ABOVE FINISHED GRADE.	FCU	FAN COIL UNIT
	FLUSH WALL MOUNTED JUNCTION BOX. SIZED PER NEC. "WP" DENOTES NEMA 3R WEATHERPROOF. PROVIDE AND INSTALL A FLUSH COVER PLATE.	GC	GENERAL CONTRACTOR, DIVISION 00 THROUGH 14.
	DESIGNATES SURFACE MOUNTED DEVICE.	GFI	GROUND FAULT CIRCUIT INTERRUPTER.
		JB	JUNCTION BOX
		KVA	KILOVOLT AMPERES.
		KW	KILOWATT.
		MAX	MAXIMUM.
		MCC	MECHANICAL CONTRACTOR, DIVISION 15.
		MDP	MAIN DISTRIBUTION PANEL.
		MIN	MINIMUM.
		V	VOLT.
		VFD	VARIABLE FREQUENCY DRIVE
		NEC	2011 NATIONAL ELECTRICAL CODE (NFPA 70).
		SWB	SWITCHBOARD.
		TYP	TYPICAL.
		WC	WATER COOLER.
		XFMR	TRANSFORMER.

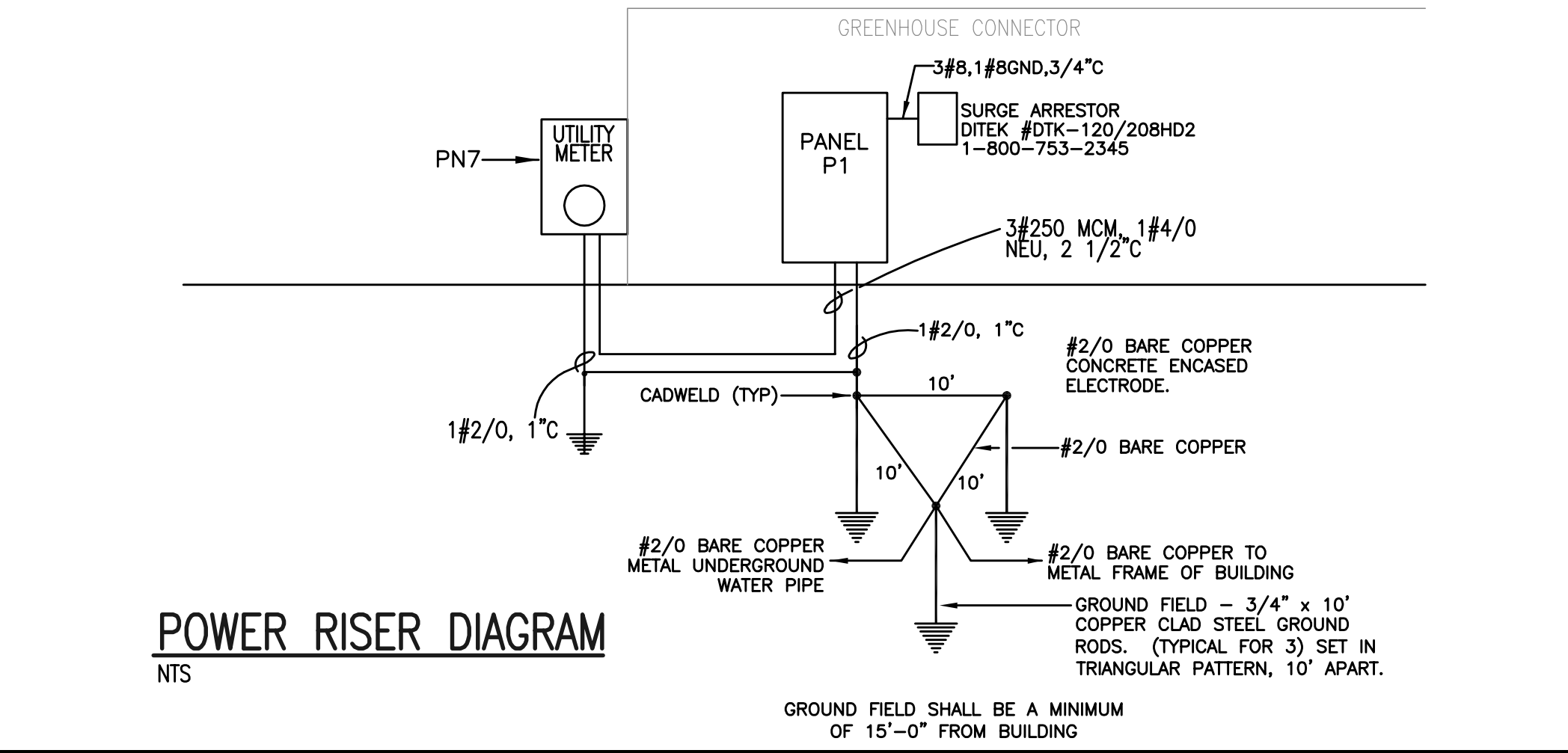


FOUR STAGE CONTROLLER NOTES:  
1. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL CONTROLLER INNER-CONNECTING WIRING BETWEEN CONTROLLER TERMINAL BLOCK AND ALL ASSOCIATED EQUIPMENT. COORDINATE WITH CONTROLLER MANUFACTURER FOR ALL WIRE SIZES.



**LIGHT FIXTURE SCHEDULE**

TYPE	DESCRIPTION	CATALOG NO.	LAMPS
C	FLUORESCENT, 4 FOOT, 2 LAMP CHAIN HUNG STRIP LIGHT. WET LABEL 120 VOLT.	COLUMBIA #LUNA-232-EU-LUNNK 120 VOLT	2-F32T8/SPX41
F	L.E.D. EXTERIOR WALL MOUNTED WALL PACK FIXTURE. 120 VOLT.	ELOCAST CWP602-LED-120-5G	1-28W LED
G	GREENHOUSE #2 GROW LIGHT AND LAMPS FURNISHED BY GREENHOUSE PROVIDER. INSTALLED AND WIRED BY ELECTRICAL CONTRACTOR. FIXTURE SHALL HAVE A 120V 20 FOOT CORD.	SUN SYSTEM2 120 VOLT	400W-HPS
