HVAC SYMBOLS LEGEND

T	THERMOSTAT, MTD +60" AFF
EF	EXHAUST FAN
	SECTION "A"–"A"
B	REMOTE BULB SENSOR
D	DUCT SMOKE DETECTOR
	TRANSITION
	TURNING VANE
	45° BRANCH DUCT TAKE–OFF
FD	FIRE DAMPER
VCD	VOLUME CONTROL DAMPER
	RETURN REGISTER
	SUPPLY DIFFUSER
	RETURN AIR GRILLE
	SUPPLY REGISTER
	AIR FLOW DIRECTION
	ROOF MTD. EXH. FAN
	DUCT TURN DOWN
	DUCT TURN UP
	FLEXIBLE DUCT

H.V.A.C. ABBREVIATION LEGEND

A/C	AIR CONDITIONER	REV.	REVISION	A.H.U.	AIR HANDLING UNIT
DN.	DOWN	N.T.S.	NOT TO SCALE	D.G.	DOOR GRILLE
EXH.	EXHAUST	MFGR.	MANUFACTURER	F.I.D.	FIRE DAMPER
EXT.	EXTERIOR	R/A	RETURN AIR	DISP.	DISPOSABLE
E.F.	EXHAUST FAN	GR.	GRILLE	V.C.D.	VOLUME CONTROL DAMPER
A.F.F.	ABOVE FINISH FLOOR	C.D.	CEILING DIFFUSER	F/A	FRESH AIR
F.F.	FINISH FLOOR	REG.	REGISTER	S.P.	SAFE PAN
TYP.	TYPICAL	C.U.	CONDENSING UNIT	CD.	CONDENSATE DRAIN

SPECIFIC MECHANICAL NOTES

1. EXISTING 5 TON ROOF TOP UNIT IN THIS AREA SHALL BE REPLACED WITH NEW RTU AS SPECIFIED. CONTRACTOR SHALL CONNECT TO EXISTING 5 TON ROOF CURB IN THIS AREA AS REQUIRED.
2. EXISTING 7.5 TON ROOF TOP UNIT IN THIS AREA SHALL BE REPLACED WITH NEW RTU AS SPECIFIED. CONTRACTOR SHALL CONNECT TO EXISTING 5 TON ROOF CURB IN THIS AREA AS REQUIRED.
3. 22x10 POSITIVE PRESSURE RELIEF DAMPER SHALL BE A TITS MODEL 55FL. PROVIDE PRESSURE RELIEF REGISTER WITH A BACK DRAFT DAMPER WITH AIR FLOW TOWARDS CEILING SPACE. 22X10 PRESSURE RELIEF DUCT SHALL TERMINATE IN JOIST SPACE.

SUPPLY DIFFUSER SCHEDULE

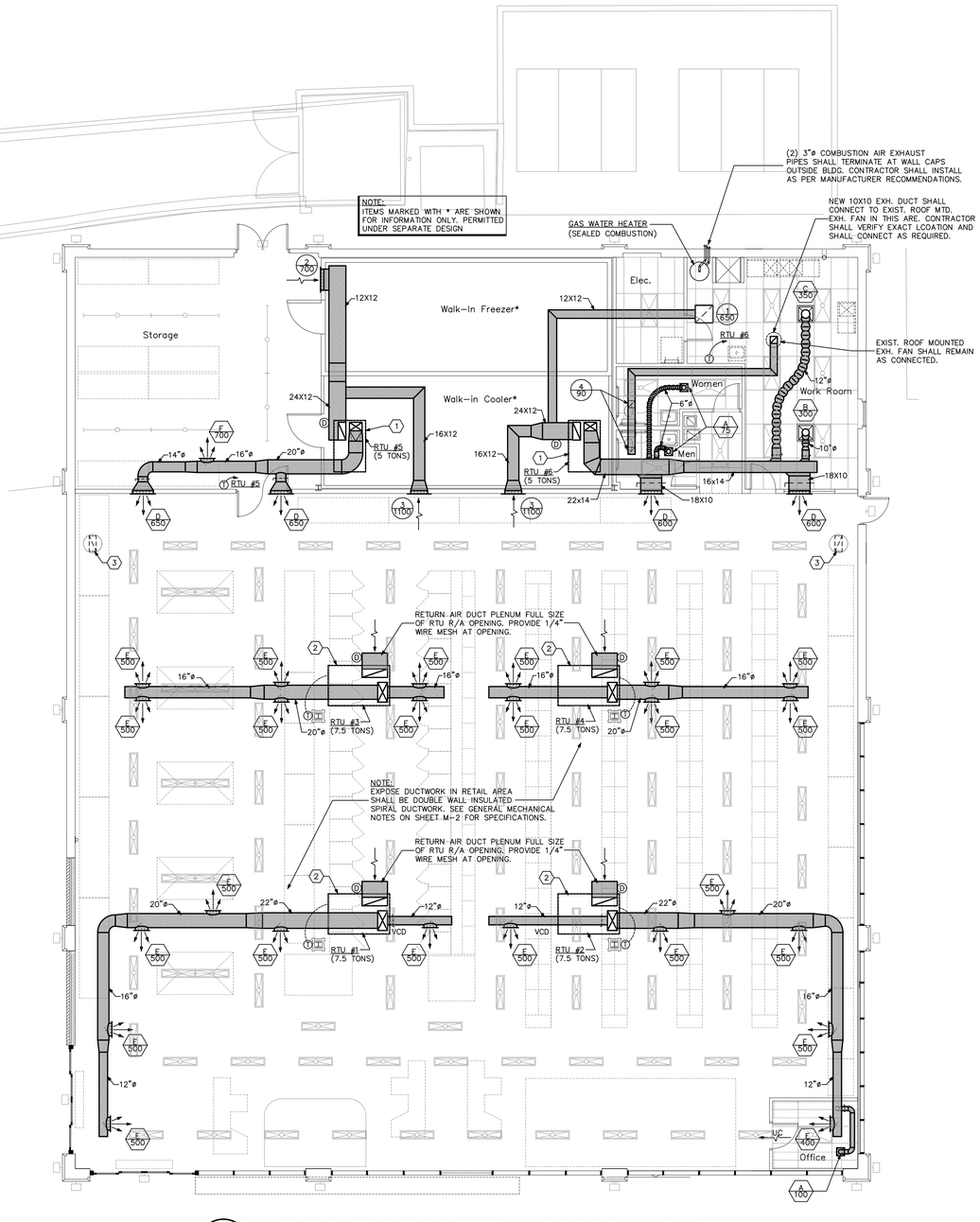
A/100 — DESIGNATES LABEL FOR DIFFUSER TYPE
DESIGNATES CFM QUANTITY FOR DIFFUSER
ALL DIFFUSERS ARE TO BE PROVIDED WITH OPPOSED BLADE DAMPERS UNLESS OTHERWISE SPECIFIED ON PLANS.

LABEL	MANUFACTURER & MODEL NO.	NECK SIZE	CFM RANGE	REMARKS
A	TITUS TDC–AA	6"ø	0 – 125	12X12 LOUVERED FACE
B	TITUS TDC–AA	10"ø	205 – 325	24X24 LOUVERED FACE
C	TITUS TDC–AA	12"ø	330 – 450	24X24 LOUVERED FACE
D	TITUS 300RL	30X6	600 – 750	SIDEWALL REGISTER
E	TITUS S300FS	18X8	450 – 550	DIRECT SPIRAL MOUNTED REGISTER
F	TITUS S300FS	18X10	555 – 775	DIRECT SPIRAL MOUNTED REGISTER

RETURN GRILLE SCHEDULE

A/100 — DESIGNATES LABEL FOR GRILLE TYPE
DESIGNATES CFM QUANTITY FOR GRILLE
FILTER SHALL BE PROVIDED AT UNIT.

LABEL	MANUFACTURER & MODEL NO.	NECK SIZE	CFM RANGE	REMARKS
1	TITUS 355FL	24X24	1205 – 1450	LOUVER FACE
2	TITUS 355FL	18X12	650 – 800	SIDEWALL REGISTER
3	TITUS 355FL	24X14	805 – 1200	SIDEWALL REGISTER
4	TITUS 355FL	10x10	0 – 125	EXAHUST LOUVER FACE



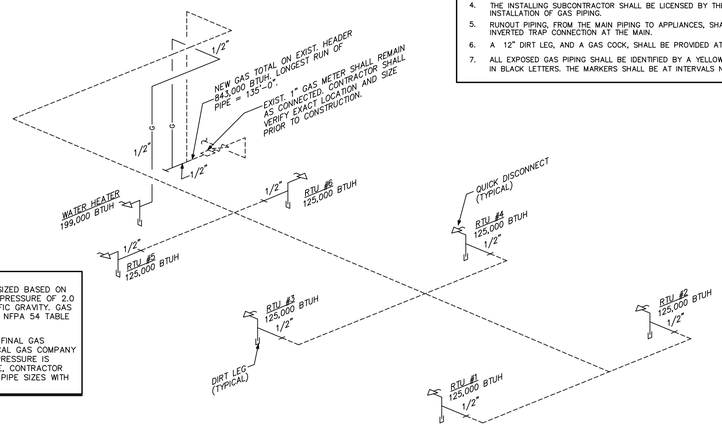
1 FLOOR PLAN - MECHANICAL
SCALE: 1/8"=1'–0"

SPECIFIC GAS PIPING NOTES

(1) CONNECT TO EXISTING GAS PIPING ON ROOF IN THIS AREA. CONTRACTOR SHALL VERIFY EXACT LOCATION PRIOR TO CONSTRUCTION.