	2-1.5W LED SLEEK, LOW PROFILE EMERGENCY LIGHT. 120 VOLT.	LITHONIA ELM2-S0-DL 120 VOLT	LED
N	L.E.D. WALL MOUNTED, REMOTE HEAD LIGHT, POWERED FROM INTERNAL BATTERIES, DAMP AND WET LOCATION.	LITHONIA AFN-BN-EXT #LUX-2V	BY MANUFACTURER
	WET LABEL EXIT LIGHT, LED LAMPS, SINGLE FACED, WALL MOUNTED 6" ABOVE DOOR FRAME. RED LETTERING. SIGN HAS STEM IF WALL MOUNTED. 120 VOLT.	LITHONIA WLTE-W-1-R-S0-120	BY MANUFACTURER









Architects/Engineers/Planners  
1201 Main Street, Suite 2100  
Columbia, S.C. 29201  
tel. 803-256-0000  
fax 803-255-7243

ALL RIGHTS RESERVED. THIS DRAWING AND THE DESIGN SHOWN THEREON ARE COPYRIGHTED AS PROVIDED BY THE LAWS OF THE UNITED STATES AND ARE THE PROPERTY OF GMK ASSOCIATES ARCHITECTURAL DIVISION. ANYONE DUPLICATING, REPRODUCING OR CAUSING TO BE REPRODUCED THE WHOLE OR PART OF THESE DRAWINGS OF THE DESIGN THEREON WITHOUT PERMISSION OF THE ARCHITECT WILL BE SUBJECT TO LEGAL ACTION.

consultants  
HAAS & HILDERBRAND, INC.  
Engineering \* Surveying \* GPS \* Forestry \* Land Planning  
133 Greenville Street, SW  
Post Office Box 3276  
Aiken, South Carolina 29802  
Office 803.649.1316 Fax 803.641.9197

owner  
**UNIVERSITY OF SOUTH CAROLINA**  
AIKEN

USC AIKEN  
471 UNIVERSITY PARKWAY  
AIKEN, SOUTH CAROLINA 29801  
project name  
USC AIKEN GREENHOUSE  
REPACKAGING  
STATE PROJECT #H29-I337  
project number  
12036.02

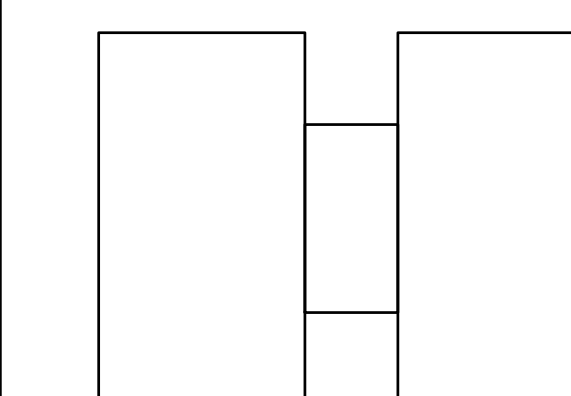
series/signature

issued for  
CONSTRUCTION DOCUMENTS

date  
JANUARY 17, 2014

number	item	date

key plan



USC AIKEN GREENHOUSE



sheet title  
GOTHIC GREENHOUSE SHOP  
DRAWINGS

sheet number

V2.0

drawn by JKS  
checked by

Submitted For	Submitted On	Rev. Description
Engineer Leads & Stamp (as required):		
Product: TR 40 22 TW		
Project: UCS AIKEN GREENHOUSE		
Drawn By: G.B. M.W.		
Checked By: G.B.		
Page No.: 003b		
of: Six		

**NORTH ELEVATION**  
Scale: 1/8" = 1'-0"

Submitted For	Submitted On	Rev. Description
Engineer Leads & Stamp (as required):		
Product: TR 40 22 TW		
Project: UCS AIKEN GREENHOUSE		
Drawn By: G.B. M.W.		
Checked By: G.B.		
Page No.: 004		
of: Six		

**EXPLODED VENT ASSEMBLY**  
Scale: N3/8"

**VENT FRAME 3D VIEW**  
Scale: N3/8"

Submitted For	Submitted On	Rev. Description
Engineer Leads & Stamp (as required):		
Product: TR 40 22 TW		
Project: UCS AIKEN GREENHOUSE		
Drawn By: G.B. M.W.		
Checked By: G.B.		
Page No.: 003c		
of: Six		

**SOUTH ELEVATION**  
Scale: 1/8" = 1'-0"

Submitted For	Submitted On	Rev. Description
Engineer Leads & Stamp (as required):		
Product: TR 40 22 TW		
Project: UCS AIKEN GREENHOUSE		
Drawn By: G.B. M.W.		
Checked By: G.B.		
Page No.: 005		
of: Six		