GENERAL GAS PIPING NOTES

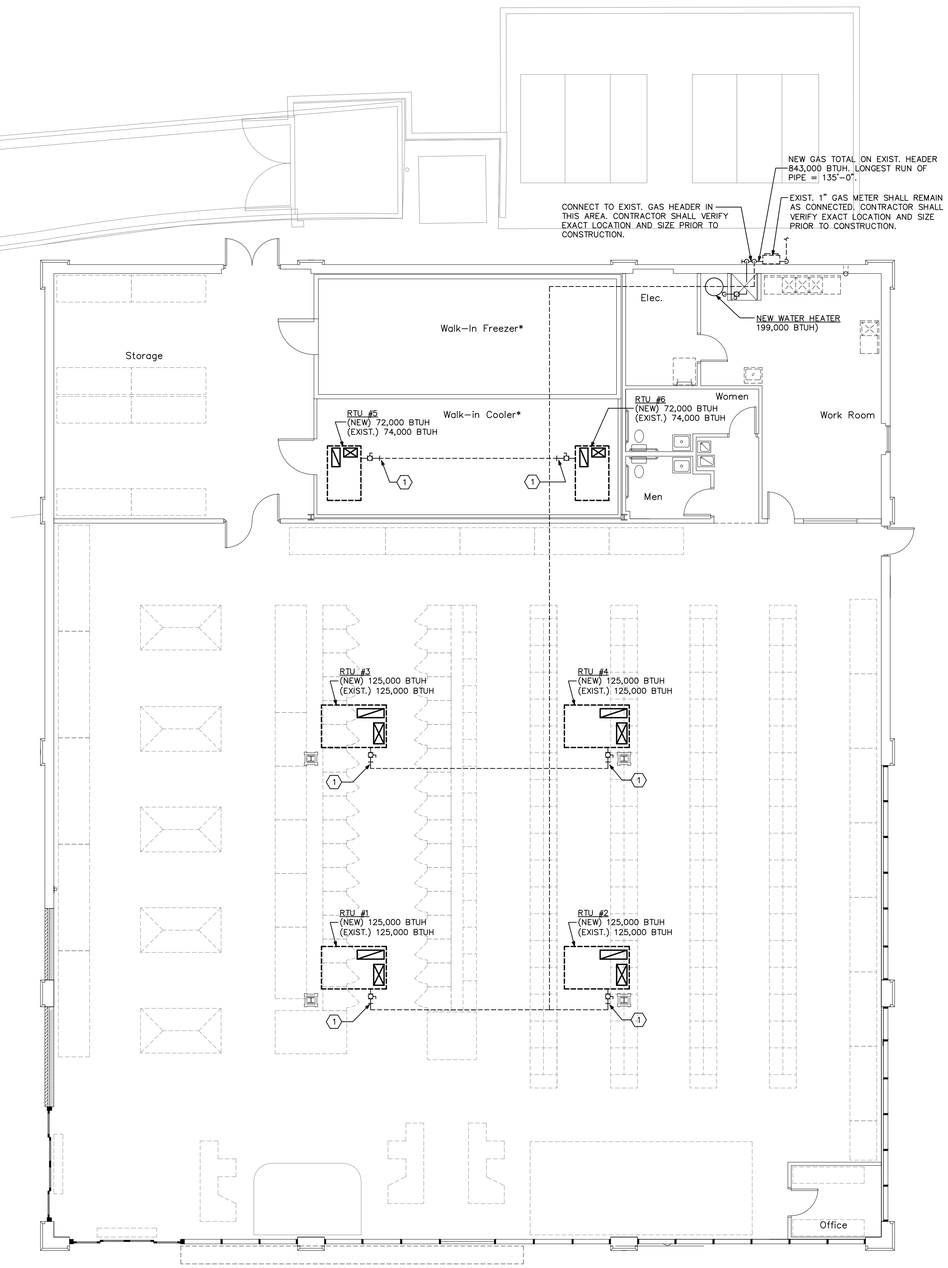
1. GAS PIPING AND FITTINGS SHALL BE SEAMLESS BLACK STEEL WITH MALLEABLE IRON FITTINGS. DIELECTRIC COUPLINGS OR UNIONS SHALL BE UTILIZED WHEN PIPING OF DISSIMILAR METAL IS CONNECTED. GAS PIPING OUTSIDE THE BUILDING SHALL BE PAINTED WITH BLACK "RUSTOLEUM" PAINT.
2. GAS PIPING SYSTEM SHALL BE INSTALLED TO THE REQUIREMENTS OF THE AGA PAMPHLET "INSTALLATION OF GAS APPLIANCES AND GAS PIPING" AND THE NFPA STANDARD #54. THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS AND PAY ALL FEES WITH THE "LOCAL" GAS COMPANY FOR THE INSTALLATION OF THE GAS METER, GAS SERVICE, AND ITS ACCESSORIES NECESSARY FOR A COMPLETE SYSTEM.
3. GAS PIPING SHALL BE TESTED IN ACCORDANCE WITH THE PROCEDURES DESCRIBED IN NFPA #54, AND ANY OTHER TESTS REQUIRED BY THE LOCAL BUILDING DEPARTMENT AND/OR THE LOCAL GAS UTILITY COMPANY.
4. THE INSTALLING SUBCONTRACTOR SHALL BE LICENSED BY THE STATE FOR THE INSTALLATION OF GAS PIPING.
5. RUNOUT PIPING, FROM THE MAIN PIPING TO APPLIANCES, SHALL BE WITH AN INVERTED TRAP CONNECTION AT THE MAIN.
6. A 12" DIRT LEG, AND A GAS COCK, SHALL BE PROVIDED AT ALL GAS APPLIANCES.
7. ALL EXPOSED GAS PIPING SHALL BE IDENTIFIED BY A YELLOW LABEL MARKED "GAS" IN BLACK LETTERS. THE MARKERS SHALL BE AT INTERVALS NOT EXCEEDING 5'.



NOTE:
ALL NATURAL GAS PIPING IS SIZED BASED ON GAS PIPING WITH AND INITIAL PRESSURE OF 2.0 PSI AND A GAS OF 0.6 SPECIFIC GRAVITY. GAS PIPING IS SIZED AS PER 2009 NFPA 54 TABLE 6.2(c).

* CONTRACTOR SHALL VERIFY FINAL GAS PRESSURES IN FIELD WITH LOCAL GAS COMPANY PRIOR TO CONSTRUCTION. IF PRESSURE IS DIFFERENT THEN NOTED ABOVE, CONTRACTOR SHALL COORDINATE REQUIRED PIPE SIZES WITH LOCAL GAS COMPANY.

2 GAS ISOMETRIC
NO SCALE



1 FLOOR PLAN - GAS PIPING
SCALE: 1/8"=1'-0"

M2

APPENDIX B BUILDING CODE SUMMARY (MECHANICAL SUMMARY)
MECHANICAL SYSTEMS, SERVICE SYSTEMS, AND EQUIPMENT

METHOD OF COMPLIANCE:
Prescriptive [X] Energy Cost Budget [ ]
Thermal Zone Zone 4

Exterior Design Conditions
winter dry bulb 20° F
summer dry bulb 97° F

Interior Design Conditions
winter dry bulb 68° F
summer dry bulb 74° F
relative humidity 52.9%

Building Heating Load 778,000 BTU
Building Cooling Load 504,600 BTU

Mechanical Spacing Conditioning System
Unitary
Description of unit REFER TO EQUIPMENT SCHEDULES ON THIS SHEET.
heating efficiency REFER TO EQUIPMENT SCHEDULES ON THIS SHEET.
cooling efficiency REFER TO EQUIPMENT SCHEDULES ON THIS SHEET.
heat output of unit REFER TO EQUIPMENT SCHEDULES ON THIS SHEET.
cooling output of unit REFER TO EQUIPMENT SCHEDULES ON THIS SHEET.

Boiler N/A
total boiler output. If oversized, state reason.

Chiller N/A
total chiller capacity. If oversized, state reason.

List equipment efficiencies

Equipment schedules with motors (mechanical systems) REFER TO EQUIPMENT SCHEDULES ON THIS SHEET.
motor horsepower REFER TO EQUIPMENT SCHEDULES ON THIS SHEET.
number of phases REFER TO EQUIPMENT SCHEDULES ON THIS SHEET.
minimum efficiency REFER TO EQUIPMENT SCHEDULES ON THIS SHEET.
motor type REFER TO EQUIPMENT SCHEDULES ON THIS SHEET.
# of poles REFER TO EQUIPMENT SCHEDULES ON THIS SHEET.

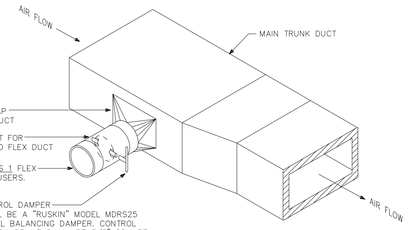
DESIGNER STATEMENT:[1]
To the best of my knoledge and belief, the design of this building complies with the mechanical systems, service systems and equipment requirements of the North Carolina Energy Code 2009.
SIGNED:
NAME: TODD W. CAREY
TITLE: N.C. PROFESSIONAL ENGINEER #9079

GENERAL MECHANICAL NOTES

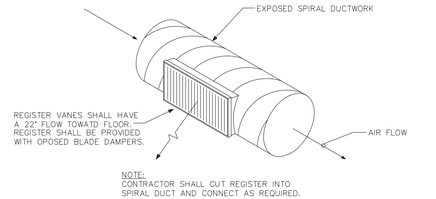
1. THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY FOR THE INSTALLATION OF A COMPLETE SYSTEM IN ACCORDANCE WITH THESE DRAWINGS, ALL MANUFACTURERS INSTALLATION REQUIREMENTS, THE APPLICABLE BUILDING CODE AND ALL OTHER APPLICABLE STATE, COUNTY AND LOCAL ORDINANCES AND THE LATEST ADDITION OF THE FOLLOWING PUBLICATIONS; SMACNA, ASHRAE, NFPA 90A, 90B, 91 & ANSI B-9.1 MECHANICAL. ALL DUCTWORK SHALL BE FABRICATED, INSTALLED AND SUPPORTED AS PER SMACNA STANDARDS.
2. THE CONTRACTOR SHALL PAY ALL COSTS OF PERMIT, INSPECTIONS AND ALL OTHER COSTS INCIDENTAL TO THE COMPLETION AND TESTING OF THIS WORK.
3. THE CONTRACTOR SHALL VISIT THE SITE AND COORDINATE WORK WITH OTHER TRADES. TO ENSURE AN ORDERLY PROGRESS OF THIS WORK.
4. ALL MATERIAL SHALL BE NEW OF GOOD QUALITY. ALL WORK SHALL BE PERFORMED IN A WORKMANLIKE MANNER BY SKILLED WORKMAN.
5. ALL SUPPLY AND RETURN AIR DUCTWORK SHALL BE GALVANIZED SHEET STEEL EXTERNALLY WRAPPED WITH WITH A MIN. OF R5 INSULATION OR R8 IF DUCTWORK IS LOCATED EXTERIOR TO BLDG INSULATION ENVELOPE. ALL FLEX DUCT SHALL BE "THERMOFLEX" OR APPROVED EQUAL AND SHALL HAVE EQUIVALENT INSULATION.
   NOTE: ALL EXPOSED ROUND DUCTWORK IN RETAIL AREA SHALL BE "SPIROSAFE" INSULATED DOUBLE WALL (W/1" INSULATION) SPIRAL DUCTS AS MANUFACTURED BY LINDAB, INC. http://www.lindabusa.com OR APPROVED EQUAL.
6. ALL EXHAUST DUCTS AND OUTSIDE AIR DUCTS SHALL BE GALVANIZED SHEET METAL WITH SEALED SEAMS AND JOINTS.
7. DUCT SIZES SHOWN ARE INSIDE DIMENSIONS.
8. ALL AIR DEVICES (DIFFUSERS, REGISTERS AND GRILLES) SHALL BE ALL ALUMINUM CONSTRUCTION WITH EXPOSED SURFACE OFF WHITE BAKED ENAMEL FINISH OR AS SPECIFIED BY ARCHITECT. DEVICES SHALL BE TITUS, METALAIRE, AIRGUIDE. PROVIDE OPPOSED BLADE DAMPERS AT ALL DIFFUSERS AND REGISTERS.
9. THERMOSTAT SHALL BE COMBINATION COOLING/HEATING, WITH SYSTEM "COOL-AUTO-HEAT-OFF" AND FAN "ON-AUTO" SELECTOR SWITCHES. PROVIDE PROGRAMMABLE TYPE THERMOSTAT. * CONTRACTOR SHALL FULLY INSTRUCT OWNER ON HOW TO PROPERLY PROGRAM INSTALLED THERMOSTATS. * PROGRAMMABLE THERMOSTAT SHALL BE BY MANUFACTURER OF INSTALLED AIR HANDLING UNIT, IT IS RECOMMENDED THAT DURING OCCUPIED HOURS, THE FANS BE SET TO "ON" IN LIEU OF "AUTO".
10. PROVIDE NEW FILTERS FOR ALL AIR CONDITIONING EQUIPMENT BEFORE STARTING THEM. REPLACE THEM PRIOR TO FINAL ACCEPTANCE BY OWNER.
11. MECHANICAL PLANS IN GENERAL, ARE DIAGRAMMATIC IN NATURE, AND ARE TO BE READ IN CONJUNCTION WITH ARCH. PLUMBING, ELECTRICAL AND STRUCTURAL PLANS AND SHALL BE CONSIDERED AS ONE SET OF DOCUMENTS. DUCT AND PIPING OFFSETS, BENDS AND TRANSITIONS WILL BE REQUIRED TO PROVIDE AND INSTALL A COMPLETE FUNCTIONAL SYSTEM AND SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
12. CONTRACTOR SHALL INSTALL ALL OUTDOOR EQUIPMENT TO WITHSTAND WIND LOADING FORCES AS REQUIRED BY LOCAL CODES. REFER TO STRUCTURAL PLANS BY OTHERS FOR STRUCTURAL DETAILS.
13. PROVIDE ALL NECESSARY CONTACTORS, RELAYS, ETC., FOR A COMPLETE OPERATING A/C UNIT.
14. IF ANY ERRORS, DISCREPANCIES OR OMISSIONS APPEAR IN THE DRAWINGS, SPECIFICATIONS OR OTHER CONTRACT DOCUMENTS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING OF SUCH ERROR OR OMISSION. IN THE EVENT OF THE CONTRACTOR FAILING TO GIVE SUCH NOTICE BEFORE CONSTRUCTION AND/OR FABRICATION OF THE WORK, HE WILL BE HELD RESPONSIBLE FOR THE RESULTS OF ANY SUCH ERRORS, DISCREPANCIES OR OMISSIONS AND THE COST OF RECTIFYING SAME.