**5.1 3D CORNER ASSEMBLY DETAIL**  
Scale: N3/8"

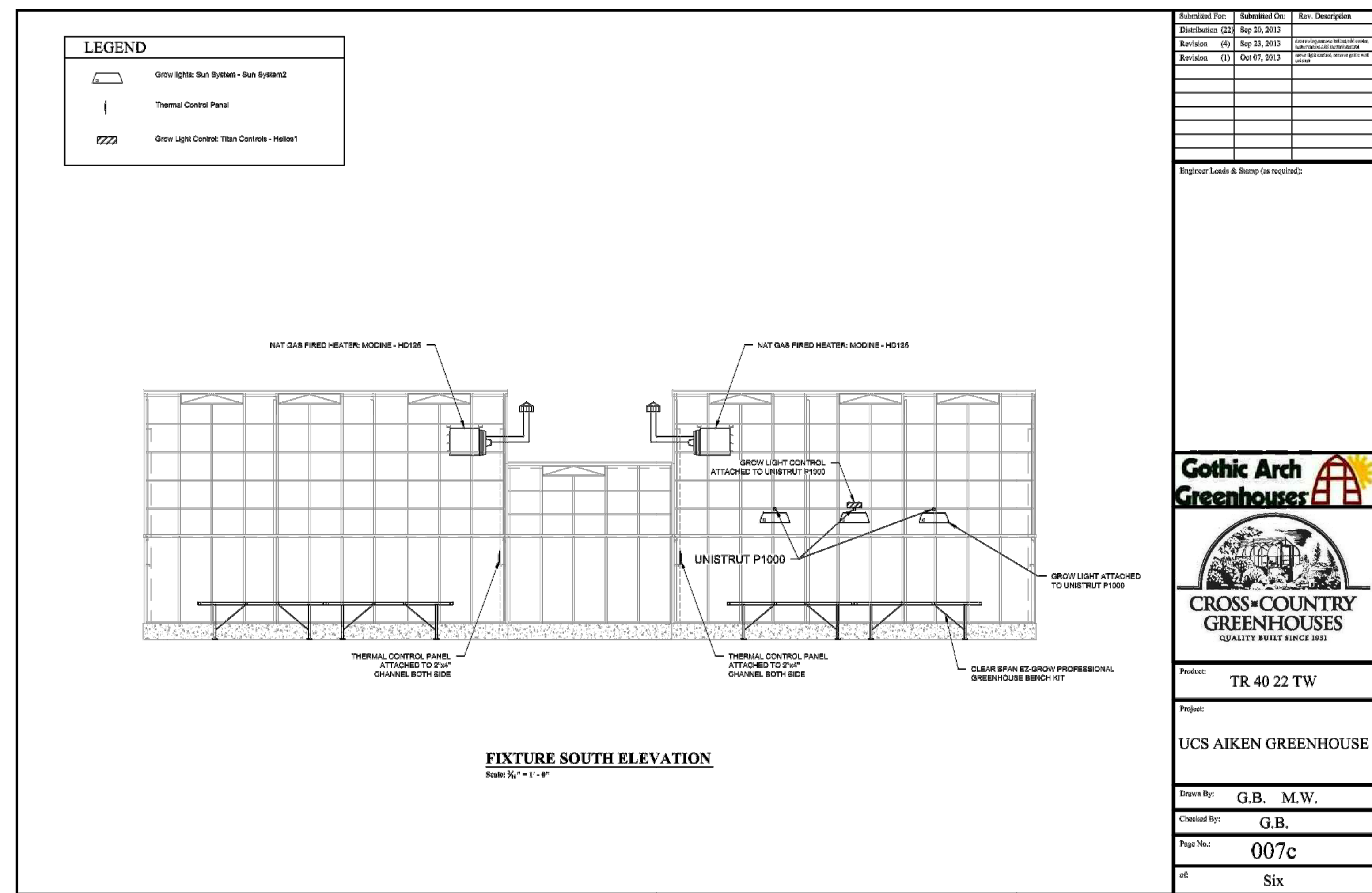
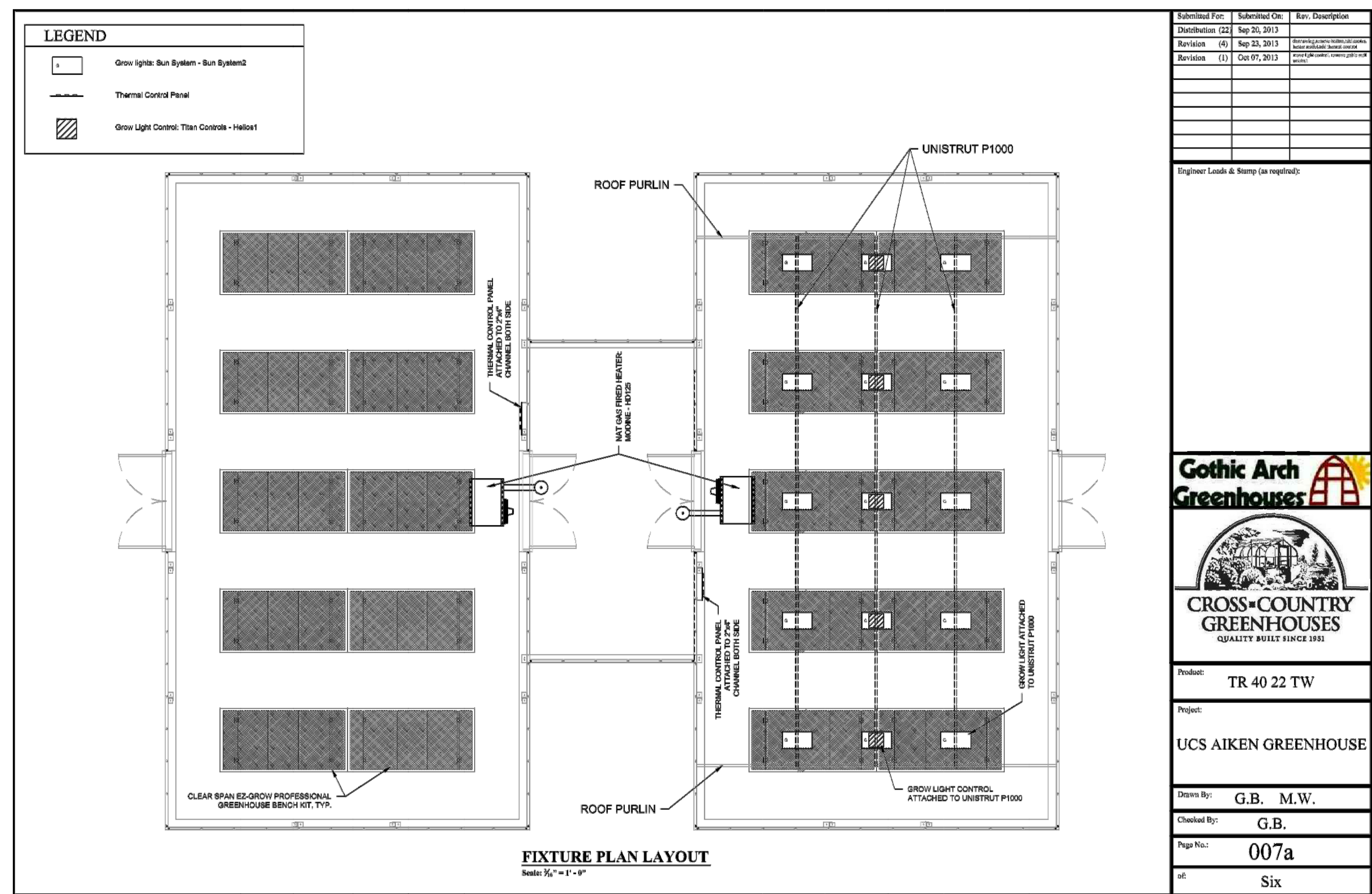
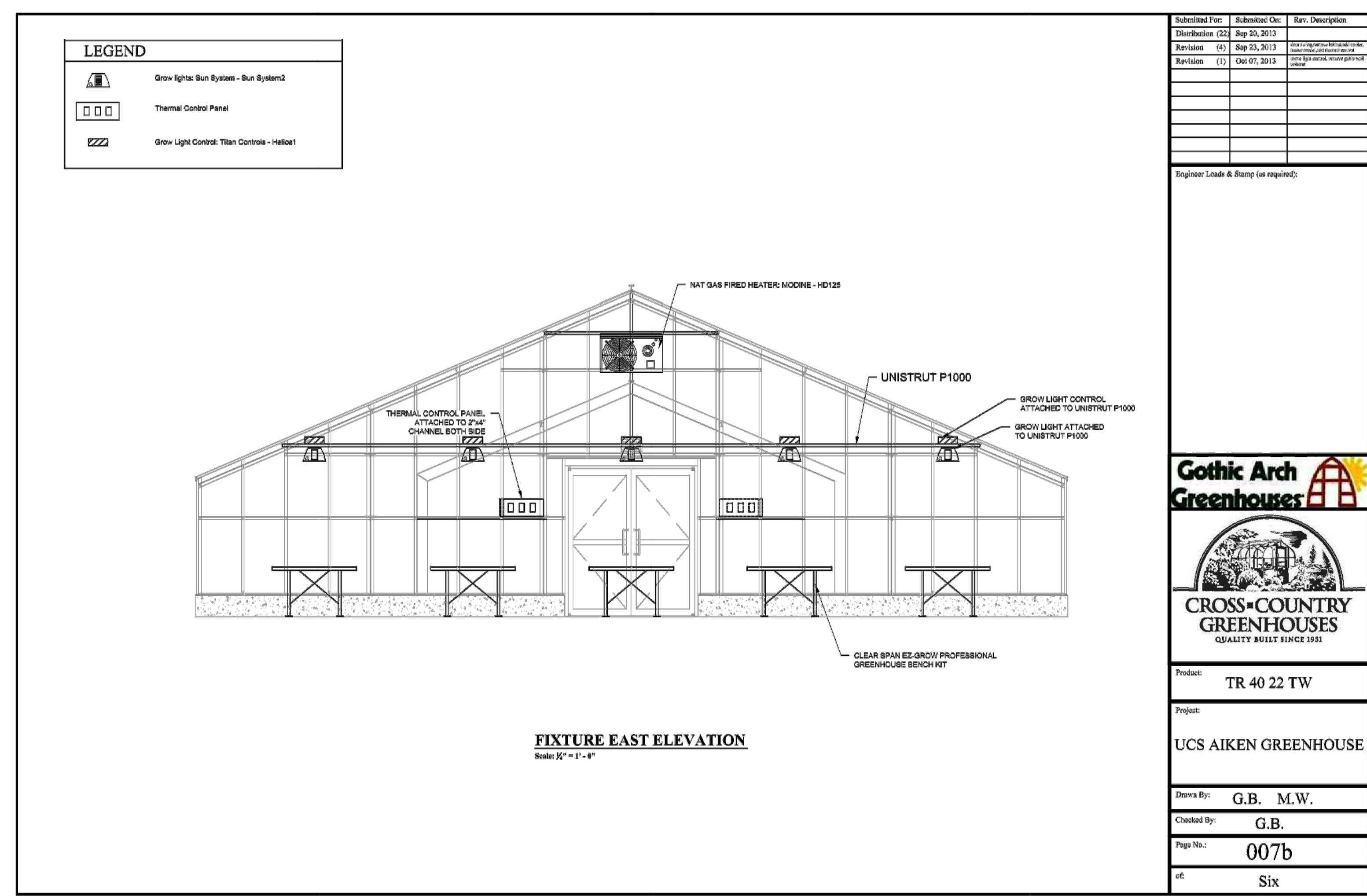