OUTSIDE AIR CALCULATIONS
THE FOLLOWING IS BASED ON NCMC 2009 FOR OUTSIDE AIR REQUIREMENTS

UNIT NUMBER					TOTAL CFM
RTU #1-4	"RETAIL" CATEGORY = .30 CFM/SQ. FT.				2,213
	UNIT LABEL	AREA SERVED (SQ. FT.)	ESTIMATED MAX. OCCUPANCY	OUTSIDE AIR REQUIRED (CFM)	
	A/C #1&2	7,375	- / 1000 X - = -	7,375 X .30 = 2,213	
			555 CFM O/A FOR EA. OF RTU #1-4		
RTU #5	"RETAIL" CATEGORY = .30 CFM/SQ. FT.				258
	UNIT LABEL	AREA SERVED (SQ. FT.)	ESTIMATED MAX. OCCUPANCY	OUTSIDE AIR REQUIRED (CFM)	
	RTU #5	450	- / 1000 X - = -	450 X .30 = 135	
	"STORAGE" CATEGORY = .15 CFM PER SQ. FT.				
	UNIT LABEL	AREA SERVED (SQ. FT.)	ESTIMATED MAX. OCCUPANCY	OUTSIDE AIR REQUIRED (CFM)	
	RTU #5	820	- / 1000 X - = -	820 X .15 = 123	
				TOTAL O/A FOR RTU #5 = 258	
RTU #6	"KITCHEN" CATEGORY = 20 PEOPLE PER 1,000 SQ. FT. & 15 CFM PER PERSON				270
	UNIT LABEL	AREA SERVED (SQ. FT.)	ESTIMATED MAX. OCCUPANCY	OUTSIDE AIR REQUIRED (CFM)	
	RTU #6	455	455 / 1000 X 20 = 9	9 X 15 = 135	
	"RETAIL" CATEGORY = .30 CFM/SQ. FT.				
	UNIT LABEL	AREA SERVED (SQ. FT.)	ESTIMATED MAX. OCCUPANCY	OUTSIDE AIR REQUIRED (CFM)	
	RTU #5	450	- / 1000 X - = -	450 X .30 = 135	
				TOTAL O/A FOR RTU #6 = 270	



1 BRANCH DUCT DETAIL
NO SCALE



2 SPIRAL DUCT / REGISTER CONNECTION DETAIL
NO SCALE

ROOFTOP PACKAGE UNIT W/GAS HEAT SCHEDULE

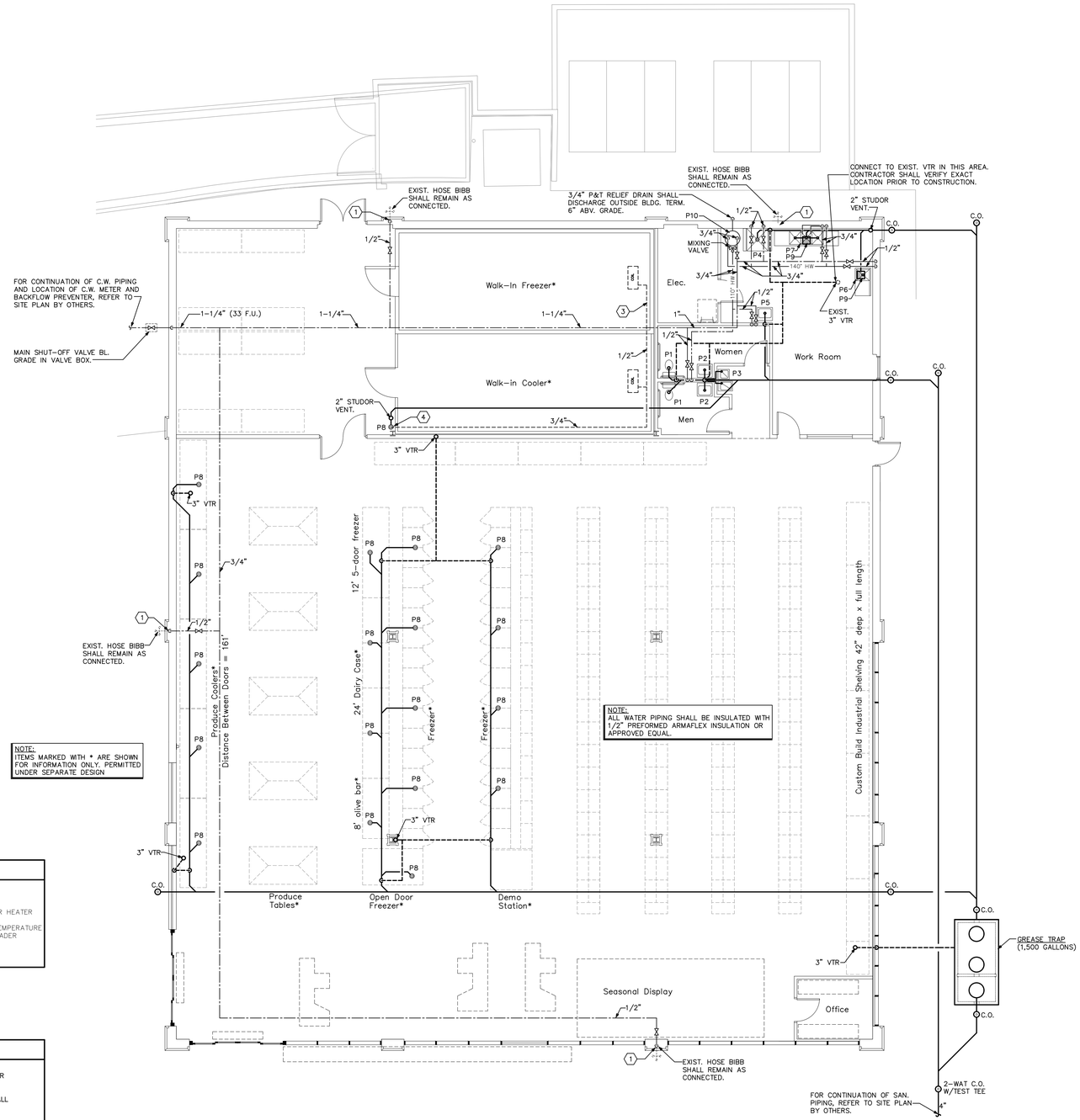
SYS. LABEL	MANUFACTURER	MODEL NO.	TOTAL CAPACITY	SENSIBLE CAPACITY	TOTAL CFM	O/A CFM	E.S.P.	FAN SPEED	COMP. RLA	OUTDOOR FAN FLA	INDOOR FAN HP	HEATER BTU OUTPUT	VOLTAGE	MOCP	EER/SEER	NOTES	HEATER BTU INPUT
RTU #1	CARRIER	48TCDA08A1	95,200	71,000	3,000	SEE SCH.	.4"	699	25.0	(2) @ 1.5	1.5 HP	103,000	208V/3ø	60	11.0	1 THRU 11	125,000
RTU #2	CARRIER	48TCDA08A1	95,200	71,000	3,000	SEE SCH.	.4"	699	25.0	(2) @ 1.5	1.5 HP	103,000	208V/3ø	60	11.0	1 THRU 11	125,000
RTU #3	CARRIER	48TCDA08A1	95,200	71,000	3,000	SEE SCH.	.4"	699	25.0	(2) @ 1.5	1.5 HP	103,000	208V/3ø	60	11.0	1 THRU 11	125,000
RTU #4	CARRIER	48TCDA08A1	95,200	71,000	3,000	SEE SCH.	.4"	699	25.0	(2) @ 1.5	1.5 HP	103,000	208V/3ø	60	11.0	1 THRU 11	125,000
RTU #5	CARRIER	48TCDA06A1	61,900	47,700	2,000	SEE SCH.	.4"	1153	15.6	1.5	1.5 HP	59,000	208V/3ø	30	13.0	1 THRU 11	72,000
RTU #6	CARRIER	48TCDA06A1	61,900	47,700	2,000	SEE SCH.	.4"	1153	15.6	1.5	1.5 HP	59,000	208V/3ø	30	13.0	1 THRU 11	72,000

GENERAL NOTES:
* ALL RATINGS ARE AT ARI ENTERING CONDITIONS UNLESS OTHERWISE NOTED.
* PROVIDE VIBRATION ISOLATION FOR UNIT.
* EXTERNAL STATIC PRESSURE DOES NOT INCLUDE COIL OR FILTER PRESSURE DROP.
* APPROVED EQUALS SHALL BE TRANE, LENNOX AND YORK. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO VERIFY THAT ANY CLEARANCE REQUIREMENTS ARE MET FOR ANY SUBSTITUTIONS.

ABBREVIATION LEGEND:
O/A – OUTSIDE AIR
HP – HORSE POWER
RLA – RUNNING LOAD AMPS
FLA – FULL LOAD AMPS
MOCP – MAX. OVERCURRENT PROTECTION (DUAL ELEMENT TYPE FUSE)
E.S.P. – EXTERNAL STATIC PRESSURE
EER – ENERGY EFFICIENCY RATIO
SEER – SEASONAL ENERGY EFF. RATIO

SPECIFIC NOTES:
1) FACTORY ROOF CURB WITH THRU THE CURB SERVICE CONNECTION.
2) OUTDOOR AIR MANUAL 0% TO 30% DAMPER.
3) ELECTRONIC PROGRAMMABLE THERMOSTAT.
4) COMPRESSOR TIME DELAY.
5) HEAD PRESSURE CONTROL.
6) FILTER DOOR ACCESS PANEL KIT.
8) PROVIDE (1) YEAR WARRANTY ON ALL PARTS AND LABOR AND (5) YEAR WARRANTY ON COMPRESSOR.
9) PROVIDE 1" FARR 30/30 THROWAWAY FILTERS. (1) SET DURING CONSTRUCTION AND (1) SET AFTER FINAL INSPECTION.
10) INSULATE CONDENSATE DRAIN LINE WITH 1/2" ARMAFLEX.
11) PROVIDE ALL NECESSARY CONTACTORS, RELAYS, MOTOR STARTERS, ETC. FOR A COMPLETE OPERATING UNIT.

M3



PLUMBING SYMBOLS LEGEND

- FLOOR DRAIN
- HOSE BIBB
- CLEANOUT
- RELIEF VALVE
- AIR CHAMBER
- UNION
- SOIL OR WASTE LINE
- SANITARY VENT LINE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC WATER RECIRCULATION
- PRESSURE & TEMP. RELIEF LINE
- CONDENSATE DRAIN LINE
- RAIN WATER LEADER
- GAS LINE
- SAFEWASTE LINE
- FIRE PROTECTION
- SHUT OFF VALVE
- SAFEPAN LINE
- FIRE SPRINKLER HEAD
- PIPE TURN UP
- PIPE TURN DOWN
- P-TRAP

PLUMBING ABBREVIATION LEGEND

DN.	DOWN	C.C.	CENTER TO CENTER	F.U.	FIXTURE UNITS
EXT.	EXTERIOR	N.T.S.	NOT TO SCALE	H.B.	HOSE BIBBS
F.D.	FLOOR DRAIN	MFGR.	MANUFACTURER	C.O.	CLEANOUT
F.F.	FINISH FLOOR	S.O.V.	SHUT OFF VALVE	E.W.H.	ELECTRIC WATER HEATER
A.F.F.	ABOVE FINISH FLOOR	W.C.	WATER CLOSET	JAN.SK.	JANITOR SINK
V.T.R.	VENT THRU ROOF	LAV.	LAVORATORY	P & T	PRESSURE & TEMPERATURE
TYP.	TYPICAL	SK.	SINK	RWL.	RAIN WATER LEADER
R.D.	ROOF DRAIN	D.W.	DISH WASHER		
REV.	REVISION	E.D.F.	ELECTRIC DRINKING FOUNTAIN		
O.C.	ON CENTER	UR.	URINAL		

SPECIFIC PLUMBING NOTES

1. NEW 1/2" C.W. PIPING SHALL CONNECT TO EXISTING HOSE BIBB IN WALL IN THIS AREA. CONTRACTOR SHALL VERIFY EXACT LOCATION IN FIELD PRIOR TO CONSTRUCTION.
2. NEW 1/2" C.W. SHALL CONNECT TO EXISTING WATER DISPLAY UNIT IN THIS AREA. CONTRACTOR SHALL CONNECT AS REQUIRED.
3. 1/2" COPPER CONDENSATE LINE (WRAP W/ HEAT TAPE & INSULATION) FOR FREEZER AREA ONLY.
4. 3/4" COPPER CONDENSATE LINE TO FLOOR DRAIN. CONNECT TO FLOOR DRAIN VIA A MIN. 2" AIR GAP CONNECTION.