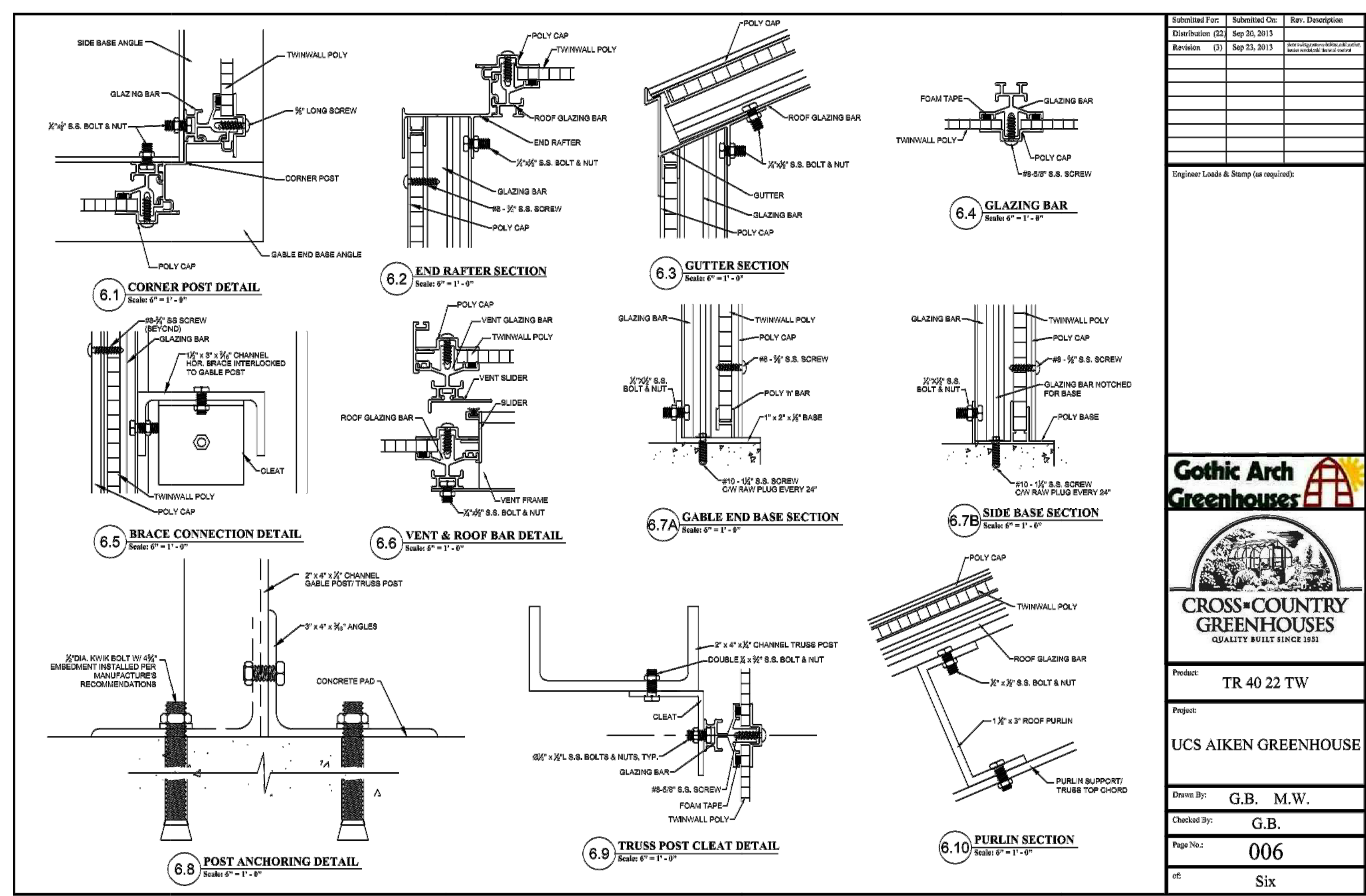
**5.2 END RAFTER MITRE DETAIL**  
Scale: 1/2\" = 1'-0"