1 FLOOR PLAN - PLUMBING

SCALE: 1/8"=1'-0"

PLUMBING FIXTURE SCHEDULE

P-1 (HANDICAPPED FLOOR MOUNTED FLUSH TANK WATER CLOSET)
SHALL BE AN AMERICAN STANDARD MODEL CADET RIGHT HEIGHT 16-1/2" 2377.100 ELONGATED 1.6 GPF, VITREOUS CHINA, PRESSURE-ASSISTED SIPHON ACTION BOWL, CLOSE-COUPLED TANK, FLOOR MOUNTED, FLOOR OUTLET, SPEED CONNECT TANK/BOWL COUPLING SYSTEM, WITH AMERICAN STANDARD OPEN FRONT SEAT WITH COVER MODEL 5325.024.
* http://www.americanstandard-us.com/assets/documents/amstd/spec/SpecSheet_1006.pdf

P-2 (HANDICAPPED WALL HUNG LAVATORY)
SHALL BE AN AMERICAN STANDARD MISSOURI LAVATORY MODEL 0436.004US, VITREOUS CHINA, WALL MOUNT WITH CONCEALED ARMS SUPPORT. FAUCET SHALL BE A BRADLEY "AERADA 90-75 SERIES METERING FAUCET" MODEL S53-053 WITH 4" CENTERS. UNIT IS ADA COMPLIANT AND 0.5 GPM WITH A 10 SECOND OPERATING CYCLE PRODUCING UNDER .25 GALLONS PER CYCLE. PROVIDE A BRADLEY VERNATHERM THERMOSTATIC MIXING VALVE TO DELIVER TEMPERED WATER AT A TEMPERATURE NOT TO EXCEED 105 DEGREES. WATER PIPING AND P-TRAP SHALL BE COVERED WITH AN UNDER-SINK PROTECTIVE PIPE COVER KIT BY TRUEBRO (HTTP://WWW.TRUEBRO.COM) OR APPROVED EQUAL.
* http://www.americanstandard-us.com/assets/documents/amstd/spec/SpecSheet_4486.pdf
* http://www.bradleycorp.com/products/techdata/3000.pdf

P-3 (HANDICAPED ELECTRIC WATER COOLER COMBINATION HI/LO)
SHALL BE AN ELKAY SPLIT LEVEL TWO STATION WATER COOLER WITH BARRIER FREE ACCESS. MODEL EMABFTLBC, 8.8 GPH, 4.0 FLA AT 120 VOLT.
* http://www.elkayusa.com/cps/rde/xbcr/elkay/12-53B_EMABFTLBC_EMABFTLDDC.pdf

P-4 (INTERIOR CANWASH/MOP RECEPTOR)
SHALL BE A FLORESTONE #50 36X36X6" MOLDED MOP BASIN WITH 3" OUTLET. PROVIDE WITH MR-371 THREADED FAUCET WITH WALL BRACE, PAIL HOOK AND APPROVED VACUUM BREAKER, MR-370 HOSE & HOSE BRACKET, MR-372 MOP HANGER, MR-373 BUMBER GUARDS AND MR-377 STAINLESS TEEL WALL GUARD.
* http://www.florestone.com/model.php?s=mop_sinks&m=mop_sinks_model_50-70
* http://www.florestone.com/mop_sinks_accessories.php

P-5 (STAINLESS STEEL WALL HUNG HAND SINK)
SHALL BE A "JUST" MODEL A-544-912-T WALL HUNG STAINLESS STEEL HAND SINK. FABRICATED OF 20 GAUGE TYPE 304 STAINLESS STEEL. EXPOSED SURFACES POLISHED WITH A HAND-BLENDED JUST FINISH. INTEGRAL SUPPORT BRACKET AT REAR. INCLUDES ONE 14 GAUGE STAINLESS STEEL WALL CLIP. FAUCET SHALL BE A "JUST" MODEL JS-45-TGA.
* http://www.justmfg.com/PDF/4-15AB.pdf

P-6 (STAINLESS STEEL PREP SINK)
SHALL BE A "JUST" MODEL NSFB-142-24 STAINLESS STEEL PREP SINK WITH DRAIN BOARD. CONSTRUCTED OF 14 GAUGE TYPE 304, 18-8 STAINLESS STEEL. INTERIOR SURFACES POLISHED WITH A NON-POROUS HAND-BLENDED JUST FINISH. EXPOSED EXTERIOR SURFACES TO HAVE A BRUSH FINISH. SUPPORTED ON (4) 16 GAUGE 1 5/8" O.D. STAINLESS STEEL TUBULAR LEGS WITH STAINLESS STEEL FULLY ENCLOSED GUSSETS AND ADJUSTABLE BULLET FEET. DRAIN PUNCH #35 CENTERED FOR JUST J- 35 UNLESS OTHERWISE SPECIFIED. CERTIFIED TO ANSI/NSF STANDARD 2. FAUCET SHALL BE A "JUST" MODEL JS-48-TA1.
* http://www.justmfg.com/PDF/6-2.pdf
* http://www.justmfg.com/PDF/7-71.pdf

P-7 (STAINLESS STEEL 3 COMPARTMENT SINK)
SHALL BE A "JUST" MODEL SB-345-24RL STAINLESS STEEL 3 COMPARTMENT SINK WITH SIDE DRAIN BOARDS. CONSTRUCTED OF 14 GAUGE TYPE 304, 18-8 STAINLESS STEEL. INTERIOR SURFACES POLISHED WITH A NON-POROUS HAND-BLENDED JUST FINISH. EXPOSED EXTERIOR SURFACES TO HAVE A BRUSH FINISH. SUPPORTED ON (4) 1-5/8" O.D. STAINLESS STEEL TUBULAR LEGS WITH ANGLE GUSSETS AND ADJUSTABLE BULLET FEET. DRAIN PUNCH #35 CENTERED FOR JUST J-35 UNLESS OTHERWISE SPECIFIED. FAUCETS SHALL BE "JUST" MODEL JS-48-TA1 (TYPICAL OF 2).
* http://www.justmfg.com/PDF/6-24.pdf
* http://www.justmfg.com/PDF/7-71.pdf

P-8 (FLOOR DRAIN)
SHALL BE A JOSAM 30000-WT SERIES COATED CAST IRON FLOOR DRAIN. TWO PIECE BODY WITH DOUBLE DRAINAGE FLANGE, WEA-LOC INVERTIBLE NON- PUNCTURING FLASHING COLLAR, WEEPHOLES, BOTTOM OUTLET, INSIDE CAULK CONNECTION AND ADJUSTABLE SATIN NIKALOY ROUND SUPER-FLO STRAINER.
* http://www.josam.com/images/josammkt/sbmtl/s06_30000-WT-A.pdf

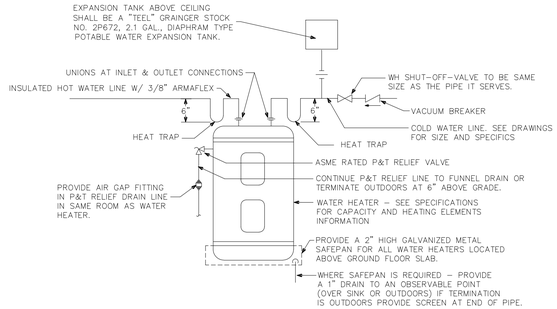
P-9 (FLOOR SINK W/SEDIMENT BUCKET)
SHALL BE A JOSAM 49340A-3-31 SERIES SQUARE CAST IRON 8" DEEP SUPER-FLO-SEPTOR FLOOR SINK WITH PORC-COATED INTERIOR, DOUBLE DRAINAGE FLANGE WITH WEEPHOLES, BOTTOM OUTLET, ALUMINUM INTERNAL DOME STRAINER, AND CAST IRON, NON-TRAFFIC, PORC-COATED, ANTI-TILTING GRATE. WITH HALF GRATE AND ALUMINUM SEDIMENT BUCKET.
* http://www.josam.com/catalog/JOS/pl=FS/49340A

P-10 (GAS WATER HEATER - DIRECT VENT - SEALED COMBUSTION)
SHALL BE A LOCHINVAR "CHARGERPOWER DV" MODEL PNR200-080 GAS FIRED COMMERCIAL WATER HEATER. 199,000 BTU INPUT TO PRODUCE 194 GALLONS PER HOUR OF HOT WATER AT 100 DEGREE RISE. INSULATED GLASSLINED 80 GALLON STORAGE TANK. 5 YEAR LIMITED WARRANTY ON STORAGE TANK AGAINST TANK FAILURE. WATER HEATER SHALL MEET OR EXCEED ALL APPLICABLE SECTIONS OF ASHRAE SECTIONS 90-80A AND NAECA REQUIREMENTS FOR ENERGY CONSERVATION.
* http://lochinvar.com/_linefiles/PGR.pdf

NOTES:
1.) ALL PLUMBING FIXTURES SHALL BE AS SPECIFIED OR APPROVED EQUAL.
2.) PROVIDE ANGLE STOPS ON ALL WATER SERVICE LINES TO FIXTURES FOR INDIVIDUAL SHUT-OFF.

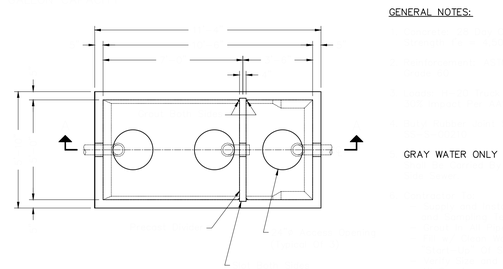
GENERAL PLUMBING NOTES

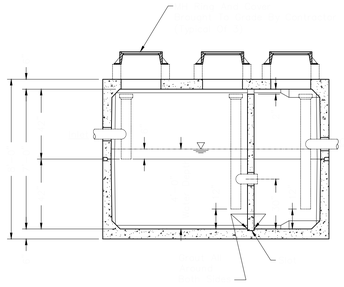
1. Drawings are diagrammatic and shall not be scaled. Refer to architectural plans and elevations for exact location of all plumbing fixtures, equipment, etc.. Plumbing contractor shall furnish and install all items required for a complete and acceptable working installation. Contractor is responsible to install all fixtures and equipment in strict compliance with the manufactures installation instructions. This requirement is to supersede any details or information contained on these drawings.
2. All work and materials shall comply with the latest edition of the National, State, and all local codes and Ordinances having jurisdiction.
3. The plumbing contractor shall visit the site and thoroughly familiarize himself with all existing conditions. All execution and backfill as required for this phase of construction shall be a part of this contract.
4. All material shall be new.
5. All work shall be performed by a licensed plumbing contractor in a first class workmanlike manner. The completed system shall be fully operative and accepted by engineer/architect.
6. All required insurance shall be provided for protection against public liability or property damage for the duration of the work.
7. The plumbing contractor shall secure and pay all permit fees, inspections, and tests.
8. All work shall be coordinated with other trades to avoid interference with the progress of construction.
9. The plumbing contractor shall guarantee all materials and workmanship free from defects for a period of not less than (1) one year from date of acceptance. Correction of any defects shall be completed without additional charge and shall include replacement or repair of any other phase of the installation which may have been damaged thereby.
10. Verify location, size and inverts of all existing utilities prior to start of construction. Advise architect/engineer of any discrepancies.
11. All fixtures shall be provided with readily accessible stops.
12. All below floor slab water piping shall be flexible "temprite pex (cross-linked polyethylene)" Intalled as per manufacturers recommendations found here: www.Tempritepex.Com. All above slab water piping shall be "FlowGuard Gold CPVC" installed as per manufacturers recommendations found here: www.flowguardgold.com. All water piping as specified or approved equal. All water piping larger than 1" shall be type "L" copper for up to and including 2" and shall be type "K" for 2 1/2" and larger.
13. Soil, wastes and vent piping shall be PVC #40 DMV. Waste and vent piping above slab shall be PVC, If approved by local authorities having jurisdiction, otherwise cast iron. PVC shall not be installed in A/C return air plenum or penetrate fire rated walls or floors.
14. Air conditioning condensate drain piping shall be PVC #40 or copper drain waste and bent pipe and fittings. Insulate all condensate piping except exterior piping.
    Install all condensate piping for air conditioning units as required per local codes.
15. Furnish and install approved air chambers at each plumbing fixture and PDI approved shock arresters on main lines and risers.
16. Provide chrome plated combination covered plate and cleanout plug for all wall cleanouts, Josam 58890.
17. Insulate lines as follows:
    a.) 1/2" thick armaflex preformed insulation shall be provided on all water piping.
    b.) Condensate piping: 1/2" thick armaflex preformed or approved equal.



2 WATER HEATER DETAIL
NO SCALE

GENERAL NOTES:

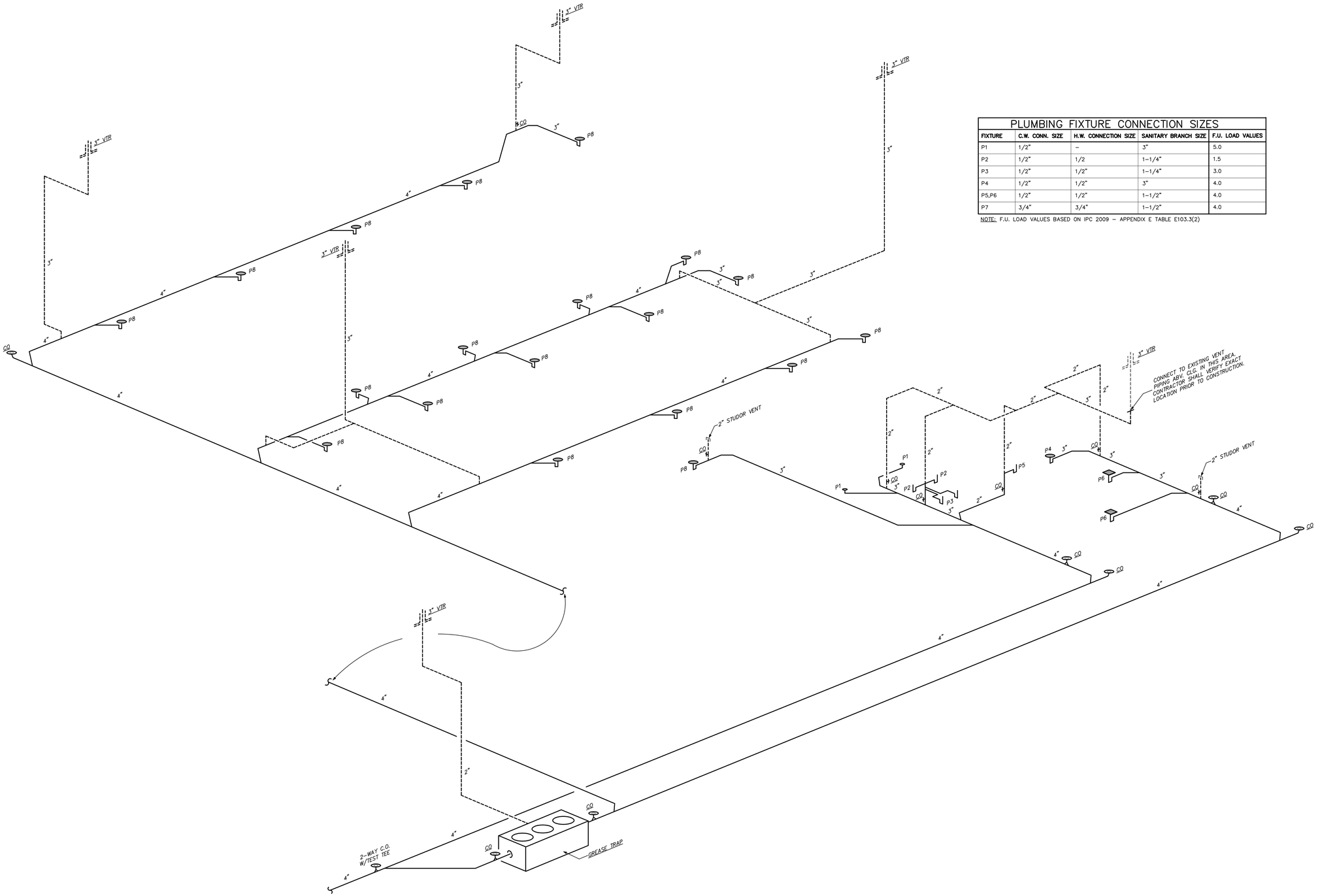




®
www.oldcastle-precast.com

(1,500 GALLONS)

1 GREASE TRAP DETAIL
NO SCALE



PLUMBING FIXTURE CONNECTION SIZES				
FIXTURE	**C.W. CONN. SIZE**	**H.W. CONNECTION SIZE**	**SANITARY BRANCH SIZE**	**F.U. LOAD VALUES**
P1	1/2"	–	3"	5.0
P2	1/2"	1/2	1-1/4"	1.5
P3	1/2"	1/2"	1-1/4"	3.0
P4	1/2"	1/2"	3"	4.0
P5,P6	1/2"	1/2"	1-1/2"	4.0
P7	3/4"	3/4"	1-1/2"	4.0

NOTE: F.U. LOAD VALUES BASED ON IPC 2009 – APPENDIX E TABLE E103.3(2)

1 SANITARY ISOMETRIC
NO SCALE

ELECTRICAL NOTES:

1. GENERAL: ALL WORK SHALL CONFORM TO THE LATEST APPROVED EDITION OF THE NATIONAL ELECTRICAL CODE (NEC) AND ALL LOCAL JURISDICTIONAL CODES.

   THE CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE DRAWINGS AND ANY APPLICABLE SPECIFICATIONS. IF A PROBLEM IS ENCOUNTERED IN COMPLYING WITH THIS REQUIREMENT, THE CONTRACTOR SHALL NOTIFY THE OWNER OR HIS REPRESENTATIVE AS SOON AS POSSIBLE AFTER DISCOVERY OF THE PROBLEM, AND SHALL NOT PROCEED WITH THAT PORTION OF THE WORK UNTIL THE OWNER HAS DIRECTED THE CORRECTIVE ACTION TO BE TAKEN.

   THE CONTRACTOR SHALL COORDINATE THE PROPOSED LOCATIONS OF ALL ELECTRICAL MATERIALS AND EQUIPMENT WITH THE REPRESENTATIVES OF THE OTHER TRADES INVOLVED BEFORE STARTING INSTALLATION OF THOSE ITEMS.

   COORDINATE THE INSTALLATION OF REQUIRED SUPPORTING DEVICES, CONDUIT, AND SLEEVES TO BE SET IN CAST-IN-PLACE CONCRETE AND OTHER STRUCTURAL COMPONENTS, AS THEY ARE CONSTRUCTED.

   UNLESS OTHERWISE SPECIFIED ON THE PLANS, ALL SPECS ARE NOT INTENDED TO BE PROPRIETARY. SUBSTITUTIONS WILL BE ACCEPTABLE FOR EQUAL RATED AND LISTED UNITS.

2. SCOPE: EXCEPT WHERE OTHERWISE SPECIFICALLY INDICATED ON THE DRAWINGS BY "FUTURE", "BY OTHERS", OR BY A SIMILAR NOTATION, IT IS THE INTENT THAT THE CONTRACTOR FURNISH ALL LABOR, MATERIALS, EQUIPMENT AND TOOLS NECESSARY TO PROVIDE ALL SYSTEMS IN COMPLETE AND OPERATING CONDITION.

3. EXCAVATE AS NECESSARY FOR THE INSTALLATION OF ELECTRICAL MATERIALS AND EQUIPMENT. VERIFY THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES OR STRUCTURES BEFORE EXCAVATING AND EXERCISE CARE TO AVOID DAMAGE TO SUCH ITEMS DURING EXCAVATION. BACKFILL WITH EARTH FREE OF LARGE CLODS, LARGE STONES AND FOREIGN DEBRIS, DEPOSITED IN 6" LAYERS AND COMPACTED TO A DENSITY OF NOT LESS THAN THAT OF THE SURROUNDING UNDISTURBED MATERIAL.

4. MATERIALS: THE MATERIALS AND EQUIPMENT FURNISHED SHALL BE AS INDICATED ON THE DRAWINGS. SUBSTITUTIONS SHALL NOT BE MADE EXCEPT WHERE EXPRESSLY APPROVED BY THE OWNER OR HIS REPRESENTATIVE PRIOR TO STARTING INSTALLATION OF THE ITEMS. THE ELECTRICAL MATERIALS AND EQUIPMENT FURNISHED SHALL BE LISTED OR LABELED BY UNDERWRITERS LABORATORIES OR OTHER RECOGNIZED TESTING ORGANIZATION, AND SHALL BE ACCEPTABLE TO THE LOCAL BUILDING AUTHORITY.

5. GROUNDING: GROUNDING SHALL BE IN ACCORDANCE WITH ARTICLE 250, NEC.

6. SHARED NEUTRAL CONDUCTORS SHALL NOT BE ALLOWED UNLESS INSTALLED IN ACCORDANCE WITH NEC-210.4

7. CONDUITS: PROVIDE CONDUITS WHERE CALLED FOR ON PANEL SCHEDULES: ELECTRICAL METALLIC TUBING (EMT) SHALL BE INSTALLED ONLY IN DRY LOCATIONS, IN CONCRETE ABOVE GRADE, AND WHERE NOT SUBJECT TO PHYSICAL DAMAGE.

   CONDUITS INSTALLED UNDERGROUND SHALL BE POLYVINYLCHLORIDE (PVC) AND SHALL NOT BE SMALLER THAN 3/4" TRADE SIZE. WHERE PVC CONDUIT IS INSTALLED UNDERGROUND, ELBOWS TURNING UP AND CONDUIT EMERGING ABOVE GRADE SHALL BE RSC. THE TOPS OF CONDUITS SHALL NOT BE LESS THAN 24" BELOW FINISHED GRADE. PVC CONDUIT INSTALLED ABOVE GRADE OR DIRECT-BURIED IN EARTH SHALL BE NEMA TC2 TYPE EPC-40-PVC (SCHEDULE 40) EXCEPT THAT WHERE UNDER AREAS SUBJECT TO HEAVY VEHICULAR TRAFFIC, IT SHALL BE NEMA TC2 TYPE EPC-80-PVC (SCHEDULE 80).

   ALL ARMOR CLAD CABLE (AC CABLE) WIRING SHALL MEET OR EXCEED ALL NEC, OSHA AND HUD STANDARDS.

8. CONDUCTORS: CONDUCTORS SHALL BE AS SCHEDULED ON PANEL SCHEDULES. ALL POWER CONDUCTORS SHALL NOT BE SMALLER THAN #14 AWG (CU), OR #12 AWG (AL), CONTROL CIRCUIT CONDUCTORS SHALL NOT BE SMALLER THAN #18 AWG CU. CONDUCTORS SHALL BE CONTINUOUS FROM OUTLET TO OUTLET WITHOUT SPLICES EXCEPT WITHIN WIREWAY OR JUNCTION BOXES. MARK CONDUCTORS IN PANELS, PULL BOXES OR WIREWAYS AND TERMINAL STRIP TERMINALS FOR IDENTIFICATION OF CIRCUITS.

   CONDUCTORS SHALL BE JOINED USING COMPRESSION SPLICES, EXCEPT THAT CONDUCTORS #10 AND SMALLER MAY BE JOINED USING WIRE NUT TYPE CONNECTORS. CONDUCTORS SHALL BE TERMINATED USING COMPRESSION OR PRESSURE TYPE TERMINAL LUGS, OR IN PRESSURE TERMINALS. COMPRESSION SPLICES USED ON CONDUCTORS #10 AWG. AND SMALLER, SHALL BE THE SELF-INSULATED TYPE; OTHER SPLICES SHALL BE INSULATED USING 3M #33+ OR #88 PLASTIC TAPE. SPLICES IN WET LOCATIONS SHALL BE INSULATED WITH ELECTRICAL TAPE AND ENCAPSULATED WITH SCOTCHCAST OR EQUAL POTTING COMPOUND.

9. PROVIDE AND INSTALL JUNCTION AND PULL BOXES WHERE INDICATED AND WHERE NECESSARY TO TERMINATE, TAP OFF, OR REDIRECT MULTIPLE CONDUIT RUNS, OF SIZE INDICATED OR AS REQUIRED BY NEC. WHERE FEEDER SPLICES ARE TO BE MADE, INSTALL BOXES LARGE ENOUGH TO PROVIDE AMPLE WORK SPACE.

10. LIGHTING FIXTURES: LIGHTING FIXTURES SHALL BE AS INDICATED ON THE DRAWINGS, AND SHALL BE INSTALLED COMPLETE WITH LAMPS.

    FIXTURES WITH ADJUSTMENTS AFFECTING LIGHT DISTRIBUTION SHALL BE SET TO PROVIDE THE REQUIRED LIGHT PATTERNS PRIOR TO THE FINAL DEMONSTRATION TEST.

11. TESTS: AFTER EACH SYSTEM HAS BEEN COMPLETED, A FUNCTIONAL TEST SHALL BE PERFORMED TO DEMONSTRATE THAT THE SYSTEM OPERATES IN ACCORDANCE WITH THE REQUIREMENTS OF THE DRAWINGS. THE TEST SHALL BE PERFORMED BY THE CONTRACTOR IN THE PRESENCE OF THE OWNER OR HIS REPRESENTATIVE.

12. TERMINALS: ALL ELECTRICAL EQUIPMENT FURNISHED ON THIS PROJECT IS TO HAVE TERMINALS RATED FOR 75° C. OPERATION.

ELECTRICAL SYMBOLS LEGEND

NOTE - NOT ALL SYMBOLS MAY BE USED ON PROJECT

SYMBOLS	DESCRIPTION	SYMBOLS	DESCRIPTION
⊕	DUPLEX RECEPTACLE, MTD. +18" AFF	T	TRANSFORMER - SIZE AS NOTED
⊕	240 VOLT RECEPTACLE (HT. AS REQ.)		PANEL - SIZE AS NOTED
⊕	QUADRUPLEX RECEPTACLE, MTD. +18"		MOMENTARY CONTACT PUSH BUTTON
⊕ ⊕	COUNTERTOP HT. RECEPTACLE +42"	(F)	F-FAN; M-MOTOR; P-PUMP
$	SINGLE POLE SWITCH, MTD +47"		SPECIAL OUTLET - AS REQUIRED
$3	THREE-WAY SWITCH, MTD +47"	B-2	CKT. HOMERUN (B INDICATES PANEL) "2" DESIGNATES CIRCUIT NUMBER
$M	MANUAL STARTER SWITCH		EXIT SIGN; ONE SIDED, OR TWO SIDED
$D	DIMMER SWITCH, MTD +47"		EMERGENCY LIGHTING
$L	SWITCH W/ ILLUM. WHEN ON +47"	B	RECESSED MOUNTED LIGHTING FIXTURE B DESIGNATES FIXTURE TYPE
$O	SWITCH W/ OCCU SENSOR. WHEN ON +47"	M	OVERHEAD OCCUPANCY SENSOR
$03	THREE-WAY SWITCH W/ OCCU SENSOR WHEN ON +47"	B	HIGHBAY HID LIGHTING FIXTURE B DESIGNATES FIXTURE TYPE
J	JUNCTION BOX, FLUSH IF POSSIBLE	B	FLUORESCENT LIGHTING FIXTURE B DESIGNATES FIXTURE TYPE
▼	TELEPHONE / DATA OUTLET +18"	B NL	FLUORESCENT LIGHTING NIGHT LIGHT B DESIGNATES FIXTURE TYPE
▽	DED. COMPUTER TERM. OUTLET +18"	C B	FLUORESCENT STRIP LIGHTING FIXTURE B DESIGNATES FIXTURE TYPE
	DISCONNECT SWITCH W/ STARTER	IG	ISOLATED GROUND
	DISCONNECT SWITCH	WP	WEATHER-PROOF
	FLR. MTD. FLUSH DUPLEX RECEPTACLE	BC	BELOW COUNTER
	FLR. MTD. FLUSH QUAD. RECEPTACLE	TC	TIME CLOCK - 24 HOUR
	FLR. MTD. FLUSH PHONE/DATA OUTLET	GFI	GROUND FAULT INTERRUPTER
	FLR. MTD. FLUSH COMPUTER OUTLET	AFF	ABOVE FINISHED FLOOR
	AREA SMOKE DETECTOR	EWC	ELECTRIC WATER COOLER
	HEAT DETECTOR	ASW	ABOVE SHOW WINDOW
	DUCT SMOKE DETECTOR	BSW	BELOW SHOW WINDOW
F	FIRE ALARM MAN. PULL STATION +47"	FACP	FIRE ALARM CONTROL PANEL
F 30	HORN WITH STROBE LIGHT, MTD. +80" # BESIDE DEVICE IS CANDELLA RATING	FAAP	FIRE ALARM ANNUNCIATOR PANEL
L 30	STROBE LIGHT ONLY, MTD. +80" # BESIDE DEVICE IS CANDELLA RATING		

ELECTRICAL SYSTEM AND EQUIPMENT

METHOD OF COMPLIANCE

PRESCRIPTIVE [X] PERFORMANCE [ ] ENERGY COST BUDGET [ ]

PROVIDE A STANDARD RISER DIAGRAM WHICH INDICATES DESIGNATED POINTS FOR CHECK METERING. PROVIDE A STANDARD PANEL SCHEDULE DESCRIPTION WHICH IDENTIFIES DIFFERENT ENDUSE LOADS.

LIGHTING SCHEDULE

LAMP TYPE REQUIRED IN FIXTURE	SEE SCHEDULE ON DRAWNGS
NUMBER OF LAMPS IN FIXTURE	SEE SCHEDULE ON DRAWNGS
BALLAST TYPE USED IN FIXTURE	SEE SCHEDULE ON DRAWNGS
NUMBER OF BALLASTS IN FIXTURE	SEE SCHEDULE ON DRAWNGS
TOTAL WATTAGE PER FIXTURE	SEE SCHEDULE ON DRAWNGS
TOTAL INTERIOR WATTAGE SPECIFIED VS ALLOWED	1.48 VS 1.50
TOTAL EXTERIOR WATTAGE SPECIFIED VS ALLOWED	N/A

EQUIPMENT SCHEDULES WITH MOTORS (NOT USED FOR MECHANICAL SYSTEMS)

MOTOR HORSEPOWER	N/A
NUMBER OF PHASES	N/A
MINIMUM EFFICIENCY	N/A
MOTOR TYPE	N/A
NUMBER OF POLES	N/A

DESIGNER STATEMENT:

TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE DESIGN OF THIS BUILDING COMPLIES WITH THE ELECTRICAL SYSTEM AND EQUIPMENT REQUIREMENTS OF THE NORTH CAROLINA ENERGY CODE 2009, CHAPTER 5.

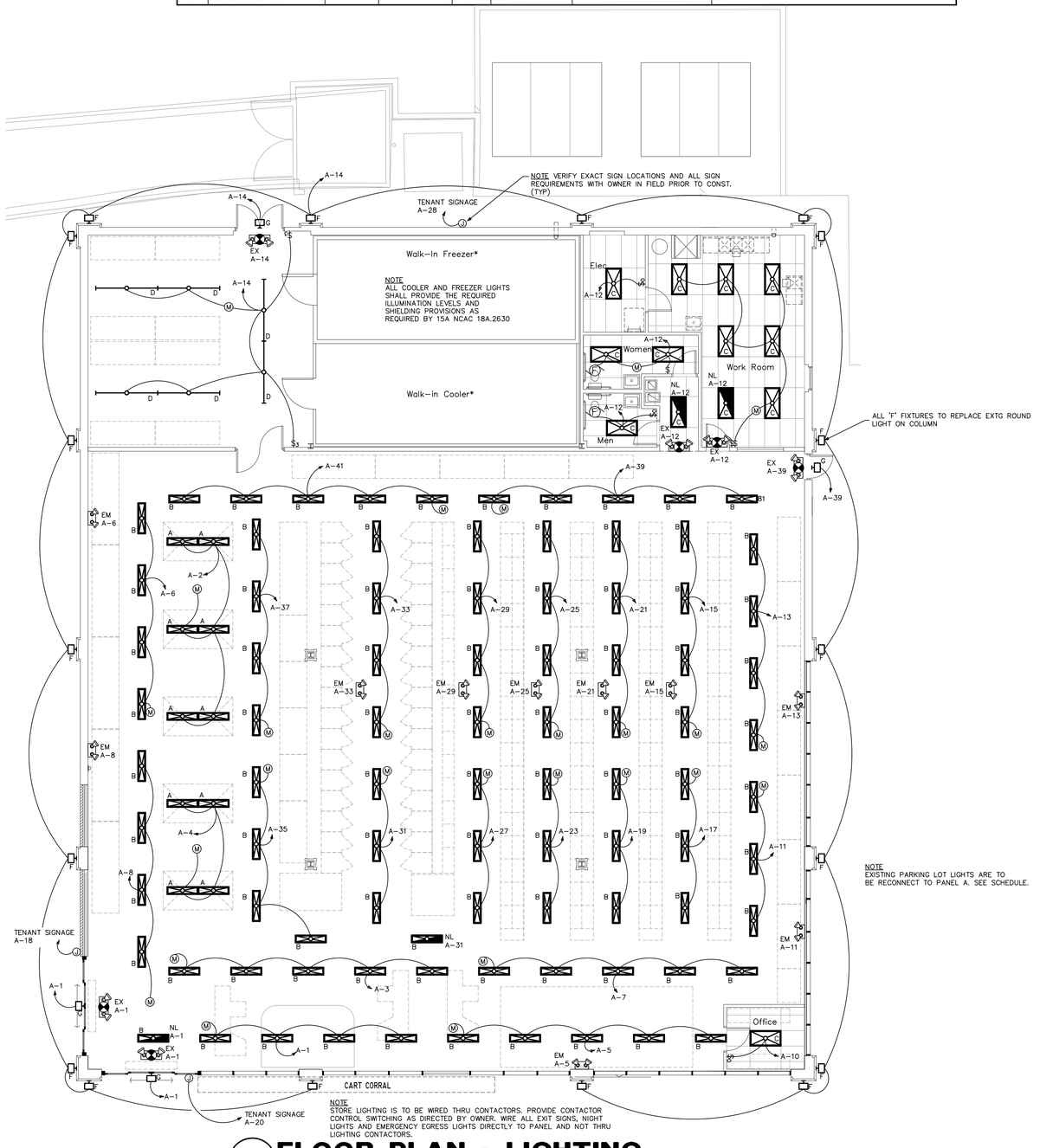
SIGNED: _____

NAME: TODD W. CAREY, P.E.

TITLE: NORTH CAROLINA PROFESSIONAL ENGINEER #9079

LIGHTING FIXTURE SCHEDULE

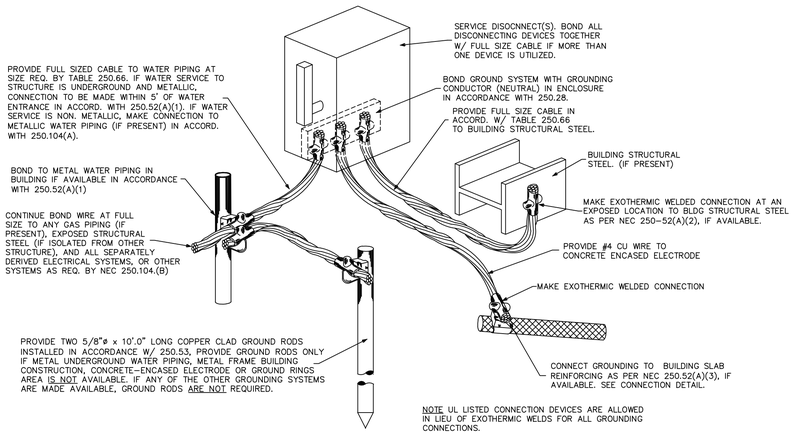
LABEL	TYPE OF FIXTURE	FINISH	LENS TYPE	VOLTAGE	LAMP	MANUFACTURER & MODEL NO.	REMARKS
A	3 BULB HIGH BAY	WHITE		120	(3) 54W T5HO	COLUMBIA LHR4-354-M4RU-EPU	
B	2 BULB HIGH BAY	WHITE		120	(2) 54W T5HO	COLUMBIA LHR4-254-M4RU-EPU	
C	RECESSED 2'X4' TROFFER	WHITE		120	(2) 32W T8	LITHONIA 2SP8G-232-FWA12-MVOLT	
D	8' HIGH BAY	WHITE		120	(2) 96W T8	METALUX 8TSS-296A-120-EB81-GL-AYC	
EM	EMERGENCY EGRESS	WHITE		120	INCLUDED	LITHONIA ELM2	W/ BATTERY BACKUP
EX	EXIT COMBO SIGN	WHITE	RED	120	INCLUDED	LITHONIA LHQM	W/ BATTERY BACKUP
F	WALLPACK			120	INCLUDED	GE EVOLVE EWSWO-E4-N-40-A-1-N-BLCK	
G	EGRESS WALLPACK			120	INCLUDED	GE EVOLVE EWSWO-A4-N-40-A-1-N-BLCK	



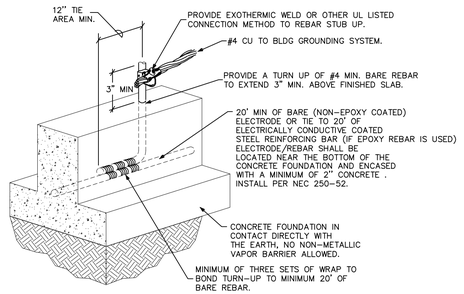
1 FLOOR PLAN - LIGHTING

SCALE: 1/8"=1'-0"

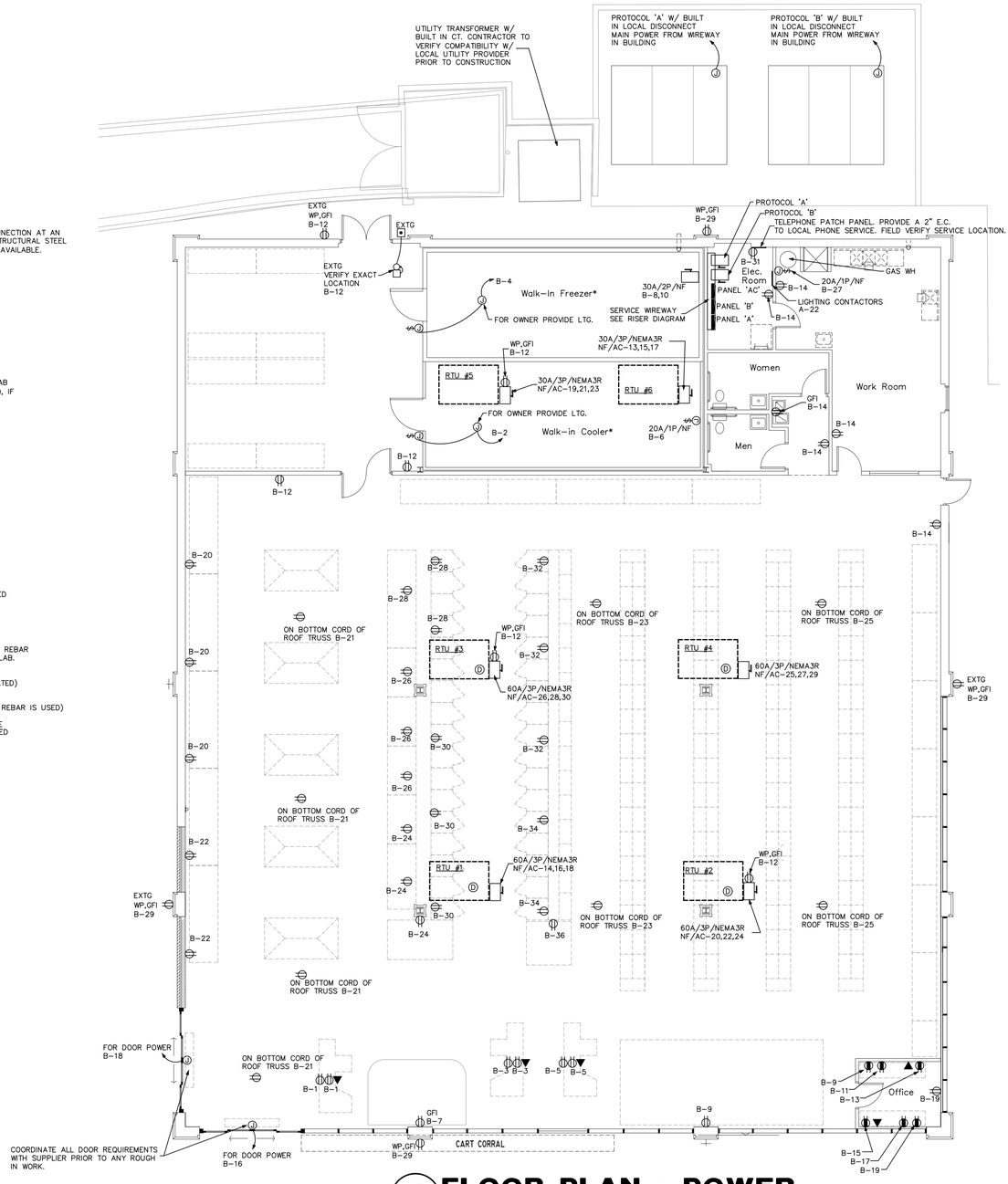
E1



2 GROUNDING DETAIL
NO SCALE



3 GROUNDING DETAIL
NO SCALE



1 FLOOR PLAN - POWER
SCALE: 1/8"=1'-0"

PANEL SCHEDULE AC

225 AMP, 120/208 VOLT, THREE PHASE, FOUR WIRE, 225A. M.C.B., 42000 AMPS MINIMUM A.I.C. BRACING, FLUSH MOUNTED, TYPE NEMA 1 ENCLOSURE

##	BKR.	WIRE AND CONDUIT COND.	NEUTRAL	GND	C.	KEYS	LOAD DESCRIPTION	NEUT.	LINE A	LINE B	LINE C	LOAD DESCRIPTION	WIRE AND CONDUIT KEYS	C.	GND	NEUTRAL	COND.	BKR.	##
1							SPACE	0	0	------	------								
								0	0	------	------	SPACE							2
3							SPACE	0	------	0	------								
								0	------	0	------	SPACE							4
5							SPACE	0	------	------	0								
								0	------	------	0	SPACE							6
7							SPACE	0	0	------	------								
								0	0	------	------	SPACE							8
9							SPACE	0	------	0	------								
								0	------	0	------	SPACE							10
11							SPACE	0	------	------	0								
								0	------	------	0	SPACE							12
13								0	2844	------	------								
								0	4152	------	------								
15	30/3	#10	---	#10	1/2	CHAL	RTU 6	0	------	2844	------								
								0	------	4152	------	RTU 1	CHAL	3/4	#10	---	#6	60/3	14
17								0	------	------	2844								
								0	------	------	4152								16
19								0	2844	------	------								
								0	4152	------	------								
21	30/3	#10	---	#10	1/2	CHAL	RTU 5	0	------	2844	------								
								0	------	4152	------	RTU 2	CHAL	3/4	#10	---	#6	60/3	18
23								0	------	------	2844								
								0	------	------	4152								20
25								0	4152	------	------								
								0	4152	------	------								
27	60/3	#6	---	#10	3/4	CHAL	RTU 4	0	------	4152	------								
								0	------	4152	------	RTU 3	CHAL	3/4	#10	---	#6	60/3	22
29								0	------	------	4152								
								0	------	------	4152								24
									22296	22296	22296								
									66,888										

WIRE/CONDUIT KEY 1234 — 1 TEMP RATING, 2 CONDUIT TYPE, 3 INSULATION, 4 WIRING TYPE

WIRING TYPE	INSULATION	CONDUIT TYPE	TEMP RATING
C-CU WIRE	H-THWN	A-EMT	L-78-86 Deg. F.

NON DIVERSIFIED LOAD AT 208 VOLT, THREE PHASE = 185.8 AMPS

PRINTED ON PANELS PROGRAM SERIAL NUMBER 2001.4001
REGISTERED TO - TODD W. CAREY AND ASSOCIATES OF THE CAROLINAS, PA

PANEL MDP DIVERSIFICATION CALCULATIONS

HVAC LOAD AT 100%	-	66888
PLUS 25% OF THE LARGEST MOTOR	-	2250
TOTAL DIVERSIFIED PANEL LOAD	-	69138
LOAD AT 120/208V/3-PHASE/4-WIRE	-	192.1A

AIC BRACING CALCULATIONS

225 KVA TRANSFORMER WITH 1.4% IMPEDANCE 120/208V/3ø

TRANSFORMER FLA = 225,000 / 360 = 625 A.
IMPEDANCE MULTIPLIER 100/1.4 = 71.428
AVAILABLE FAULT CURRENT = 416.6 X 71.428 = 44,642 A

FEEDER OF (3) SETS OF #300MCM CU IN A PVC CONDUIT W/ AN EXPECTED LENGTH OF 40 FEET.

$f = \frac{1.73 \times 40 \times 44{,}642}{72{,}342 \times 208} = 0.205303$

$M = \frac{1}{1 + 0.205303} = 0.8296$

AIC = 0.8296 X 44,642 = 37,035 AMPS

CONTRACTOR TO NOFIFY ENGINEER IF TRANSFORMER PROVIDED IS LARGER THAN 225 KVA, OR IF FEEDER LENGTH IS LESS THAN 40 FEET, SO AIC CAN BE REVIEWED.

PANEL SCHEDULE B

225 AMP, 120/208 VOLT, THREE PHASE, FOUR WIRE, 225A. M.C.B., 42000 AMPS MINIMUM A.I.C. BRACING, FLUSH MOUNTED, TYPE NEMA 1 ENCLOSURE

##	BKR.	WIRE AND CONDUIT COND.	NEUTRAL	GND	C.	KEYS	LOAD DESCRIPTION	NEUT.	LINE A	LINE B	LINE C	LOAD DESCRIPTION	WIRE AND CONDUIT KEYS	C.	GND	NEUTRAL	COND.	BKR.	##
1	20/1	#12	#12	#12	1/2	CHAL	POS SYSTEM	360	360	------	------								
								300	300	------	------	CODLER LIGHTS	CHAL	1/2	#12	#12	#12	20/1	2
3	20/1	#12	#12	#12	1/2	CHAL	POS SYSTEM	360	------	360	------								
								300	------	300	------	FREEZER LIGHTS	CHAL	1/2	#12	#12	#12	20/1	4
5	20/1	#12	#12	#12	1/2	CHAL	POS SYSTEM	360	------	------	360								
								1123	------	------	1123	CODLER FAN	CHAL	1/2	#12	#12	#12	20/1	6
7	20/1	#12	#12	#12	1/2	CHAL	WATER FEATURE	180	180	------	------								
								0	562	------	------								8
9	20/1	#12	#12	#12	1/2	CHAL	OFFICE RECEPTACLE	180	------	180	------	FREEZER FAN	CHAL	1/2	#12	---	#12	20/2	
								0	------	562	------								10
11	20/1	#12	#12	#12	1/2	CHAL	OFFICE RECEPTACLE	180	------	------	180								
								540	------	------	540	RECEPTACLES	CHAL	1/2	#12	#12	#12	20/1	12
13	20/1	#12	#12	#12	1/2	CHAL	OFFICE RECEPTACLE	180	180	------	------								
								1080	1080	------	------	RECEPTACLES	CHAL	1/2	#12	#12	#12	20/1	14
15	20/1	#12	#12	#12	1/2	CHAL	OFFICE RECEPTACLE	180	------	180	------								
								360	------	360	------	DOOR POWER	CHAL	1/2	#12	#12	#12	20/1	16
17	20/1	#12	#12	#12	1/2	CHAL	OFFICE RECEPTACLE	180	------	------	180								
								360	------	------	360	DOOR POWER	CHAL	1/2	#12	#12	#12	20/1	18
19	20/1	#12	#12	#12	1/2	CHAL	OFFICE RECEPTACLE	180	180	------	------								
								540	540	------	------	CASE RECEPTACLE	CHAL	1/2	#12	#12	#12	20/1	20
21	20/1	#12	#12	#12	1/2	CHAL	OVERHEAD RECEPTACLES	900	------	900	------								
								540	------	540	------	CASE RECEPTACLE	CHAL	1/2	#12	#12	#12	20/1	22
23	20/1	#12	#12	#12	1/2	CHAL	OVERHEAD RECEPTACLES	900	------	------	900								
								540	540	------	------	CASE RECEPTACLE	CHAL	1/2	#12	#12	#12	20/1	24
25	20/1	#12	#12	#12	1/2	CHAL	OVERHEAD RECEPTACLES	900	900	------	------								
								540	540	------	------	CASE RECEPTACLE	CHAL	1/2	#12	#12	#12	20/1	26
27	20/1	#12	#12	#12	1/2	CHAL	GAS WATER HEATER FAN	180	------	180	------								
								540	------	540	------	CASE RECEPTACLE	CHAL	1/2	#12	#12	#12	20/1	28
29							SPACE	0	------	------	0								
								540	------	------	540	CASE RECEPTACLE	CHAL	1/2	#12	#12	#12	20/1	30
31							SPACE	0	0	------	------								
								540	540	------	------	CASE RECEPTACLE	CHAL	1/2	#12	#12	#12	20/1	32
33							SPACE	0	------	0	------								
								540	------	540	------	CASE RECEPTACLE	CHAL	1/2	#12	#12	#12	20/1	34
35							SPACE	0	------	------	0								
								360	------	------	360	DEMO COUNTER POWER	CHAL	1/2	#12	#12	#12	20/1	36
37							SPACE	0	0	------	------								
								0	0	------	------	SPACE							38
39							SPACE	0	------	0	------								
								0	------	0	------	SPACE							40
41							SPACE	0	------	------	0								
								0	------	------	0	SPACE							42

WIRE/CONDUIT KEY 1234 — 1 TEMP RATING, 2 CONDUIT TYPE, 3 INSULATION, 4 WIRING TYPE

WIRING TYPE	INSULATION	CONDUIT TYPE	TEMP RATING
C-CU WIRE	H-THWN	A-EMT	L-78-86 Deg. F.

5362	4642	5083
15,087		

PEAK PHASE (C) UNBALANCED NEUTRAL LOAD AMPS = 42.4 AMPS
NON DIVERSIFIED LOAD AT 208 VOLT, THREE PHASE = 41.9 AMPS

PRINTED ON PANELS PROGRAM SERIAL NUMBER 2001.4001
REGISTERED TO - TODD W. CAREY AND ASSOCIATES OF THE CAROLINAS, PA

PANEL B DIVERSIFICATION CALCULATIONS

RECEPTACLES (61) - 10980 VA TOTAL		
FIRST 10 KVA AT 100%	-	10000
REMAINDER AT 50%	-	490
LIGHTING - 600 X 125%	-	750
MOTOR LOADS AT 100%	-	2246
PLUS 25% OF THE LARGEST MOTOR	-	281
MISC NON-CONTINUOUS LOADS AT 100%	-	1260
TOTAL DIVERSIFIED PANEL LOAD	-	15027
LOAD AT 120/208V/3-PHASE/4-WIRE	-	41.7A

PANEL SCHEDULE A

225 AMP, 120/208 VOLT, THREE PHASE, FOUR WIRE, 225A. M.C.B., 42000 AMPS MINIMUM A.I.C. BRACING, FLUSH MOUNTED, TYPE NEMA 1 ENCLOSURE

##	BKR.	WIRE AND CONDUIT COND.	NEUTRAL	GND	C.	KEYS	LOAD DESCRIPTION	NEUT.	LINE A	LINE B	LINE C	LOAD DESCRIPTION	WIRE AND CONDUIT KEYS	C.	GND	NEUTRAL	COND.	BKR.	##
1	20/1	#12	#12	#12	1/2	CHAL	LIGHTING ×××	1242	1242	------	------								
								1300	1300	------	------	LIGHTING ×××	CHAL	1/2	#12	#12	#12	20/1	2
3	20/1	#12	#12	#12	1/2	CHAL	LIGHTING ×××	1242	------	1242	------								
								1300	------	1300	------	LIGHTING ×××	CHAL	1/2	#12	#12	#12	20/1	4
5	20/1	#12	#12	#12	1/2	CHAL	LIGHTING ×××	1242	------	------	1242								
								1500	------	------	1500	LIGHTING ×××	CHAL	1/2	#12	#12	#12	20/1	6
7	20/1	#12	#12	#12	1/2	CHAL	LIGHTING ×××	1242	1242	------	------								
								1500	1500	------	------	LIGHTING ×××	CHAL	1/2	#12	#12	#12	20/1	8
9	20/1	#12	#12	#12	1/2	CHAL	LIGHTING ×××	1242	------	1242	------								
								180	------	180	------	OFFICE LIGHTING	CHAL	1/2	#12	#12	#12	20/1	10
11	20/1	#12	#12	#12	1/2	CHAL	LIGHTING ×××	1242	------	------	1242								
								1000	------	------	1000	BACK LIGHTING	CHAL	1/2	#12	#12	#12	20/1	12
13	20/1	#12	#12	#12	1/2	CHAL	LIGHTING ×××	1242	1242	------	------								
								300	300	------	------	LIGHTING	CHAL	1/2	#12	#12	#12	20/1	14
15	20/1	#12	#12	#12	1/2	CHAL	LIGHTING ×××	1242	------	1242	------								
								1200	------	1200	------	OUTSIDE LIGHTS ×	CHAL	1/2	#12	#12	#12	20/1	16
17	20/1	#12	#12	#12	1/2	CHAL	LIGHTING ×××	1242	------	------	1242								
								1500	------	------	1500	TENANT SIGNAGE ××	CHAL	1/2	#12	#12	#12	20/1	18
19	20/1	#12	#12	#12	1/2	CHAL	LIGHTING ×××	1242	1242	------	------								
								1500	1500	------	------	TENANT SIGNAGE ××	CHAL	1/2	#12	#12	#12	20/1	20
21	20/1	#12	#12	#12	1/2	CHAL	LIGHTING ×××	1242	------	1242	------								
								100	------	100	------	STORE LIGHTING CONTACTORS	CHAL	1/2	#12	#12	#12	20/1	22
23	20/1	#12	#12	#12	1/2	CHAL	LIGHTING ×××	1242	------	------	1242								
								0	------	------	1200								24
25	20/1	#12	#12	#12	1/2	CHAL	LIGHTING ×××	1242	1242	------	------								
								0	1200	------	------	EXIST PARKING LOT LTG ×	CHAL	1/2	#10	---	#10	20/2	26
27	20/1	#12	#12	#12	1/2	CHAL	LIGHTING ×××	1242	------	1242	------								
								1500	------	1500	------	TENANT SIGNAGE ××	CHAL	1/2	#12	#12	#12	20/1	28
29	20/1	#12	#12	#12	1/2	CHAL	LIGHTING ×××	1242	------	------	1242								
								0	------	------	0	SPACE							30
31	20/1	#12	#12	#12	1/2	CHAL	LIGHTING ×××	1242	1242	------	------								
								0	0	------	------	SPACE							32
33	20/1	#12	#12	#12	1/2	CHAL	LIGHTING ×××	1242	------	1242	------								
								0	------	0	------	SPACE							34
35	20/1	#12	#12	#12	1/2	CHAL	LIGHTING ×××	1242	------	------	1242								
								0	------	------	0	SPACE							36
37	20/1	#12	#12	#12	1/2	CHAL	LIGHTING ×××	1242	1242	------	------								
								0	0	------	------	SPACE							38
39	20/1	#12	#12	#12	1/2	CHAL	LIGHTING ×××	1242	------	1242	------								
								0	------	0	------	SPACE							40
41	20/1	#12	#12	#12	1/2	CHAL	LIGHTING ×××	1242	------	------	1242								
								0	------	------	0	SPACE							42

WIRE/CONDUIT KEY 1234 — 1 TEMP RATING, 2 CONDUIT TYPE, 3 INSULATION, 4 WIRING TYPE

WIRING TYPE	INSULATION	CONDUIT TYPE	TEMP RATING
C-CU WIRE	H-THWN	A-EMT	L-78-86 Deg. F.

14494	12974	13894
41,362		

PEAK PHASE (A) UNBALANCED NEUTRAL LOAD AMPS = 110.8 AMPS
NON DIVERSIFIED LOAD AT 208 VOLT, THREE PHASE = 114.9 AMPS

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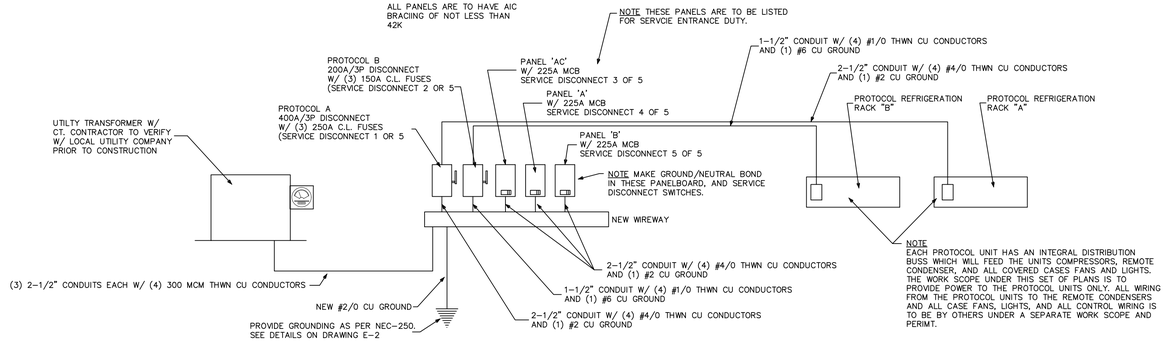
PANEL NOTES:
× - CIRCUIT TO BE CONTROLLED VIA PHOTOCELL
×× - CIRCUIT TO BE CONTROLLED VIA TIMECLOCK
××× - WIRE THRU CONTACTOR FOR CONTROL

PANEL A DIVERSIFICATION CALCULATIONS

LIGHTING - 36862 X 125%	-	46078
MISC CONTINUOUS LOADS AT 125% 4500 X 1.25	-	5625
TOTAL DIVERSIFIED PANEL LOAD	-	51703
LOAD AT 120/208V/3-PHASE/4-WIRE	-	143.6A



1 SERVICE RISER DIAGRAM

NO SCALE