**5.3 VENT & RIDGE SECTION**  
Scale: 6\" = 1'-0"

**5.4 3D TRUSS PLATE AT RIDGE (VIEWED FROM INSIDE)**  
Scale: N3/8"

**TRUSS ASSEMBLY**  
Scale: 3/4\" = 1'-0"





Architects/Engineers/Planners  
 1201 Main Street, Suite 2100  
 Columbia, S.C. 29201  
 tel. 803-256-0000  
 fax 803-255-7243

ALL RIGHTS RESERVED. THIS DRAWING AND THE DESIGN SHOWN THEREON ARE COPYRIGHTED AS PROVIDED BY THE LAWS OF THE UNITED STATES AND ARE THE PROPERTY OF GMK ASSOCIATES ARCHITECTURAL DIVISION. ANYONE DUPLICATING, REPRODUCING OR CAUSING TO BE REPRODUCED THE WHOLE OR PART OF THESE DRAWINGS OR THE DESIGN THEREON WITHOUT PERMISSION OF THE ARCHITECT WILL BE SUBJECT TO LEGAL ACTION.

consultants  
 HAAS & HILDERBRAND, INC  
 Engineering \* Surveying \* GPS \* Forestry \* Land Planning  
 133 Greenville Street, SW  
 Post Office Box 3276  
 Aiken, South Carolina 29802  
 Office 803.649.1316 Fax 803.641.9197



USC AIKEN  
 471 UNIVERSITY PARKWAY  
 AIKEN, SOUTH CAROLINA 29801  
 project name  
 USC AIKEN GREENHOUSE  
 REPACKAGING  
 STATE PROJECT #H29-I337  
 project number  
 12036.02

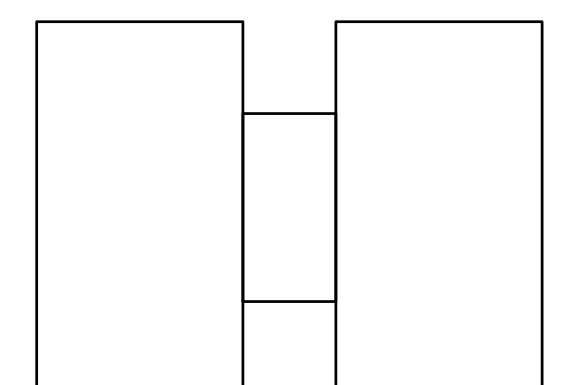
seals/signature

issued for  
 CONSTRUCTION DOCUMENTS

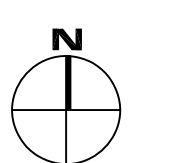
date  
 JANUARY 17, 2014

number	item	date

key plan



USC AIKEN GREENHOUSE



sheet title  
**GOTHIC GREENHOUSE SHOP DRAWINGS**

sheet number

**V3.0**

drawn by: **JKS**  
 checked by: