RENOVATIONS & ADDITIONS TO
S & S FOOD STORE NO. 38
U.S. 441 & I-75
ELLISVILLE, FLORIDA

ABBREVIATIONS (ARCHITECTUIAL)

A.B.	Anchor Bolt	F.V.	Field Verify	PARTN(S)	Partn(s)
A/C	Air Conditioned	F&P	Formed and Poured	PL.	Plate
ALUM.	Aluminum	F.D.	Floor Drain	PLAS,PL.	Plas'
A.T.	Acoustical Tile	F.E.	Fire Extinguisher	PLUMB'G.	Plumig
		FIN.	Finish	PLYWD.	Plywd
BM.	Beam	FLR., FL.	Floor	PORT.	Portle
BLD'G.	Building	F.S.	Floor Sink	P.T.D.	PapirTowel Dispenser
BRG.	Bearing	FND.	Foundation		
BOTT.	Bottom	FT'G.	Footing	Q.T.	Quar Tile
B.U.R.	Built Up Roof				
		GA.	Gauge	(R)	Related Item
CONC.	Concrete	G.B.	Grab Bar	R.D.	Roofrain
CAB.	Cabinet	G.I.	Galvanized Iron	RECEP.	Receacle
CEM.	Cement	GL.	Glass	REF.	Refrinator
C.I.	Cast Iron	GR.	Grade	REG.	Regl
C.G.	Corner Guard	GVL.	Gravel	REINF.	Reinforcing, Reinforced
C.J.	Control Joint	GYP.	Gypsum	REQ'D.	Reqod
C.L.	Chain Link			RM.	Room
CL'G.	Ceiling	H/C, H.C.	Handicap	R.O.	RoughOpening
CLO.	Closet	H.M.	Hollow Metal		
CLR.	Clearance	HW.	Hardware	SCHED.	Scheie
C.M.U.	Concrete Masonry Unit	H.B.	Hose Bibb.	S.D.	Soapispenser
COL.	Column	HORIZ.	Horizontal	SH.	Shelg, Shelf
CONT.	Continuous			SIM.	Simile
CONST.	Construction	I.D.	Inside Diameter	S.M.	Sheetetal
COORD.	Coordinate	INSUL.	Insulation	S.N.R.	Sanity Napkin Receptacle
CPT.	Carpet	INT.	Interior	SPEC(S)	Specialion(s)
CSK.	Countersunk			S & R	Shelf Rod
C.T.	Ceramic Tile	JT.	Joint	STRUCT.	Strucal
CTR.	Counter			S.S	Stang Seam
		K.P.	Kick Plate	STL.	Steel
D.F.	Drinking Fountain			S.W.	ScrewWall
DESIG.	Designate	LAV.	Lavatory		
DIA.	Diameter	L.W.	Lightweight	T.B.	Tackiard
DIAG.	Diagonal			TEL.	Telepne
DIM.	Dimension	MAS.	Masonry	TEMP.	Tempod
DISP.	Dispenser	MATL.	Material	THK'D.	Thicked
D.S.	Downspout	MAX.	Maximum	TOILT.	
DWGS.	Drawings	M.B.	Marker board	TLT.	Toilet
		MECH.	Mechanical	T.P.H.	Toiletaper Holder
EA.	Each	MET., MTL.	Metal	TYP.	Typlcl
E.B.	Expansion Bolts	MFR.	Manufacturer		
ELEC.	Electrical	MIN.	Minimum	VERT.	Vertk
ELEV., EL.	Elevation	MISC.	Miscellaneous	VEST.	Vestile
E.J.	Expansion Joint	M.O.	Masonry Opening	V.T.	Vinyl 'a
EPY.	Epoxy Coating	MOD.	Modified	V.T.R.	Vent rough Roof
EQUIP.	Equipment	M.T.	Metal Threshold	V.P.B.	Venee/Plaster Board
(E), EX., EXIST'G.	Existing	MTD.	Mounted		
EXT.	Exterior			W.C.	Waterloset
E.W.C.	Electric Water Cooler	(N)	New	W.C.O.	Wall Canout
EXP.	Exposed, Expansion	N.I.C.	Not In Contract	W/C	Wheelhir
		NOM.	Nominal	WD.	Wood
				WIN.	WindoDimension
		O.C.	On Center	W.P.	Waterroof(ing)
		O.D.	Outside Diameter	W.R.	Wasteaceptacle
		OPNG.	Opening	W.W.M.	Weldedwire Mesh
		OPP.	Opposite		

SYMBOLS LEGEND

1 / A-1 — SECTION NUMBER / SHEET NUMBER	SECTION MARK	101	ROOM NUMBER
A / A-1 — DETAIL NUMBER / SHEET NUMBER	DETAIL MARK	EQ	EQUIPMENT MARK
1 / A-1 — ELEVATION NUMBER / SHEET NUMBER	INTERIOR ELEVATION MARK	⊗	FIRE EXTINGUISHER MARK
		TV	TV BRACKET MARK
101 / A — ROOM NUMBER / DOOR IDENTIFICATION	DOOR MARK	⌖	TARGET SPOT ELEVATION

NOTE - See letter (Dave Boozer - F.D.) Regarding Further Details of Kitchen Hood(s) Requirements. Do NOT Progress Construction Past Any Point That Would Compromise Same. WR - CE. BLDG. Dept 10/9/09

SHEET INDEX

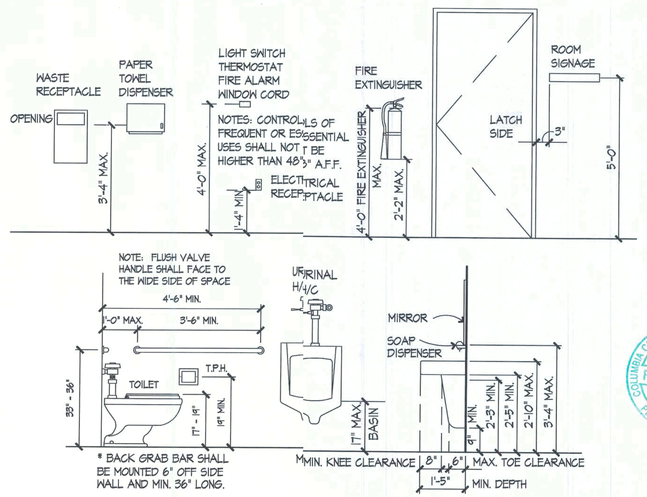
STRUCTURAL DESIGN CRITERIA

FLORIDA BUILDING CODE 2007 AND 7-05

1. BASIC WIND SPEED = 110 MPH
2. WIND IMPORTANCE FACTOR = 1.0
3. WIND EXPOSURE CATEGORY = B
4. APPLICABLE INTERNAL PRESSURE COEFFICIENT = 0.18±
5. DESIGNED WIND PRESSURE = 38 PSF
6. COMPONENTS AND CLADDING = TABLE 1609.6A, 1609.6B AND 1609.6C - ASCE 7
7. AMERICAN CONC. INST. = ACI 318-05
8. CONCRETE MASONRY = LATEST ACI
9. ROOF LIVE LOAD = 30 PSF
10. REINF. CONC. = 3,000 PSI
11. ASSUMED ALLOW. SOILS PRESSURE = 2,000 PSF
12. ASSUMED D.L. ON ROOF = 12 PSF (6 PSF MIN.)

COMPONENT AND CLADDING (P.S.F)				
SIZE (S.F.)	END ZONE (5)		INTERIOR ZON (4)	
	POS. +	NEG. -	POS. +	NEG. -
0-20	20.8	27.2	20.8	25
20-50	19.5	24.6	19.5	23
50-100	18.5	22.6	18.5	204
DIMENSION OF ZONE 5 IN FEET FRONT AND BACK, SIDES				

STANDARD MOUNTING PER A.D.A. REQUIREMENTS



File Copy

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ARCHITECTS • PLANNERS • INTERIOR DESIGNERS
3911 NEWBERRY ROAD • GAINESVILLE, FLORIDA • LIC. NO. AA0002479 • 352-372-8424

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US 441 & I-75
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Craig Salley 10/1/09

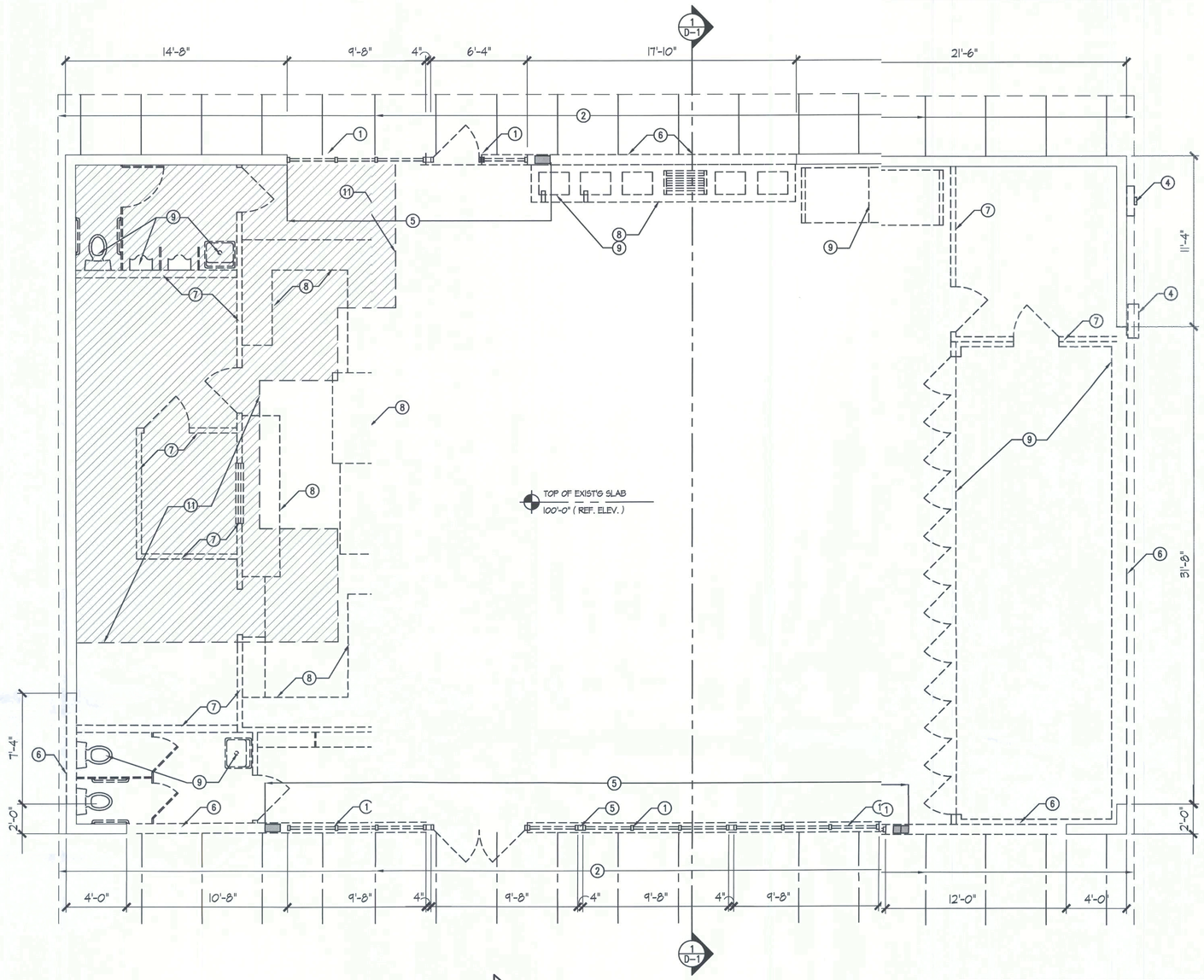
CRAIG SALLEY, R.A.
FL. REG. NO. 4475
DATE 9/21/09
DRAWN JM, MV
APPROVED

0920

G-1

SHEETS 39

CONSTRUCTION DOCUMENTS

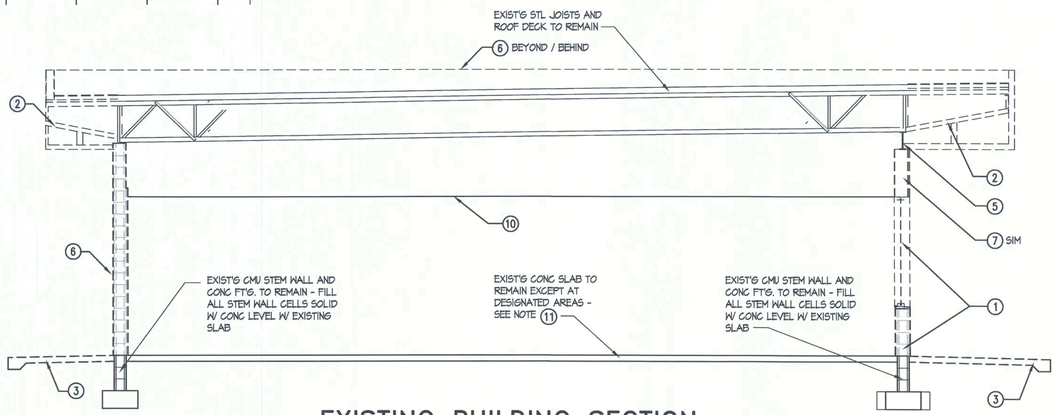


DEMOLITION PLAN
1/4" = 1'-0"

DEMOLITION NOTES:

SEE SHEET AS-1 FOR ADDITIONAL / SUPPLEMENTAL INFORMATION.

1. REMOVE EXISTING STOREFRONT AND SUPPORTING STUCCO COVERED C.M.U. STEM WALL. FILL EXPOSED CMU CELLS SOLID WITH CONCRETE, LEVEL WITH EXISTING SLAB.
2. REMOVE EXISTING LIGHT FIXTURES, ALUMINUM SOFFIT, SUPPORTING STEEL CANTILEVER AND ROOFING. SEE SECTION THIS SHEET.
3. REMOVE EXISTING SIDEWALK. SEE CIVIL SHEETS FOR EXTENT.
4. DISCONNECT, CAP AND REMOVE EXISTING METERS AND CONDUIT.
5. SHORE EXISTING STEEL JOISTS. REMOVE EXISTING STEEL BEAM AND DESIGNATED STEEL COLUMNS.
6. REMOVE EXISTING CMU AFTER SHORING JOISTS.
7. REMOVE EXISTING PARTITIONS AFTER DISCONNECTING, REMOVING AND CAPPING EXISTING UTILITIES.
8. REMOVE EXISTING MILLWORK AND ASSOCIATED UTILITIES.
9. REMOVE EXISTING EQUIPMENT AND FIXTURES AND TURNOVER TO OWNER. CAP / REMOVE ASSOCIATED UTILITIES.
10. REMOVE ALL EXISTING ACT, GRID, LIGHT FIXTURES, REGISTERS, DIFFUSERS AND DUCTWORK.
11. SAW-CUT AND REMOVE EXISTING CONCRETE SLAB. SEE SHEET A-1 FOR EXTENT.



EXISTING BUILDING SECTION 1/D-1
1/4" = 1'-0"

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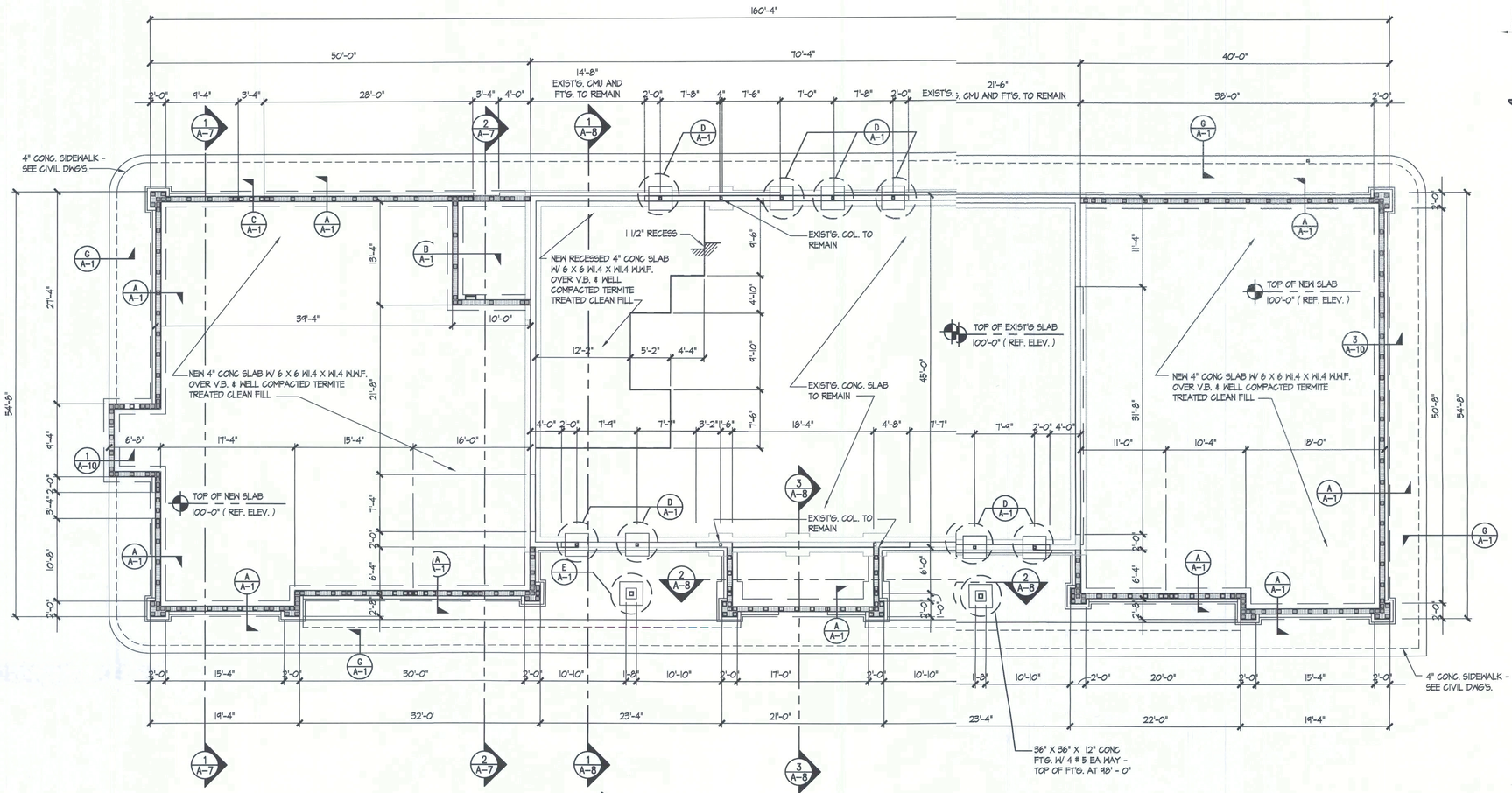
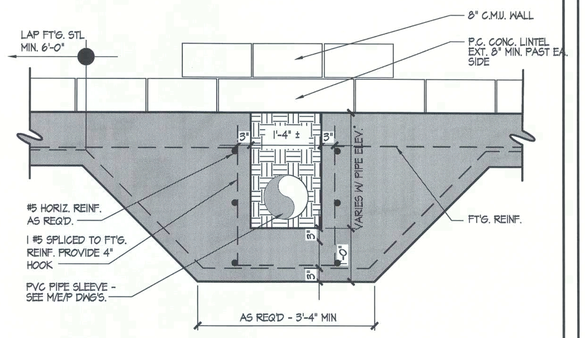
D-1

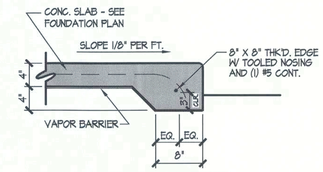
OF 39 SHEETS



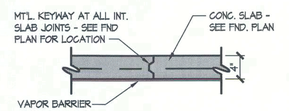
FOUNDATION PLAN
1/8" = 1'-0"



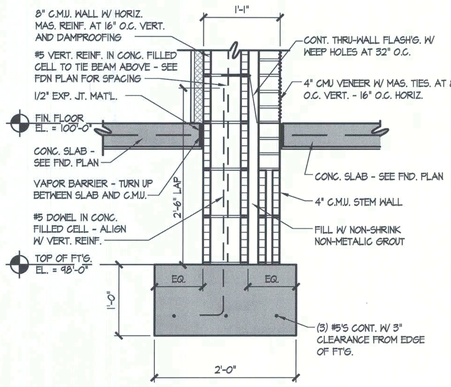
FOOTING DETAIL
3/4" = 1'-0"



FOOTING DETAIL
1" = 1'-0"
NOTE: SEE CIVIL DRAWINGS FOR LOCATION AND EXTENT.



CONSTRUCTION JOINT
1" = 1'-0"



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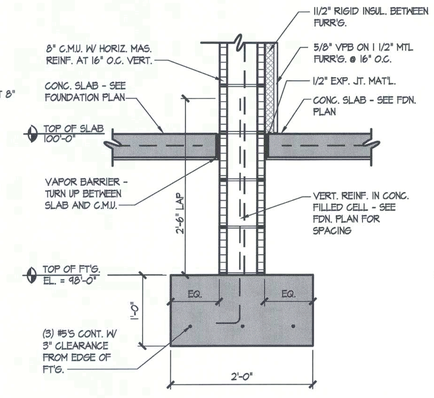

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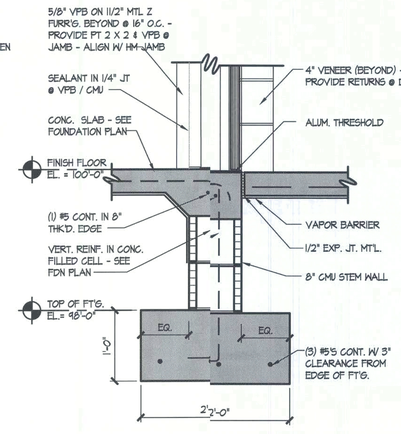
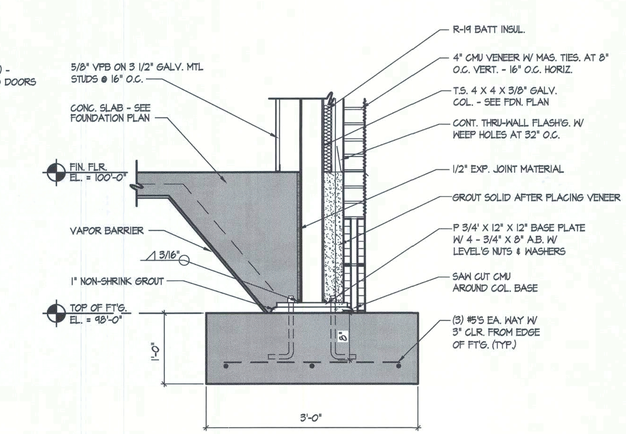


FOOTING DETAIL
1" = 1'-0"



FOOTING DETAIL
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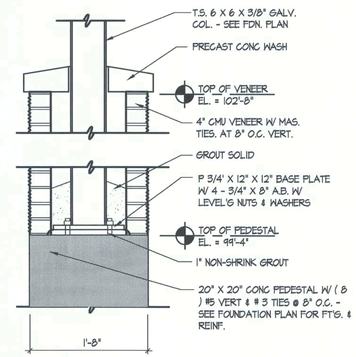

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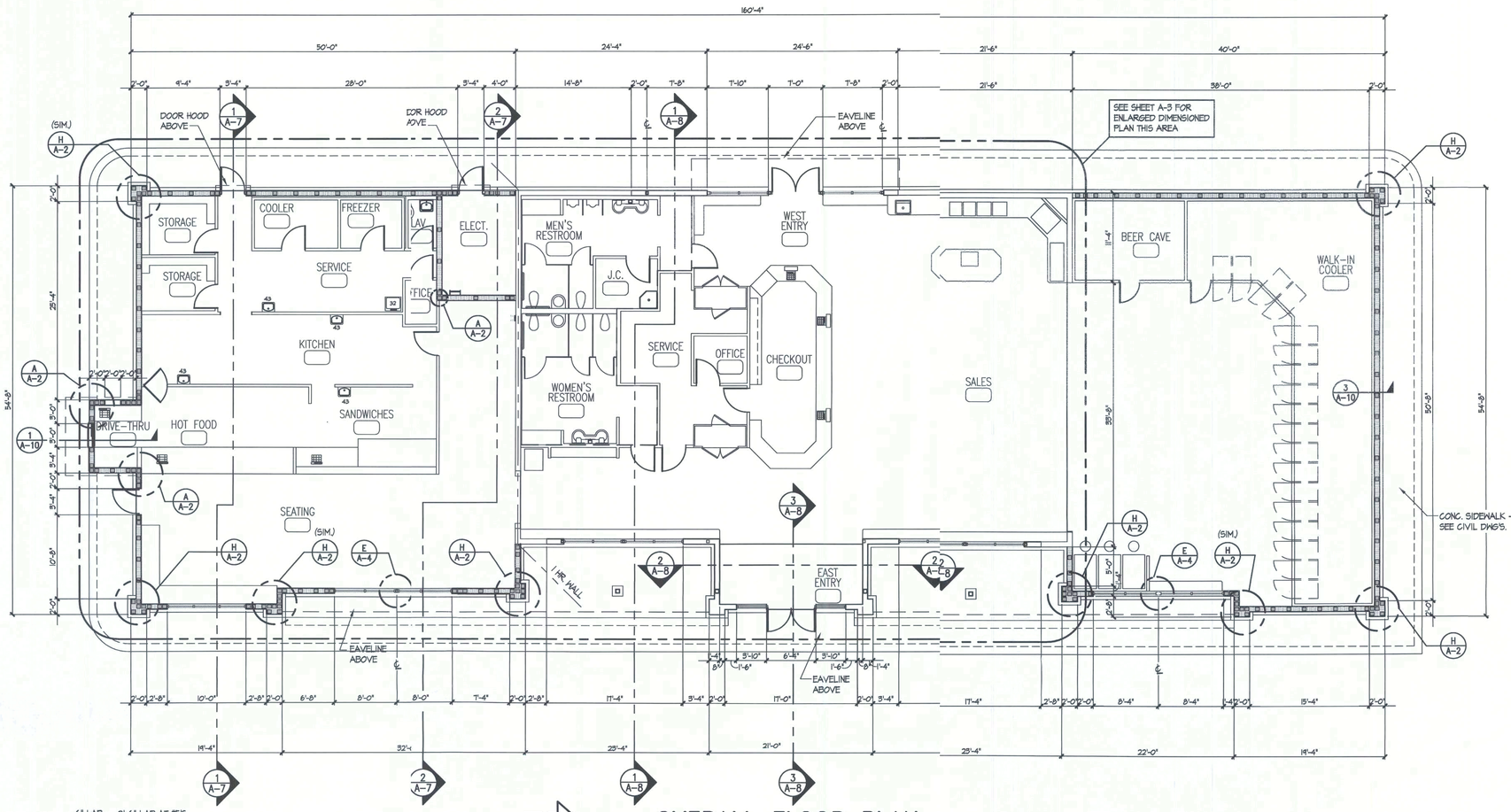
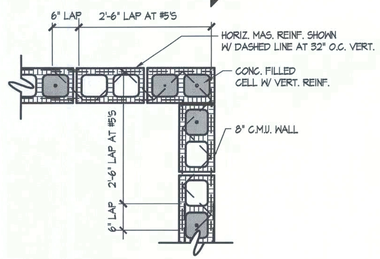
A-1

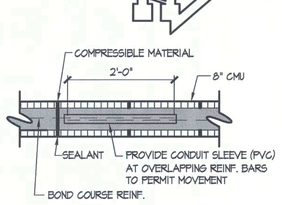
OF 39 SHEETS



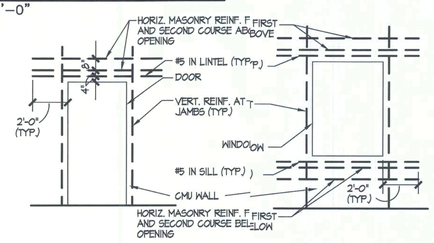
OVERALL FLOOR PLAN
1/8" = 1'-0"



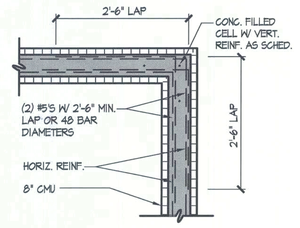
REINFORCING DETAIL AT CORNER
3/4" = 1'-0" — A A-2



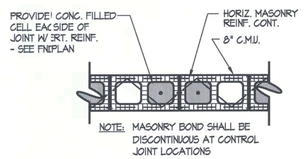
BOND BM. CONTROL JOINT DETAIL
3/4" = 1'-0" — C A-2



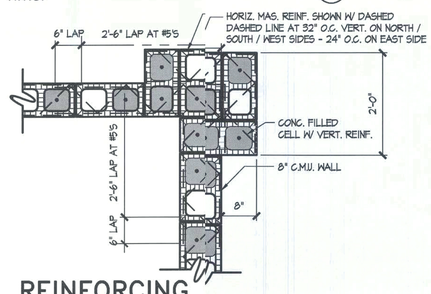
MAS. OPN'G. REINF.
N.T.S. — E A-2



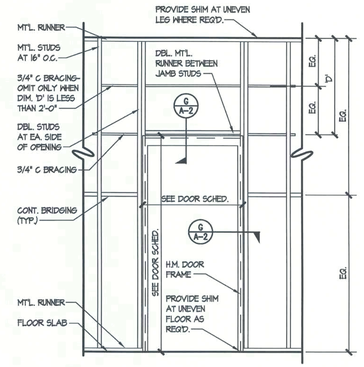
BOND BM. DETAIL AT CORNER
3/4" = 1'-0" — B A-2



MASONRY CONTROL JOINT DETAIL
3/4" = 1'-0" — D A-2



REINFORCING DETAIL AT CORNER
3/4" = 1'-0" — H A-2



NOTES:

1. ALL STEEL STUDS AT FRAMES SHALL BE ANCHORED TOP AND BOTTOM.
2. ADD THIRD STUD AT EA. SIDE OF DOOR FRAME FOR DOORS THAT EXCEED 80 LBS. AND/OR OPENINGS MORE THAN 3'-6" WIDE.
3. RUNNER TRACK AT DOOR HEAD SHALL BE CUT, BENT AND FASTENED TO JAMB STUDS.

DOOR FRAMING DETAIL
N.T.S. — F A-2

DOOR HEAD/ JAMB DETAIL
1 1/2" = 1'-0" — G A-2

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DRAWN	TF, MV
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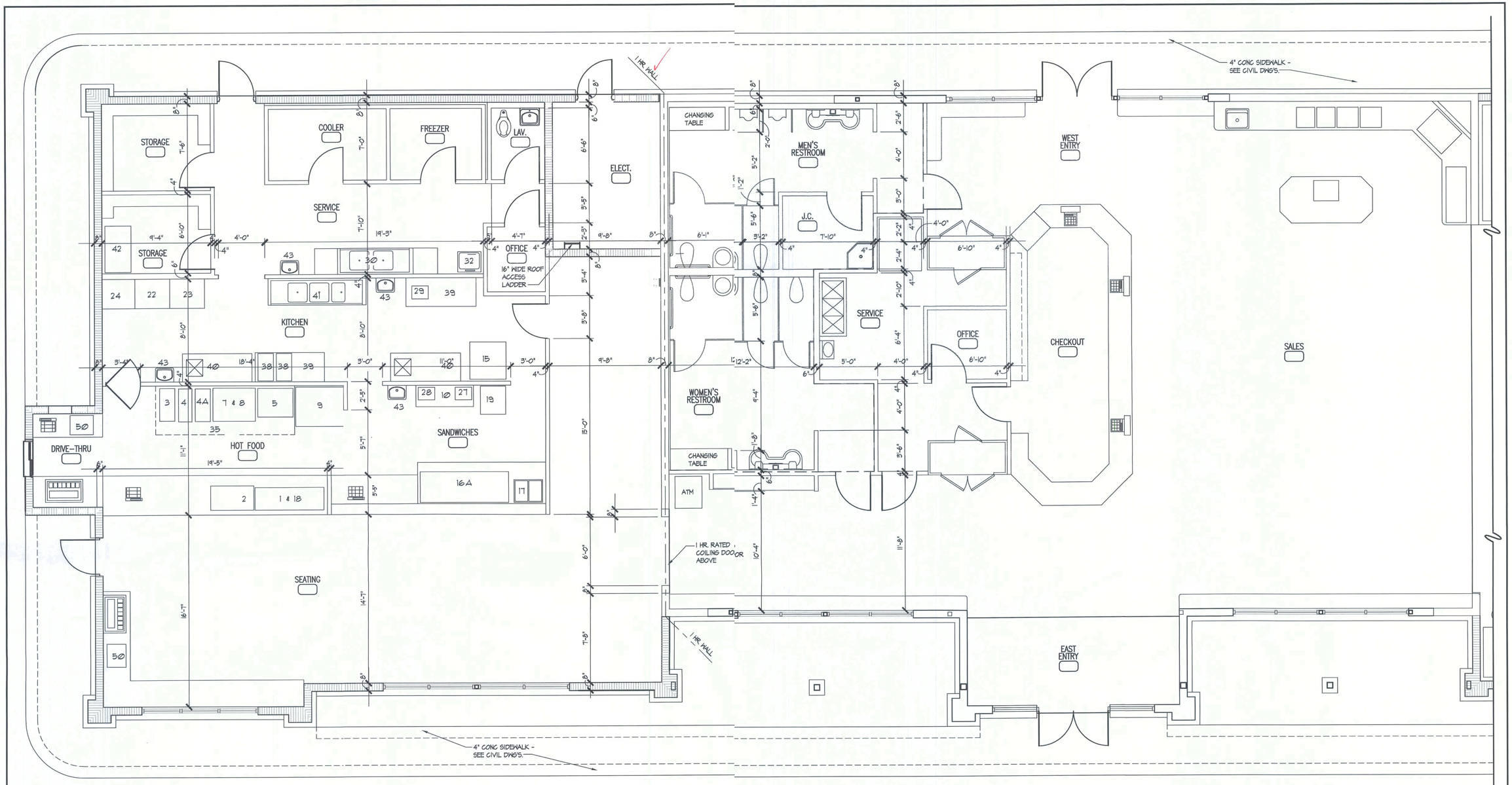
	0920
	A-2
OF SHEETS	39



KITCHEN / BATHROOM PLAN

1/4" = 1'-0"

EQUIP. SCHEDULE

1	DROP-IN HOT WELL
2	COLD FOOD DROP-IN, 3 PAN
3	ELEC. CHICKEN FRYER
4A	FRIED DRAIN CABINET
5	ELEC. GRILL
7	ELEC. COMBI OVEN
8	FOOD HOLDING CABINET
9	REFRIGERATED SANDWICH PREP
10	UNDER COUNTER FREEZER
15	OVEN/PROOFER COMBO
16A	REFRIGERATED PIZZA PREP TABLE
17	DROP-IN HOTWELL
18	WARMING DRAWERS
19	PROOFER CABINET
22	DISHWASHER
23	DISHTABLE - CLEAN
24	DISHTABLE- SOILED
27	TURBO OVEN
28	STEAMER
29	FOOD SLICER
30	2-COMPARTMENT PREP SINK
32	MOP SINK
35	HOOD SYSTEM
36	WALK-IN COOLER
37	WALK-IN FREEZER
38	FREE STANDING COOKTOPS
39	6 FT. S.S. WORK TABLE
40	6 FT. S.S. WORK TABLE W/SINK
41	3-COMPARTMENT SINK
42	ICE MACHINE
43	HAND SINK
44	SLIDING GLASS DR. MERCHANDISER
45	ICE MERCHANDISER
46	ICE CUBE MACHINE
47	ICE CREAM CASE
48	COFFEE BREWER
49	CAPPUCCINO MAKER
50	BEVERAGE DISPENSER

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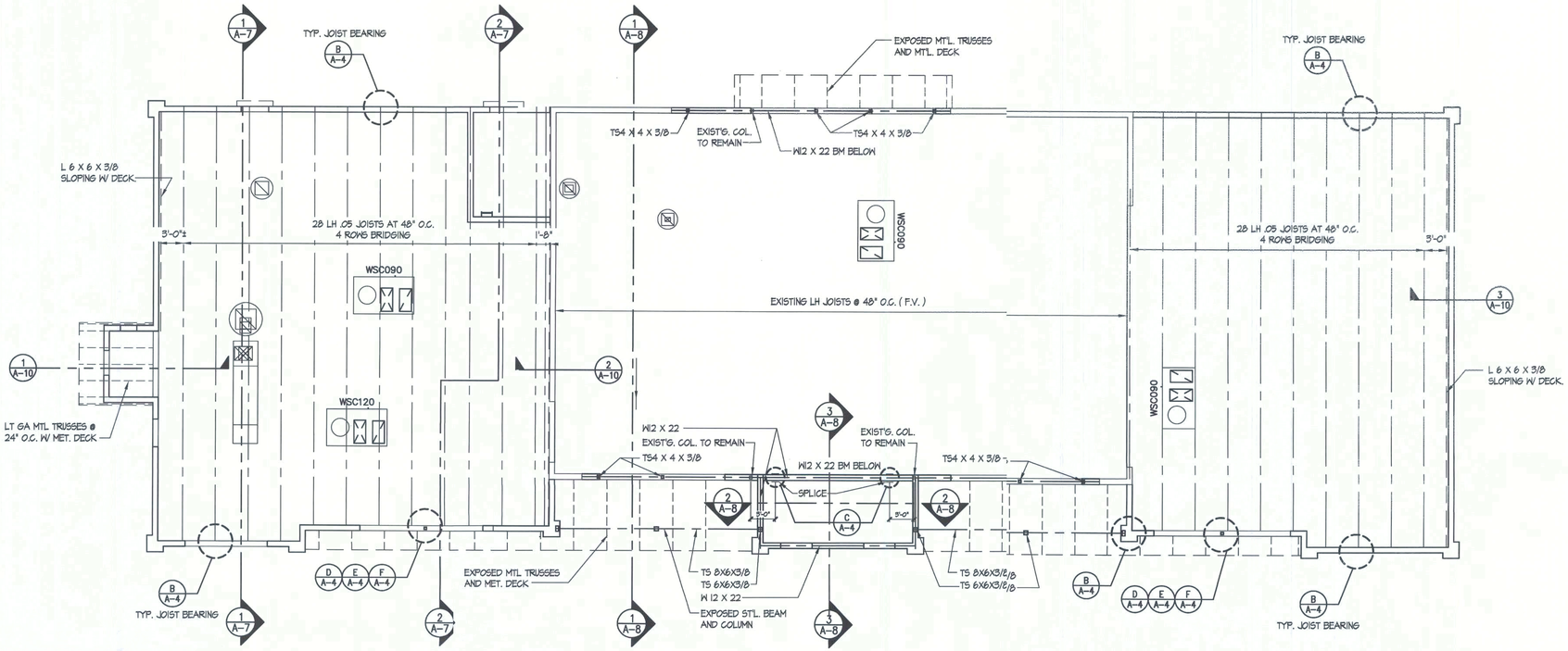
A-3

OF 39 SHEETS

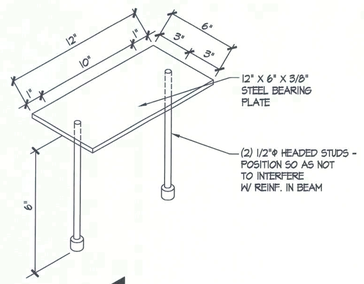


ROOF FRAMING PLAN
1/8" = 1'-0"

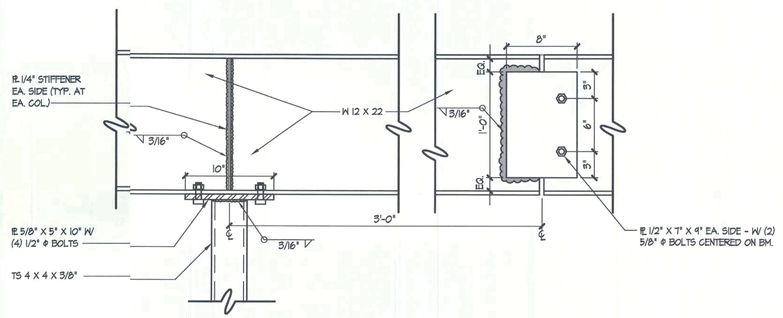
NOTE:

PROVIDE 4 G.I. STITCH SCREWS AT SIDELAP CONNECTIOS BETWEEN BEARING POINTS. PERIMETER EDGES OF DECK SHALL BE SCREWED AT A MAXIMUM SPACING OF 9" O.C. WELDING OF DECK TO BEARING IS NOT AN OPTION.

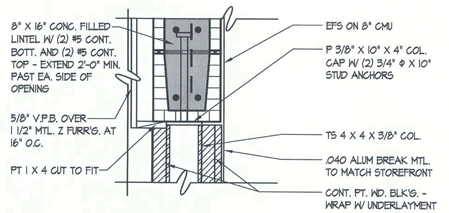
MT'L. DECK ATTACHMENT
1 1/2" = 1'-0" — A A-4



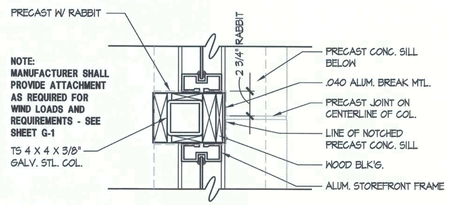
BEARING PLATE DETAIL
1 1/2" = 1'-0" — B A-4



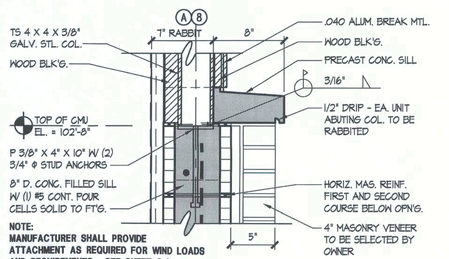
BEAM SPLICE DETAIL
1 1/2" = 1'-0" — C A-4



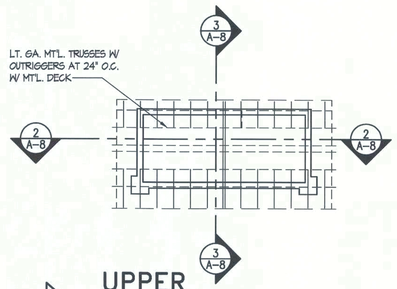
STOREFRONT HEAD DETAIL AT COLUMN
1 1/2" = 1'-0" — D A-4



STOREFRONT JAMB DETAIL
1 1/2" = 1'-0" — E A-4



STOREFRONT SILL DETAIL AT COLUMN
1 1/2" = 1'-0" — F A-4



UPPER ROOF FRAMING PLAN
1/8" = 1'-0"

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RENOVATIONS & ADDITIONS TO S & S FOOD STORE NO. 38
US 441 & I-75
ELLISVILLE, FLORIDA

Craig Salley 10/1/09

CRAIG SALLEY, R.A.
FL. REG. NO. 4475

DATE	9/21/09
DRAWN	TF, MV
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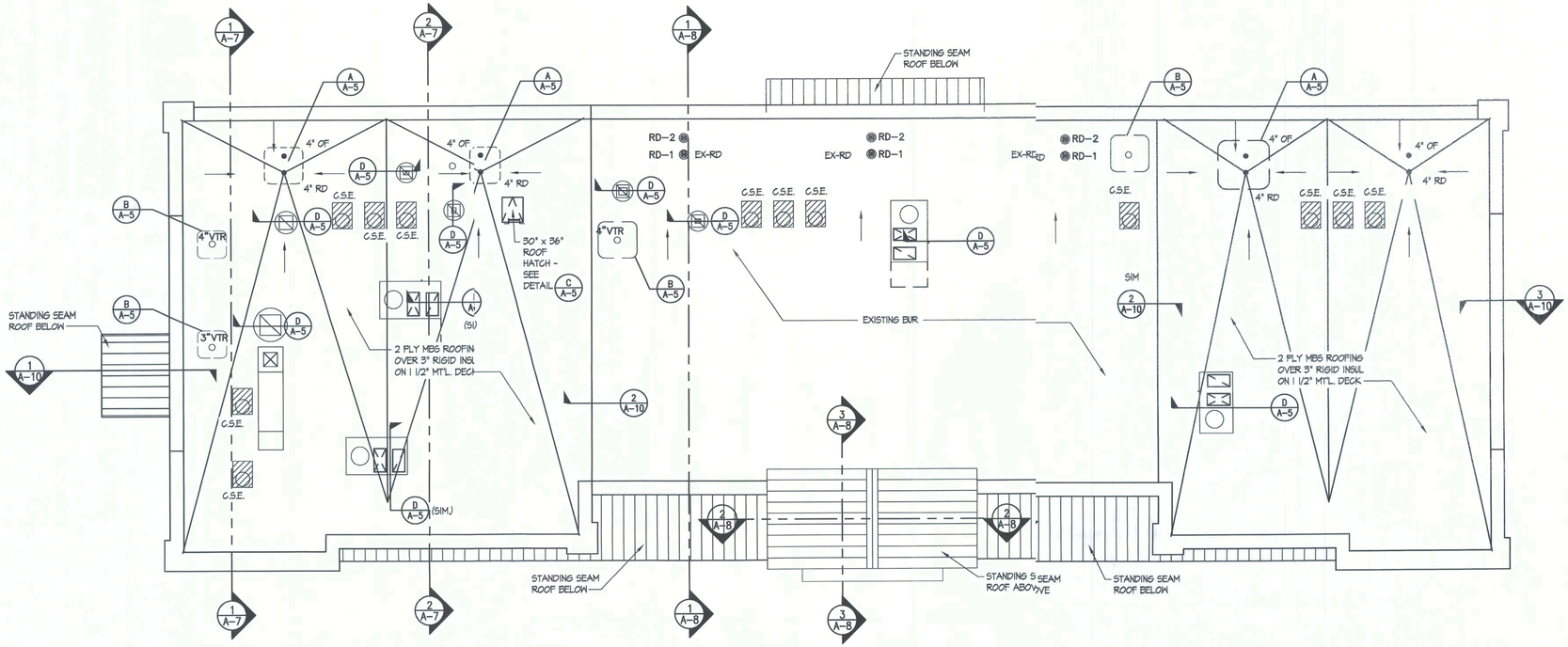
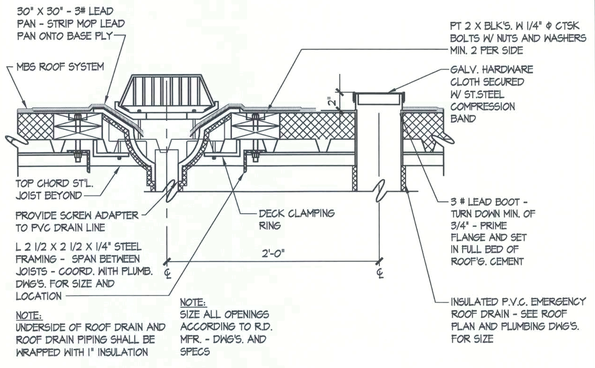
CONSTRUCTION DOCUMENTS

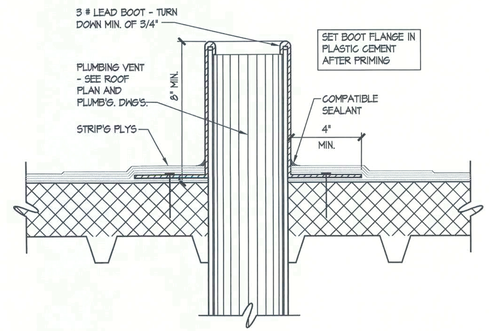


ROOF PLAN
1/8" = 1'-0"

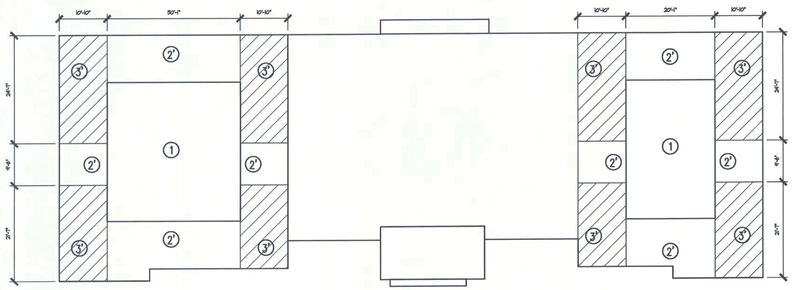
NOTE: C.S.E. - CONTRACTOR SUPPLIED EQUIPMENT, SUPPORT FRAMING AND FLASHING



ROOF DRAIN DETAIL
1 1/2" = 1'-0"

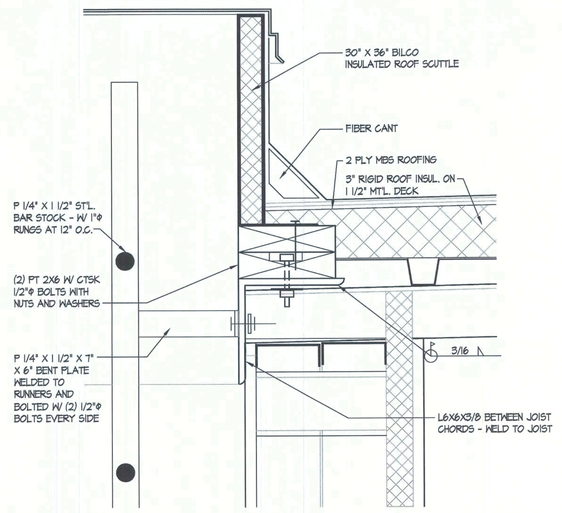


V.T.R. DETAIL
3" = 1'-0"

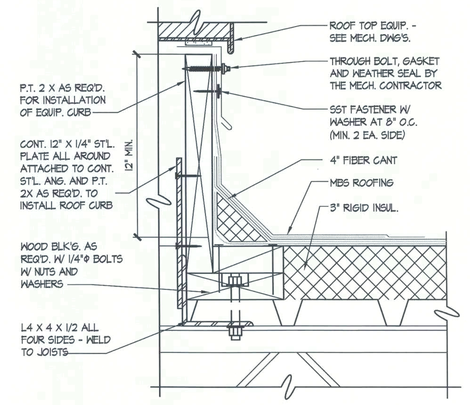


NET UPLIFT
(1) - 34 PSF
(2') - 47 PSF
(3') - 50 PSF

WIND UPLFT DIAGRAM
1/16" = 1'-0"



ROOF SCUTTLE DETAIL
3" = 1'-0"



ROOF EQUIP. CURB DETAIL
3" = 1'-0"

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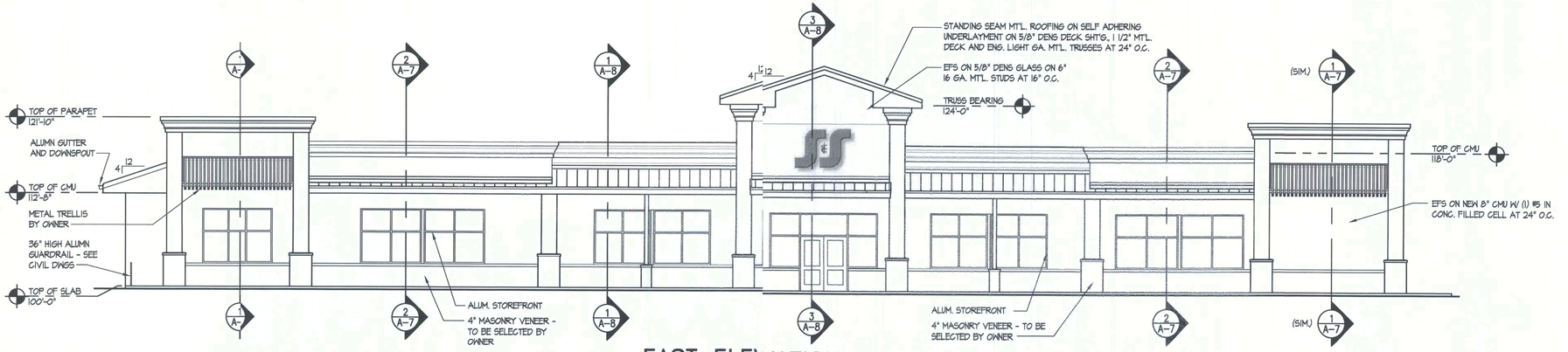
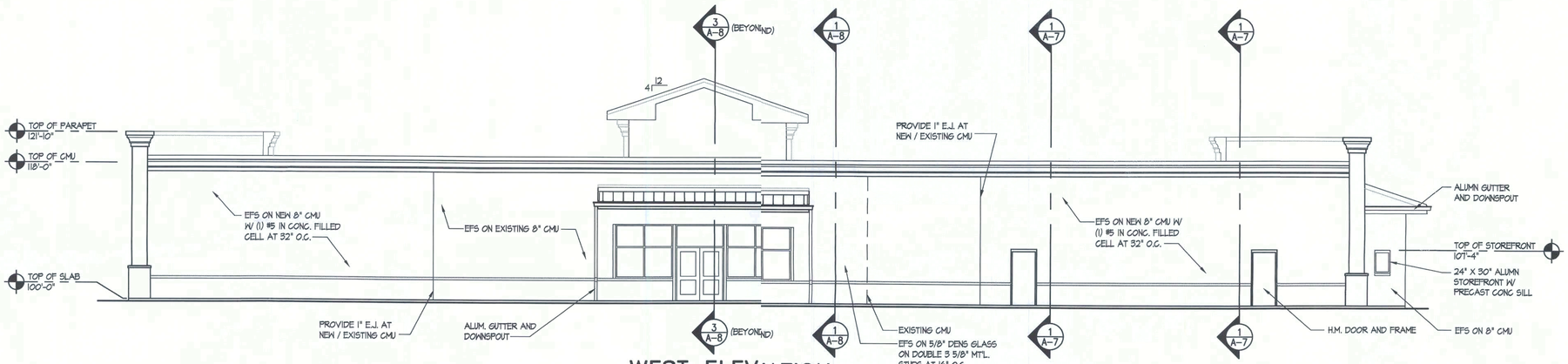
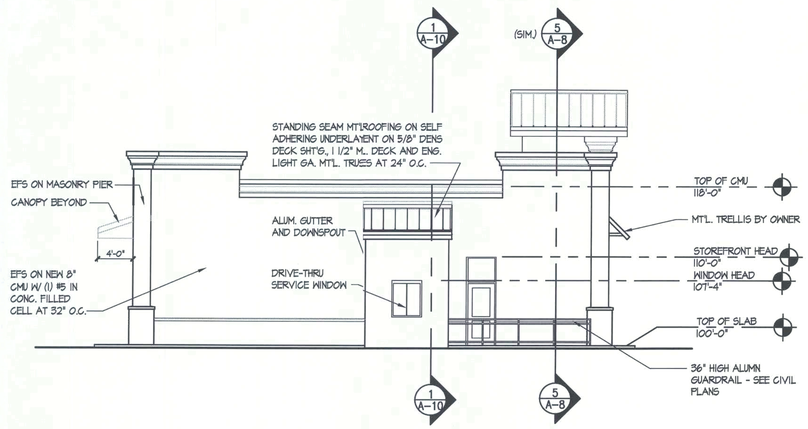


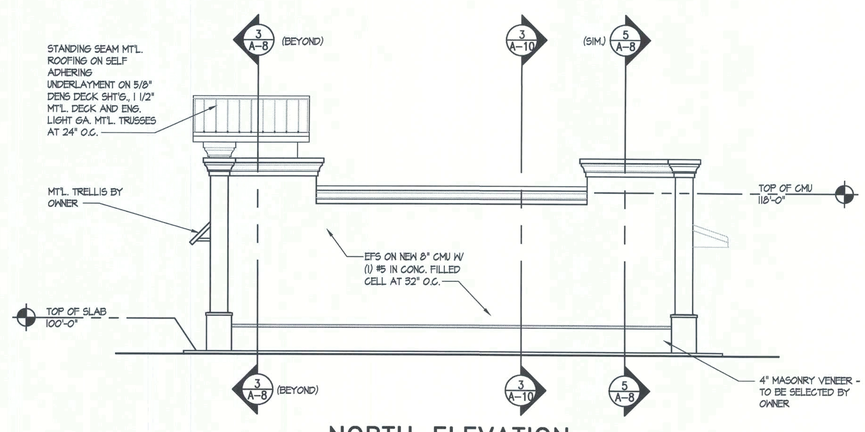
EAST ELEWATION
1/8" = 1'-0"



WEST ELEV/ATION
1/8" = 1'-0"



SOUTH :LEVATION
1/8" = 1'-0"



NORTH ELEVATION
1/8" = 1'-0"

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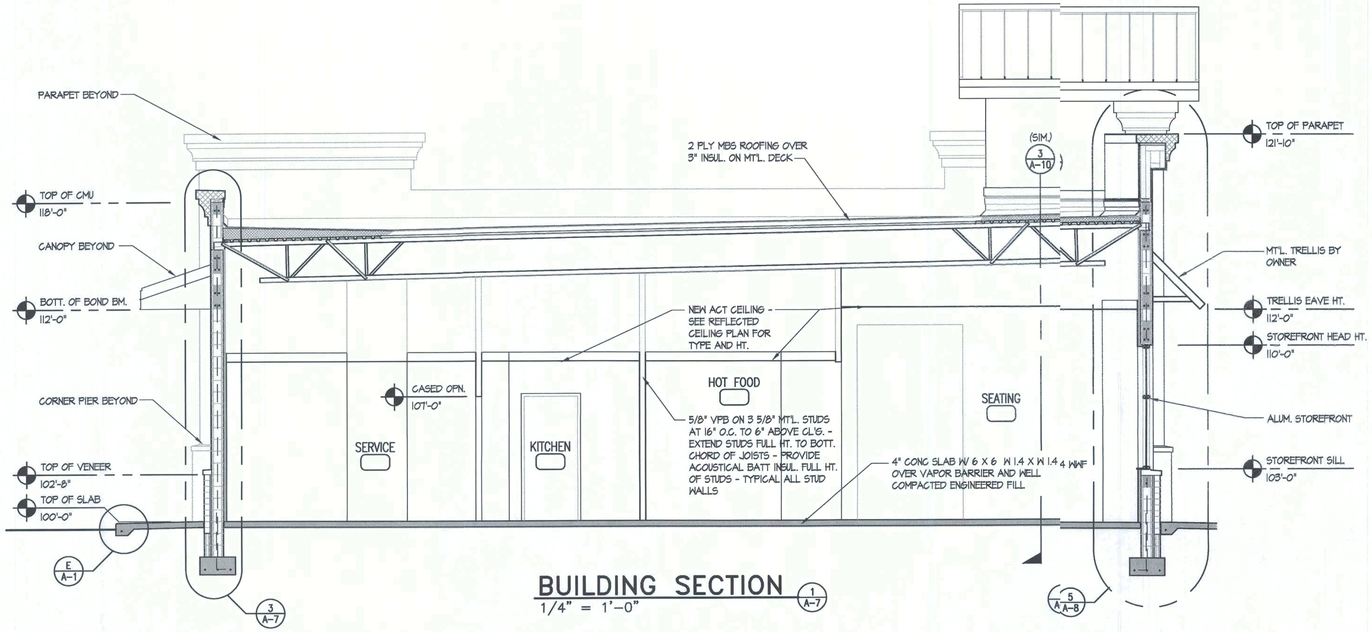
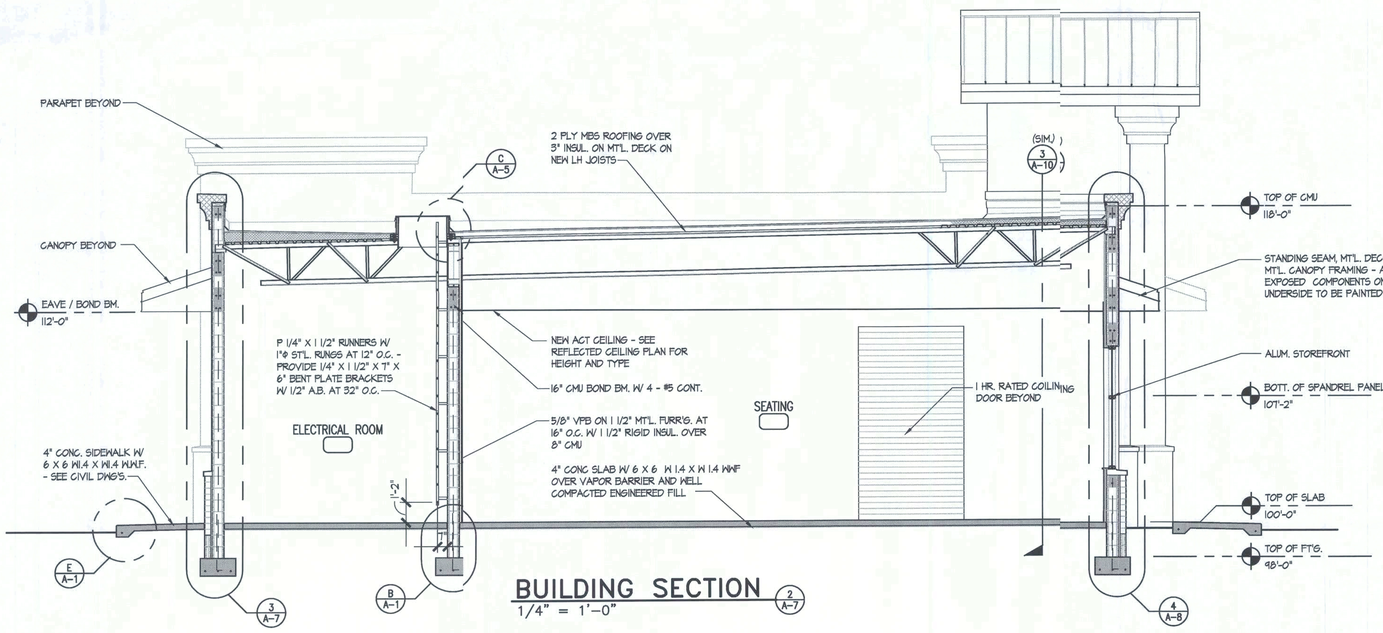
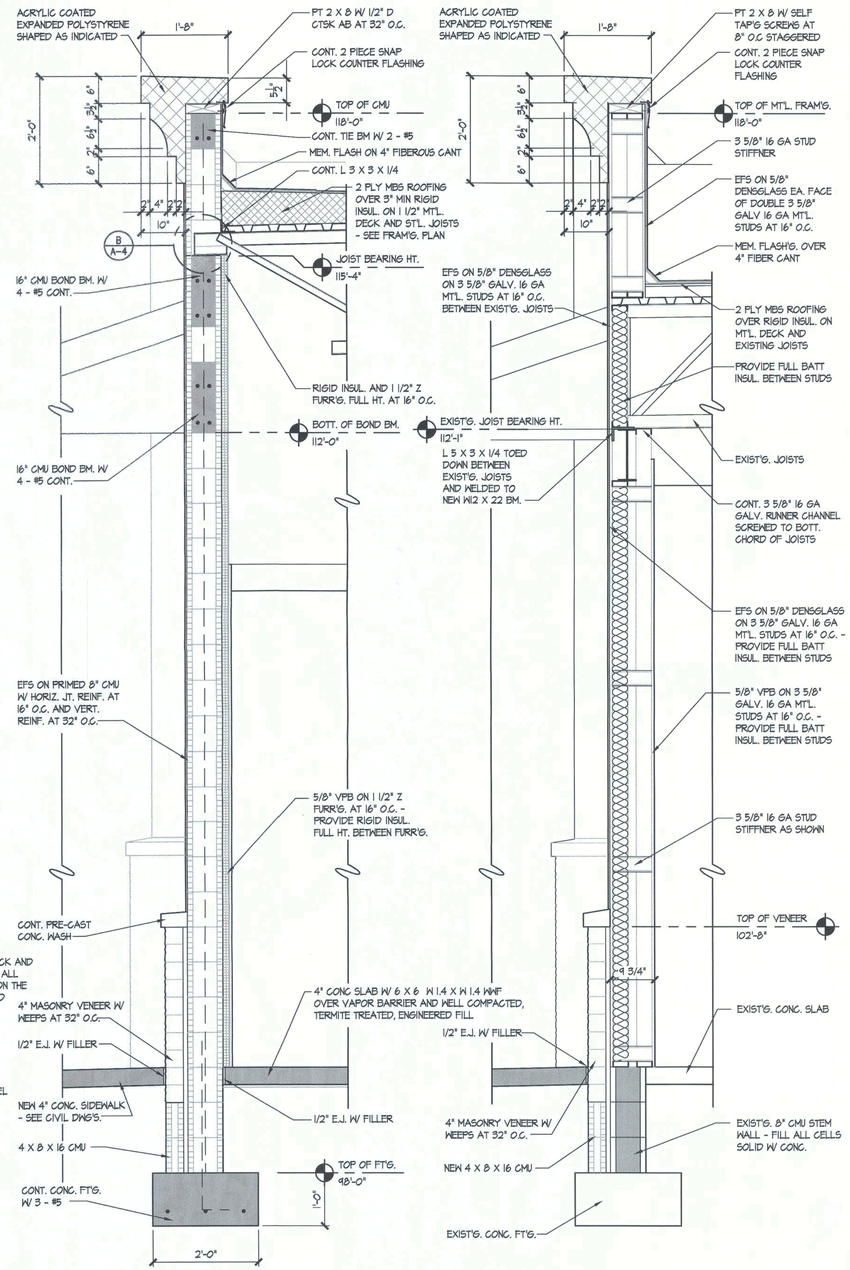


BUILDING SECTION
1/4" = 1'-0"
1 A-7



BUILDING SECTION
1/4" = 1'-0"
2 A-7



WALL SECTION
3/4" = 1'-0"
3 A-7

WALL SECTION
3/4" = 1'-0"
4 A-7

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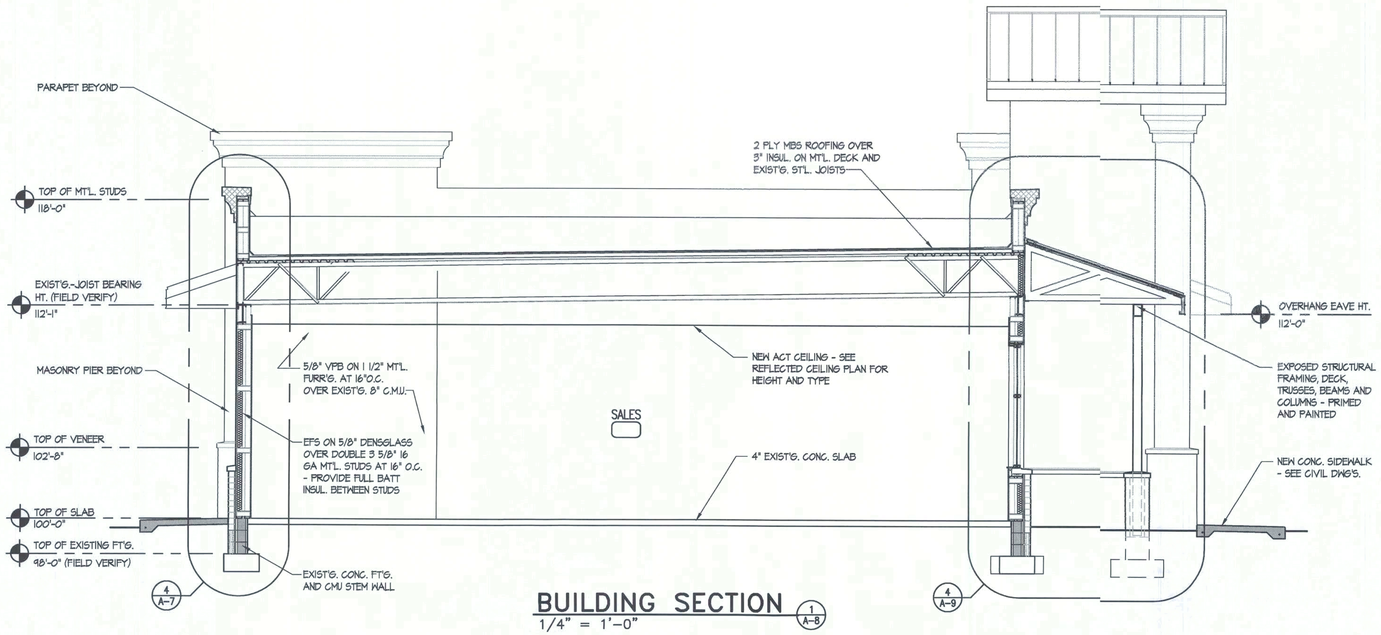
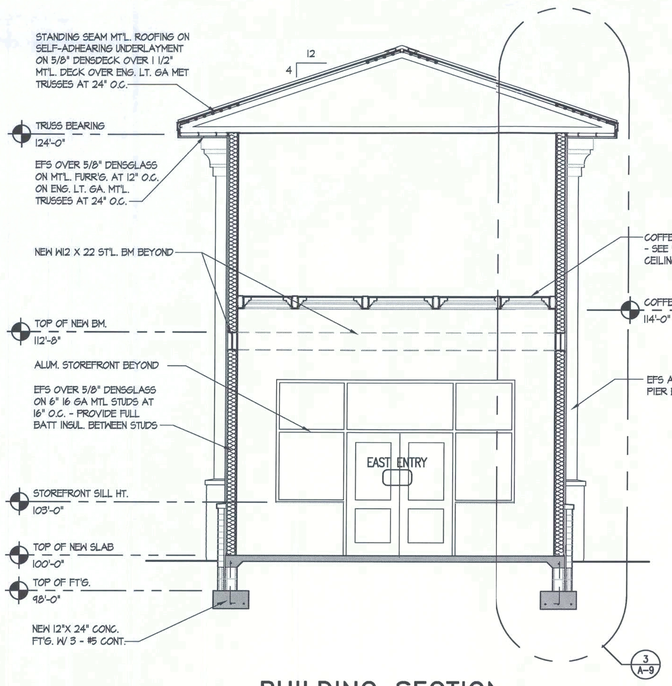
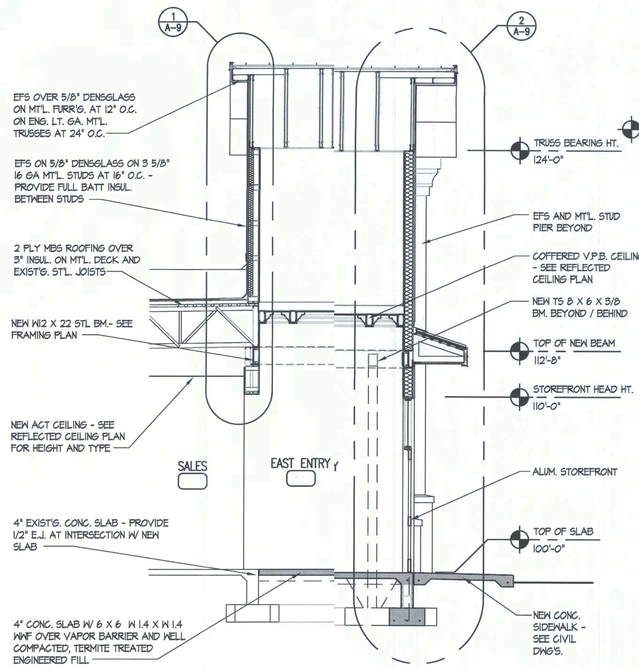


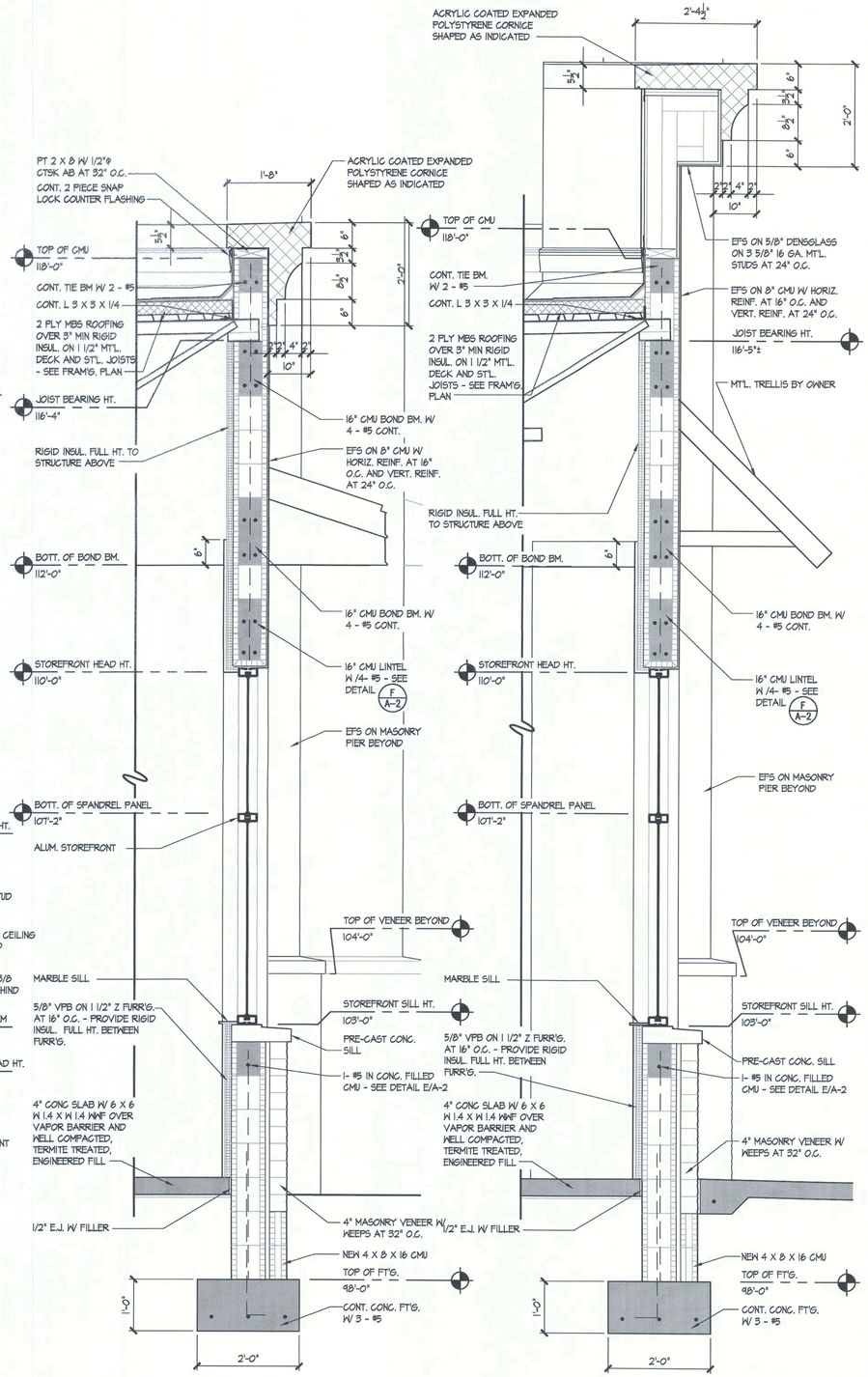
BUILDING SECTION 1
1/4" = 1'-0"



BUILDING SECTION 2
1/4" = 1'-0"



BUILDING SECTION 3
1/4" = 1'-0"



WALL SECTION 4
3/4" = 1'-0"

WALL SECTION 5
3/4" = 1'-0"

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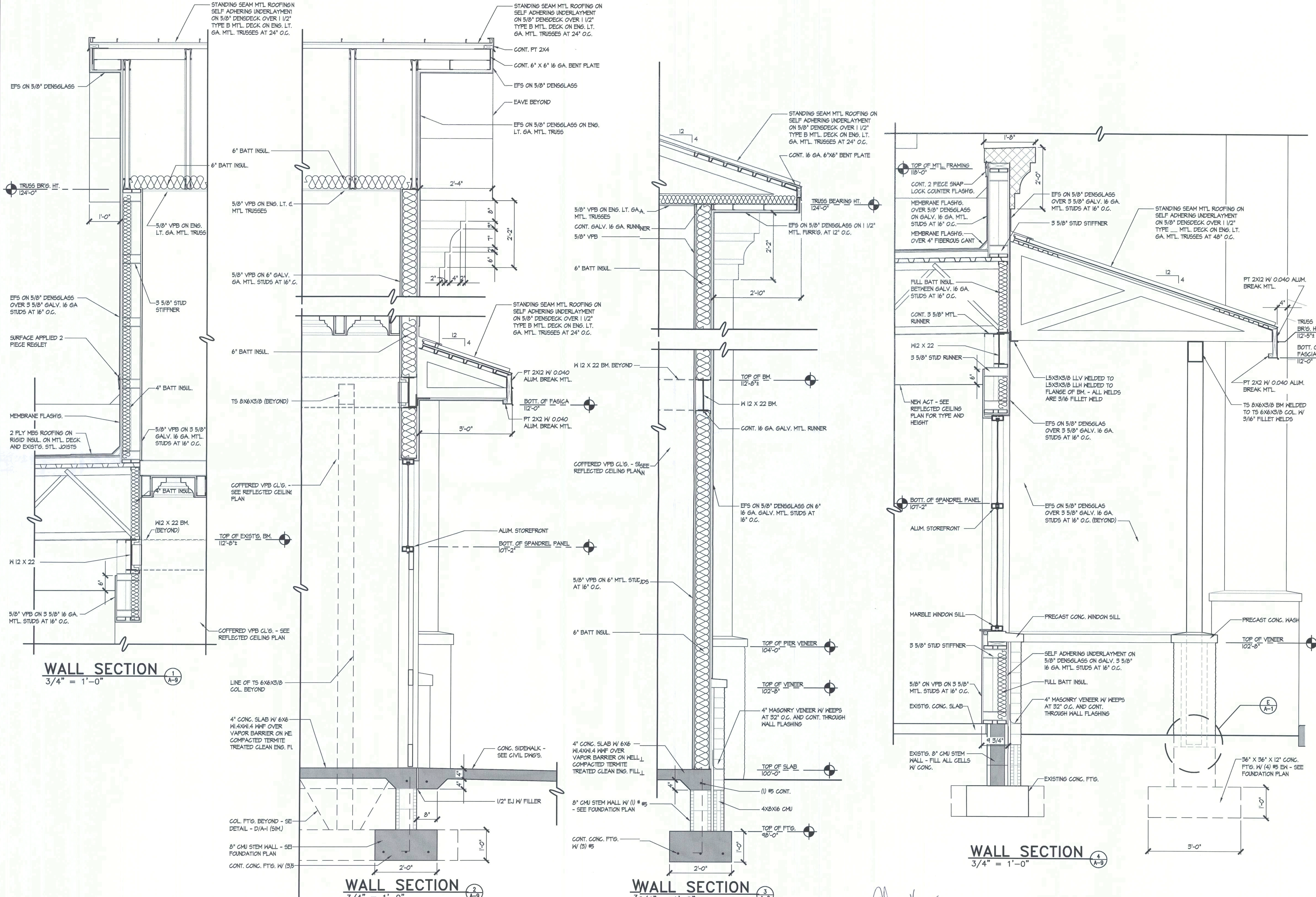
IF 39 SHEETS



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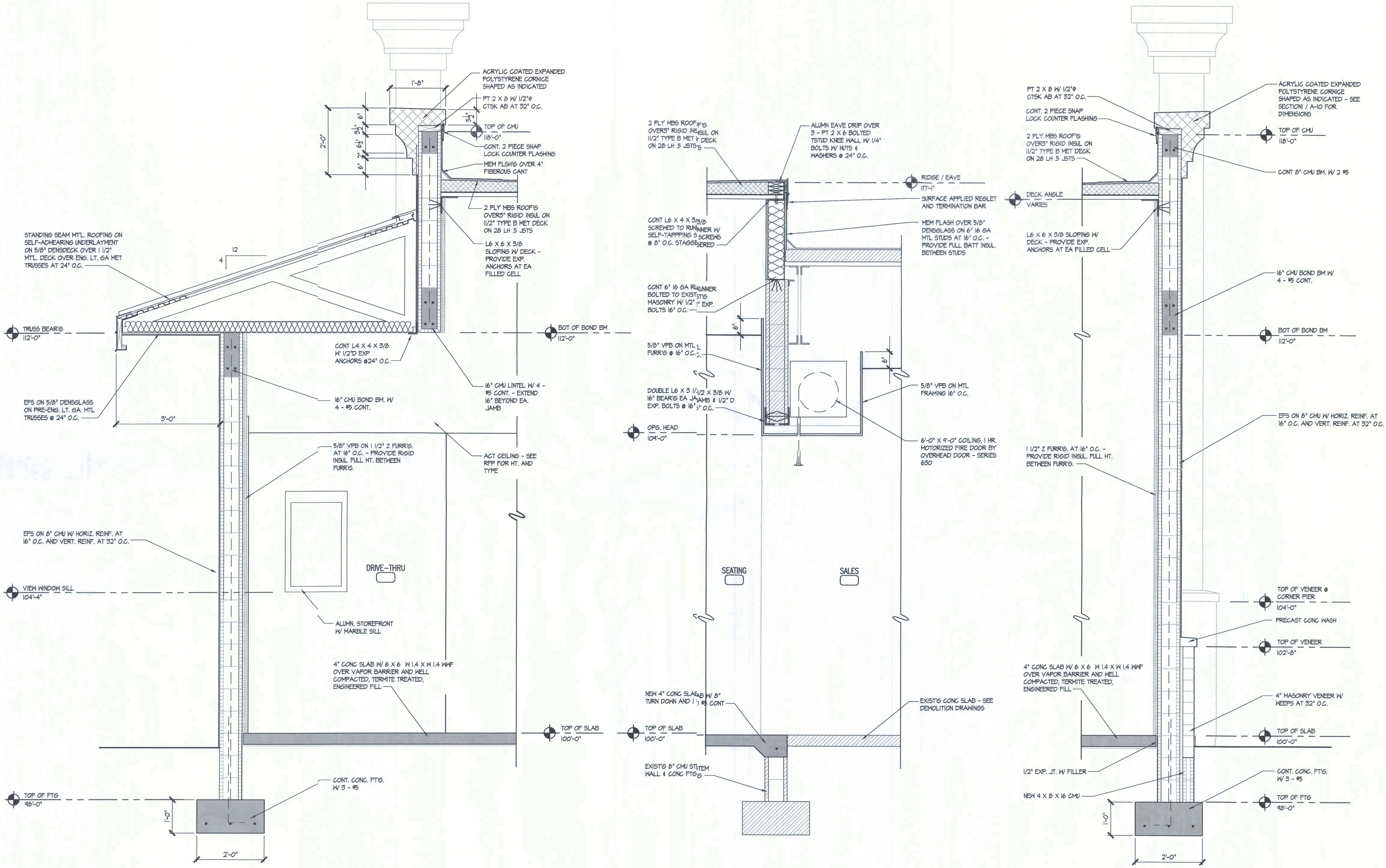

WALL SECTION (1/A-10)
3/4" = '-0"

WALL SECTION (2/A-10)
3/4" = 1'-0"

WALL SECTION (3/A-10)
3/4" = 1'-0"

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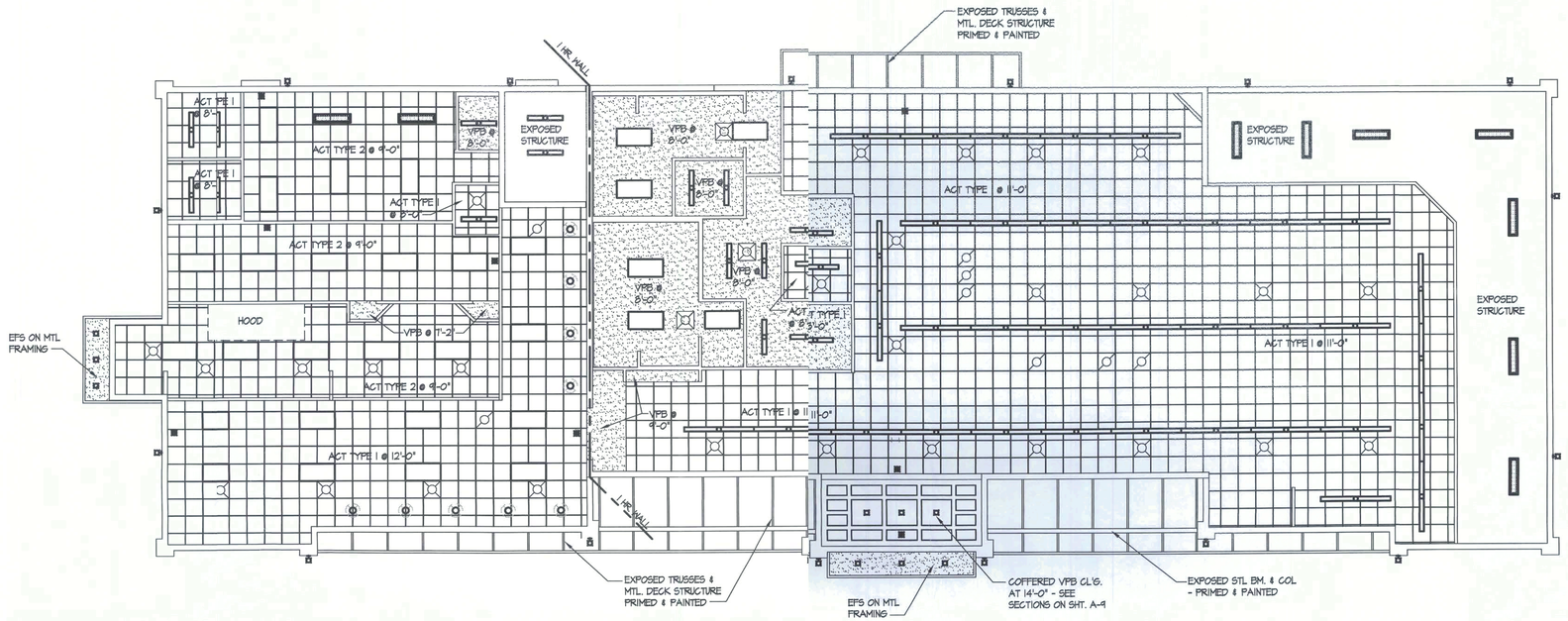

REFLECTED CEILING PLAN
1/8" = 1'-0"

GENERAL NOTES:

1. AT SUSPENDED CEILINGS, ALL SUSPENSION SYSTEMS, INCLUDING LIGHT FIXTURES, , SHALL BE SUSPENDED FROM STRUCTURE, NOT DECKING - PROVIDE UNISTRUT FRAMING AS REQ'D.
2. COORDINATE CLOSELY WITH MECHANICAL AND ELECTRICAL PLANS. SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR DIFFUSERS, LIGHT FIXTURES, ETC.

CEILING LEGEND:

- 2' X 2' ACOUSTICAL CEILING TILE - SEE SPECIFICATIONS FOR TYPE DESCRIPTION
- 5/8" V.P.B. OVER 3/4" MTL. CHANNELS AT 16" O.C. OVER 1-1/2" C.R. CHANNELS AT 4'-0" O.C. SUSPENDED FROM STRUCT. - PROVIDE UNISTRUT AS REQ'D.
- BATT. INSULATION IN STUD WALL
- 1 HR. FIRE-RATED WALL
- 24 X 48 LAY-IN FLUORESCENT
- RECESSED INCANDESCENT
- SURFACE MOUNTED INCANDESCENT
- SUPPLY AIR EXHAUST REGISTER
- RETURN AIR GRILL

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CONSTRUCTION DOCUMENTS

GENERAL CONDITIONS

1. THE 1987 EDITION OF "THE GENERAL CONDITIONS OF HE CONTRACT FOR THE CONSTRUCTION OF BUILDINGS STANDARD FORM F THE AMERICAN INSTITUTE OF ARCHITECTS' IS HEREBY MADE A PARTOF THESE SPECIFICATIONS.
2. ANY MENTION IN THESE SPECIFICATIONS OR INDICATIN ON THE DRAWINGS OF ARTICLES, MATERIALS, OPERATIONS, METHODS, ET. REQUIRES THAT THE CONTRACTOR FURNISH EACH ITEM SO MENTIONED ORINDICATED, OF THE KIND, TYPE OR DESIGN AND QUALITY SPECIFIED OR KOWN ON THE DRAWINGS. THE CONTRACTOR SHALL PROVIDE ALL NCESSARY SUPERVISION TO COMPLETE THE WORK IN ACCORDANCE WITH THE RAWINGS AND INTENT OF THESE SPECIFICATIONS EVEN THOUGH SUCH MENTIN OF ARTICLES, MATERIALS, OPERATIONS, METHODS, QUALITY, QUALIFICATIONS OR CONDITIONS IS NOT EXPRESSED IN COMPLETE SENTENCES.
3. WHERE DEVICES, ITEMS OR PARTS THEREOF, ARE REERRED TO IN THE SINGULAR, IT IS INTENDED THAT SUCH REFERENCE SHALL APPLY TO AS MANY SUCH DEVICES, ITEMS OR PARTS AS ARE REQUIRED O PROPERLY COMPLETE ALL DIVISIONS OF THE WORK IN THE SCOPE OF THIS ROJECT.
4. SCHEDULES OF WORK INCLUDED IN THESE SPECIFICAIONS ARE GIVEN FOR CONVENIENCE AND SHALL NOT BE CONSIDERED AS COMPREHENSIVE LIST OF ITEMS NECESSARY TO COMPLETE THE WORK AS ESCRIBED, DRAWN AND SPECIFIED.
5. THE CONTRACTOR SHALL COORDINATE THE WORK COVERED HEREAFTER DESCRIBED WITH THE WORK OF OTHERS INVOLVED INTHIS PROJECT. THE NECESSARY INFORMATION AND THE ITEMS, MATERIAL AND EQUIPMENT SHALL BE DELIVERED WHEN REQUIRED IN ORDER TO PREVET ANY DELAY IN THE PROGRESS AND COMPLETION OF WORK.
6. FIELD VERIFY ALL EXISTING CONDITIONS, DIMENSIONSAND DETAILS AND NOTIFY THE ARCHITECT IN WRITING OF ANY DISCREPANCIES RIOR TO PROCEEDING WITH THE WORK.
7. ALL WORK SHALL CONFORM TO THE REQUIREMENTS C ALL LOCAL GOVERNING AGENCIES AND CODES.
8. CONTRACTOR SHALL PROVIDE TEMPORARY WATER, PWER AND TOILET FACILITIES AS REQUIRED BY CODE OR ORDINANCE.
9. IF REQUIRED, A CONSTRUCTION BARRICADE SHALL BEINSTALLED BY THE CONTRACTOR THAT IS AS REQUIRED BY THE GOVERNG AUTHORITY. NO SIGNS OTHER THAN THOSE AUTHORIZED BY THE OWNEI WILL BE PERMITTED ON THIS BARRICADE.
10. CONTRACTOR SHALL PAY FOR ALL CONSTRUCTION RLATED PERMITS AND FEES REQUIRED TO CONSTRUCT THIS PROJECT.
11. APPROVED CONSTRUCTION PERMIT DOCUMENTS SHALIBE KEPT IN A PLAN BOX AND SHALL NOT BE USED BY ANY WORKMEN. AL CONSTRUCTION SETS SHALL REFLECT THE SAME INFORMATION. THE CONTRCTOR SHALL ALSO MAINTAIN, IN GOOD CONDITION, ON THE PREMISES AT LL TIMES UNDER THE CARE OF THE SUPERINTENDENT. ONE COMPLETE SET C PLANS WITH ALL REVISIONS, ADDENDA, AS-BUILT CONDITIONS, AND CHNGE ORDERS POSTED. THE CONTRACTOR MUST TURN THIS DRAWING SET OVE TO THE OWNER AT THE COMPLETION OF THIS PROJECT.
12. THE CONTRACTOR SHALL VERIFY AND CONFORM TO ALL REQUIREMENTS OF ALL UTILITY COMPANIES WHENEVER ANY MATERIAL, EQIPMENT OR METHOD IS SPECIFIED OR INDICATED BY PROPRIETARY NAME ORMANUFACTURER, THE MATERIAL, EQUIPMENT, METHOD SO SPECIFIED OR IND:ATED SHALL BE DEEMED TO BE FOLLOWED BY THE WORDS "OR EQUAL" EXCEP'IN THOSE CASES WHERE ITEMS SPECIFIED BY NAME ARE MARKED "NO SUBSTITTE."
13. ALL WORK IS TO BE DONE IN THE BEST WORKMANLIKMANNER.
14. ALL WORK SHALL BE GUARANTEED FOR A PERIOD OFONE (1) YEAR AFTER COMPLETION, EXCEPT AS OTHERWISE SPECIFIED. ALLWARRANTY REPAIRS, CORRECTIONS, DISCREPANCIES, ETC. MUST BE MADE WTHOUT ANY ADDITIONAL COST TO THE OWNER, AND WITHIN FIVE (5DAYS AFTER NOTICE IS GIVEN.
15. CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMFETE SECURITY OF THE BUILDING AND SITE WHILE JOB IS IN PROGRESS AD UNTIL JOB IS COMPLETED.
16. ALL DEBRIS SHALL BE REMOVED FROM PREMISES AN ALL AREAS SHALL BE KEPT IN A CLEAN (BROOM) CONDITION AT ALL TIMES.
17. CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTNS TO ENSURE THE SAFETY OF THE WORKERS, OWNER'S STAFF AND CUSTMERS AT ALL TIMES.
18. DO NOT SCALE DRAWINGS. DIMENSIONS GOVERN. CGTRACTOR SHALL NOTIFY ARCHITECT IMMEDIATELY OF ANY DISCREPANES.
19. ALL ITEMS MARKED "N.I.C." ARE NOT PART OF THIS CTRACT. CERTAIN ITEMS MAY BE SUPPLIED BY THE OWNER BUT INSTALLE BY THE CONTRACTOR. CAREFULLY REVIEW THE DRAWINGS AND SCHEDULES.
20. ALL WORK SHALL BE CONSTRUCTED OR INSTALLED INCCORDANCE WITH THE MANUFACTURER'S LATEST RECOMMENDATIONS OR WRI'EN DIRECTIONS.
21. REPAIR AND/OR REPLACE ANY AND ALL BROKEN ANDAMAGED CONCRETE WORK. CONTRACTOR SHALL BE RESPONSIBLE FOR METING THE REQUIREMENTS OF LOCAL GOVERNING AGENCIES.

GRADING, COMPACTION, EXCAVATION AND SITE WORK

1. REMOVE ALL SUBSURFACE STRUCTURES, DEBRIS, GROWH, VEGETATION OBJECTIONABLE MATERIALS NOT SUITABLE FOR FILL. AP ALL DISCONNECTED UTILITIES IN APPROVED MANNER, PER N.E.C., AS REQUIRD AND COORDINATED WITH THE APPROPRIATE UTILITY/ AGENC
2. ALL HOLES RESULTING FROM AFOREMENTIONED DEMOITION AND REMOVALS SHALL BE BACKFILLED AND COMPACTED TO 95% OF MAXIMUM OTIMUM DENSITY WITH ENGINEERED FILL MATERIAL.
3. THE ENTIRE SITE SHALL BE GRAEDED TO MEET REQUIRED FINISH GRADES. THE CONTRACTOR SHALL COORDINATE THE WORK OF THIS CONTRACT WITH ACCOMPANYING CIVIL DRAWINGS AND SPECIFICATIONS.
4. EXCAVATE FOR ALL FOOTINGS AND FOUNDATIONS AS CALLED FOR ON THE DRAWINGS. COMPACT BOTTOM OF FOUNDATIONS TO A DEPTH OF 12" BELOW THE FOOTING BOTTOM TO 95% MAXIMUM OPTIMUM DENSITY.
5. ALL FOOTINGS SHALL BE ON UNDISTURBED NATURAL SOIL OR APPROVED ENGINEERED COMPACTED FILL. REFER TO FOUNDATION PLAN AND DETAILS.

CUTTING AND PATCHING

1. "CUTTING AND PATCHING" IS HERE BY DEFINED TO INCLUDE, BUT IS NOT LIMITED TO, THE CUTTING AND PATCHING OF NORMALLY COMPLETED OR PREVIOUSLY EXISTING WORK, IN ORDER TO ACCOMMODATE THE CONDITION OF WORK, OR THE INSTALLATION OF OTHER WORK, OR TO UNCOVER OTHER WORK FOR ACCESS OR INSPECTION, OR TO OBTAIN SAMPLES FOR TESTING, OR FOR SIMILAR PURPOSES; CUTTING AND PATCHING IS DEFINED TO EXCLUDE INTEGRAL CUTTING AND PATCHING DURING THE MANUFACTURING, FABRICATING, ERECTING AND INSTALLING PROCESS FOR INDIVIDUAL UNITS OF WORK.
2. PROVIDE MATERIALS FOR CUTTING AND PATCHING WHICH WILL RESULT IN EQUAL-OR-BETTER WORK THAN THE WORK BEING CUT AND PATCHED IN TERMS OF PERFORMANCE CHARACTERISTICS, INCLUDING VISUAL EFFECTS WHERE APPLICABLE. USE MATERIALS IDENTICAL WITH THE ORIGINAL MATERIALS WHERE FEASIBLE AND WHERE RECOGNIZED THAT SATISFACTORY RESULTS CAN BE PRODUCED THEREBY.
3. INSPECT EXISTING CONDITIONS, INCLUDING ELEMENTS SUBJECT TO DAMAGE OR MOVEMENT DURING CUTTING AND PATCHING. AFTER UNCOVERING, INSPECT CONDITIONS AFFECTING PERFORMANCE OF WORK. BEGINNING OF CUTTING OR PATCHING MEANS ACCEPTANCE OF EXISTING CONDITIONS.
4. PROVIDE SUPPORTS TO ASSURE STRUCTURAL INTEGRITY OF SURROUNDINGS; DEVICES AND METHODS TO PROTECT OTHER PORTIONS OF THE PROJECT FROM DAMAGE. PROVIDE PROTECTION FROM ELEMENTS FOR AREAS WHICH MAY BE EXPOSED BY UNCOVERING WORK. MAINTAIN EXCAVATIONS FREE OF WATER.
5. REFINISH SURFACES TO MATCH ADJACENT FINISHES. FOR CONTINUOUS SURFACES, REFINISH TO NEAREST INTERSECTION; FOR AN ASSEMBLY, REFINISH ENTIRE UNIT; FOR PATCHES IN WALLS, REFINISH WALL-TO-WALL AND FLOOR TO CEILING; FOR PATCHES IN MASONRY WALLS, CUT OUT FACE SHELL OF BLOCK AND REPLACE.
6. IT IS ENVISIONED THAT A CONSTRUCTION DUMPSTER WILL BE IN PLACE ON THE SITE AND EMPTIED AT AN APPROVED DUMP AS REQUIRED.

DEMOLITION

1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CAREFULLY REVIEW THE CONTRACT DOCUMENTS AND REMOVE ANY ITEMS IDENTIFIED ON THE CONTRACT DOCUMENTS OR REQUIRED TO ACCOMPLISH THE NEW CONSTRUCTION TO THE DEPTH REQUIRED, WHERE INTERFERENCE WITH NEW UNDERGROUND CONSTRUCTION WILL OCCUR.
2. PROTECTIONS: ENSURE THE SAFE PASSAGE OF PERSONS AROUND AND IN THE AREA OF DEMOLITION, CONDUCT OPERATIONS TO PREVENT INJURY TO ADJACENT BUILDINGS, STRUCTURES, OTHER FACILITIES, AND PERSONS. CONFORM WITH ALL OF OSHA REGULATIONS.
3. WEATHER PROTECTION: PROTECT BUILDING INTERIOR AND ALL MATERIALS AND EQUIPMENT FROM THE WEATHER AT ALL TIMES.
4. REMOVE FROM THE SITE WEEKLY, AS A MINIMUM, ALL DEBRIS, RUBBISH, AND OTHER MATERIALS RESULTING FROM DEMOLITION OPERATIONS AND DISPOSE OF IN AN APPROVED DUMP. TRANSPORT DEBRIS IN A MANNER THAT WILL PREVENT SPILLAGE ON STREETS OR ADJACENT PROPERITY.
5. PROVIDE SHORING WHERE REQUIRED TO ALLOW FOR THE CUTTING OF NEW OPENINGS OR THE REPLACEMENT OR INSTALLATION OF NEW BEAMS.

CONCRETE

1. ALL CONCRETE SHALL BE TRANSIT MIXED AND HAVE A MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS. MIX AND MATERIALS SHALL MEET ALL REQUIREMENTS OF LOCAL CODES, , A.C.I. AND INDUSTRY STANDARDS.
2. REINFORCING STEEL SHALL BE INTERMEDIATE GRADE ASTM A-15 AND ASTM A-305. MINIMUM LAP SHALL BE 30 BAR DIAMETERS OR MORE IF NOTED ON THE DRAWINGS. REINFORCEMENT SHALL BE FREE OF SCALE, RUST OR OTHER COATINGS WHICH WOULD REDUCE BOND TO CONCRETE. MAINTAIN 3" MINIMUM COVER AROUND STEEL AT ALL BELOW GRADE LOCATIONS.
3. WELDED WIRE FABRIC SHALL BE INSTALLED IN ALL FLOOR SLABS AND SIDEWALKS AND SHALL BE 6 X 6 X W1.4 X W1.4 W.W.F. ASTM A-185. CONCRETE FLOOR SLABS SHALL BE AS INDICATED ON THE DRAWINGS.
4. ALL CONCRETE FLOOR SLABS AND WALKS SHALL BE A MINIMUM OF 4" THICK. UNLESS OTHERWISE NOTED TO BE THICKER. NOTE RECESSED AREAS FOR HARD TILE.
5. MAKE PROPER PROVISIONS FOR AND INSTALL ALL SCREEDS, GROUNDS, BOLTS, CURBS, DRAINS, ETC. COORDINATE WITH ALL OTHER TRADES INVOLVED PRIOR TO PLACING CONCRETE . SLOPE SLABS TO DRAINS AND/OR AS SHOWN ON THE DRAWINGS.
6. PROVIDE AND INSTALL 6 MIL POLYETHYLENE MOISTURE BARRIER UNDER ALL INTERIOR SLABS. LAP AND TAPE ALL JOINTS. USE CAUTION SO AS NOT TO PUNCTURE MOISTURE BARRIER PRIOR TO SLAB POUR.
7. SAW CUT FLOOR SLAB 1/2" DEEP AT A MINIMUM OF 16 HOURS AFTER POURING. DIVIDE INTO AREAS NO GREATER THAN 400 SQ. FT. OR AS SHOWN ON PLANS FOR CONTROL JOINTS.
8. ALL INTERIOR FLOOR SLABS SHALL BE SMOOTH TROWELED FINISH, FREE FROM MARKS AND BLEMISHES.
9. WHEN FREEZING TEMPERATURES PREVAIL OR ARE ANTICIPATED, CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES TO PROTECT CONCRETE INSTALLATION. PLACED CONCRETE SHALL BE KEPT AT A MINIMUM OF 60°F FOR A PERIOD OF 72 HOURS AFTER POURING.

MASONRY

1. MASONRY AND VENEER UNITS SHALL BE PROPERLY WETTED TO REDUCE EXCESSIVE ABSORPTION AND SHALL BE DAMP AT TIME OF LAYING.
2. MASONRY SHALL BE LAID PLUMB, LEVEL AND TRUE TO LINE WITH ALL CORNERS AND ANGLES SQUARE. PATTERN WORK, BONDS, AND SPECIAL DETAILS ARE TO BE ACCURATELY AND UNIFORMLY FOLLOWED PER THE DRAWINGS.
3. CEMENT MORTAR SHALL CONSIST OF 1 PART PORTLAND CEMENT (TYPE I OR TYPE II LOW ALKALI), 1/4 PART HYDRATED LIME, SAND (3 1/2 TIMES THE SUM OF THE VOLUME OF CEMENT AND LIME)
4. ALL CELLS CONTAINING REINFORCING, ANCHORS, BOLTS, ETC. SHALL BE GROUTED SOLID WITH CEMENT GROUT OR 3,000 P.S.I. PEA GRAVEL CONCRETE. INSPECTION AND APPROVAL OF REINFORCING SHALL BE MADE BY LOCAL BUILDING DEPT. PRIOR TO GROUTING.
5. HORIZONTAL JOINT REINFORCEMENT SHALL BE EQUAL TO "DUR-O-WALL." SIZE AND SPACING SHALL BE AS INDICATED ON THE DRAWINGS.

STRUCTURAL STEEL, BAR JOISTS AND METAL DECKING

1. ALL STRUCTURAL STEEL SHALL CONFORM TO ASTM A-36 OR A.S.C.I. BAR JOISTS SHALL CONFORM TO STEEL BAR JOIST INSTITUTE REQUIREMENTS.
2. STRUCTURAL STEEL AND RELATED WORK INCLUDE THE FOLLOWING: COLUMNS, STEEL TUBES, BASE PLATES (W/ ANCHORS), BEAMS AND BEAM SEATS (W/ ANCHORS), MISCELLANEOUS ANGLES, STEEL BAR JOISTS AND BEARING PLATES (W/ ANCHORS).
3. ALL STRUCTURAL STEEL SHALL BE FABRICATED AND INSTALLED IN CONFORMANCE WITH LATEST EDITION OF STANDARD SPECIFICATIONS FOR STRUCTURAL STEEL IN BUILDINGS, AS ADOPTED BY THE A.I.S.C.
4. PREPARE COMPLETE AND DETAILED SHOP DRAWINGS UNDER THE SUPERVISION AND SEAL OF A FLORIDA REGISTERED STRUCTURAL ENGINEER, PRIOR TO FABRICATION OR INSTALLATION OF ANY STRUCTURAL STEEL.
5. ALL STRUCTURAL WELDING SHALL BE ELECTRIC ARC, PERFORMED BY CERTIFIED WELDERS IN THE SHOP OF LICENSED FABRICATOR. FIELD WELDING SHALL BE DONE BY CERTIFIED WELDERS AND REQUIRE CONTINUOUS INSPECTION BY THE GENERAL CONTRACTOR. TOUCH UP ALL WELDS WITH PRIMER.
6. ALL STRUCTURAL STEEL SHALL BE PRIME COATED IN SHOP PRIOR TO DELIVERY ON JOB.
7. ALL EXTERIOR EXPOSED STEEL SHALL BE GALVANIZED.
8. THE CONTRACTOR SHALL COORDINATE THE PLACEMENT OF ALL EMBED ITEMS.
9. THE CONTRACTOR SHALL NOT PERMIT THE INSTALLATION OF ROOFING COMPONENTS UNTIL JOISTS ARE BRACED AND BRIDGING INSTALLED IN ACCORDANCE WITH APPROVED SHOP DRAWINGS.
10. DO NOT FIELD CUT OR ALTER STRUCTURAL MEMBERS WITHOUT THE ARCHITECT'S WRITTEN APPROVAL.
11. METAL DECKING SHALL BE EITHER 20 GAUGE TYPE 1.0E OR 22 GAUGE TYPE B. ALL DECKING TO BE 33 KSI STEEL, GALVANIZED.

METAL STUDS AND FRAMING

1. REFER TO PLANS AND DETAILS FOR SIZE, SPACING, LOCATION AND DETAILS, TO DETERMINE WHERE METAL STUDS ARE USED ON THIS PROJECT.
2. NON-LOAD BEARING TYPE INTERIOR PARTITIONS SHALL BE CONSTRUCTED OF MINIMUM 25 GAUGE GALVANIZED STEEL STUDS. ALL EXTERIOR STUDS AND RUNNERS SHALL BE MINIMUM OF 16 GAUGE. REFER TO DRAWINGS AND USE HEAVIER GAUGE STUDS WHERE CALLED FOR. PROVIDE RUNNER (CHANNELS), BRIDGING AT 8'-0" O.C. VERTICALLY, CLIPS AND REINFORCED AS INDICATED
3. STUDS SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS, DETAILS AND PLANS. MAXIMUM SPACING SHALL NOT EXCEED 16" O.C. SEE DOOR FRAMING DETAILS FOR SPECIFIC REQUIREMENTS AT OPENINGS.

CARPENTRY AND MILLWORK

1. ALL WOOD PLATES AND BLOCKING IN CONTACT WITH CONCRETE SHALL BE PRESSURE TREATED DOUGLAS FIR OR NO. 2 PINE.
2. ALL LUMBER SHALL BE GRADE MARKED PER AREA STANDARDS.
3. WOOD BLOCKING SHALL BE NO. 2 PINE OR DOUGLAS FIR STANDARD GRADE.
4. CARPENTRY MATERIALS SHALL BE AS LISTED BELOW:
   A. PLYWOOD SHALL BE MINIMUM GRADE C-D WITH EXTERIOR GLUE, MINIMUM 5/8" THICK.
5. PLASTIC LAMINATES SHALL BE AS SELECTED BY OWNER AND SHALL BE INSTALLED AS PER MANUFACTURER'S SPECIFICATIONS.
6. ALL FINISH WOOD WORK SHALL BE FINISHED SMOOTHLY, SANDED WITH NAIL HOLES SET AND SHALL BE FREE FROM ALL DEFECTS. ALL JOINTS SHALL BE MITERED WITH CLOSE, TIGHT FIT.
7. COORDINATE AND VERIFY ALL WORK WITH EQUIPMENT INSTALLERS. PROVIDE ALL PROPER BACKING, BLOCKING AND SUPPORTS IN STUD WALLS AS REQUIRED.
8. CONTRACTOR TO PROVIDE WOOD BLOCKING AT ALL STUD WALL MOUNTED SHELVING AND SINKS.

INSULATION

1. INSULATION SHALL BE FOIL BACKED TYPE II CLASSIC BATT INSULATION INSTALLED IN COMPLETE ACCORDANCE WITH MANUFACTURER'S LATEST SPECIFICATIONS.
2. SOUND INSULATION SHALL BE PROVIDED AT TOILET ROOM WALLS AND SHALL BE FULL THICK ROCKWOOL KRAFT PAPER WRAPPED.

CONSTRUCTION DOCUMENTS

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RENOVATIONS & ADDITIONS TO S & S FOOD STORE NO. 38
US 441 & I-75
ELLISVILLE, FLORIDA

Craig Salley 10/1/09

CRAIG SALLEY, R.A.
FL. REG. NO. 4475

DATE	9/21/09
DRAWN	JM
APPROVED	

0920

AS-1

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ROOFING

1. ALL ROOFING INSTALLATIONS SHALL COMPLY WITH N.R.C.A. AND S.M.A.C.N.A. STANDARDS.
2. DELIVER, STORE AND HANDLE MATERIALS AND EQUIPMET SO AS TO PREVENT DAMAGE OR DETERIORATION.
3. BUILT-UP ROOF SYSTEM SHALL CONSIST OF A TWO PLY, RANULAR SURFACED, CLASS A RATED MODIFIED BITUMEN SYSTEM BY ONE OF THE FOLLOWING MANUFACTURERS: SIPLAST, SOPREMA, JOHNS MANVILLE R AN APPROVED EQUAL.
4. ROOF MEMBRANE AND SUBSTRATE SHALL RESIST 110 M.P.H. WIND UPLIFT (FM 1-90) ACCORDING TO BASIC WIND LOAD PRSSURES PER A.S.C.E. 7, EXPOSURE B.
5. ROOF INSULATION SHALL BE POLYISOCYRANURATE, OF ITHICKNESS NECESSARY TO MAINTAIN AN AGED VALUE OF R-20 AND A SLOPE O 1/4" PER FOOT MINIMUM.
6. ALL ANCILLARY ITEMS, FASTENERS, ROOFING ASPHALT, OOFING CEMENT, CANT STRIPS, ECT. AS REQUIRED FOR A WEATHERTIGHT INSTALATION.
7. SEE DRAWINGS FOR SPECIFIC DETAILS.
8. REFERENCES
   A. MANUFACTURER'S RECOMMENDATIONS AND SPECIFICTIONS.
   B. ASTM STANDARDS AND TEST PROCEDURES AS REFEENCED HEREIN.
   C. SHEET METAL AND AIR CONDITIONING CONTRACTORSNATIONAL ASSOCIATION (SMACNA): LATEST EDITION.
   D. NATIONAL ASSOCIATION OF ARCHITECTURAL METAL ANUFACTURERS (NAAMM) STANDARDS AS REFERENCED HEREIN, LATEST EDITIC.
   E. FLORIDA BUILDING CODE, CURRENT EDITION WITH UPDTES.
9. THE ROOFING CONTRACTOR SHALL VERIFY ALL DIMENSINS, SHALL MAKE ANY FIELD MEASUREMENTS NECESSARY AND SHALL BE FULLY RESPNSIBLE FOR ACCURACY AND LAYOUT OF WORK.
10. ROOF JACKS AND CURBS: PANEL MANUFACTURER'S PROFILE; SIZES SHALL BE COORDINATED WITH APPLICABLE MECHANICAL EQUIPMEN. FURNISH AND INSTALL ALL ROOF CURBS REQUIRED FOR ALL ROOF PENETRATIONS N THIS PROJECT.
11. FLASHING BOOT: STANDARD PROFILE; SIZES SHALL BE OORDINATED WITH MECHANICAL AND PLUMBING VENTS THROUGH ROOF. FURISH AND INSTALL ALL BOOTS AT PLUMBING STACKS ON THIS PROJECT.
12. ROOFING CONTRACTOR SHALL ISSUE THE OWNER A WRITEN GUARANTEE TO MAINTAIN THE ROOFING, FLASHINGS, COUNTER FLASHISS IN A WATER-TIGHT CONDITION FOR A PERIOD OF TWO (2) YEARS FRO FINAL COMPLETION.

SHEET METAL

1. ALL SHEET METAL SHALL BE .040" THICK ALUMINUM W/ FACTORY BAKED-ON KYNAR FINISH. COLOR TO BE SELECTED BY OWNER.
2. ALL SHEET METAL SHALL BE IN CONFORMANCE WITH S.M.A.C.N.A STANDARDS., ACCURATELY FORMED TO DIMENSIONS AND SHAPES AND SHALL BE CFIED TO FIT PRECISELY. ALL SEAMS SHALL BE PROPERLY RIVETED AND SEALEDWITH NEAT, THIN, SMOOTH JOINTS. ALL EXPOSED ENDS SHALL BE HEMMED AND CLPPED.
3. ALL SHEET METAL WORK SHALL BE FORMED AND INSTALED TO PROVIDE SUITABLE ALLOWANCE FOR EXPANSION AND CONTRACTIN. ALL INSTALLATIONS SHALL ENSURE WATERTIGHT CONDITIONS.
4. GUTTERS AND DOWNSPOUTS SHALL BE FORMED OF METAL SPECIFIED ABOVE IN ACCORDANCE WITH THE DRAWINGS AND SMACNA STANDRDS. OUTLET TUBES AND GUTTER ENDS SHALL BE FURNISHED AND INSTALLED AS EQUIRED IN ACCORDANCE WITH INDUSTRY STANDARDS.
5. SECURELY ANCHOR GUTTERS WITH HANGERS OF THE SAME MATERIAL. TELESCOPE END JOINTS OF DOWNSPOUTS 1 1/2 INCHES AND LOCK LONGITDINAL JOINTS. FURNISH ALL ACCESSORIES AS REQUIRED, INCLUDING STAINLESS STEE FASTENERS.

CAULKING

1. ALL WINDOWS, DOOR FRAMES, STOREFRONT, FLASHING, RACKS, JOINTS, ETC. SHALL BE PROPERLY PROPERLY CAULKED WITH AN APPROVED CAULKING COPOUND, AND SUCH SHALL BE APPLIED IN STRICT ACCORDANCE WITH MANUFACTURER'SRECOMMENDATIONS.
2. CAULKING MATERIAL SHALL BE URETHANE BASED AS MAUFACTURED BY DOW-CORNING CO., 3M, OR GENERAL ELECTRIC CO.

HOLLOW METAL FRAMES AND DOORS

1. METAL DOOR FRAMES SHALL BE FORMED OF #16 U.S. STANDARD GAUGE STEEL FOR DOOR OPENINGS INDICATED. CORNERS SHAL BE MITERED, WELDED AND GROUND SMOOTH, COLD ROLLED, ANNEALED STEEL. RENFORCE JAMBS FOR HARDWARE AND PROVIDE AS REQUIRED. TEMPORARY TEEL ANGLE SPREADERS SHALL BE WELDED AT BOTTOM OF DOOR FRAMES TO ENURE ALIGNMENT. FRAMES SHALL BE AS MANUFACTURED BY STEEL CRAFTSECURITY, PIONEER OR APPROVED EQUAL.
2. METAL DOORS SHALL BE OF FLUSH TYPE CONSTRUCTIONWITH 16 GAUGE SHEET OUTER SHELLS WITH VERTICAL STIFFENERS SPACED AT 6" ON CNTER. DOOR SHALL BE REINFORCED, DRILLED AND TAPPED TO RECEIVE HARDARE. AFTER ASSEMBLY, THOROUGHLY CLEAN. GRIND ALL WELDS AND JOINTS SOOTH, FILL FLUSH WITH MINERAL FILLER TO CONCEAL SEAMS. APPLY TWO COTS OF MANUFACTURER'S STANDARD BAKED-ON RUST INHIBIT PRIMER. DOORS SALL BE AS MANUFACTURED BY STEEL CRAFT, SECURITY PIONEER OR APPROVED EQAL.

WOOD DOORS

1. DOORS SHALL BE 1-3/4" INCHES THICK W/ SOLID NON-ATED CORE COMPLYING W AWI SECTION 1300, PCS EXCEPT DOORS SHALL HAVE 1-1/8" INCH MEDIUM WIDTH HARDWOOD STILES MATCHING FACE VENEER.
2. VENEER TO BE "YELLOW BIRCH" NATURAL SPECIES, RCARY SLICED. FACING QUALITY TO BE EQUAL TO AWI. PREMIUM GRADE.
3. DOORS TO BE FACTORY MACHINED FOR HARDWARE. SHOULD TRIMMING BE REQUIRED, TRIM EQUALLY FROM OPPOSING SIDES.
4. FACES, STILES AND ~~BOTH~~ RAILS TO BE SEALED (AFTER NECESSARY TRIMMING) PRIOR TO INSTALLATION. DO NOT SEAL DOORS UNTIL BUILDING HAS REACHED THE AVERAGE PREVAILING RELATIVE HUMIDITY OF LOCALITY.
5. DELIVER DOORS TO PROJECT SITE AFTER MOISTURE PRODUCING OPERATIONS ARE COMPLETE.
6. PROVIDE WRITTEN GUARANTEE FROM DOOR MANUFACTURER STATING THAT DOORS WILL NOT DELAMINATE OR SHOW WARPAGE OF MORE THAN 1/4" FROM A TRUE PLANE FOR ONE YEAR FROM THE DATE OF ACCEPTANCE BY OWNER. TELEGRAPHING OF TOP AND BOTTOM RAILS, INTERMEDIATE RAILS, REINFORCING OR STILES SHALL ALSO CONSTITUTE A FAILURE TO PERFORM UNDER THIS GUARANTEE.

STOREFRONT, GLASS AND GLAZING

1. REFER TO PLANS, AND DETAILS FOR SIZE, AND TYPE.
2. MATERIALS: ALL GLASS AND GLAZING SHALL BE IN ACCORDANCE WITH THE STANDARDS AND RECOMMENDATIONS OF THE CURRENT EDITION OF THE GLAZING MANUAL OF THE FLAT GLASS JOBBERS ASSOCIATION.
   A. EACH PIECE OF GLASS SHALL BE LABELED, NOTING THE NAME OF THE MANUFACTURER, GRADE, QUALITY AND TYPE. LABELS SHALL BE INTACT BEFORE AND AFTER INSTALLATION.
3. EXTERIOR GLASS SHALL BE 1" INSULATED" CLEAR, FULLY TEMPERED WITH 1/4" SHEETS
4. MIRRORS SHALL BE "A" QUALITY , 1/4" THICK POLISHED PLATE WITH FULL STAINLESS OR ALUMINUM FRAME AND CONCEALED FASTENERS.
5. ALL ALUMINUM STOREFRONT FRAMING AND DETAILS INDICATED ON THE DRAWINGS AND/OR DETAILS, SHALL BE EQUAL TO VISTAWALL SERIES 3000. THE FRAMING SHALL BE ACCURATELY ASSEMBLED WITH UNEXPOSED FASTENERS UTILIZING EXTRUDED SPLINES, CLIPS AND/OR SNAP-IN FEATURES. ALL GLAZING SHALL BE HELD IN PLACE BY E.P.D.M. GLAZING GASKETS. NO APPLIED STOPS SHALL BE PERMITTED. ALL EXPOSED SURFACES SHALL BE FREE OF UNSIGHTLY SCRATCHES AND BLEMISHES. THE FINISH SHALL BE AS SELECTED BY OWNER. OTHER APPROVED MANUFACTURES ARE KAWNEER COMPANY AND EFCO.
1. FINISH OF ALL SILL FLASHING SHALL BE .040 ALUMINUM TO MATCH STOREFRONT MATERIAL.
8. DOOR FRAMES FOR ENTRANCE DOORS SHALL BE ALUMINUM STOREFRONT FRAME WITH CUT OUTS AND BACKING PLATES FOR (3) BUTT HINGES FOR EACH DOOR LEAF. LOCATION OF HINGES TO BE COORDINATED BY GENERAL CONTRACTOR WITH STOREFRONT SUBCONTRACTOR.
9. ALL DOOR AND FRAMING SECTIONS SHALL BE EXTRUDED ALUMINUM ALLOY AND TEMPERED TO MEET OR EXCEED FINISHING AND STRUCTURAL CRITERIA. DOOR STILES AND RAILS, EXCLUDING GLASS STOPS, SHALL BE TUBULAR AND HAVE 0.125" WALL THICKNESS. ALL WEATHER STRIPPING SHALL BE HARDBACKED SILICONE TREATED POLYPROPYLENE. ANY EXPOSED FASTENERS SHALL BE ALUMINUM, STAINLESS STEEL OR OTHER NON-CORROSIVE MATERIAL.
10. ALL EXPOSED SURFACES SHALL BE FREE OF UNSIGHTLY SCRATCHES AND BLEMISHES . THE FINISH SHALL BE ANODIZED OR KYNAR, PER OWNER'S SELECTION IN CONFORMANCE WITH ARCHITECTURAL PRODUCTS STANDARD.
11. DOOR STILES AND RAILS SHALL BE ACCURATELY JOINED AT CORNERS WITH CONCEALED REINFORCEMENT BRACKETS SECURED WITH BOLTS AND SCREWS, AND SHALL BE "MIG" WELDED. DOORS SHALL HAVE SNAP-IN STOPS WITH BULB GLAZING VINYL ON BOTH SIDES OF GLASS. NO EXPOSED SCREWS SHALL BE PERMITTED. EACH DOOR LEAF SHALL BE EQUIPPED WITH AN ADJUSTING MECHANISM LOCATED IN THE TOP RAIL NEAR THE LOCK STILE WHICH PROVIDES FOR MINOR CLEARANCE ADJUSTMENTS AFTER INSTALLATION. WEATHER STRIPPING SHALL BE INSTALLED IN THE HINGE STILE OF PAIRS OF DOORS. DOOR FRAME AND SIDE-LIGHT FRAMING SHALL BE ACCURATELY JOINED AT CORNERS WITH CONCEALED SCREWS.
12. DESIGN CRITERIA FOR WIND LOADS SHALL BE IN ACCORDANCE WITH ASCE-7 DESIGN WIND VELOCITY OF 110 M.P.H., BUILDING IMPORTANCE FACTOR OF 1.15
13. ALL HARDWARE FOR ENTRANCE DOORS, WITH THE EXCEPTION OF THE CYLINDERS, SHALL BE FURNISHED AND INSTALLED BY ALUMINUM STOREFRONT CONTRACTOR AS SELECTED BY OWNER.
14. ALL ITEMS SHALL BE SET IN THEIR CORRECT LOCATIONS AS SHOWN ON THE DRAWINGS AND SHALL BE LEVEL, SQUARE, PLUMB, AND AT PROPER ELEVATION AND IN ALIGNMENT WITH OTHER WORK. THIS CONTRACTOR SHALL DO ALL CAULKING AND SEALING ASSOCIATED WITH HIS WORK.
15. SEAL ALL JOINTS. FRAMING MEMBERS SHALL BE SCREWED IN PLACE USING BACKING, ANCHOR PLUGS, OR STRAPS AS REQUIRED. WHERE MOLDINGS ARE JOINED, THEY SHALL BE ACCURATELY CUT AND FITTED TO RESULT IN A TIGHTLY CLOSED HAIR-LINE JOINT. NO UNFINISHED MATERIAL SHALL BE VISIBLE.
16. DOORS SHALL OPERATE FREELY AND SHALL NOT RATTLE WHEN CLOSED. SWING TYPE DOORS SHALL HAVE HEAD AND JAMB CLEARANCE OF 3/32" PLUS OR MINUS 1/32".
17. AFTER ERECTION, THE CONTRACTOR SHALL PROTECT EXPOSED PORTIONS FROM DAMAGE BY MACHINES, PLASTER, LIME, PAINT, ACID, CEMENT, OR OTHER HARMFUL COMPOUNDS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL OF PROTECTIVE MATERIALS AND CLEANING PER STOREFRONT FRAMING MANUFACTURER'S PRINTED INSTRUCTIONS.

FINISH HARDWARE

1. ALL HARDWARE SHALL BE GUARANTEED FOR A PERIOD OF TWO (2) YEARS AFTER INSTALLATION, CONTRACTOR SHALL PROVIDE WRITTEN GUARANTEE TO OWNER.
2. ALL LOCKS SHALL BE CONSTRUCTION KEYED. ALL PERMANENT KEYS AND CONSTRUCTION KEYS SHALL BE GIVEN TO OWNER ONLY. KEYING SHALL BE AS PER DIRECTION OF OWNER.

VENEER PLASTER AND EFS (EXTERIOR FINISH SYSTEM)

1. ALL INTERIOR WALLS, PARTITIONS, CEILINGS AND OTHER INTERIOR SURFACES AS CALLED FOR SHALL BE COVERED WITH 5/8" GWB AS MANUFACTURED BY U.S.G. CO. GWB SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURERS LATEST SPECIFICATIONS INCLUDING ALL METAL GROUNDS, BEADS, FURRING, ECT.
2. ALL SURFACES WHICH ARE TO REMAIN EXPOSED SHALL BE FINISH TAPED AND SANDED SMOOTH.
3. USE WATER RESISTANT (GREENBOARD) GWB AT ALL AREAS EXPOSED TO MOISTURE AND FOR ALL WALLS RECEIVING CERAMIC TILE, SUCH AS SERVICE, STORAGE ROOMS, TOILET ROOMS, MECHANICAL ROOMS, ECT.
4. VENEER PLASTER TO CONFORM TO A.S.T.M. C587 MIX AND APPLICATION PER MANUFACTURERS RECOMMENDATIONS.
5. EFS SYSTEM SHALL BE COMPOSED OF 5/8" DENSGLASS AS MANUFACTURED BY GEORGIA PACIFIC AND COVERED WITH AN ELASTOMERIC ACRYLIC FINISH IN ALL RESPECTS EQUAL TO THOSE COMPONENTS MANUFACTURED BY DRYVIT. THE THE SUBSTRATE FOR CORNICE SHALL BE EXPANDED POLYSTYRENE, ADHESIVE APPLIED.

CERAMIC TILE & TILE PAVERS

1. TILE TO BE STANDARD GRADE COMPLYING WITH THE CURRENT REQUIREMENTS OF THE TILE COUNCIL OF AMERICA (TCA) AND INSTALLED PER TCA AND THE TILE MANUFACTURER RECOMMENDATIONS.
2. FINISH, COLOR, SIZE AND PATTERN OF TILE TO BE SELECTED BY THE OWNER. PROVIDE ALL REQUIRED TRIM PIECES FROM SAME MANUFACTURERS AS TILE.
3. PROVIDE GRADE A MARBLE THRESHOLDS AND OTHER TILE ACCESSORIES AT LOCATIONS AND SIZES INDICATED.
4. GROUT AND SETTING BED COMPONENTS SHALL BE AS RECOMMENDED BY TILE MANUFACTURER. THRESHOLDS SHALL BE SET IN EPOXY GROUT.

SUSPENDED CEILING SYSTEMS

1. METAL SUSPENSION SYSTEM SHALL BE AS MANUFACTURED BY ARMSTRONG, UNITED STATES GYPSUM, CHICAGO METALLIC OR, AN APPROVED EQUAL.
2. PROVIDE ALL REQUIRED BRACING AND BACKING FOR ARCHITECTURAL TREATMENT INDICATED ON THE PLANS.
3. 2 X 2 LAY-IN ACOUSTICAL TILE SYSTEM SHALL BE ARMSTRONG, U.S. GYPSUM, OR EQUAL. PROVIDE MOISTURE RESISTANT PANELS (TYPE 2) IN KITCHEN AND OTHER AREAS AS DIRECTED BY OWNER.
4. SUBMIT SAMPLES FOR OWNER'S APPROVAL.
5. CONTRACTOR SHALL PROVIDE OWNER WITH ONE (1) EXTRA BOX OF EACH TYPE TILE USED ON THE PROJECT.

PAINTING

1. ALL PAINT MATERIAL SHALL BE OF FIRST QUALITY, EQUAL TO SHERWIN-WILLIAMS.
2. ALL HOLES, CRACKS, ETC. SHALL BE FILLED AND SANDED SMOOTH.
3. HOLIDAYS, BRUSH MARKS AND PAINT SPOTTING IS NOT ACCEPTABLE AND SHALL BE CORRECTED.
4. SURFACE PREPARATION AND APPLICATION OF PAINT AND STAIN MATERIALS SHALL BE DONE IN STRICT COMPLIANCE WITH MANUFACTURER'S SPECIFICATIONS.
5. ALL WOOD SURFACES TO BE NATURAL FINISH SHALL BE SEALED OR STAINED AND SEALED. USE FILLERS AS REQUIRED. USE APPROVED STAIN, SEALER AND FILLER APPLIED IN STRICT COMPLIANCE WITH LATEST MANUFACTURERS SPECIFICATIONS. USE MINWAX OR OLYMPIC STAIN SEALER AND FILLER, OR EQUAL.
6. ALL EXTERIOR HOLLOW METAL DOORS AND FRAMES SHALL RECEIVE TWO COATS OF PAINT OVER SHOP APPLIED PRIME COAT, UNLESS OTHERWISE NOTED. PAINT COLOR SHALL BE SELECTED BY OWNER.

TOILET ROOM ACCESSORIES

1. PROVIDE AND INSTALL ALL TOILET ROOM ACCESSORIES, GRAB BARS, T.P. HOLDERS, MIRRORS, ETC. AS CALLED FOR ON DRAWINGS. MOUNTING HEIGHTS SHALL BE IN CONFORMANCE WITH HANDICAPPED CODE REQUIREMENTS IN THE LATEST EDITION OF THE FLORIDA BUILDING CODE.

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RENOVATIONS & ADDITIONS TO
S & S FOOD STORE NO. 38
US 441 & I-75 ELLISVILLE, FLORIDA

Craig Salley 10/1/09

CRAIG SALLEY, R.A.
FL. REG. NO. 4475
DATE 9/21/09
DRAWN JM
APPROVED

0920

AS-2

OF 39 SHEETS

CONSTRUCTION DOCUMENTS

GENERAL MECHANICAL REQUREMENTS

1. CONTRACTOR SHALL COMPLY WITH LATEST EDITION IF A.S.H.R.A.E., S.M.A.C.N.A. AND ALL APPLICABLE NATIONAL, STATE AND LOCALSODES.
2. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CNDITIONS PRIOR TO SUBMITTING BID. BY SUBMITTING BID, CONTRACTOR TATES THAT HE HAS EXAMINED ALL EXISTING CONDITIONS. IF CONTRACTR ENCOUNTERS EXISTING CONDITIONS WHICH NEED CLARIFICATION, ONTACT OWNER'S REPRESENTATIVE FOR RESOLUTION OR CLARIFICATIN.
3. PERMITS AND FEES: CONTRACTOR SHALL OBTAIN AL PERMITS AND PAY ALL FEES AND CHARGES REQUIRED FOR THE CONSTUCTION AND UTILITIES CONNECTIONS.
4. ALL WORK PERFORMED UNDER THIS CONTRACT SHAL HAVE ONE (1) YEAR WRITTEN GUARANTEE FOR ALL MATERIALS AND WORMANSHIP. ALL COMPRESSORS SHALL HAVE FIVE (5) YEAR FACTOR WARRANTY.
5. ALL MATERIALS SHALL BE NEW AND OF FIRST CLAS QUALITY. NO "USED" MATERIALS WILL BE PERMITTED TO BE INSTALLED O THIS PROJECT.
6. AT COMPLETION OF PROJECT, CONTRACTOR SHALL ELIVER TO OWNER ALL DOCUMENTS (INCLUDING BUILDING PERMITS, OPERATIN AND MAINTENANCE MANUALS AND ALL OTHER FINAL CLOSE OUT DOCUMNTS).
7. ALL DUCTWORK SHALL BE FABRICATED AND INSTALED IN ACCORDANCE WITH THE LATEST S.M.A.C.N.A. MANUALS.
8. ALL DUCT SIZES INDICATED ARE "FREE AREA" INSIDIDIMENSION REQUIREMENTS.
9. ALL SUPPLY AND RETURN DUCTWORK SHALL BE 1" THK FIBERBOARD WITH "HARDCAST" JOINTS.
10. ALL EXHAUST DUCTWORK SHALL BE SHEET METAL UNESS OTHERWISE INDICATED OR NOTED ON PLANS.
11. ALL FLEXIBLE DUCT RUN OUTS TO DIFFUSERS SHALL E CLASS 1 PRE-INSULATED FLEXIBLE DUCT. THE MAXIMUM LENGTH O FLEXIBLE DUCT SHALL BE 5'-0". WHERE RUN OUT EXCEEDS THIS DISTANCE, SE ROUND RIGID SHEET METAL WITH 1" THICK EXTERNAL FIBERGLASS INSULA'ON.
12. ALL OUTSIDE AIR SUPPLY DUCTWORK SHALL BE SHEI METAL.
13. PIPING MATERIALS: REFRIGERANT PIPING SHALL BETYPE K COPPER SIZED AND INSTALLED IN ACCORDANCE WITH EQUIPMENT MAUFACTURER'S RECOMMENDATIONS. PROVIDE SIGHT GLASS AND FITER DRIER ON EACH SYSTEM. CONDENSATE DRAIN PIPING SHALL BE SCHDULE 40 STEEL. SCHEDULE 40 PVC MAY BE USED IF APPROVED BY LOAL CODES. RUN TO APPROVED WASTE OR DRYWELL AS REQUIRED BY GVERNING AUTHORITY.
14. INSULATION: ALL REFRIGERANT PIPING SHALL BE INULATED WITH 3/4" THICK CLOSED CELL ELASTOMERIC INSULATION. ALLKITCHEN HOOD MAKEUP DUCTWORK SHALL BE INSULATED WITH 1" THK EXTERNAL FIBERGLASS INSULATION WRAP. CONDENSATE DRAINPIPING SHALL BE INSULATED WITH 3/4" THICK CLOSED CELL ELASTOMERIC INSULATION.
15. AIR CONDITIONING EQUIPMENT SHALL BE AS SCHEDULD ON THE DRAWINGS. SYSTEMS SHALL BE COMPLETE WITH FILTERS, MOTORSTARTERS, MOTOR DISCONNECTS, AND ROOF CURBS (WHERE UNITS ARE DOOF MOUNTED) AND ALL OTHER ACCESSORIES, RELAYS, AND OTHER ITEM OF EQUIPMENT REQUIRED FOR A COMPLETE, OPERATING SYSTEM.
16. FANS SHALL BE AS SCHEDULED ON THE DRAWINGS. ANS SHALL BE COMPLETE WITH BACKDRAFT DAMPERS, BIRD SCREE MOTOR STARTERS, MOTOR DISCONNECTS, AND ROOF CURBS (WHERE FAN ARE ROOF MOUNTED).
17. CONTROLS: EACH A/C SYSTEM SHALL BE CONTROLLD BY A THERMOSTAT WITH "HEAT-OFF-COOL" SWITCH AND FAN "ON-AUTO" WITCH. EACH SYSTEM HANDLING 2,000 CFM AND GREATER SHALL HAVE FIESTATS INSTALLED IN THE SUPPLY AND RETURN AIR DUCTWORK.
18. AIR DEVICES SHALL BE AS SCHEDULED ON THE DRAINGS. DEVICES SHALL BE COMPLETE WITH ALL MOUNTING HARDWARE REQUIED FOR A COMPLETE INSTALLATION. ALL SIDEWALL SUPPLY REGISTERS SALL HAVE DOUBLE DEFLECTION LOUVERS WITH FRONT SET VERTICALLY OUNTED. DEVICES SHALL BE FIELD PAINTED IF INDICATED ON ARCHITECURAL DRAWINGS. (COLOR TO BE SELECTED BY OWNER.)
19. COORDINATE EXACT LOCATION OF ALL AIR DEVICESN CEILING WITH LIGHTING FIXTURES. REFER TO ARCHITECTURAL REFECTED CEILING PLANS FOR LOCATIONS IN CEILINGS. COORDINATE EXACT LCATION OF ALL WALL MOUNTED AIR DEVICES WITH ARCHITECTURAL INTERIC ELEVATIONS AND STRUCTURAL COMPONENTS.
20. DAMPERS SHALL BE PROVIDED AT ALL BRANCH TAK-OFFS FROM MAIN DUCTWORK AND AT EACH AIR DEVICE FOR SYSTEM BLANCING. DAMPERS AT DEVICES SHALL BE OF THE OPPOSED BLADE TYP.
21. CONTRACTOR SHALL TEST AND BALANCE THE SYSTES UPON COMPLETION OF WORK. ANY DEFECTS OR DEFICIENCIES DISCOVEREAS A RESULT OF TESTS SHALL BE IMMEDIATELY CORRECTED OR REPAIRED AND TESTS SHALL BE REPEATED UNTIL THE TEST REQUIREMENTS ARE FULLYCOMPLIED WITH. SUBMIT TEST AND BALANCE REPORT TO OWNER AT COMPLETON OF TESTING.
22. CONTRACTOR SHALL FURNISH SUBMITTAL DATA TO ONER FOR APPROVAL ON ALL A/C EQUIPMENT, FANS, AIR DEVICES, ETC. PRIR TO ORDERING ANY ITEMS. CONTRACTOR MAY OFFER SUBSTITUTION ON ITEMS FOR APPROVAL BY OWNER. SUBSTITUTIONS MUST BE EQUAL IN ALL RESPECTS TO ITEMS SCHEDULED OR SPECIFIED.
23. CONTRACTOR SHALL PROVIDE ALL MATERIAL AND LBOR REQUIRED TO MAKE ALL FINAL CONNECTIONS TO OWNER/FOOD SERVICE EUIPMENT. REFER TO FOOD SERVICE DRAWINGS FOR ADDITIONAL NOTES AD INSTALLATION DETAILS FOR FOOD SERVICE EQUIPMENT (INCLUDING LL ROUGH-IN LOCATIONS).

GENERAL PLUMBING REQUIREMENTS

1. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO SUBMITTING BID. BY SUBMITTING BID, CONTRACTOR STATES THAT HE HAS EXAMINED ALL EXISTING CONDITIONS. IF CONTRACTOR ENCOUNTERS EXISTING CONDITIONS WHICH NEED CLARIFICATION, CONTACT OWNER'S REPRESENTATIVE FOR RESOLUTION OR CLARIFICATION.
2. CONTRACTOR SHALL OBTAIN ALL PERMITS AND PAY ALL FEES AND CHARGES REQUIRED, INCLUDING UTILITY CONNECTION CHARGES APPLICABLE TO HIS WORK.
3. ALL WORK PERFORMED UNDER THIS CONTRACT SHALL HAVE ONE (1) YEAR WRITTEN GUARANTEE FOR ALL MATERIALS AND WORKMANSHIP.
4. ALL MATERIALS SHALL BE OF FIRST CLASS QUALITY. NO "USED" MATERIALS WILL BE PERMITTED TO BE INSTALLED ON THIS PROJECT, UNLESS SPECIFICALLY NOTED ON THE DRAWINGS.
5. AT COMPLETION OF PROJECT, CONTRACTOR SHALL DELIVER TO OWNER ALL DOCUMENTS (INCLUDING BUILDING PERMITS, OPERATION AND MAINTENANCE MANUALS, ETC.)
6. ALL WASTE AND VENT PIPING SHALL BE SCHEDULE 40 PVC WITH SOLVENT WELD JOINTS. EXPOSED WASTE PIPING SHALL BE CHROME PLATED BRASS. ALL PENETRATIONS THROUGH WALLS SHALL HAVE CHROME PLATED ESCUTCHEON PLATES.
7. ALL INTERIOR ABOVE GRADE WATER PIPING SHALL BE SCHEDULE 40 GALVANIZED STEEL WITH SCREWED JOINTS OR TYPE L COPPER WITH SWEATED JOINTS. WATER PIPING BELOW SLAB SHALL BE TYPE K SOFT COPPER WITH NO JOINTS BELOW SLAB. WRAP ALL PIPING PENETRATIONS OF SLAB WITH TWO (2) LAYERS OF 30 LB. ROOFING FELT OR PLASTIC SLEEVES MADE SPECIFICALLY FOR THIS PURPOSE.
8. EXTERIOR WATER PIPING SHALL BE SCHEDULE 40 PVC WITH SOLVENT WELD JOINTS, UNLESS OTHERWISE NOTED ON THE CIVIL DRAWINGS. PROVIDE THRUST BLOCKING AT ALL ELBOWS AND OFFSETS IN PIPING SYSTEM. REFER TO CIVIL DRAWINGS FOR ADDITIONAL INFORMATION.
9. ALL ABOVE GRADE GAS PIPING SHALL BE SCHEDULE 40 BLACK STEEL WITH SCREWED JOINTS. PIPING EXPOSED TO WEATHER SHALL BE PROTECTED FROM ELEMENTS PER LOCAL CODES (I.E. PAINTING, ETC.) ALL PIPING IN RETURN AIR PLENUMS SHALL BE SLEEVED AND VENTED TO ATMOSPHERE PER LOCAL CODES. UNDERGROUND GAS PIPING SHALL BE POLYETHYLENE PIPE WITH HEAT FUSION JOINTS AND COPPER TRACER WIRE OF PIPING.
10. CONTRACTOR SHALL COORDINATE SERVICES TO BUILDING WITH LOCAL UTILITY COMPANIES. CHARACTERISTICS AND SIZE OF SERVICE SHALL BE AS INDICATED ON THE DRAWINGS. REFER TO CIVIL DRAWINGS FOR SPECIFIC INFORMATION.
11. PIPING INSULATION: ALL HOT WATER PIPING SHALL BE INSULATED WITH 3/4" THICK CLOSED CELL ELASTOMERIC INSULATION. ALL COLD WATER PIPING EXPOSED TO AMBIENT TEMPERATURES (INCLUDING ATTICS AND EXTERIOR WALLS) SHALL BE INSULATED WITH 3/4" THICK CLOSED CELL ELASTOMERIC INSULATION. HORIZONTAL STORM PIPING SHALL BE INSULATED WITH 1" THICK FIBERGLASS INSULATION WITH VAPOR BARRIERS. WASTE PIPING FOR LAVATORIES SHALL HAVE 3/4" THICK ELASTOMERIC INSULATION.
12. PLUMBING FIXTURES SHALL BE AS SCHEDULED ON THE DRAWINGS. FIXTURES SHALL BE FURNISHED COMPLETE WITH SHUT-OFF VALVES, TRAPS, FAUCETS, AND ALL OTHER REQUIRED TRIM. ALL FIXTURES SHALL COMPLY WITH LOCAL WATER CONSERVATION RULES AND REGULATIONS.
13. WATER HEATERS SHALL BE AS SCHEDULED ON THE DRAWINGS. HEATERS SHALL HAVE FIVE (5) YEAR FACTORY WARRANTY (MINIMUM) ON TANK.
14. WATER SYSTEM SHALL BE PROVIDED WITH VALVES ON COLD WATER AND HOT WATER CONNECTIONS AT EACH FIXTURE, AT PLACES INDICATED ON THE DRAWINGS AND AS REQUIRED BY FIELD CONDITIONS FOR SERVICING SYSTEM.
15. GAS SYSTEM SHALL BE PROVIDED WITH AN APPROVED SHUT-OFF VALVE AT EACH GAS APPLIANCE. PROVIDE AND INSTALL SOLENOID VALVES ON LINES AT LOCATIONS INDICATED ON PLANS OR REQUIRED BY CODE. IN ADDITION PROVIDE PRESSURE REDUCING VALVES AT EACH GAS APPLIANCE WHERE SYSTEM PRESSURE EXCEEDS 4 OUNCES. VENT PRESSURE REDUCING VALVES TO ATMOSPHERE.
16. EACH PLUMBING FIXTURE SHALL BE PROVIDED WITH 12" LONG AIR CHAMBERS ON BOTH THE COLD WATER AND HOT WATER CONNECTIONS TO FIXTURE.
17. ALL INDIRECT WASTE PIPING SHALL BE TYPE M COPPER WITH SWEATED JOINTS. COPPER PIPING SHALL BE ISOLATED FROM STAINLESS STEEL FIXTURES OR CASEWORK WITH TWO (2) LAYERS OF INSULATING TAPE.
18. CONTRACTOR SHALL FURNISH SUBMITTAL DATA TO OWNER FOR APPROVAL ON ALL FIXTURES, EQUIPMENT, WATER HEATERS, ETC. PRIOR TO ORDERING ANY ITEMS. CONTRACTOR MAY OFFER SUBSTITUTIONS ON ITEMS FOR APPROVAL BY OWNER. SUBSTITUTIONS MUST BE EQUAL IN ALL RESPECTS TO ITEMS SCHEDULED OR SPECIFIED.
19. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT MOUNTING HEIGHTS OF ALL FIXTURES. HEIGHTS SHALL COMPLY WITH A.D.A. CODE REQUIREMENTS.

GENERAL ELECTRICAL REQUIREMENTS

1. CONTRACTOR SHALL COMPLY WITH ALL NATIONAL, STATE AND LOCAL CODES. ALL WORK SHALL BE IN CONFORMANCE WITH N.E.C.
2. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO SUBMITTING BID. BY SUBMITTING BID, CONTRACTOR STATES THAT HE HAS EXAMINED ALL EXISTING CONDITIONS. IF CONTRACTOR ENCOUNTERS EXISTING CONDITIONS WHICH NEED CLARIFICATION, CONTACT OWNER'S REPRESENTATIVE FOR RESOLUTION OR CLARIFICATION.
3. CONTRACTOR SHALL OBTAIN ALL PERMITS AND PAY ALL FEES AND CHARGES REQUIRED, INCLUDING UTILITY COMPANY CHARGES APPLICABLE TO HIS WORK.
4. ALL WORK PERFORMED UNDER THIS CONTRACT SHALL HAVE ONE (1) YEAR WRITTEN GUARANTEE FOR ALL MATERIALS AND WORKMANSHIP.
5. ALL MATERIALS SHALL BE OF FIRST CLASS QUALITY, EQUAL TO SQUARE "D", FEDERAL PACIFIC, OR CUTLER-HAMMER. NO "USED" MATERIALS WILL BE PERMITTED TO BE INSTALLED ON THIS PROJECT, UNLESS SPECIFICALLY NOTED ON THE DRAWINGS.
6. AT COMPLETION OF PROJECT, CONTRACTOR SHALL DELIVER TO OWNER ALL DOCUMENTS (INCLUDING BUILDING PERMITS, OPERATION AND MAINTENANCE MANUALS, ETC.).
7. ALL INTERIOR CONDUIT SHALL BE EMT. ALL EXTERIOR AND UNDERGROUND CONDUIT SHALL BE RIGID GALVANIZED STEEL. MINIMUM SIZE OF CONDUIT SHALL BE 3/4". ALL CONDUIT SHALL BE ROUTED PERPENDICULAR TO BUILDING LINES WHERE EXPOSED TO VIEW.
8. ALL WIRE SHALL BE THHN COPPER UNLESS OTHERWISE INDICATED ON THE DRAWINGS. MINIMUM SIZE OF WIRE SHALL BE NO. 12. ALL WIRING SHALL BE SIZED AND INSTALLED SO THAT MAXIMUM VOLTAGE DROP TO FARTHEST CONNECTION IN CIRCUIT SHALL NOT EXCEED 3%.
9. ALL DISCONNECT SWITCHES SHALL BE GENERAL DUTY EQUAL TO SQUARE "D", FEDERAL PACIFIC, OR CUTLER-HAMMER, WITH NEMA CONFIGURATION AS INDICATED ON DRAWINGS OR AS REQUIRED BY CODE.
10. ALL SWITCHES SHALL BE SPECIFICATION GRADE. COLOR OF ALL SWITCHES AND COVER PLATES SHALL BE IVORY. MOUNTING HEIGHT OF ALL SWITCHES SHALL COMPLY WITH A.D.A. CODE REQUIREMENTS.
11. ALL RECEPTACLES SHALL BE SPECIFICATION GRADE. COLOR OF ALL SWITCHES AND COVER PLATES SHALL BE IVORY. MOUNTING HEIGHT OF RECEPTACLES SHALL COMPLY WITH A.D.A. CODE REQUIREMENTS UNLESS SPECIFIC OR SPECIAL MOUNTING HEIGHT IS SHOWN ON DRAWINGS OR REQUIRED BY EQUIPMENT.
12. ALL TELEPHONE AND COMPUTER OUTLETS SHOWN ON DRAWING SHALL HAVE EMPTY 3/4" CONDUIT ROUTED FROM BOX TO ABOVE ACCESSIBLE CEILING OR TO TELEPHONE TERMINAL BOARD IF CEILING ABOVE ACCESSIBLE IS NOT ACCESSIBLE. PROVIDE PULL STRING IN CONDUIT FOR INSTALLATION OF CABLES. CABLES WILL BE INSTALLED UNDER SEPARATE CONTRACT. MOUNTING HEIGHT OF DEVICES SHALL COMPLY WITH A.D.A. CODE REQUIREMENTS.
13. CONTRACTOR SHALL MARK PROPOSED LOCATION OF ALL SWITCHES, RECEPTACLES, TELEPHONE OUTLETS, ETC. ON WALLS FOR OWNER'S APPROVAL PRIOR TO ROUGH-IN OR INSTALLATION OF ANY BOXES AND CONDUIT. ALL DEVICES MAY BE RELOCATED A MAXIMUM OF 6'-0" PRIOR TO INSTALLATION AT NO ADDITIONAL COST TO OWNER.
14. TRANSFORMERS SHALL BE DRY-TYPE OF SIZE AND VOLTAGE REQUIREMENTS AS INDICATED ON THE DRAWINGS. TRANSFORMERS SHALL BE GROUNDED AS PER THE N.E.C.
15. ENTIRE ELECTRICAL SYSTEM SHALL BE GROUNDED IN ACCORDANCE WITH N.E.C. ARTICLE 250. GROUNDING TO PLUMBING SYSTEM SPECIFICALLY PROHIBITED.
16. CONTRACTOR SHALL COORDINATE ELECTRICAL SERVICE TO BUILDING WITH LOCAL POWER COMPANY. CHARACTERISTICS AND SIZE OF SERVICE SHALL BE AS INDICATED ON THE DRAWINGS. REFER TO CIVIL DRAWINGS FOR MORE SPECIFIC INFORMATION, AS TO LOCATION OF POWER POLES, ETC.
17. ELECTRICAL EQUIPMENT SHALL BE RATED FOR SERVICE ENTRANCE. ALL BUSSING SHALL BE COPPER WITH FULL LENGTH GROUND BUS. OVER CURRENT DEVICES SHALL BE FUSIBLE SWITCH (FS) OR CIRCUIT BREAKER (CB) AS INDICATED ON EQUIPMENT SCHEDULE. INTERRUPTING CURRENT OF EQUIPMENT AND DEVICES SHALL BE AS NOTED ON EQUIPMENT SCHEDULE OR AS REQUIRED BY LOCAL POWER COMPANY.
18. ALL PANELBOARDS SHALL HAVE BOLT-ON BREAKERS. PANELBOARDS SHALL HAVE COPPER BUSING WITH AMPERE RATINGS, MAIN BREAKER (MCB) OR MAIN LUGS ONLY (MLO), AND MOUNTING AS SHOWN ON PANEL SCHEDULES. PANELS SHALL BE EQUAL TO SQUARE "D", FEDERAL PACIFIC, OR CUTLER-HAMMER.
19. LIGHT FIXTURES SHALL BE LITHONIA OR EQUAL. FIXTURES SHALL BE COMPLETE WITH ALL LAMPS. CONTRACTOR SHALL PROVIDE OWNER WITH ONE SET OF SPARE LAMP(S) FOR EACH TYPE FIXTURE USED ON THE PROJECT.
20. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATION OF ALL LIGHTING FIXTURES IN CEILING. REFER TO ARCHITECTURAL INTERIOR AND EXTERIOR ELEVATIONS FOR MOUNTING HEIGHTS OF ALL WALL MOUNTED FIXTURES. ARCHITECTURAL LOCATIONS GOVERN.
21. CONTRACTOR SHALL FURNISH SUBMITTAL DATA TO OWNER FOR APPROVAL ON ALL FIXTURES AND EQUIPMENT, PRIOR TO ORDERING ANY ITEMS. CONTRACTOR MAY OFFER SUBSTITUTIONS ON ITEMS FOR APPROVAL BY OWNER. SUBSTITUTIONS MUST BE EQUAL IN ALL RESPECTS TO ITEMS SCHEDULED OR SPECIFIED.

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RENOVATIONS & ADDITIONS TO S & S FOOD STORE NO. 38
US 441 & I-75 ELLISVILLE, FLORIDA

Craig Salley 10/1/09

CRAIG SALLEY, R.A.
FL. REG. NO. 4475

DATE	9/21/09
DRAWN	JM
APPROVED	

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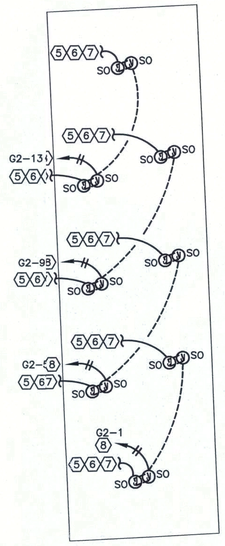
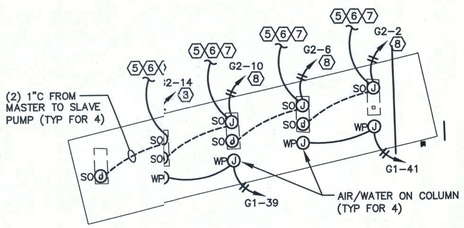
AS-3

OF 39 SHEETS

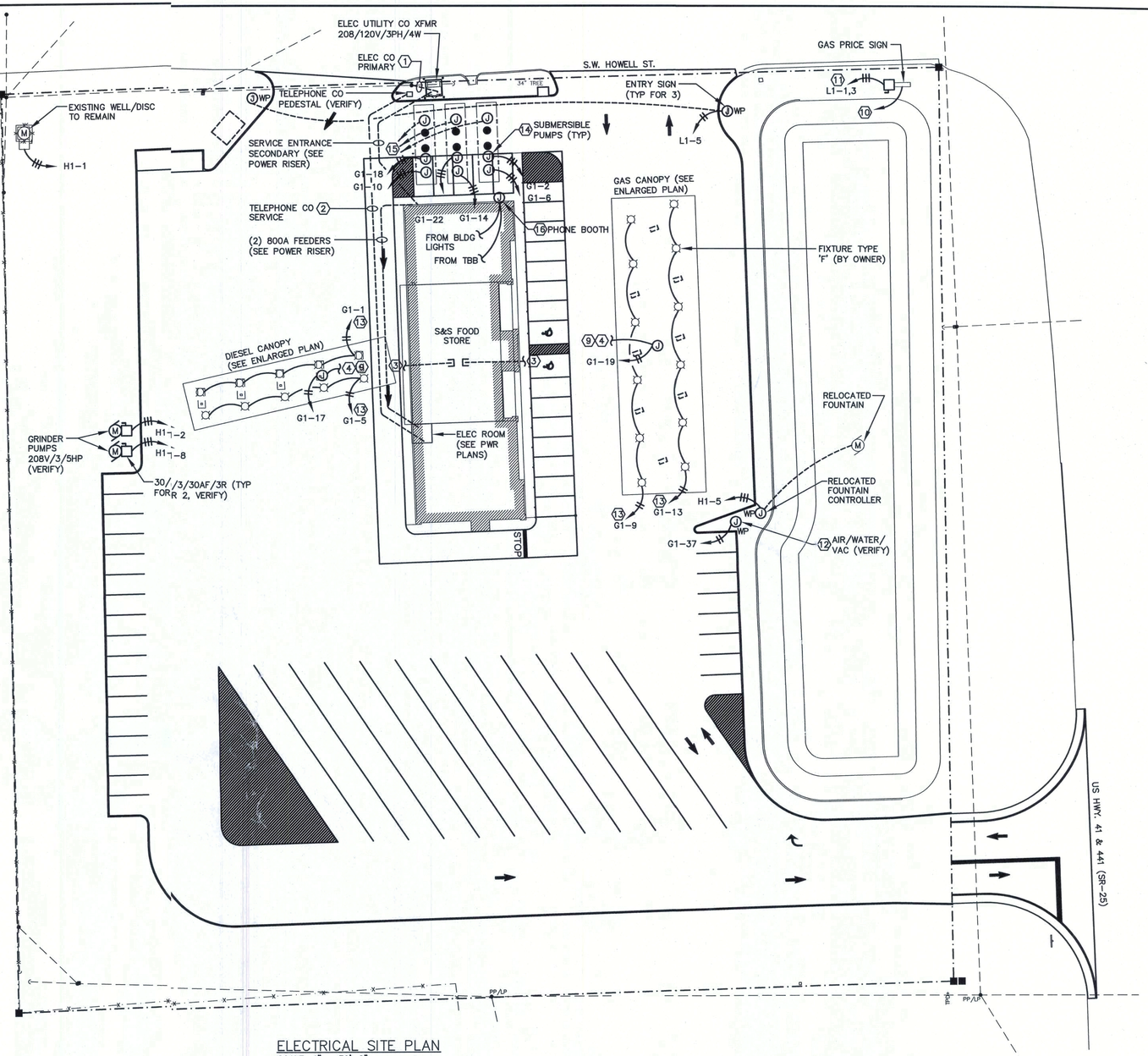
CONSTRUCTION DOCUMENTS



ENLAIGED GAS CANOPY PLAN
SCALE: 1=20'-0"



ENLARGED DIESEL CANOPY PLAN
SCALE: 1= 20'-0"



ELECTRICAL SITE PLAN
SCALE: 1" = 30'-0"

(#) ELEC SITE PLANNOTES:

EC – BY ELE CONTRACTOR
PETRO – BY PETROLEUM CONTRACTOR

1. PRIOR TO STAR OF ANY WORK OBTAIN WRITTEN APPROVAL FOR LOCATION OF TRANSFORMER, PRIMARY SERVICE CONDUIT & CONNECTION POINT PER ELECTRIC UTILITY CO DIRECTION. PROVIDE/VERIFY (2) 4" SCHEDULE 40 PVC CONDUITS W/36" RADIUS ELLS AT TRANSFORMER & SERVICE CONNECTION POINT. PROVIDE CONDUIT W/PULWIRE AND MAINTAIN 42" MINIMUM DEPTH, CALL FOR INSPECTION BEFORE COVERING. LOCATION OF TRANSFORMER, PRIMARY AND SECONDARY CONDUIT/FEEDE LOCATIONS ARE CONTINGENT UPON ELEC UTILITY CO APPROVAL. PROVIDE TRANSFORMER PAD/ PROTECTIVE BOLLARDS AND GROUND RODS PER ELEC UTILITY C REQUIREMENTS. SEE 'POWER RISER' FOR ADDITIONAL REQUIREMENTS.
2. PRIOR TO STAF OF ANY WORK OBTAIN WRITTEN APPROVAL FOR LOCATION OF SERVICE CONDUITS & CONNECTION POINT PER TELEPHONE UTILITY CO DIRECTION. PROVIDE/VERIF TELE CO REQUIREMENTS OF (2) 4" SCHEDULE 40 PVC CONDUIT RUN OUT PAST PROPERTY LINE, W/200LB PULLWIRE. SEAL ENDS TO PREVENT GAS/WATER/RENT INTRUSION, 24" MINIMUM COVER, CALL FOR INSPECTION BEFORE COVERING. SEE ALSO 'SEE TELE BACKBOARD) RISER' FOR ADDITIONAL REQUIREMENTS.
3. EC SHALL FIELVERIFY ALL CONDUITS/PULLWIRES WITH OWNER FOR EXACT TYPE/SIZE/ETC. CONDUITS SHALL BE STUBBED-OUT MIN. 5FT IN FRONT OF BUILDING FOR ALL FUEL ANOPY SYSTEMS AND FUEL STATIONS FROM STUB-UP AT CHECKOUT AREA, ELEC PANELS, OR TELEPHONE BACKBOARD. SEE POWER PLAN AND POWER RISER. ETRO SHALL MAKE ALL FINAL ELEC CONNECTIONS TO FUEL CANOPY SYSTEMS AND FUEL STATIONS & RUN CONDUCTORS BACK & MAKE ALL FINAL CONNECTIONS \ BREAKERS AT ELEC PANELS/ OWNER EQUIPMENT AS REQUIRED. PETRO SHALL PROVIDE/INSTALL FROM EC PROVIDED CONDUIT/PULLWIRES ALL CONDUIT/PULLRES TO FUEL CANOPY SYSTEMS AND FUEL STATIONS. ALL CONDUIT WITHIN 10FT OF ANY PETROLEUM EQUIPMENT SHALL BE RIGID STEEL OR PER NFPA STANDARS, WHICHEVER IS MORE STRINGENT. ALL OTHER CONDUIT MAY BE SCHEDULE 40 PVC AS ALLOWED BY CODE.
4. EC SHALL FIELVERIFY WITH OWNER & PROVIDE/INSTALL (1) 1" CONDUIT W/ PULLWIRE FOR CANOPY DATA FROM ELEC EQUIPMENT IT ROOM OUT MIN. 5FT IN FRONT OF BLDG. PETR SHALL FIELD VERIFY WITH OWNER & PROVIDE/INSTALL FROM EC PROVIDED CONDUIT/PULLWIRE (1) 1" CONDUIT W// PULLWIRE TO OWNER REQUIRED CANOPY DATA/GNAGE LOCATION(S). RUN CONDUITS IN DATA TRENCH, PETRO SHALL RUN ALL CONDUITS UP INSIDE CANOPY COLUMN
5. EC SHALL FIELVERIFY WITH OWNER & PROVIDE/INSTALL (1) 3/4" CONDUIT/PULLWIRE FROM TELEPHONE BACKBOARD TO MIN. 5FT IN FRONT OF BLDG FOR FUTURE CABLES. PETRSHALL PROVIDE/INSTALL FROM EC PROVIDED CONDUIT/PULLWIRE (1) 3/4" CONDUIT/PULLWIRE FOR FUTURE CABLE ; TO FUEL DISPENSER AND CAP. RUN CONDUITSN DATA TRENCH.
6. EC SHALL FIELVERIFY WITH OWNER & PROVIDE/INSTALL (1) 3/4" CONDUIT/PULLWIRE FROM CHECKOUT AREA TO MIN. 5FT IN FRONT OF BLDG. PETRO SHALL PROVIDE/INSTA FROM EC PROVIDED CONDUIT/PULLWIRE (1) 3/4" CONDUIT/CABLE/PULLWIRE/ETC AND MAKE ALL FINAL CONNECTIONS FOR FUEL DISPENSER INTERCOM. RUNCONDUITS IN DATA TRENCH.
7. EC SHALL PROVIDE/INSTALL (1) 3/4" CONDUIT/PULLWIRE FROM ELEC PANEL TO 15FT IN FRONT OF BLDG. PETRO SHALL PROVIDE/INSTALL FROM EC PROVIDED CONDUIT/PULLRE (1) 3/4" CONDUIT/J-BOX/CABLE/PULLWIRE/ETC AND MAKE ALL FINAL CONNECTIONS FOR FUEL DISPENSER DATA. RUN CONDUITS IN DATA TRENCH.
8. EC SHALL FIELD VERIFY WITH OWNER & PROVIDE/INSTALL (1) 3/4"CONDUIT/PULLWIRE FROM POWER WIREWAY TO MIN. 5FT IN FRONT OF BLDG. PETRO SHALL PROVIDE/INSTALL FROM EC PROVIDED CONDUIT/PULLWIRE (1) 3/4" CONDUIT/WIRE/J-BOX/ PULLWIRE/ETC FOR FUEL DISPENSER POWER AND MAKE ALL FINAL CONNECTIONS.
9. EC SHALL FIELD VERIFY WITH OWNER & PROVIDE/INSTALL (1) 1" CONDUIT/PULLWIRE FROM SECURITY SYSTEM IN THE MANAGER'S OFFICE OUT MIN. 5FT IN FRONT OF BLDG WITH PULLWIRE. PETRO SHALL FIELD VERIFY WITH SECURITY VENDOR & PROVIDE/INSTALL FROM EC PROVIDED CONDUIT/PULLWIRE (1) 1" CONDUIT/ J-BOX/ PULLWIRE UP TO EACH END OF FUEL CANOPY. SECURITY VENDOR SHALL COMPLETE INSTALLATION OF CABLES/CAMERAS/ETC AS DIRECETED BY OWNER. RUN CONDUITS IN DATA TRENCH.
10. EC SHALL FIELD VERIFY LOCATION OF OWNER PROVIDED GAS PRICE SIGNAGE & PROVIDE/INSTALL (1) 3/4" CONDUIT/PULLWIRE FROM SIGNAGE TO STUB-UP AT CHECKOUT AREA FOR SIGN DATA CABLES. RUN CONDUITS IN DATA TRENCH.
11. EC SHALL FIELD VERIFY LOCATION OF OWNER PROVIDED GAS PRICE SIGNAGE & PROVIDE/INSTALL (1) 3/4" CONDUIT/WIRE/J-BOX/NEMA 3R DISC IF NOT PROVIDED/ETC & MAKE ALL FINAL POWER CONNECTIONS. FIELD VERIFY WITH OWNER LOCATION OF SITE SIGN(S). MOUNT DISC SWITCH WHERE IT WILL BE LEAST VIEWABLE BY THE PUBLIC.
12. EC SHALL PROVIDE/INSTALL CONDUIT/CONDUCTORS AND MAKE ALL FINAL CONNNECTIONS TO AIR/WATER/VAC STATION, EC SHALL FIELD VERIFY LOCATION OF AIR/WATER/VAC WITH OWNER. VERIFY ELEC REQUIREMENTS FOR AIR/WATER/VAC STATION SELECTED AND PROVIDE BREAKER/WRE/CONDUIT AS REQUIRED.
13. EC SHALL PROVIDE/INSTALL (1) 3/4" CONDUIT/PULLWIRE FROM LIGHTING WIREWAY TO 15FT IN FRONT OF BLDG. PETRO SHALL PROVIDE/INSTALL FROM EC PROVIDED CONDUIT/PULLWIRE (1) 3/4" CONDUIT/CONDUCTORS TO PETRO INSTALLED CANOPY LIGHT FIXTURES & MAKE ALL FINAL CONNECTIONS. PETRO SHALL RUN ALL CONDUITS UP INSIDE CANOPY COLUMN.
14. EC SHALL PROVIDE/INSTALL (1) 1" CONDUIT/PULLWIRE FROM ELEC PANELS TO 15FT IN FRONT OF BLDG. PETRO SHALL PROVIDE/INSTALL FROM EC PROVIDED CONDUIT/PULLWIRE (1) 1" CONDUIT/PULLWIRE/J-BOX/WIRE/ETC FOR UNDERGROUND STORAGE FUEL TANK SUBMERSIBLE PUMPS & MAKE ALL FINAL CONNECTIONS.
15. EC SHALL PROVIDE/INSTALL (1) 1" CONDUIT/PULLWIRE FROM IPACS TO 15FT IN FRONT OF BLDG. PETRO SHALL PROVIDE/INSTALL FROM EC PROVIDED CONDUIT/PULLWIRE (1) 1" CONDUIT/CONDUCTORS TO TANK MONITOR/SUMP SENSOR/INTERSTITIAL SENSOR & MAKE ALL FINAL CONNECTIONS. RUN CONDUITS DATA TRENCH.
16. EC SHALL FIELD VERIFY LOCATION WITH OWNER AND PROVIDE/INSTALL (1) 3/4" CONDUIT/CONDUCTORS AND MAKE ALL FINAL CONNECTIONS FOR PHONE BOOTHS, CONNECT PHONE BOOTH LIGHTS TO BLDG EXTERIOR LTG CIRCUIT CONTROLLED BY PHOTOCELL.

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RENOVATIONS & ADDITIONS TO
S & S FOOD STORE NO. 38
US 441 & I-75 ELLISVILLE, FLORIDA

9/16/09
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DATE
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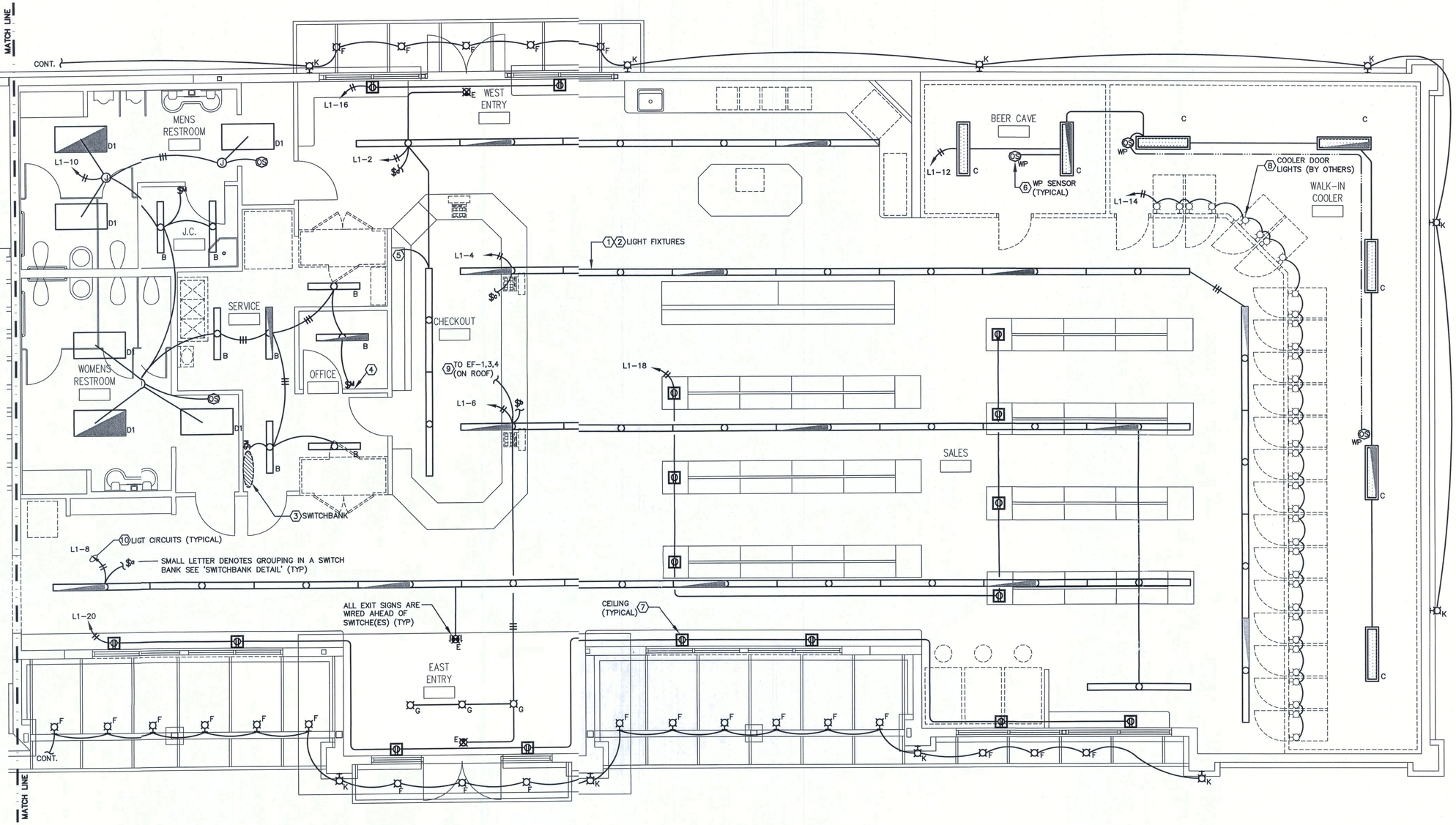
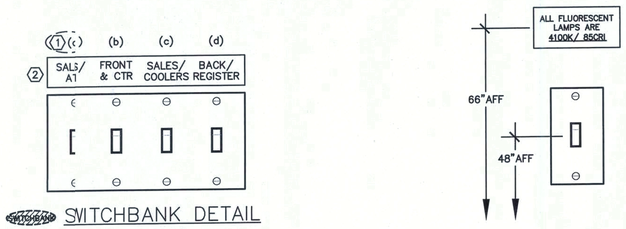
OF 11 SHEETS



STORE LIGHTING PLAN
SCALE: 1/8 " = 1'-0"

LIGHTING PLAN NOTES:

1. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF ALL CEILING LIGHT FIXTURES.
2. ALL LIGHT FIXTURES ARE TYPE 'A' UNLESS OTHERWISE INDICATED.
3. SEE 'SWITCHBANK DETAIL'.
4. PROVIDE PLAQUE IN MANAGERS OFFICE ABOVE LIGHT SWITCH, SEE 'LIGHTING PLAQUE DETAIL' FOR COMPLETE REQUIREMENTS.
5. RECEPTACLE FOR CIGARETTE DISPLAY CABINET LIGHTS MOUNTED SIDEWAYS AT 98" AFF AND CONNECTED TO LTG CKT SHOWN. FIELD VERIFY LOCATION WITH OWNER.
6. PROVIDE CEILING MOUNTED SENSOR IN COOLER/FREEZER SUITABLE FOR DAMP AND COLD LOCATIONS. GREENGATE CATALOG #OXC-P-2MHO-R OR APPROVED EQUAL BY WATTSTOPPER OR HUBBELL.
7. RECEPTACLE SHALL BE FLUSH MOUNTED IN CEILING TILE.
8. PROVIDE CONNECTION TO WALK-IN COOLER MANUFACTURER'S LIGHT FIXTURE PRE-MTD IN DOOR FRAME, ESTIMATED AT 35W EA. FIELD VERIFY IF FIXTURES EXCEED 45W EACH DIVIDE NUMBER OF LAMPS INTO TWO GROUPS AND ADD 20A BKR & CIRCUIT.
9. FAN SHALL RUN CONTINUOUSLY WHEN AREA LIGHTS ARE ON.
10. PRIOR TO ROUGH-IN FIELD VERIFY CIRCUIT CONNECTION REQUIREMENTS TO BUILDING ENERGY MANAGEMENT SYSTEM (EMS) WITH OWNER/EMS VENDOR.



SWITCHBANK DETAIL
NO SCALE

DETAIL NOTE

1. AREA LIGHTSWITCH DESIGNATION, SEE 'ELEC LIGHTING PLAN' FOR RCUIT NUMBER.
2. PROVIDE ABVE FACE PLATE LAMINATED PHENOLIC STRIP 1/16" THICKND ENGRAVED TO SHOW BLACK LETTERS ON WHITE BCKGROUND WITH NOT LESS THAN 1/4" HIGH LETTERS.

LIGHTING PLAQUE DETAIL
NO SCALE

DETAIL NOTES:

1. PROVIDE LAMINATED PHENOLIC PLAQUE MMTD ABOVE SWITCH. PLAQUE SHALL BE 1/16" THICK AND ENGRAVED TO SHOW BLACK LETTERS ON WHITE BACKGROUND WITH NOT LESS THAN 1/4" HIGH LETTERS AND SHALL READ "ALL FLUORESCENT LAMPS ARE 4100K/ 85CRI".

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RENOVATIONS & ADDITIONS TO
S & S FOOD STORE NO. 38
US 441 & I-75
ELLISVILLE, FLORIDA

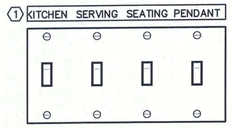
9/16/09
1654E2

DATE	09/21/09
DRAWN	BMV
APPROVED	TME

0920

E-2

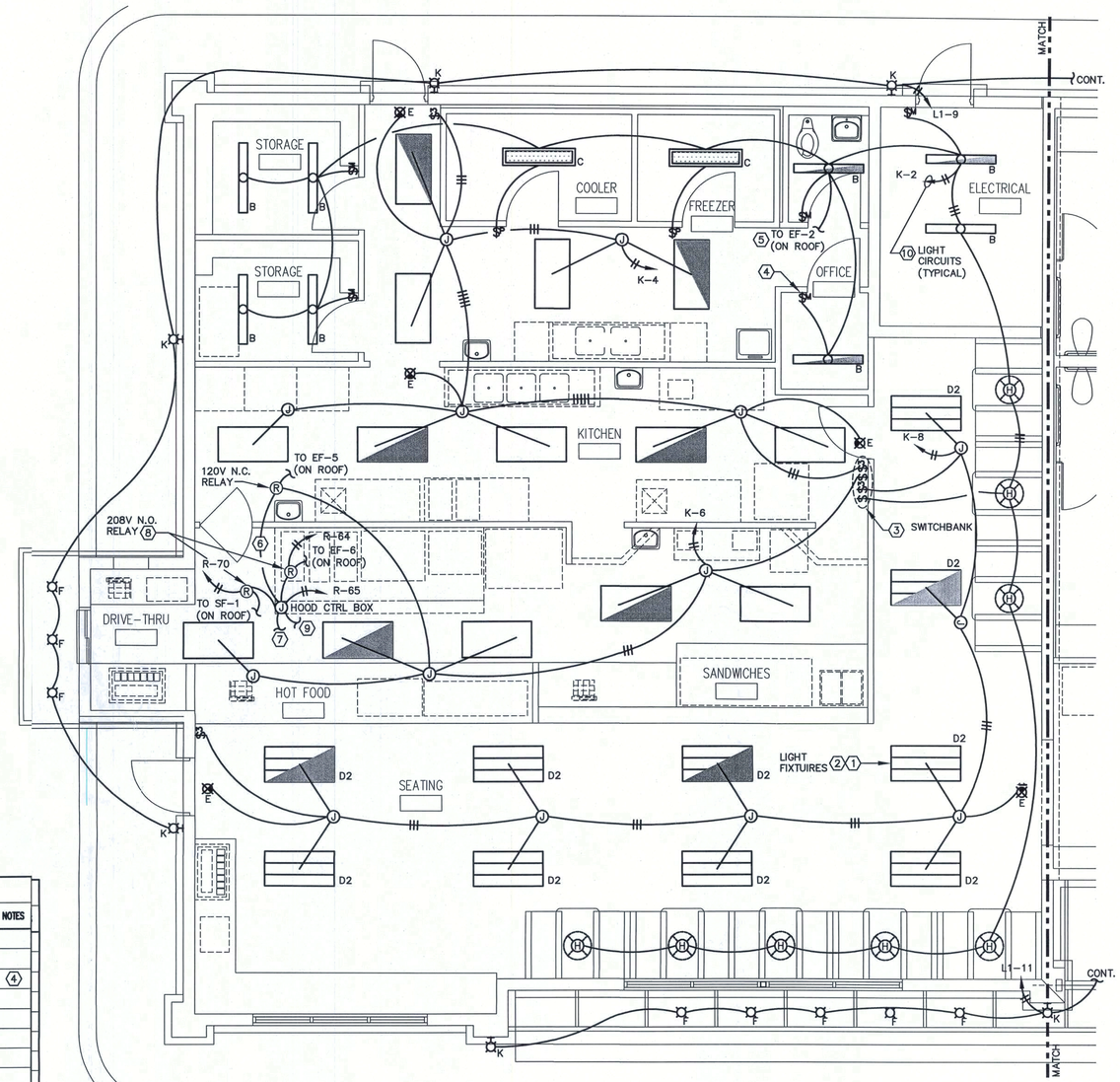
OF 11 SHEETS



RESTAURANT
SWITCHBANK SWITCHBANK DETAIL
NO SCALE

(#) DETAIL OTES:

1. PROVID ABOVE FACE PLATE LAMINATED PHENOLIC STRIP 1/16" IICK AND ENGRAVED TO SHOW BLACK LETTERS ON WHE BACKGROUND WITH NOT LESS THAN 1/4" HIGH LETTER



LIGITING FIXTURE SCHEDULE (1)(2)(3)

MARK	DESCRIPTION	MANUFACTURER (OR APPROVED EQUAL)	VOLT	LAMPS QTY	LAMPS TYPE	INPUT WATTS	MTG./INSTALLATION (UNLESS INDICATED OTHERWISE)	NOTES
A	8FT STRIP LIGHT– TANDEM	LITHON– TC 432 MVOLT GEB10IS AL	120	4	32W T8	140	SURFACE/CEILING	
B	4FT STRIP LIGHT	LITHON– C 232 MVOLT GEB10IS AL		2	32W T8	70	SURFACE/CEILING	
C	4FT ENCLOSED– CW	LITHON– DM 232 AR MVOLT GEB10IS		2	32W T8	70	SURFACE/CEILING	(4)
D1	2X4 TROFFER– LENSED	LITHON– 2WRT G 332 FNA12125 MVOLT GEB10IS		3	32W T8	105	RECESSED/CEILING	
D2	2X4 TROFFER– INDIRECT	LITHON– 2AV G 332 MDR MVOLT GEB10IS		3	32W T8	105	RECESSED/CEILING	
E	EXIT SIGN– UNIVERSAL	LITHON– LQM SW 3R 120/277 ELNSD		–	LED INCLULDED	4	WALL/CEILING	
F	CANOPY DOWNLIGHT	TO BEDETERMINED BY OWNER		1	42W QUAD	45	SURFACE/CANOPY	
G	ENTRY DOWNLIGHT–RECESSED	LITHON– AH 70M 8AR LD MVOLT		1	70W MH	90	RECESSED/CANOPY	
H	PENDANT– BY OWNER	TO BEDETERMINED BY OWNER		1	75W MAX	75	SURFACE/PENADANT	
K	WALL SCONCE– BY OWNER	TO BEDETERMINED BY OWNER		1	32W MAX CFL	35	WALL @ 7FT	
L	FUEL CANOPY LIGHT– BY OWNER	TO BEDETERMINED BY OWNER		1	150W FLUOR.	175	SURFACE/CANOPY	

(#) NOTES:

1. WHERE 'SYMBOL HALF SHADED' OR 'NL' IS INDICATE, PROVIDE FIXTURE WITH BUILT–IN EMERGENCY BATTERY UNIT FOR EMERGENCY LIGHTING (1100 LUMEN MIN. FOR 4FT LAMPS). PROVIDE DOWNLIGHTS WITH FACTORY STALLED INTEGRAL PUSH TO TEST BUTTON MOUNTED IN TOP OF FIXTURE REFLECTOR. CONNECT TO OPERATE AS FOLLOWS:
   'HALF SHADED'– CONNECT FIXTURE TO OPERATE WH SWITCH AND BATTERY UNIT TO OPERATE FIXTURE UPON BRANCH CIRCUIT FAILURE.
   'NL'– FIXTURES ARE TO BE CONNECTED AHEAD OILOCAL SWITCH(ES) TO OPERATE AS NIGHT LIGHT, BATTERY UNIT OPERATES LAMPS ON FAILURE OF BRANCH CIRCUIT.
2. ALL FLUORESCENT FIXTURES SHALL BE PROVIDED WH INTEGRAL DISCONNECTING MEANS WHICH REMOVES POWER TO FIXTURE BALLAST. ORDER 4FT FLUORESCENT GE LAMP TYPE SP4100 ECO ONLY.
3. ALL METAL HALIDE LAMPS SHALL BE PROVIDED WIT (EOL) END–OF–LIFE PROTECTION.
4. PRIOR TO ROUGH–IN FIELD VERIFY FINAL LOCATION IF COOLER EVAPORATORS AND MOUNT FIXTURES SO THEY WILL NOT OBSTRUCT AIR FLOW TO PRODUCT.

RESTAURANT LIGHTING PLAN

SCALE: 1/8 " = 1'–0"

(#) LIGHTING PLAN NOTES:

1. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF ALL CEILING LIGHT FIXTURES.
2. ALL LIGHT FIXTURES ARE TYPE 'D1' UNLESS OTHERWISE INDICATED.
3. SEE 'RESTAURANT SWITCHBANK DETAIL' FOR COMPLETE REQUIREMENTS.
4. PROVIDE PLAQUE IN MANAGERS OFFICE ABOVE LIGHT SWITCH, SEE 'LIGHTING PLAQUE DETAIL'.
5. FAN SHALL RUN CONTINUOUSLY WHEN AREA LIGHTS ARE ON.
6. EXHAUST FAN TO BE ENERGIZED WHEN RESTAURANT HOOD IS TURNED OFF AND AREA LIGHTS ARE TURNED ON. SEE MECHANICAL DRAWINGS FOR COMPLETE REQUIREMENTS AND LOCATION.
7. PROVIDE CONNECTION TO RESTAURANT MOTORIZED DAMPERS IN RTU–1 & 2. SEE MECH DRAWINGS FOR COMPLETE REQUIREMENTS.
8. PROVIDE CONNECTION FROM HOOD CONTROL PANEL TO SUPPLY/EXHAUST FANS & MAKE ALL FINAL CONNECTIONS IN ACCORDANCE WITH APPLICABLE CODES. SEE MECHANICAL DRAWINGS FOR COMPLETE REQUIREMENTS AND LOCATION.
9. INTERLOCK HOOD CONTROL PANEL TO SHUNT TRIP BREAKERS AS REQUIRED. SEE PANEL SCHEDULES.
10. PRIOR TO ROUGH–IN FIELD VERIFY CIRCUIT CONNECTION REQUIREMENTS TO BUILDING ENERGY MANAGEMENT SYSTEM (EMS) WITH OWNER/EMS VENDOR.

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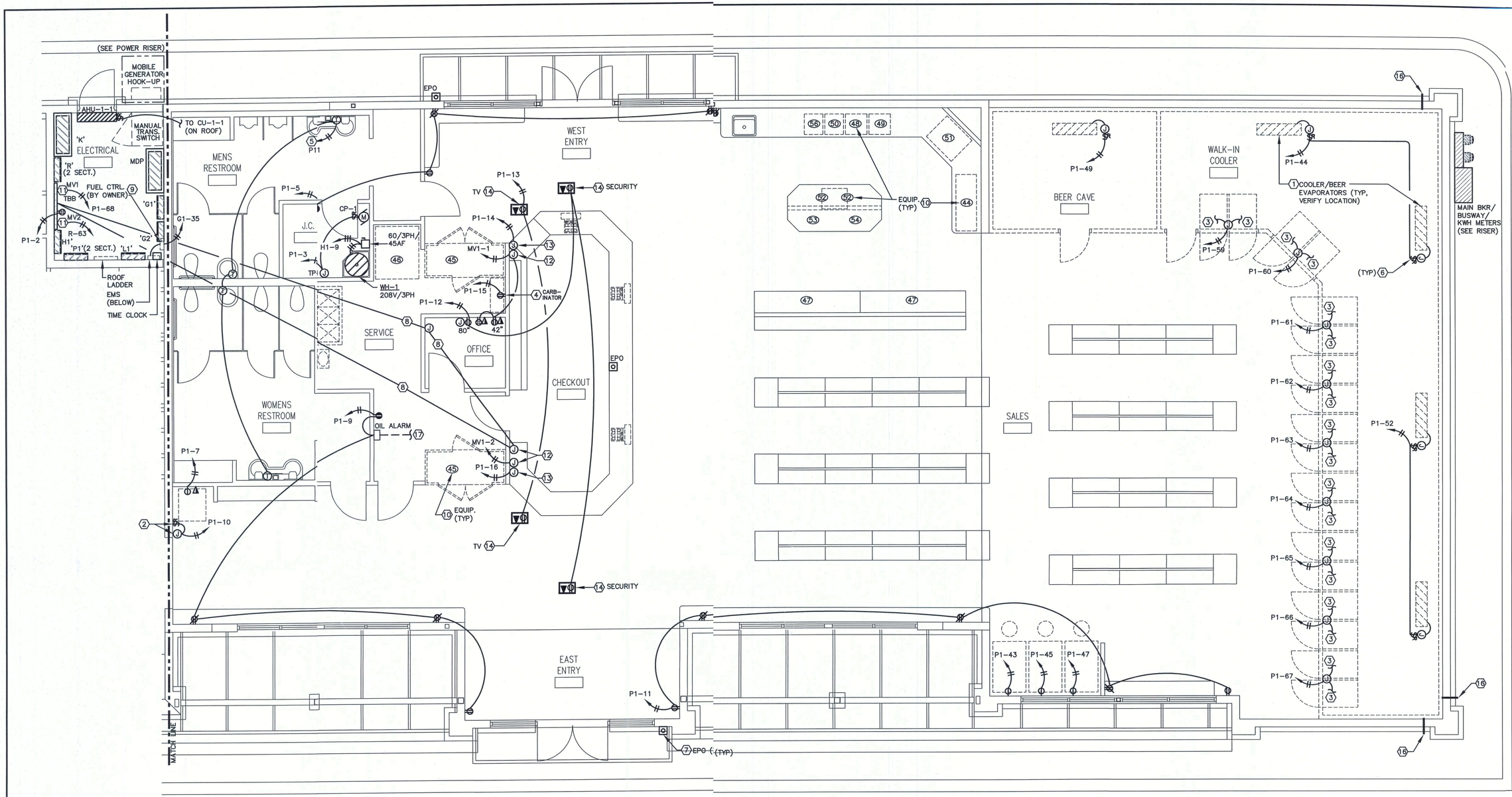

STORE POWER PLAN

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

POWER PLAN NOTES:

1. COORDINATE EXACT LOCATION OF EVAPORATORS WITH SUPPLIER.
2. PRIOR TO ROUGH-IN FIELD VERIFY EXACT LOCATION OF RAISE/STOP/LOWER SWITCH AND JBOX FOR ROLL-UP DOOR MOTOR.
3. PROVIDE JBOX/CONDUIT/WIRE/ETC TO EACH SALES COOLER DOOR-JAMB HEATER STRIPS, ESTIMATED AT 675W EA.
4. FIELD VERIFY EQUIPMENT LOCATION AND PROVIDE AS REQUIRED CONDUIT/JBOX/RECEPTACLE/WIRE/ETC & MAKE ALL FINAL CONNECTIONS.
5. PROVIDE 120V TO 12V TRANSFORMER MOUNTED IN 2-GANG JBOX BELOW SINK FOR AUTOMATIC SENSORS
6. REFRIG CONTRACTOR SHALL PROVIDE EVAPORATORS. EC SHALL PROVIDE ALL CONDUIT/WIRE/ETC AND CIRCUIT BACK TO ELEC PANEL. EC SHALL VERIFY WITH MANUFACTURER AND PROVIDE INDIVIDUAL OVERLOAD PROTECTION FOR EACH UNIT IF NOT INTEGRAL TO EVAPORATOR WHEN COMBINED TOGETHER ON A CIRCUIT.
7. PROVIDE EMERGENCY PUMP OFF (EPO) PUSHBUTTON STATION(S) AND CONNECT TO SHUNT-TRIP CONTACTOR FOR FUEL PUMP ELEC PANEL-G1 POWER (SEE POWER RISER). FIELD VERIFY EPO LOCATION/QUANTITY WITH FIRE MARSHALL HAVING JURISDICTION. INDOOR 'EPO' SHALL BE PHILLA #ST120SN1 MOUNTED AT CHECKOUT AREA. OUTDOOR 'EPO' SHALL BE WEATHERPROOF TYPE PHILLA #ST120SN3R.
8. PROVIDE & STUB-DOWN 2-1/2" EMPTY CONDUITS W/PULLWIRES FROM THE ELEC RM TO THE MANAGER'S OFFICE, FROM MANAGER'S OFFICE TO THE CHECK-OUT COUNTER, AND FROM THE CHECK-OUT COUNTER TO THE ELEC ROOM. COORDINATE EXACT LOCATIONS WITH OWNER/P.O.S. CONTRACTOR.
9. VERIFY ELEC REQUIREMENTS WITH FUEL VENDOR & PROVIDE CONDUIT/WIRE/J-BOX/ETC FOR VEEDER ROOT FUEL CONTROL SYSTEM.
10. SEE 'EQUIPMENT SCHEDULE' FOR CIRCUIT NUMBER AND CONNECTION TYPE.
11. PROVIDE (2) MACVICTOR 2.0 POWER SYSTEMS AND UPS MOUNTED ABOVE TBB IN ELEC ROOM & MAKE ALL CONNECTIONS TO PANEL INDICATED. EACH SYSTEM SHALL HAVE (2) 20A SUB-CIRCUITS FOR P.O.S. EQUIPMENT. SEE 'TELEPHONE BACKBOARD RISER'.
12. FIELFD VERIFY EXACT LOCATION FOR JBOX MOUNTED UNDER COUNTER AND MAKE ALL FINAL CONNECTIONS TO P.O.S. EQUIPMENT VIA MACKVICTOR UPS. CIRCUIT NOT TO EXCEEDE 12 AMPS. SEE 'TELEPHONE BACKBOARD RISER'.
13. FIELD VERIFY EXACT LOCATION FOR JBOX MOUNTED UNDER COUNTER AND MAKE ALL FINAL CONNECTIONS TO OWNER'S EQUIPMENT. CIRCUIT NOT TO EXCEEDE 16 AMPS.
14. FIELD VERIFY LOCATION OF TV SCREEN WITH OWNER/SECURITY VENDOR & PROVIDE FLUSH MOUNTED CEILING RECEPT/DATA FOR SUSPENDED VIEWING MONITOR.
15. (NOT USED)
16. FIELD VERIFY LOCATION WITH SECURITY VENDOR & PROVIDE 1" GALVANIZED CONDUIT SLEEVES FOR SECURITY CAMERAS AS REQUIRED. SEAL BETWEEN SLEEVE AND BLDG TO PREVENT AIR FLOW/WATER & CAP ENDS TO PREVENT RODENT/INSECT INTRUSION.
17. PROVIDE 3/4"C W/PULLWIRE FROM ALARM PANEL TO OIL/WATER SEPERATOR. SEE CIVIL DRAWINGS FOR EXACT LOCATION.

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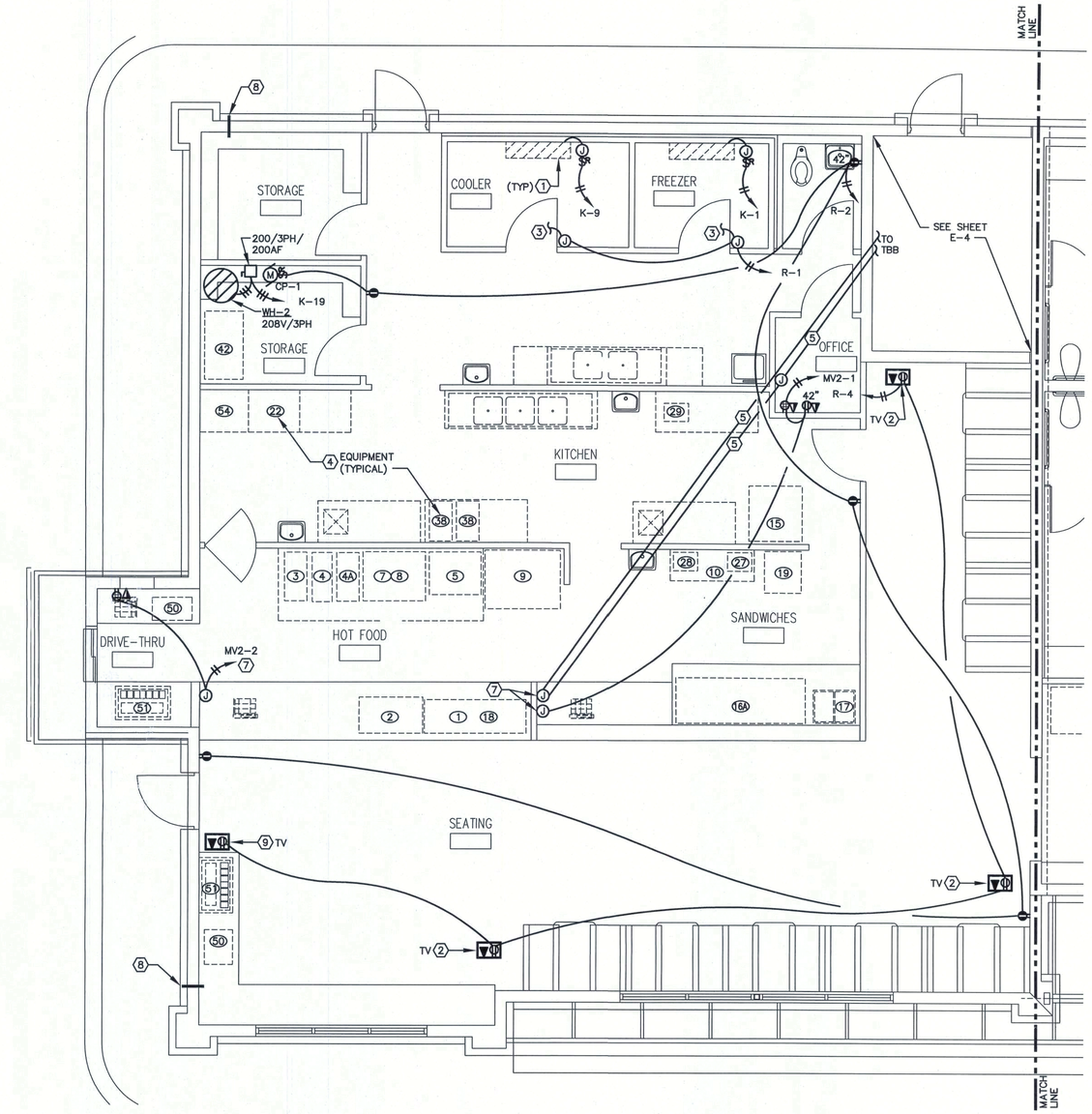
EQUIPMENT SCHEDULE ①②

EQUIP. NUMBER	QTY	DESCRIPTION	CONDUCTOR	VOLTS/PH 60 HERTZ	AMPS	KVA	CKT NUM	NEMA# OR JBOX	ELEC AFF (in)	NOTES
①	1	DROP-IN HOTWELL	2-#8, 1-#10G, IN 1"C.	208/1	29.8	6.2	R-24	JBOX	FLOOR	③⑥
②	1	HOT FOOD DROP-IN, 3 PAN	2-#12, 1-#12G, IN 3/4"C	208/1	6.0	1.2	R-22	JBOX	FLOOR	③⑥
③	1	ELEC. CHICKEN FRYER	3-#6, 1-#10G, IN 1"C	208/3	45.0	16.2	R-43	JBOX	18"	③
④	1	ELEC. FRYER	3-#8, 1-#10G, IN 1"C	208/3	39.0	14.0	R-44	JBOX	18"	③
④A	1	FRIED DRAIN CABINET	2-#12, 1-#12G, IN 3/4"C	120/1	8.4	1.0	R-51	5-20R	18"	
⑤	1	ELEC. GRILL	2-#6, 1-#10G, IN 1"C	208/3	44.3	16.0	R-52	JBOX	18"	③
⑦	1	ELEC. COMBINATION OVEN	2-#10, 1-#10G, IN 3/4"C	208/3	23.5	8.4	R-55	JBOX	48"	③
⑧	1	FOOD HOLDING CABINET	2-#12, 1-#12G, IN 3/4"C	120/1	8.3	1.0	R-60	5-20R	18"	
⑨	1	REFRIG. SANDWICH PREP.	2-#12, 1-#12G, IN 3/4"C	120/1	9.3	1.1	R-34	5-20R	18"	
⑩	1	UNDER COUNTER FREEZER	2-#12, 1-#12G, IN 3/4"C	120/1	11.1	1.3	R-32	5-20R	18"	
⑮	1	OVEN/PROOFER COMBO	3-#8, 1-#10G, IN 1"C	208/3	36.8	14.0	R-10	JBOX	18"	③
⑯A	1	REFRIG. PIZZA PREP TABLE	2-#10, 1-#10G, IN 3/4"C	120/1	22.7	2.7	R-27	5-30R	18"	⑥
⑰	1	DROP-IN HOTWELL	2-#12, 1-#12G, IN 3/4"C	208/1	11.9	2.5	R-29	JBOX	FLOOR	③
⑱	1	WARMING DRAWERS	2-#12, 1-#12G, IN 3/4"C	120/1	8.3	1.0	R-25	5-20R	FLOOR	⑥
⑲	1	PROOFER CABINET	2-#12, 1-#12G, IN 3/4"C	120/1	17.0	2.0	R-28	5-20R	18"	
㉒	1	DISH WASHER	2-#12, 1-#12G, IN 3/4"C	120/1	9.1	1.1	R-8	5-20R	18"	
㉗	1	TURBO OVEN	2-#10, 1-#10G, IN 3/4"C	120/1	11.0	4.4	R-30	5-30R	18"	
㉘	1	STEAMER	2-#12, 1-#12G, IN 3/4"C	120/1	10.0	1.2	R-33	5-20R	18"	
㉙	1	FOOD SLICER	2-#12, 1-#12G, IN 3/4"C	120/1	10.0	1.2	R-7	5-20R	18"	
㉟	1	HOOD SYSTEM	(SEE PANEL SCHEDULES)	–	–	–	–	–	–	④
㊱	1	WALK-IN COOLER	(SEE PANEL SCHEDULES)	–	–	–	–	–	–	⑤
㊲	1	WALK-IN FREEZER	(SEE PANEL SCHEDULES)	–	–	–	–	–	–	⑤
㊳	2	FREE STANDING COOKTOPS	2-#10, 1-#10G, IN 3/4"C	208/1	24.0	5.0	R-9 R-13	6-30R	18"	③
㊷	1	ICE DISPENSER	2-#12, 1-#12G, IN 3/4"C	120/1	12.5	1.5	R-3	5-20R	18"	⑦
㊷B	1	ICE MACHINE/CONDENSER	2-#12, 1-#12G, IN 3/4"C	120/1	2.8	0.3	R-6	DISC.	24"	
㊹	1	2 DR REFRIGERATED MERCHANDISE	2-#12, 1-#12G, IN 3/4"C	120/1	10.3	1.2	P-31	5-20R	18"	
㊺	2	2 DR FROZEN MERCHANDISER	2-#12, 1-#12G, IN 3/4"C	120/1	14.1	0.3	P1-19 P1-21	5-20R	18"	⑦
㊺B	2	2 DR FROZEN/CONDENSER	2-#12, 1-#12G, IN 3/4"C	120/1	2.8	0.3	P1-20 P1-22	DISC.	24"	
㊻	1	ICE DISPENSER	2-#12, 1-#12G, IN 3/4"C	120/1	12.5	1.5	P1-17	5-20R	18"	⑦
㊻B	1	ICE MACHINE/CONDENSER	2-#12, 1-#12G, IN 3/4"C	120/1	2.8	0.3	P1-18	DISC.	24"	
㊼	2	ICE CREAM MERCHANDISER	2-#12, 1-#12G, IN 3/4"C	120/1	6.0	0.7	P1-37 P1-38	5-20R	18"	
㊽	1	COFFEE BREWER- TWIN	2-#10, 1-#10G, IN 3/4"C	208/1	23.6	4.9	P1-26	JBOX	18"	③
㊾	1	CAPPUCCINO MACHINE	2-#12, 1-#12G, IN 3/4"C	120/1	15.0	1.8	P1-29	5-20R	18"	
㊿	3	TEA BREWER	2-#12, 1-#12G, IN 3/4"C	120/1	14.7	1.7	P1-24 R-16 R-21	5-20R	18"	
㊿1	3	SODA DISPENSER	2-#12, 1-#12G, IN 3/4"C	120/1	12.5	1.5	P1-30 R-17 R-19	5-20R	18"	⑦
㊿1B	3	SODA ICE MACHINE/CONDENSER	2-#12, 1-#12G, IN 3/4"C	120/1	2.8	0.3	P1-32 R-18 R-20	DISC.	24"	
㊿2	2	HOT DOGS	2-#12, 1-#12G, IN 3/4"C	120/1	8.3	1.6	P1-33 P1-35	R-20R	18"	
㊿3	1	MICROWAVE	2-#12, 1-#12G, IN 3/4"C	120/1	8.3	1.0	P1-34	R-20R	18"	
㊿4	1	NACHO/CHILLI/CHEESE	2-#12, 1-#12G, IN 3/4"C	120/1	8.3	0.6	P1-36	R-20R	18"	
㊿5	1	DISPOSER	2-#12, 1-#12G, IN 3/4"C	120/1	6.0	0.7	R-5	R-20R	18"	
㊿6	1	FROZEN CARB. BEVERAGE (FCB)	3-#10, 1-#10G, IN 1"C	208/3	22.4	8.1	P1-23	R-20R	18"	⑦
㊿6B	1	FCB CONDENSER (PWR BY #55)	3-#10, 1-#10G, IN 1"C	208/3	–	–	–	DISC.	24"	

(#) KITCHEN SCHEDULE NOTES:

1. SCHEDULE IS FOR **"REFERENCE ONLY"** VERIF WITH OWNER FOR UP-TO-DATE SELECTIONS AND COMPLETE ELECTRICAL REQUIREMENTS.
2. COORDINATE EXACT ELECTRICAL REQUIREMENS/LOCATION, AND MOUNTING HEIGHTS OF POWER PLUGS/CONNECTIONS WITH OWNER'S KITCHEN VENDOR PRIOR TO ROUGH-IN.
3. PROVIDE SEALTIGHT FLEX AND MAKE ALL FINL CONNECTIONS FROM JBOX STUB-OUT TO KITCHEN EQUIPMENT. VERIFY BREAKER IN ELECTRICAL PANEL IS LOCK-OUT TYPE.
4. FIELD VERIFY LOCATIONS OF HOOD CONTROL²ANELS AND HOOD CONTROL STATION PRIOR TO ROUGH-IN.
5. PROVIDE SEAL LOCKS ON ALL CONDUIT SERNG REFRIGERATION SYSTEM. FIELD VERIFY CONNECTION POINTS.
6. SEE 'UNDER COUNTER POWER CONN. DETAIL'
7. PROVIDE CONDUIT/WIRE/ ETC & MAKE ALL ONTROL CIRCUIT CONNECTIONS FROM ICE MACHINE TO ICE MACHINE CONDENSER.
8. PROVIDE WIRING FROM EXHAUST AND SUPPL FANS ON ROOF TO HOOD CONTROL PANEL.
9. CONTRACTOR SHALL OBTAIN KITCHEN EQUIPNT DRAWINGS AND INCLUDE ALL CONNECTION DETAILS AND REQUIREMENTS IN BID.



RESTAURANT POWER PLAN

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

(#) POWER PLAN NOTES:

1. COORDINATE EXACT LOCATION OF EVAPORATOR WITH SUPPLIER.
2. FIELD VERIFY LOCATION OF TV SCREEN WITH OWNER & PROVIDE FLUSH MOUNTED CEILING RECEPT/DATA FOR SUSPENDED VIEWING MONITOR.
3. PROVIDE CONNECTION TO FREEZER/COOLER DOOR HEATER, HEAT-TRACE FOR CONDENSATE DRAIN.
4. SEE 'EQUIPMENT SCHEDULE' FOR CIRCTUIT NUMBER AND CONNECTION TYPE.
5. PROVIDE & STUB-DOWN 2-1/2" EMPTY CONDUITS W/PULLWIRES FROM THE ELEC RM TO THE MANAGER'S OFFICE, FROM MANAGER'S OFFICE TO THE SERVING COUNTER, AND FROM THE SERVING COUNTER TO THE ELEC ROOM. COORDINATE EXACT LOCATIONS WITH OWNER/P.O.S. CONTRACTOR AND MAKE ALL FINAL CONNECTIONS.
6. MACVICTOR 2.0 POWER SYSTEM MOUNTED ABOVE TBB. SEE 'TELEPHONE BACKBOARD RISER'.
7. FIEFD VERIFY EXACT LOCATION FOR JBOX MOUNTED UNDER COUNTER AND MAKE ALL FINAL CONNECTIONS TO P.O.S. EQUIPMENT VIA MACVICTOR UPS. CIRCUIT NOT TO EXCEEDE 12 AMP'S. SEE 'TELEPHONE BACKBOARD RISER'.
8. FIELD VERIFY LOCATION WITH SECURITY VENDOR & PROVIDE 1" GALVANIZED CONDUIT SLEEVES FOR SECURITY CAMERAS AS REQUIRED. SEAL BETWEEN SLEEVE AND BLDG TO PREVENT AIR FLOW/WATER & CAP ENDS TO PREVENT RODENT/INSECT INTRUSION.

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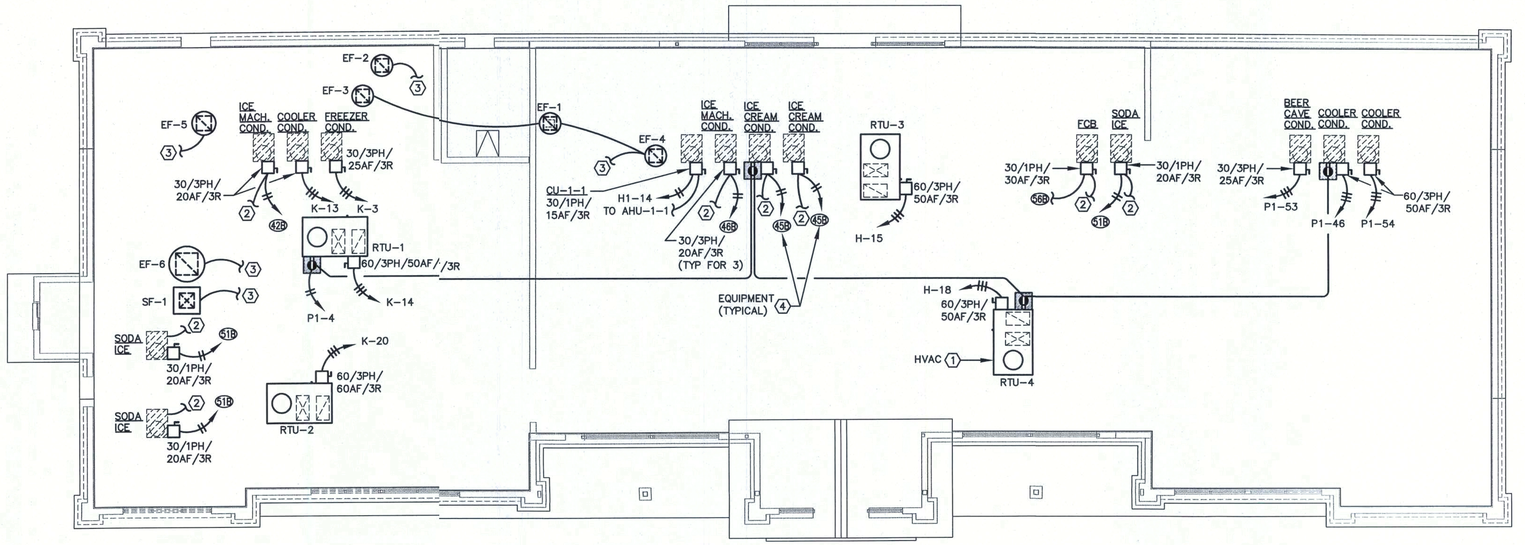
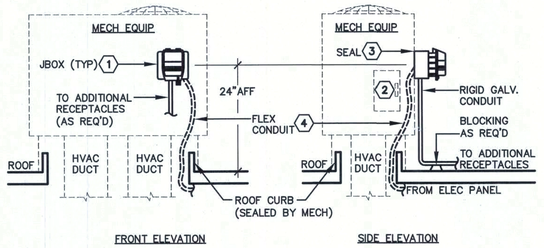


ELECTRICAL ROOF PLAN

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

(#) ROOF PLAN NOTES:

1. REFER TO MECHANICAL DRAWINGS FOR EXACT LOCATIONS OF ALL HVAC EQUIPMENT.
2. PROVIDE CONDUIT/WIRES/ETC & MAKE ALL CONNECTIONS FROM CONDENSER TO ICE MAKER PER MANUFACTURERS RECOMENDATIONS.
3. CONNECT FAN TO SWITCHED CIRCUIT BELOW. SEE LIGHTING PLANS FOR CONTINUATION.
4. SEE 'EQUIPMENT SCHEDULE' FOR CIRCTUIT NUMBER AND CONNECTION TYPE.



FRONT ELEVATION SIDE ELEVATION

(ROOFTOP) MECH UNIT RECEPTACLE DETAIL

NO SCALE

(#) DETAIL NOTES:

1. CAST ALUMINUM WP JUNCTION BOX, GFI RECEPTACLE, WITH WP IN-USE ALUMINUM RECEPTACLE COVER INTERMATIC TYPE #WP-1010-MC.
2. MOUNT RECEPTACLE WHERE IT WILL NOT BLOCK ANY ACCESS PANELS OR BE OBTRUSIVE TO MAINTENANCE OF MECH EQUIPMENT.
3. SEAL WITH OUTDOOR WEATHER RESISTANT 50 YEAR CLEAR SILICONE CAULK.
4. ROUTE 1/2" FLEXIBLE METAL CONDUIT UP THROUGH RTU. COORDINATE ROUTING WITH HVAC SUPPLIER.

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RENOVATIONS & ADDITIONS TO S & S FOOD STORE NO. 38
US 441 & I-75
ELLISVILLE, FLORIDA

9/16/09
1654E6

DATE
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DRAWN
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APPROVED
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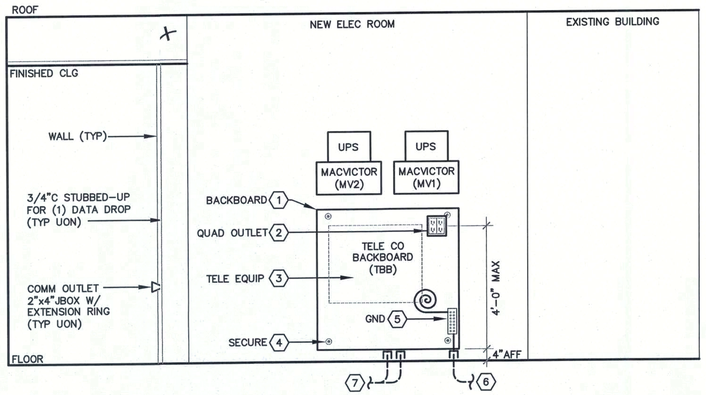
OF 11 SHEETS



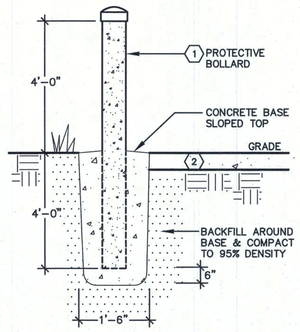
TBB

TELEPHONE BACKBOARD RISER

NO SCALE

(#) BACKBOAR RISER NOTES:

1. BACKBOAF SHALL BE PLYWOOD 4'x8'x3/4" W/FIRE RETARDANT PAINT ON ALL 6 SIDES.
2. FLUSH MT QUARAPLEX RECEPTACLE.
3. TELE CO'S100 PAIR TERMINAL BLOCK.
4. SECURE T WALL WITH ANCHOR BOLT & 1" WASHER (TYP).
5. GROUNDIN BAR WITH 5FT COILED #6AWG GREEN INSULATED CONDUCTOR IN FOR COMMUNICTIONS CO CONNECTION TO GROUND.
6. BOND #6AG GREEN INSULATED CONDUCTOR IN 1/2"C TO SERVICE ENTRANCE ELEC SYSTEM GROUND.
7. 2- 4"PVCTO TELEPHONE CO SERVICE CONNECTION POINT. SEE 'ELEC SITE PLAN'.

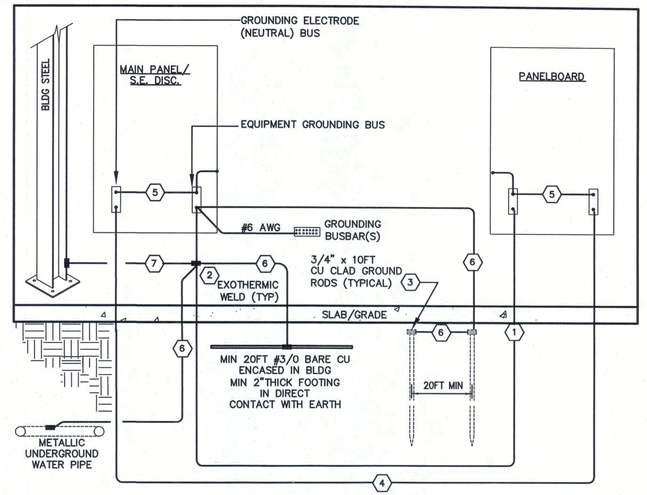


PROTECTIVE BOLLARD DETAIL

NO SCALE

(#) BOLLARD DETAIL NOTES:

1. PROTECTIVE 6" DIAMETER GALVANIZED STEEL POST BOLLARD SHALL BE CONCRETE FILLED AND CAP. THEN PAINT SAFETY FDOT YELLOW WITH 2 COATS.
2. FIELD VERIFY CONDITIONS (CONCRETE, SOD, ETC) AND INSTALL A MINIMUM OF (2) BOLLARDS AS REQUIRED.

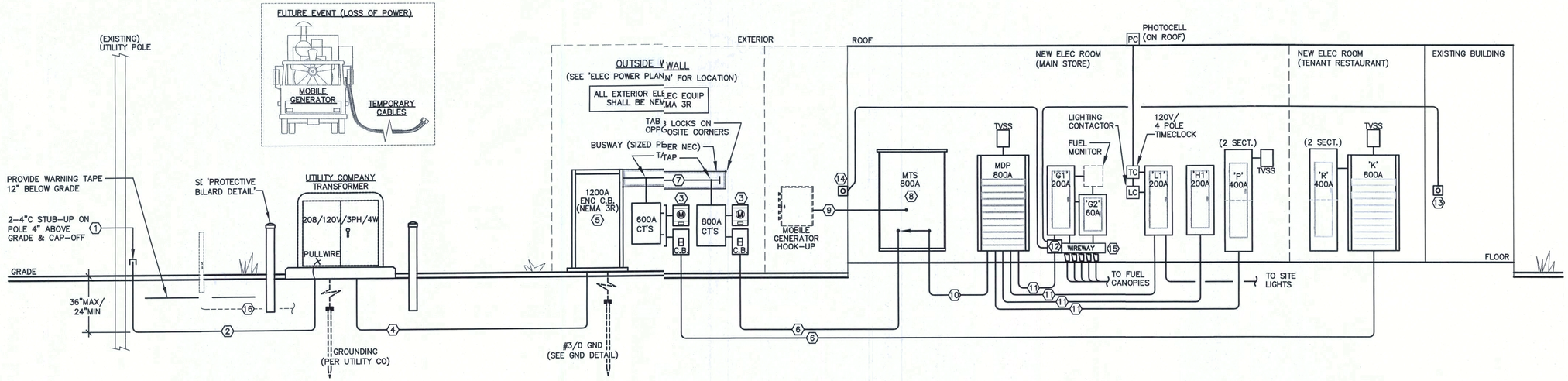


SYSTEM GROUNDING DETAIL

NO SCALE

(#) GROUNDING DETAIL NOTES:

1. EQUIPMENT GROUNDING CONDUCTOR (GND) -REFER TO POWER RISER FOR WIRE SIZE.
2. ALL SERVICE GROUNDING CONNECTIONS SHALL BE DONE WITH EXOTHERMIC WELDS.
3. AFTER GROUNDING SYSTEM IS INSTALLED, GROUND RESISTANCE SHALL BE MEASURED, TO ASSURE THAT GROUND VALUE OF 10 OHM MAXIMUM RESISTANCE IS ACHIEVED. IF NOT, ADDITIONAL GROUNDING SHALL BE PROVIDED TO MEET SPECIFIC VALUE.
4. GROUNDING ELECTRODE CONDUCTOR (NEUTRAL) - REFER TO POWER RISER FOR WIRE SIZE BASED ON 250.122
5. MAIN BONDING JUMPER SIZE PER NEC 250-66.
6. #4 AWG GROUNDING ELECTRODE CONDUCTOR.
7. GROUNDING ELECTRODE CONDUCTOR PER NEC TABLE 250.66



POWER RISER

NO SCALE

(#) RISER NOTES:

1. PROVIDE SPACING BETWEEN CONDUITS TO ALLOW FOR ELEC UTILITY GUARD BRACKET INSTALLATION.
2. PRIMARY CONDUIT/CONDUCTORS FROM EXISTING POWER POLE TO NEW 3PH TRANSFORMER, PER ELEC UTILITY CO REQUIREMENTS, PROVIDE CONDUIT WITH 90° ELBOWS-24" RADIUS MINIMUM. SEE 'ELEC SITE PLAN'.
3. PER ELEC UTILITY CO REQUIREMENTS PROVIDE FROM ELEC UTILITY CO XFMR CONDUIT/CONDUCTORS/3R METER SOCKET/3R CT CABINET/METER ADDRESS LABEL AND 800A/3PH/3R ENCLOSED CIRCUIT BREAKER.
4. 1200A SERVICE ENTRANCE, 3 SETS: 4- #600KCMIL, IN 4"C.
5. PROVIDE 1200A SERVICE ENTRANCE RATED MAIN CIRCUIT BREAKER.
6. 800A FEEDER 2 SETS: 4- #600KCMIL, 1- #1/0G, IN 4"C.
7. PROVIDE 1200A TAP, 3 SETS: 4- #600KCMIL, 1-3/0G, IN BUSWAY.
8. PROVIDED 800A/3P MANUAL TRANSFER SWITCH.
9. INSTALL OWNER PROVIDED MOBILE GENERATOR QUICK CONNECT ENCLOSURE. PROVIDE/CONNECT 2 SETS: 4- #600KCMIL, 1- #1/0G, IN 4"C.
10. 800A FEEDER 2 SETS: 4- #600KCMIL, 1- #1/0G IN 4"C.
11. SEE 'PANEL SCHEDULES' FOR WIRE/CONDUIT SIZES (TYPICAL UON).
12. SEE ELEC SPECIFICATIONS FOR CONTACTOR 'G1' REQUIREMENTS THAT SHALL DISCONNECT POWER & NEUTRAL TO PANEL INDICATED VIA EMERGENCY POWER OFF SWITCH SEE LIGHTING PLAN FOR LOCATION.
13. EMERGENCY FUEL SHUT-OFF SWITCH AT CASHIER SEE 'ELEC LIGHTING PLAN' FOR LOCATION.
14. EMERGENCY POWER OFF (EPO) STATION(S) AT EXTERIOR OF BLDG. FIELD VERIFY EPO LOCATION/QUANTITY WITH FIRE MARSHALL HAVING JURISDICTION. 'EPO' SHALL BE WEATHERPROOF TYPE PHILLA #ST120SN3R. CONNECT TO CONTACTOR 'G'. SEE SPECIFICATIONS FOR COMPLETE REQUIREMENTS.
15. WIREWAY SIZED AS REQUIRED TO INTERCEPT AND EXTEND FUEL PUMP CONDUIT/CONCUCTORS TO NEW PANELS 'G1' & 'G2'.
16. (EXISTING) TELE/CABLE CO SERVICE TO BLDG TO BE RE-PULLED. FIELD VERIFY AND PROVIDE NEW CONDUIT/PULLWIRE/ETC FOR NEW SERVICE SEE 'TBB RISER'.

(OWNER PROVIDED) EQUIP NOTES:

1. ELEC EQUIPMENT INDICATED BY 'LIGHT-DASHED LINETYPE' IS OWNER FURNISHED & EC INSTALLED ALL OTHER EQUIPMENT SHALL BE NEW UON.

CONSTRUCTION DOCUMENTS

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RENOVATIONS & ADDITIONS TO
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US 441 & I-75 ELLISVILLE, FLORIDA

9/16/09
1654E7

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E-7

OF 11 SHEETS

PANEL– K

SURF **MOUNTED** 208/120 V, 3 PH, 4 W, 800 **AMP, MAIN** LUGS
BOTT **FEED** 22,000 AIC (RESTAURANT LIGHTING)

SERVING	AWG SIZE	KVA LOAD	AMP	CKT	PHASE A	PHASE B	PHASE C	CKT	AMP	KVA LOAD	AWG SIZE	SERVING
FREEZER EVAP.	12	0.2	20	1				2	20	1.4	12	LTS–OFFICE/PENDANTS
FREEZER COND.	10	6.9	25	3				4	20	0.9		KITCHEN
↓	↓	↓	↓	5				6	20	1.2		SERVING/EF–5
↓	↓	↓	↓	7				8	20	1.1		SEATING
COOLER EVAP.	12	0.2	20	9				10	20			(SPARE)
↓	↓	↓	↓	11				12	20			(SPARE)
COOLER COND.	12	5.8	20	13				14	50	15.4	8	RTU–1 (2)
↓	↓	↓	↓	15				16	↓	↓	↓	↓
WH–2	3	54.0	200	17				18	↓	↓	↓	↓
↓	↓	↓	↓	19				20	60	18.1	6	RTU–2 (2)
SPACE ONLY				21				22	↓	↓	↓	↓
↓				23				24				SPACE ONLY
				25				26				↓
				27				28				
				29				30				
				31				32				
				33				34				
				35				36				
PANEL–K	40	84.5	400	37				38	60	–	6	TVSS
				39				40				
				41				42				

KVA LOAD– 189.7

PANEL– R

SURF **MOUNTED** 208/120 V, 3 PH, 4 W, 400 **AMP, MAIN** LUGS
BOTT **FEED** 22,000 AIC (RESTAURANT PWR)

SERVING	AWG SIZE	KVA LOAD	AMP	CKT	PHASE A	PHASE B	PHASE C	CKT	AMP	KVA LOAD	AWG SIZE	SERVING
COOLER/FREEZER DOORS	12	1.0	20	1				2	20	1.0	12	REC–GEN. PURPOSE/CP–1
#42–ICE DISPENSER		1.5	20	3				4	20	1.2		REC–TV'S
#54–DISPOSER		0.6	20	5				6	20	0.3		#42–ICE CONDENSER
#29–FOOD SLICER	↓	1.2	20	7				8	20	1.1	↓	#22–DISH WASHER
#38–FREE STAND COOKTOP	10	5.0	30	9				10	50	14.0	8	#15–OVEN COMBO
↓	↓	↓	↓	11				12	↓	↓	↓	↓
#38–FREE STAND COOKTOP	10	5.0	30	13				14	↓	↓	↓	↓
↓	↓	↓	↓	15				16	20	1.7	12	#50–TEA BREWER (6)
#51–SODA DISPENSER	12	0.3	20	17				18	20	1.5		#51–SODA CONDENSER
#51–SODA DISPENSER	↓	0.3	20	19				20	20	1.5		#51–SODA CONDENSER
(6) #50–TEA BREWER	12	1.7	20	21				22	20	1.2	↓	#2– HOT FOOD PAN (6)
↓	↓	↓	↓	23				24	20	6.2	12	#1– DROP–IN HOTWELL (6)
(6) #18–WARMING DRAWERS	12	1.0	20	25				26	↓	↓	↓	↓
#16–REFRIG. PREP TABLE	10	2.7	30	27				28	20	2.0	12	#19–PROOFER CABINET
#17–DROP–IN HOTWELL	12	2.5	20	29				30	30	4.4	10	#27–TURBO OVEN
↓	↓	↓	↓	31				32	20	1.3	12	#10–U.C. FREEZER
#28–STEAMER	12	1.2	20	33				34	20	1.1	12	#9– REFRIG. PREP.
(SPARE)			20	35				36	20			(SPARE)
SPACE ONLY				37				38				SPACE ONLY
↓				39				40				↓
				41				42				

KVA LOAD– 84.5 (SECT 1: 65.5KVA + SECT 2: 65.7KVA = 128.2KVA TOTAL– SEE DEMAND)

PANEL– R

SURF **MOUNTED** 208/120 V, 3 PH, 4 W, 400 **AMP, MAIN** LUGS
BOTT **FEED** 22,000 AIC (RESTAURANT PWR)

SERVING	AWG SIZE	KVA LOAD	AMP	CKT	PHASE A	PHASE B	PHASE C	CKT	AMP	KVA LOAD	AWG SIZE	SERVING
(7) #3–CHICKEN FRYER	6	16.2	60	43				44	50	16.2	8	#4–ELEC FRYER (7)
↓	↓	↓	↓	45				46	↓	↓	↓	↓
[HOOD SHUNT TRIP]	12		–	47				48	↓	↓	↓	↓
(7) #4A–FRIED DRAIN CABINET	12	1.0	20	49				50	–		12	[HOOD SHUNT TRIP]
[HOOD SHUNT TRIP]	12		–	51				52	60	16.0	6	#5–ELEC GRILL (7)
(7) #7–ELEC COMBO OVEN	10	8.4	30	53				54	↓	↓	↓	↓
↓	↓	↓	↓	55				56	↓	↓	↓	↓
[HOOD SHUNT TRIP]	12		–	57				58	–		12	[HOOD SHUNT TRIP]
MACVICTOR UPS	10	2.4	30	59				60	20	1.0	12	#8–HOT HOLDING CABINET (7)
HOOD CONTROL PANEL	12	0.4	20	61				62	–		12	[HOOD SHUNT TRIP]
SPACE ONLY				63				64	20	2.3	12	EF–6
↓				65				66	↓	↓	↓	↓
				67				68	–		12	[HOOD SHUNT TRIP]
				69				70	20	1.8	12	SF–1
				71				72	↓	↓	↓	↓
				73				74	–		12	[HOOD SHUNT TRIP]
				75				76				SPACE ONLY
				77				78				
				79				80				
				81				82				
				83				84				

KVA LOAD– 65.7 (ADD TO SCT 1) COMMERCIAL KITCHEN EQUIP 6 & OVER; [65% DF x 124.8KVA = 81.1] + ALL OTHER LOADS 3.4KVA = [84.5KVA DEMAND]

NC 220 BLDG SERVICE LOAD CALCULATION

ProjectName	S&S FOOD STORE	Permit #	
ProjectAddress	US 441 & I–75		
Buildin Occupancy Use	MERCHANTILE		
Utilit Xfrmr Service Overhead ___ (or) Underground ✓			
Meted Main ___ Unmetered Main ✓ Meter(s) Total 2			
Lightin Storage	.0008	KVA x 1556 SF	1.2 1PH
Retail	.0017	KVA x 4306 SF	7.3 1PH
Food	.0012	KVA x 1785 SF	2.1 1PH
Sign Circuit(s)	1	X 1.2 KVA	1.2 1PH
Site	.0005	KVA x 0 SF	0.0 1PH
Miscellaeous Power Receptacle Loads Total KVA			3.1 1PH
Cookin Equipment	(SEE PNL SCHEDULES FOR DEMAND)		108.7 3PH
Water r(s) Loads Total KVA (100% of Load) 1PH			N/A 1PH
Water r(s) Loads Total KVA (100% of Load) 3PH			61.4 3PH
Misc Mor(s) Loads Total KVA (No A/C) 1PH			6.8 1PH
Misc Mor(s) Loads Total KVA (No A/C) 3PH			16.0 3PH
25% oLargest Motor	GRINDER PUMP – 5HP		1.5 3PH
HVAC 1H	0.02	KVA x 7679 SF	153.6 3PH
Notes/Other Loads	N/A		– 3PH
TotcCalculated BLDG (1–PHASE) Loads KVA			168.0
TotcCalculated BLDG (3–PHASE) Loads KVA			194.9
TotcCalculated SYSTEM Kilo Volt Amps KVA			362.9
SERVICE ENTRANCE (SE) SECONDARY			
SE Tol [Demand] Load KVA 362.9 = Amps 1005.3			
X %125 = 1256.6 Breaker Sized at 1200			
Sized uilding Electrical System	208/120V/3PH/4W		
Servic Entrance Wire/Conduit	3 SETS: 4–#600kcmil, IN 4"C		
S Panel Schedules for System Complete Totals.			

PANEL– L1

SURF **MOUNTED** 208/120 V, 3 PH, 4 W, 100 **AMP, MAIN** LUGS
BOTT **FEED** 22,000 AIC (STORE LIGHTING)

SERVING	AWG SIZE	KVA LOAD	AMP	CKT	PHASE A	PHASE B	PHASE C	CKT	AMP	KVA LOAD	AWG SIZE	SERVING
(4)(1) LTS–GAS PRICE SIGN	10	1.0	20	1				2	20	1.6	12	LTS–SALES AREA (4)
(4)(3)(1) GAS PRICE SIGN		1.0	20	3				4	20	1.5		SALES AREA (4)
(4)(3)(1) TRAFFIC SIGNS	↓	0.2	20	5				6	20	1.5		SALES AREA (4)
(SPARE)			20	7				8	20	1.5		SALES AREA (4)
(4)(3) LTS–REAR EXT. BLDG	12	1.1	20	9				10	20	1.1		RESTROOMS/OFFICE (4)
(4)(3) FRONT EXT. BLDG		1.3	20	11				12	20	0.5		BEER CAVE/COOLER (4)
(SPARE)			20	13				14	20	1.1		COOLER DOORS (4)
(SPARE)			20	15				16	20	0.4		W. GLG WINDOWS (4)
SPACE ONLY				17				18	20	1.3		GLG DISP. RECEPTS (4)
↓				19				20	20	1.4		E. GLG WINDOWS (4)
				21				22				SPACE ONLY
				23				24				↓
				25				26				
				27				28				
				29				30				

KVA LOAD– 16.5

PANEL– P1

SURF **MOUNTED** 208/120 V, 3 PH, 4 W, 400 **AMP, MAIN** LUGS
BOTT **FEED** 22,000 AIC (STORE PWR)

SERVING	AWG SIZE	KVA LOAD	AMP	CKT	PHASE A	PHASE B	PHASE C	CKT	AMP	KVA LOAD	AWG SIZE	SERVING
RESTROOM SINKS	12	0.4	20	1				2	20	0.4	12	REC–TBB
TP–1/CP–1		0.2	20	3				4	20	0.7	↓	ROOF
REC–W. WINDOWS		0.7	20	5				6	20			(SPARE)
ATM		1.0	20	7				8	20			(SPARE)
E. WINDOW/OIL ALARM		0.9	20	9				10	20	1.0	12	ROLL UP DOOR
E. WINDOWS		0.9	20	11				12	20	0.7		REC–SECURITY SYSTEM
TV'S		0.6	20	13				14	20	1.0		CHECKOUT
CARBINATOR		0.8	20	15				16	20	1.0		CHECKOUT
#46–ICE DISPENSER		1.5	20	17				18	20	0.3		#46–ICE CONDENSER
#45–2DR ICE MERCH.		1.5	20	19				20	20	0.3		#45–2 DR ICE CONDENSER
#45–2DR ICE MERCH.	↓	1.5	20	21				22	20	0.3		#45–2 DR ICE CONDENSER
#56–FCB & CONDENSER	10	8.1	30	23				24	20	1.7	↓	#50–TEA BREWER
↓	↓	↓	↓	25				26	20	4.9	12	#48–COFFEE BREWER
(6) #49–CAPPUCCINO	12	1.8	20	27				28	↓	↓	↓	↓
#44–2DR MERCHANDIZER		1.2	20	29				30	20	0.3	12	#51–SODA DISPENSER
#52–HOT DOG		1.6	20	31				32	20	1.5		#51–SODA CONDENSER
#52–HOT DOG		1.6	20	33				34	20	1.0		#53–MICROWAVE
#47–ICE CREAM		0.7	20	35				36	20	0.6		#54–NACHO/CHILI/CHEESE
SPACE ONLY				37				38	20	0.7		#47–ICE CREAM
SPACE ONLY				39				40				SPACE ONLY
				41				42				SPACE ONLY

KVA LOAD– 79.6 (SECT 1: 46.1KVA + SECT 2: 33.5KVA = 79.6KVA TOTAL)

PANEL– P1

SURF **MOUNTED** 208/120 V, 3 PH, 4 W, 400 **AMP, MAIN** LUGS
BOTT **FEED** 22,000 AIC (STORE PWR)

SERVING	AWG SIZE	KVA LOAD	AMP	CKT	PHASE A	PHASE B	PHASE C	CKT	AMP	KVA LOAD	AWG SIZE	SERVING
REC–GAMES	12	1.0	20	43				44	20	0.6	12	(2) COOLER EVAP.
GAMES		1.0	20	45				46	40	11.5	8	(2) COOLER COND.
GAMES		1.0	20	47				48				
BEER CAVE EVAP.	12	0.3	20	49				50				
↓	↓	↓	↓	51				52	20	0.6	12	(2) COOLER EVAP.
BEER CAVE COND.	12	6.9	20	53				54	40	11.5	8	(2) COOLER COND.
↓	↓	↓	↓	55				56				
				57				58				
COOLER DR HEATER	12	1.3	20	59				60	20	1.3	12	COOLER DR HEATER
		1.3	20	61				62	20	1.3		
		1.3	20	63				64	20	1.3		
		1.3	20	65				66	20	1.3	↓	↓
		1.3	20	67				68	30	2.4	10	MACVICTOR UPS
(SPARE)			20	69				70	20			(SPARE)
SPACE ONLY				71				72				SPACE ONLY
				73				74				
				75				76				
				77				78				
				79				80				
				81				82				
				83				84				

KVA LOAD– 33.5 (ADD TO SECT 1) COMMERCIAL KITCHEN EQUIP 6 & OVER; [65% DF x 31.1KVA = 20.2] + ALL OTHER LOADS 13.3KVA = [33.5KVA DEMAND]

PANEL– H1

SURF **MOUNTED** 208/120 V, 3 PH, 4 W, 200 **AMP, MAIN** LUGS
BOTT **FEED** 22,000 AIC (HVAC)

SERVING	AWG SIZE	KVA LOAD	AMP	CKT	PHASE A	PHASE B	PHASE C	CKT	AMP	KVA LOAD	AWG SIZE	SERVING
(1) WELL PUMP	10	2.0	20	1				2	30	6.0	10	GRINDER PUMP (5HP) (2)
↓	↓	↓	↓	3				4	↓	↓	↓	↓
(5)(1) WATER FOUNTAIN	8	4.0	30	5				6	↓	↓	↓	↓
↓	↓	↓	↓	7				8	30	6.0	10	GRINDER PUMP (5HP) (2)
WH–1	8	7.4	45	9				10	↓	↓	↓	↓
↓	↓	↓	↓	11				12	↓	↓	↓	↓
				13				14	12	2.7	20	CU/AHU–1–1 (2)
(2) RTU–3	8	15.4	50	15				16	↓	↓	↓	↓
↓	↓	↓	↓	17				18	50	15.4	8	RTU–4 (2)
				19				20	↓	↓	↓	↓
(SPARE)			20	21				22	↓	↓	↓	↓
SPACE ONLY				23				24	20			(SPARE)
↓				25				26				SPACE ONLY
				27				28				↓
				29				30				
				31				32				
				33				34				
				35				36				
				37				38				
				39				40				
				41				42				

KVA LOAD– 58.9

PANEL– G1

SURF **MOUNTED** 208/120 V, 3 PH, 4 W, 150 **AMP, MAIN** LUGS
BOTT **FEED** 22,000 AIC (GAS CANOPIES) W/FEED THRU LUGS

SERVING	AWG SIZE	KVA LOAD	AMP	CKT	PHASE A	PHASE B	PHASE C	CKT	AMP	KVA LOAD	AWG SIZE	SERVING
DIESEL CANOPY LTS	12	0.9	20	1				2	20	3.2	12	PREM. GAS PUMP (2HP) (5)
↓	↓	↓	↓	3				4	↓	↓	↓	↓
DIESEL CANOPY LTS	12	0.9	20	5				6	20	2.4	12	PREM. GAS PUMP (1.5HP) (5)
↓	↓	↓	↓	7				8	↓	↓	↓	↓
GAS CANOPY LTS	12	1.1	20	9				10	20	3.2	12	REG. GAS PUMP (2HP) (5)
↓	↓	↓	↓	11				12	↓	↓	↓	↓
GAS CANOPY LTS	12	1.1	20	13				14	20	2.4	12	REG. GAS PUMP (1.5HP) (5)
↓	↓	↓	↓	15				16	↓	↓	↓	↓
DIESEL CANOPY RED BAND	12	0.2	20	17				18	20	3.2	12	DIESEL PUMP (2HP) (5)
GAS CANOPY RED BAND	↓	0.2	20	19				20	↓	↓	↓	↓
(SPARE)				21				22	20	2.4	12	DIESEL PUMP (1.5HP) (5)
(SPARE)				23				24	↓	↓	↓	↓
SPACE ONLY				25				26				SPACE ONLY
↓				27				28				
				29				30				
				31				32				
				33				34				
FUEL MONITOR/EMS	12	0.2	20	35				36				
AIR/WATER/VAC	10	2.0	30	37				38	60	3.2	6	PANEL–G2
AIR/WATER @ DIESEL		2.0	30	39				40				
AIR/WATER @ DIESEL	↓	2.0	30	41				42				↓

KVA LOAD– 33.6 (SECT 1: 30.4KVA + SECT 2: 3.2KVA = 33.6KVA TOTAL)

PANEL– 60

SURF **MOUNTED** 208/120 V, 3 PH, 4 W, 20 **AMP, MAIN** LUGS
TOP **FEED** 22,000 AIC (GAS CANOPIES)

SERVING	AWG SIZE	KVA LOAD	AMP	CKT	PHASE A	PHASE B	PHASE C	CKT	AMP	KVA LOAD	AWG SIZE	SERVING
(2) GAS DISPENSERS	12	0.4	20	1				2	20	0.4	12	DIESEL DISPENSER/SLAVE
(SWITCHED NEUTRAL)		–	–	3				4	–	–		(SWITCHED NEUTRAL)
(2) GAS DISPENSERS		0.4	20	5				6	20	0.4		DIESEL DISPENSER/SLAVE
(SWITCHED NEUTRAL)		–	–	7				8	–	–		(SWITCHED NEUTRAL)
(2) GAS DISPENSERS		0.4	20	9				10	20	0.4		DIESEL DISPENSER/SLAVE
(SWITCHED NEUTRAL)		–	–	11				12	–	–		(SWITCHED NEUTRAL)
(2) GAS DISPENSERS		0.4	20	13				14	20	0.4		DIESEL DISPENSER/SLAVE
(SWITCHED NEUTRAL)	↓	–	–	15				16	–	–	↓	(SWITCHED NEUTRAL)
SPACE ONLY				17				18				SPACE ONLY
SPACE ONLY				19				20				SPACE ONLY

KVA LOAD– 3.2 (ADD TO SECT 1)

MAIN DISTRIBUTION PANEL

208/120 **VOLTS, 3 PHASE, 4 WIRE** 800 **AMP MAIN LUGS**
22,000 **AIC** BOTTOM FED

CKT	LOAD DESCRIPTION	BREAKER POLE	BREAKER FRAME	BREAKER TRIP	FEEDER SETS	FEEDER WIRE AND CONDUIT	LOAD KVA
1	TVSS	3	100	60	1	4– #6, 1– #10G, 1"C	N/A
2	PANEL–H1	3	250	200	1	4– #3/0, 1– #6G, IN 2–1/2"C	58.9
3	PANEL–G1	3	250	150	1	4– #1/0, 1– #6G, IN 2"C	33.6
4	PANEL–P1	3	400	400	1	4– #600KCMIL, 1– #3G, IN 4"C	79.6
5	PANEL–L1	3	100	100	1	4– #3, 1– #8G, IN 1–1/4"C	16.5
6	(SPARE)	3	100	100			
7	SPACE ONLY	3	100				
8	SPACE ONLY	3	100				
9	SPACE ONLY	3	100				
10	SPACE ONLY	3	100				
11	SPACE ONLY	3	100				
12	SPACE ONLY	3	100				
						KVA LOAD–	188.6

(#) PANEL SCHEDULE(S) NOTES:

1. UPSIZED CONDUCTOR FOR VOLTAGE DROP.
2. BREAKER/CONDUCTOR/AND EQUIPMENT DISCONNECT SIZES ARE FOR REFERENCE ONLY, PROVIDE BREAKER/CONDUCTOR/DISCONNECT SIZES & TYPE TO MATCH MECHANICAL EQUIPMENT SELECTIONS.
3. CIRCUIT THOURGH LIGHTING CONTACTOR CONTROLLED BY TIMESWITCH.
4. CIRCUIT THOURGH BUILDING ENERGY MANAGEMENT SYSTEM. COORDINATE WITH EMS SUPPLIER.
5. PROVIDE W/NEUTRAL FOR 120V CONNECTION(S).
6. PROVIDE LOCK OUT GFI TYPE CIRCUIT BREAKER FOR DIRECT CONNECTED EQUIPMENT.
7. PROVIDE [SHUNT–TRIP] TYPE CIRCUIT BREAKER & INTERLOCK WITH KITCHEN HOOD CONTROLS AS REQUIRED BY APPLICABLE CODES.

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S & S FOOD STORE NO. 38
US 441 & I–75 ELLISVILLE, FLORIDA

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APPROVED	TME

0920

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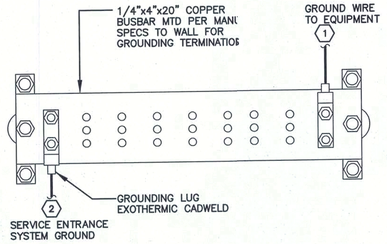
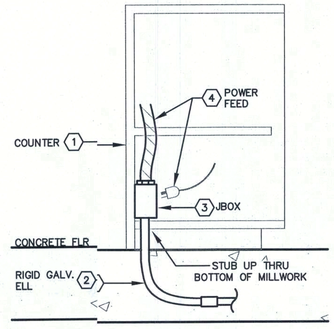


G GROUNDING BUS DETAIL

NO SCALE

(#) DETAIL NOTES:

1. CONNECT GROUNDING BUSBAR(S) W/ #6INSULATED, GREEN WIRE TO TELEPHONE EQUIPMENT. REFER TO POWE/COMM PLAN' FOR GENERAL LOCATIONS.
2. SEE 'SYSTEM GROUNDING DETAIL'.

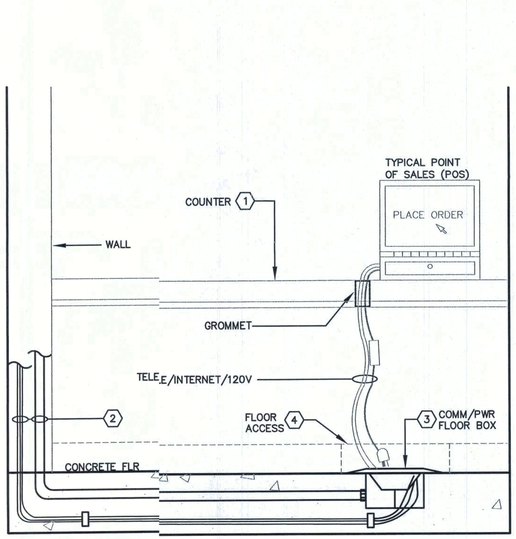


UNDER COUNTER POWER CONN. DETAIL

NO SCALE

(#) DETAIL NOTES:

1. VERIFY EXACT LOCATIONS OF ALL FLOOR BOX ASSEMBLIES WITH ARCHITECTURAL PLANS & FURNITURE LAYOUT PRIOR TO ROUGH-IN.
2. PROVIDE CONDUIT (SIZE AS SHOWN) FOR POWER CONNECTION TO KITCHEN EQUIPMENT.
3. SINGLE GANG FLOOR JBOX WITH RECEPTACLE OR COVER PLATE AS REQUIRED.
4. VERIFY POWER CONNECTION TYPE AND PROVIDE BLANKING PLATE AND SEAL-TIGHT FLEX CONDUIT FOR DIRECT CONNECTED EQUIPMENT, OR PROVIDE SINGLE POWER OUTLET FOR OWNER'S EQUIPMENT PLUG 3 (SEE POWER PLAN'S FOR PLUG TYPE).

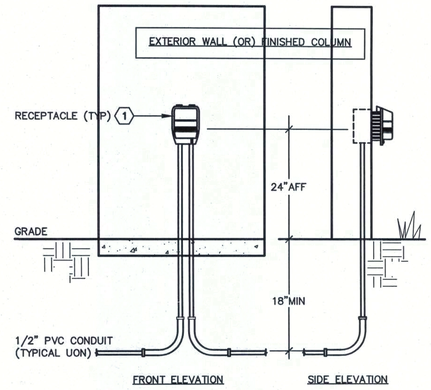


IN-FLOOR COMBINATION FLOOR BOX DETAIL

NO SCALE

(#) DETAIL NOTES:

1. VERIFY EXACT LOCATIONS OF ALL FLOOR BOX ASSEMBLIES WITH ARCHITECTURAL PLANS & FURNITURE LAYOUT PRIOR TO ROUGH-IN.
2. COMBINATION FLOOR BOX PROVIDES 2-3/4"C FOR CAT6e COMMUNICATIONS CABLES AND 3/4"C FOR 120V TO POWER OUTLETS IN SYSTEM FURNITURE.
3. COMBINATION COMM/PWR FOR TYPE WIREMOLD #RFB2-OG WITH COVER PLATE TYPE WIREMOLD #S38CCTCBS & INTERNAL AL BRACKETS WIREMOLD #RFB2DP & #RFB2RT FOR (2)DUPLEX AND (2)COMMUNICATION OUTLETS.
4. FIELD VERIFY AND COORDINATE FLOOR OUTLET ACCESS IN CABINET BASE WITH CABINET VENDOR.



(IN-WALL) RECEPTACLE W/ IN-USE COVER DETAIL

NO SCALE

(#) DETAIL NOTES"

1. RECESSED IN-WALL WP JUNCTION BOX, GFI RECEPTACLE, WITH WP IN-USE ALUMINUM RECEPTACLE COVER INTERMATIC TYPE #WP-1010-MC.

ELECTRICAL LEGEND

(1/2 SHADED LT FIXTURES ON DWGS INDICATE EMERGENCY)

- LT WALLPACK
- LT EMERGENCY EXIT SIGN
- LTG- STRIP
- LTG- ENCLOSED STRIP (COLD WEATHER BALLAST)
- LT RECESSED DOWN
- CIRCUIT- CONDUIT UNDER GRADE/FLOOR
- CIRCUIT- CONDUIT
- BRANCH CIRCUIT HOMERUN (GROUND NOT SHOWN, ALWAYS REQUIRED)
- $ SWITCH SINGLE POLE
- $(B) SWITCH BANK DESIGNATED (SEE LTG PLAN)
- $3 SWITCH 3 WAY
- $M SWITCH MOTOR RATED
- REC SIMPLEX
- REC DUPLEX
- REC DUPLEX GFI TYPE
- REC DUPLEX- CLG RECESSED
- REC DUPLEX- CLG RECESSED W/COMM
- REC DUPLEX- WITH GFI/WP ENCLOSURE
- REC QUADRAPLEX
- REC DUPLEX- FLOOR
- J JUNCTION BOX
- DISCONNECT (DISC)
- MOTOR SYMBOL
- M MANHOLE
- C CONTACTOR
- TELEPHONE BACKBOARD (TBB)
- COMM OUTLET (1) RJ45 W/(1) CAT-6
- COMM OUTLET (2) RJ45 W/(2) CAT-6
- R RELAY

ABBERVIATIONS

AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLER UNIT
CLG	CEILING
CU	CONDENSER UNIT
EC	ELEC CONTRACTOR
EF	EXHAUST FAN
EMS	ENERGY MANAGEMENT SYSTEM
ENCL	ENCLOSED
EPO	EMERGENCY POWER OFF STATION
EXIST	EXISTING
GFI	GROUND FAULT INTERRUPT
GC	GENERAL CONTRACTOR
GND	GROUND
LT/LTS	LIGHT/ LIGHTS
MT/MTD	MOUNT/ MOUNTED
MDP	MAIN DISTRIBUTION PANEL
MTS	MANUAL TRANSFER SWITCH
N.O.	NORMALLY OPEN
N.C.	NORMALLY CLOSED
POS	POINT OF SALES
PWR	POWER
REC	RECEPTACLE
RTU	ROOF TOP UNIT
SO	SEAL-OFF FITTING
TBB	TELEPHONE BACKBOARD
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTED POWER SUPPLY
WH	WATER HEATER
WP	WEATHERPROOF

GENERAL ELECTRICAL REQUIREMENTS

1. CONTRACTOR SHALL COMPLY WITH ALL NATIONAL, STATE AN LOCAL CODES. ALL WORK SHALL BE IN CONFORMANCE WITH N.E.C.
2. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO SUBMITTING BID. BY SUBMITTING BID, CONTRACTOR STATES THAT HE HAS EXAMINED ALL EXISTING CONDITIONS. IF CONTRACTOR ENCOUNTERS EXISTING CONDITIONS WHICH NEED CLARIFICATION, CONTACT OWNER'S EPRESENTATIVE FOR RESOLUTION OR CLARIFICATION.
3. CONTRACTOR SHALL OBTAIN ALL PERMITS AND PAY ALL FEES AND CHARGES REQUIRED, INCLUDING UTILITY COMPANY CHARGES APPLICABLE TO HIS WORK.
4. ALL WORK PERFORMED UNDER THIS CONTRACT SHALL HAVE ONE (1) YEAR WRITTEN GUARANTEE FOR ALL MATERIALS AND WORKMANSHIP.
5. ALL MATERIALS SHALL BE OF FIRST CLASS QUALITY, EQUAL TO SQUARE "D", OR CUTLER-HAMMER. NO "USED" MATERIALS WILL BE PERMITTED TO BE INSTALLED ON THIS FOJECT, UNLESS SPECIFICALLY NOTED ON THE DRAWINGS.
6. AT COMPLETION OF PROJECT, CONTRACTOR SHALL DELIVER TO OWNER ALL DOCUMENTS (INCLUDING BUILDING PERMITS, OPERATION AND MAINTENANCE MANUALS, ETC.).
7. ALL INTERIOR CONDUIT SHALL BE EMT. ALL EXTERIOR AND UNDERGROUND CONDUIT SHALL BE RIGID GALVANIZED STEEL. MINIMUM SIZE OF CONDUIT SHALL BE 3/4". ALL CONDUIT SHALL BE ROUTED PERPENDICULAR TO BUILDING LINES WHERE EXPOSED TO VIEW.
8. ALL WIRE SHALL BE THHN COPPER UNLESS OTHERWISE INDICATED ON THE DRAWINGS. MINIMUM SIZE OF WIRE SHALL BE NO. 12. ALL WIRING SHALL BE SIZED AND INSTALLED SO THAT MAXIMUM VOLTAGE DROP TO FARTHEST CONNECTION IN CIRCUIT SHALL NOT EXCEED 3%.
9. ALL DISCONNECT SWITCHES SHALL BE GENERAL DUTY EQUAL TO SQUARE "D", OR CUTLER-HAMMER, WITH NEMA CONFIGURATION AS INDICATED ON DRAWINGS OR AS REQUIRED BY CODE.
10. ALL SWITCHES SHALL BE SPECIFICATION GRADE. COLOR OF ALL SWITCHES AND COVER PLATES SHALL BE IVORY. MOUNTING HEIGHT OF ALL SWITCHES SHALL COMPLY WITH A.D.A. CODE REQUIREMENTS.
11. ALL SWITCHES AND COVER PLATES SHALL BE IVORY. MOUNTING HEIGHT OF RECEPTACLES SHALL COMPLY WITH A.D.A. CODE REQUIREMENTS UNLESS SPECIFIC OR SPECIAL MOUNTING HEIGHT IS SHOWN ON DRAWINGS OR REQUIRED BY EQUIPMENT.
12. ALL TELEPHONE AND COMPUTER OUTLETS SHOWN ON DRAWING SHALL HAVE EMPTY 3/4" CONDUIT ROUTED FROM BOX TO ABOVE ACCESSIBLE CEILING OR TO TELEPHONE TERINAL BOARD IF CEILING ABOVE ACCESSIBLE IS NOT ACCESSIBLE. PROVIDE PULL STRING IN CONDUIT FOR INSTALATION OF CABLES. CABLES WILL BE INSTALLED UNDER SEPARATE CONTRACT. MOUNTING HEIGHT OF DEVICES SHALL COMPLY WITH A.D.A. CODE REQUIREMENTS.
13. CONTRACTOR SHALL MARK PROPOSED LOCATION OF ALL SWCHES, RECEPTACLES, TELEPHONE OUTLETS, ETC. ON WALLS FOR OWNER'S APPROVAL PRIOR TO ROUGH-IN OR INTALLATION OF ANY BOXES AND CONDUIT. ALL DEVICES MAY BE RELOCATED A MAXIMUM OF 6'-0" PRIOR TO INSTALLATION AT NO ADDITIONAL COST TO OWNER.
14. ENTIRE ELECTRICAL SYSTEM SHALL BE GROUNDED IN ACCORANCE WITH N.E.C. ARTICLE 250.
15. CONTRACTOR SHALL COORDINATE ELECTRICAL SERVICE TO BILDING WITH LOCAL POWER COMPANY. CHARACTERISTICS AND SIZE OF SERVICE SHALL BE AS INDICTED ON THE DRAWINGS. REFER TO CIVIL DRAWINGS FOR MORE SPECIFIC INFORMATION, AS TO LOCATION OF POWR POLES, ETC.
16. ELECTRICAL EQUIPMENT SHALL BE RATED FOR SERVICE ENTRANCE. ALL BUSSING SHALL BE COPPER WITH FULL LENGTH GROUND BUS. OVER CURRENT DEVICES SHALL BE FSIBLE SWITCH (FS) OR CIRCUIT BREAKER (CB) AS INDICATED ON EQUIPMENT SCHEDULE. INTERRUPTING CURREN OF EQUIPMENT AND DEVICES SHALL BE AS NOTED ON EQUIPMENT SCHEDULE OR AS REQUIRED BY LOCAL POWR COMPANY.
17. ALL PANELBOARDS SHALL HAVE BOLT-ON BREAKERS. PANEBOARDS SHALL HAVE COPPER BUSING WITH AMPERE RATINGS, MAIN CIRCUIT BREAKER (MCB) OR MAIN LUGS ONL (MLO), AND MOUNTING AS SHOWN ON PANEL SCHEDULES. PANELS SHALL BE EQUAL TO SQUARE "D", OR UTLER-HAMMER.
18. LIGHT FIXTURES SHALL BE LITHONIA OR EQUAL. FIXTURES SHALL BE COMPLETE WITH ALL LAMPS. CONTRACTOR SHALL PROVIDE OWNER WITH ONE SET OF SPARE LAMP(S) FOR EACH TYPE FIXTURE USED ON THE PROJECT.
19. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR EXCT LOCATION OF ALL LIGHTING FIXTURES IN CEILING. REFER TO ARCHITECTURAL INTERIOR AND EXTERIOR ELEVATIONS FOR MOUNTING HEIGHTS OF ALL WALL MOUNTED FIXTURES. ARCHITECTURAL LOCATIONS GOVERN.
20. CONTRACTOR SHALL FURNISH SUBMITTAL DATA TO OWNER FOR APPROVAL ON ALL FIXTURES AND EQUIPMENT, PRIOR TO ORDERING ANY ITEMS. CONTRACTOR MAY OFFER SUBSTITUTIONS ON ITEMS FOR APPROVAL BY OWNER. SUBSTITUTIONS MUST BE EQUAL IN ALL RESPECTS TO ITEMS SCHEDULED OR SPECIFIED.

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SEC?N 16000
EL?TRICAL

PART 1 – GENERAL

1.1 DESCRIPTION OF WORK

A. THE GENERAL PROVISIONS OF THE CONTRACT, DIVISION INCLUDING THE GENERAL REQUIREMENTS, SUPPLEMENTARY CONDITIONS AND SPECIAL CONDITIONS, ALONG WITH THEGENERAL REQUIREMENTS, ARE HEREBY MADE A PART OF THIS SECTION AS IF FULLY REPEATED HEREIN.

B. SCOPE OF WORK: INCLUDED UNDER THIS SECTION OF T?SE SPECIFICATIONS SHALL INCLUDE COMPLETE ELECTRICAL SYSTEMS AS SHOWN ON THE DRAWINGS AND SPECIFIED EREIN. THIS WORK SHALL INCLUDE:

1. TEMPORARY ELECTRIC SERVICE AND DISTRIBUTION FO(CONSTRUCTION PURPOSE.
2. PERMANENT BUILDING SERVICE ENTRANCE EQUIPMENT\ND FEEDER DISTRIBUTION.
3. TRENCH EXCAVATION, PUMPING, BACKFILLING AND CO?ACTION FOR ALL UNDERGROUND ELECTRICAL WORK.
4. BUILDING PANELBOARDS AND BRANCH CIRCUITS TO E:CTRICAL DEVICES, LIGHTING FIXTURES, AND OTHER ELECTRICALLY OPERATED EQUIPMENT.
5. EMPTY CONDUITS AND OUTLETS FOR TELEPHONE AND:OMPUTER SYSTEMS.
6. DEMOLITION.
7. COORDINATION.

1.2 EXISTING CONDITIONS:

A. PRIOR TO START OF ANY WORK, THE SUCCESSFUL CON1ACTOR SHALL MEET WITH THE ARCHITECT TO DETERMINE THAT NO QUESTIONS REMAIN CONCERNING THE INTENT OF THEDRAWINGS OR SPECIFICATIONS. NO WORK SHALL BE PERFORMED PRIOR TO THIS MEETING. THE ARCHITECT SALL SET THE DATE, TIME, AND PLACE OF CONFERENCE.

B. CONTRACTOR SHALL SCHEDULE POWER OUTAGE REQUIRE FOR BUILDING ELECTRICAL SYSTEM ADDITION INDICATED ON DRAWINGS WITH BOTH OWNER AND ARCHITECT. CONTRATOR SHALL PROVIDE ALL NECESSARY WORK REQUIRED FOR ELECTRICAL SYSTEM ADDITION AFTER NORMAL BUSINESSIOURS (EVENING OR WEEKENDS).

1.3 CODES, ORDINANCES AND PERMITS

A. COMPLY WITH ALL CODES APPLYING TO THE WORK OF IS CONTRACT INCLUDING BUT NOT LIMITED TO THE 2007 FLORIDA BUILDING, THE NATIONAL ELECTRICAL CODE (NE), NATIONAL ELECTRICAL SAFETY CODE, ADA AND OSHA, AND FLORIDA LIFE SAFETY CODE 2008 EDITION. OBTAIN INFCMATION ON ALL CODE RESTRICTIONS AND REQUIREMENTS. IN CASE OF CONFLICT BETWEEN THE CONTRACT DOCUMENT AND A GOVERNING CODE OR ORDINANCE, SUCH CONFLICT SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OFTHE ARCHITECT FOR RESOLUTION. EXTRA PAYMENT WILL NOT BE ALLOWED FOR WORK REQUIRED BY CODE RESTRICTIOS EXCEPT THROUGH WRITTEN AGREEMENT WITH THE OWNER.

B. APPLY FOR, OBTAIN, AND PAY FOR ALL REQUIRED PERVS AND INSPECTION CERTIFICATES. FINAL PAYMENT IS CONTINGENT UPON DELIVERY OF SUCH CERTIFICATES TOHE ARCHITECT.

C. ALTHOUGH NOT A STATE REQUIREMENT, A MINIMUM OF IE LICENSED JOURNEYMAN ELECTRICIAN SHALL BE PRESENT FOR EVERY 5 ELECTRICAL WORKERS ON THE JOBSITE THROUGOUT THE COURSE OF CONSTRUCTION.

D. WHERE APPLICABLE, ALL MATERIALS AND EQUIPMENT SHLL BEAR THE UNDERWRITERS' LABORATORIES SEAL. CERTIFICATES TO THIS EFFECT SHALL BE FURNISHED TOHE ARCHITECT UPON REQUEST.

1.4 SITE INSPECTION

A. VISIT THE SITE AND THOROUGHLY INSPECT CONDITIONS /FECTING THE WORK BEFORE SUBMITTING BID. ASSUME RESPONSIBILITY FOR MEETING ALL EXISTING CONDITIONS ICLUDING ACCESS AND WORK SPACE LIMITATIONS.

1.5 DRAWINGS AND SPECIFICATIONS.

A. REFER TO THE GENERAL CONSTRUCTION DRAWINGS WHIC ARE BOUND WITH THE DRAWINGS OF THIS WORK FOR CONSTRUCTION DETAILS, ELEVATIONS, ETC. ARCHITECTUAL AND STRUCTURAL DRAWINGS SHALL TAKE PRECEDENCE OVER DIVISION 16 DRAWINGS (ELECTRICAL DRAWINGS).

B. IT IS THE INTENT OF THE DRAWINGS AND SPECIFICATION TO CALL FOR FINISHED WORK, TESTED, AND READY FOR OPERATION, AND IN COMPLETE CONFORMANCE WITH ALL PPLICABLE CODES, RULES AND REGULATIONS. MINOR DETAILS NOT USUALLY SHOWN OR SPECIFIED, BUT MANIFESTLY NCESSARY FOR THE PROPER INSTALLATION AND OPERATION OF THE VARIOUS SYSTEMS, SHALL BE INCLUDED IN THE WOK AND IN THE PROPOSAL, THE SAME AS IF SPECIFIED OR SHOWN ON THE DRAWINGS.

C. SPECIFICATIONS AND DRAWINGS SHALL BE CONSIDERED ; SUPPLEMENTARY TO EACH OTHER, REQUIRING MATERIALS AND LABOR INDICATED, SPECIFIED, OR IMPLIED BY EITHER SPCIFICATIONS OR DRAWINGS. IF ANY DEPARTURES FROM THE DRAWINGS AND SPECIFICATIONS ARE DEEMED NECESSAR' DETAILS OF SUCH DEPARTURES AND THE REASONS THEREFORE SHALL BE SUBMITTED TO THE ARCHITECT FOR APPROVAI NO DEPARTURES SHALL BE MADE WITHOUT PRIOR APPROVAL OF THE ARCHITECT.

D. SPECIFIC REFERENCE IN THE SPECIFICATIONS TO ANY ARCLE, DEVICE, PRODUCT, MATERIAL, FIXTURE OR TYPE OF CONSTRUCTION, ETC., BY PROPRIETARY NAME, MAKE OR:ATALOG NUMBER SHALL BE INTERPRETED AS ESTABLISHING A STANDARD OF QUALITY AND SHALL NOT BE CONSTRUED \S LIMITING COMPETITION. SUBSTITUTES MAY BE USED SUBJECT TO COMPLIANCE WITH REQUIREMENTS SET FORTH HEREINAND IN THE GENERAL REQUIREMENTS, DIVISION 1, AND AS APPROVED BY THE ARCHITECT.

1.6 SUBMITTALS

A. SUBMIT SHOP DRAWINGS, CATALOG SHEETS, OR OTHER ESCRIPTIVE DATA WITH SUFFICIENT INFORMATION TO ESTABLISH DESIGN, QUALITY AND PERFORMANCE.

B. MANUFACTURER CATALOG SHEETS SUBMITTED WITHOUT SECIFIC MODEL NUMBERS INDICATED WILL BE REJECTED. DATA SHALL DESCRIBE APPARATUS, EQUIPMENT, PANELS, FIXTRES, AND OTHER ITEMS REQUIRING DESCRIPTIVE LITERATURE. SUBMITTALS SHALL INCLUDE THE FOLLOWING:

1. LIGHT FIXTURES
2. PANELBOARDS
3. SAFETY SWITCHES
4. MOTOR STARTERS
5. WIRING DEVICES
6. OCCUPANCY SENSORS
7. FLOOR OUTLET BOXES
8. TIME SWITCHES
9. LIGHTING CONTACTORS
10. TRANSIENT VOLTAGE SURGE SUPPRESSION (TVSS)
11. MANUAL TRANSFER SWITCH

C. REVIEW OF THE SUBMITTALS DOES NOT GRANT THE CON?ACTOR LEAVE TO PROCEED IN ERROR. THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS MUST BE FOLLOWEDAND ARE NOT WAIVED OR SUPERCEDED IN ANY WAY BY THE SUBMITTAL REVIEW.

D. SUBMITTAL DATA MAY BE SUBMITTED FOR REVIEW AND 'EVISED AND RESUBMITTED' ONLY TWO TIMES WITHOUT COST TO THE CONTRACTOR. EACH SUBSEQUENT SUBMITTAL SHALBE REVIEWED FOR A FLAT FEE OF $100.00 PAYABLE TO THE REVIEWING ENGINEER.

1.7 MAINTENANCE DATA

A. COLLECT AND NEATLY RETAIN MAINTENANCE AND SERVIC DATA SUPPLIED WITH EQUIPMENT FURNISHED AND INSTALLED UNDER THIS CONTRACT UNTIL JOB COMPLETION, AT WHIC TIME DELIVER TO THE ARCHITECT FOR INCLUSION IN THE MAINTENANCE MANUAL. ALL SUCH DATA MUST BE PROFRLY IDENTIFIED AS FOR EQUIPMENT SERVED.

B. KEEP ONE SET OF PRINTS CURRENT OF ANY CHANGES C VARIATIONS BY MARKING PRINTS IN A LEGIBLE MANNER; AND UPON COMPLETION OF PROJECT, DELIVER PRINTS TO THEARCHITECT. DO NOT MAKE CHANGES WITHOUT PRIOR APPROVAL OF THE ARCHITECT.

1.8 TEMPORARY ELECTRIC SERVICE

A. PROVIDE COMPLETE TEMPORARY SYSTEM OF POWER AND IGHTING WIRING FOR USE DURING CONSTRUCTION AND FOR TESTING OF EQUIPMENT. COMPLY WITH OSHA AND NEC CLUDING PERSONNEL GROUND-FAULT PROTECTION REQUIREMENTS.

1.9 ELECTRIC SERVICE

A. BUILDING ELECTRICAL SERVICE WILL BE PROVIDED BY LOCL UTILITY AND ARRANGED GENERALLY AS INDICATED ON DRAWINGS.

B. PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT NOT PDVIDED BY THE UTILITY IN ACCORDANCE WITH THE UTILITIES' INSTALLATION POLICIES, SPECIFICATIONS AND PROCEDURE WITHOUT ADDITIONAL COST.

C. THE CONTRACTOR SHALL CONTACT THE UTILITY IN ADVACE AND VERIFY AVAILABILITY AND ARRANGEMENTS FOR ELECTRICAL SERVICE AS INDICATED. SHOULD A SIGNIFICAT INSTALLATION CONFLICT OCCUR, NOTIFY THE ARCHITECT IMMEDIATELY FOR RESOLUTION BEFORE STARTING ANY WCK.

1.10 COORDINATION – GENERAL

A. DRAWINGS ARE GENERALLY DIAGRAMMATIC. REVIEW ALL ROJECT DRAWINGS AND COORDINATE ALL WORK WITH GENERAL CONTRACTOR AND DIFFERENT TRADES PRIOR TO INSTALLG ANY WORK SO THAT INTERFERENCES BETWEEN ELECTRICAL WORK AND DUCTS, PIPING, EQUIPMENT, ARCHITECTURAL ID STRUCTURAL WORK WILL BE AVOIDED. DO NOT INSTALL CONDUITS, BOXES AND FITTINGS IN SPACES REQUIRED FC DUCTWORK OR PIPING.

A. FURNISH ALL NECESSARY OFFSETS S IN RACEWAYS, FITTINGS, ETC., REQUIRED TO PROPERLY INSTALL WORK SO AS TO TAKE UP MINIMUM SPACE. INSTALL ALL EQUIPMENT TO PROVIDE CODE REQUIRED 'WORKING SPACE'. FURNISH AND INSTALL ALL MATERIALS REQUIRED TO ACCOMPLISH THIS WITHOUT ADDITIONAL COST.

B. IN CASE INTERFERENCE DEVELOPS, THE ARCHITECT WILL DECIDE WHICH TRADE WORK MUST BE RELOCATED REGARDLESS OF WHICH WAS INSTALLED FIRST. DAMAGE FROM INTERFERENCE OR REWORK CAUSED BY INADEQUATE COORDINATION WITH OTHER TRADES SHALL BE RECTIFIED WITHOUT ADDITIONAL COST.

C. WITHIN 30 DAYS FOLLOWING AWARD OF CONTRACT, REPORT TO THE ARCHITECT IN WRITING ALL REAL OR POTENTIAL ERRORS, AMBIGUITIES AND/OR CONFLICTS ON ELECTRICAL WORK OR BETWEEN TRADES. THOSE REPORTED AFTER 30 DAYS, EXCEPT AS A RESULT OF UNFORESEEN CIRCUMSTANCES, SHALL BE RESOLVED AT THE DISCRETION OF THE ARCHITECT. REPORT CONFLICTS RESULTING FROM PROGRESS OF WORK TO THE ARCHITECT IMMEDIATELY.

1.11 COORDINATION – ELECTRICAL / MECHANICAL

A. UNLESS SPECIFICALLY REQUIRED OTHERWISE, ALL MOTORS, INTEGRAL STARTERS, CONTROL AND MONITORING DEVICES, TIMERS, RELAYS, PILOT DEVICES AND OTHER REQUIRED CONTROL COMPONENTS WILL BE FURNISHED UNDER DIVISION 15.

B. UNLESS SPECIFICALLY REQUIRED OTHERWISE, FURNISH AND INSTALL DISCONNECT SWITCHES, FUSES AND POWER WIRING CONNECTIONS TO ALL EQUIPMENT AS INDICATED ON DRAWINGS OR AS SPECIFICALLY REQUIRED BY THE EQUIPMENT MANUFACTURER.

C. THE MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL HEATING, VENTILATION AND AIR CONDITIONING EQUIPMENT, INCLUDING ALL CONTROL DEVICES AND CONTROL WIRING.

D. UNLESS SPECIFICALLY REQUIRED OTHERWISE, MAKE ALL POWER WIRING CONNECTIONS TO ALL WATER HEATERS, PUMPS, MACHINERY, APPLIANCES AND OTHER ELECTRICALLY OPERATED EQUIPMENT AS INDICATED ON DRAWINGS OR AS REQUIRED. FURNISH AND INSTALL DISCONNECT SWITCHES AND STARTERS AS INDICATED ON DRAWINGS, EXCEPT FOR ITEMS FURNISHED WITH INTEGRAL DISCONNECT SWITCHES AND/OR STARTERS.

E. INSTALL AND CONNECT ALL SEPARATE DISCONNECT SWITCHES AND LINE VOLTAGE CONTROL DEVICES FURNISHED WITH THE EQUIPMENT BUT NOT FACTORY MOUNTED AND CONNECTED ON THE EQUIPMENT.

F. REVIEW SHOP DRAWINGS AND VERIFY FINAL ELECTRICAL CHARACTERISTICS AND WIRING BEFORE ROUGH-IN OF POWER FEEDS TO ANY EQUIPMENT TO BE PROVIDED. WHEN ELECTRICAL DATA ON SHOP DRAWINGS DIFFERS FROM CONTEMPLATED DESIGN, MAKE NECESSARY ADJUSTMENTS TO WIRING, DISCONNECT, AND BRANCH-CIRCUIT PROTECTION FOR EQUIPMENT ACTUALLY INSTALLED.

1.12 WORKING CLEARANCES

A. WORKING CLEARANCES AROUND ELECTRICAL EQUIPMENT REQUIRING SERVICE SHALL COMPLY WITH NEC REQUIREMENTS. COORDINATE AND VERIFY CLEARANCES FROM EQUIPMENT AND WORK FURNISHED BY OTHER TRADES. SHOULD THERE BE ANY APPARENT VIOLATIONS OF CLEARANCE REQUIREMENTS, NOTIFY THE ARCHITECT BEFORE PROCEEDING WITH CONNECTION OR PLACEMENT OF EQUIPMENT. REWORK CAUSED BY INADEQUATE COORDINATION SHALL BE RECTIFIED AT NO EXTRA COST.

PART 2 – PRODUCTS

2.1 MATERIALS

A. ALL MATERIALS USED IN THIS PROJECT SHALL BE NEW, UNLESS OTHERWISE NOTED, AND LISTED BY THE UNDERWRITERS' LABORATORIES, INC. AS CONFORMING TO ITS STANDARDS WHERE SUCH STANDARDS HAVE BEEN ESTABLISHED. THESE MATERIALS SHALL BEAR THE U.L. LABEL.

B. WHERE MATERIALS, EQUIPMENT, APPARATUS OR OTHER PRODUCTS ARE SPECIFIED BY MANUFACTURER, BRAND NAME, TYPE OR CATALOG NUMBER, SUCH DESIGNATION IS TO ESTABLISH STANDARDS OF DESIRED DESIGN OR QUALITY AND SHALL BE BASIS OF BID. ALTERNATIVES MAY BE SUBMITTED TO ARCHITECT FOR CONSIDERATION.

2.4 KWH METERS

A. PROVIDE KWH METER(S) FOR TENANT A/C EQUIPMENT CIRCUITS AS INDICATED OR REQUIRED.

B. KWH METERS SHALL BE DIGITAL READOUT TYPE AS MANUFACTURED BY E-MON CORP. FOR 208V/3PH, AND AMPERE RATING AS REQUIRED, COMPLETE WITH C.T.S.

C. INSTALL C.T.S AT METER OR IN SEPARATE ENCLOSURE AS REQUIRED. PROVIDE CONTROL WIRING CONNECTIONS FOR C.T.S AND VOLTAGE AS RECOMMENDED BY THE MANUFACTURER IN CONDUIT TO THE KWH METER

2.5 DISTRIBUTION EQUIPMENT

A. MAIN DISTRIBUTION PANEL (MDP) SHALL BE FREE STANDING SWITCHBOARD STYLE,208/120V, 3 PHASE, 4 WIRE, FRONT ACCESSIBLE, MICROPROCESSOR MONITORING/PROTECTIVE DEVICE, DISTRIBUTION SECTION, COPPER BUSSES AND 100% NEUTRAL. ENCLOSURE SHALL BE NEMA-1 FOR INTERIOR LOCATIONS. MICROPROCESSOR MONITORING/PROTECTIVE DEVICE SHALL BE SOLID-STATE TYPE AND INCLUDE METERING READOUTS FOR VOLTS, AMPS, KW, KWH, VARS, PF AND FREQUENCY. DISTRIBUTION SECTION BREAKERS SHALL BE MOLDED CASE THERMAL-MAGNETIC TYPE. SWITCHBOARD BUSSES AND CIRCUIT BREAKERS SHALL BE RATED FOR 22,000A FAULT CURRENT. LABEL ALL CIRCUIT BREAKERS TO INDICATE LOAD SERVED.

B. PANELBOARDS SHALL BE MOLDED CASE CIRCUIT BREAKER TYPE WITH COMPLETELY DEAD FRONTS ENCLOSED IN CODE GAUGE, GALVANIZED SHEET STEEL CABINETS WITH ADEQUATE WIRING GUTTERS TOP, BOTTOM AND SIDES. NEUTRAL BUS BARS SHALL BE 100% RATED, INSULATED FOR PANELBOARDS SHOWN WITH NEUTRAL. FRONT TRIM SHALL CONTAIN HINGED DOOR WITH KEYED LOCK AND CATCH. DOOR SHALL BE PROVIDED WITH PLASTIC ENCLOSED CIRCUIT DIRECTORY. UPON COMPLETION OF INSTALLATION, CIRCUIT DIRECTORY SHALL BE TYPEWRITTEN INDICATING USAGE AND LOCATION OF CIRCUITS AS INDICATED ON DRAWINGS.

C. CIRCUIT BREAKERS SHALL BE SINGLE OR MULTI-POLE MOLDED CASE, OF COMMON HANDLE, COMMON TRIP WITHOUT HANDLE TIES, THERMAL MAGNETIC, QUICK-MAKE, QUICK-BREAK, FOR MANUAL AND AUTOMATIC OPERATION. REFER TO SCHEDULES ON DRAWINGS FOR DETAILS REGARDING PANEL TYPES, CAPACITY, INTERRUPTING RATING, MOUNTING AND OTHER INFORMATIO. CIRCUIT BREAKERS WHICH ARE INDICATED TO SERVE PERMANENTLY CONNECTED APPLIANCES SUCH AS WATER HEATERS, DISHWASHERS, ETC., SHALL BE CAPABLE OF BEING LOCKED IN OPEN POSITION.

2.6 SAFETY SWITCHES

A. SAFETY SWITCHES SHALL BE QUICK-MAKE, QUICK-BREAK, GENERAL DUTY TYPE IN SHEET STEEL ENCLOSURE, NEMA-1 FOR INTERIOR LOCATIONS AND NEMA-3R FOR EXTERIOR LOCATIONS AS REQUIRED FOR RAIN TIGHT INSTALLATIONS, WITH DOOR COVER INTERLOCK. FUSE TYPE AND SIZE SHALL BE AS INDICATED OR AS SPECIFICALLY REQUIRED BY THE EQUIPMENT MANUFACTURER.

2.9 MOTOR CONTROL RELAYS

A. MOTOR CONTROL RELAYS SHALL BE GENERAL PURPOSE POWER TYPE WITH 120VAC COIL, 30 AMPERE RATED SPST OR DPST CONTACTS AS REQUIRED FOR FAN MOTOR ELECTRICAL CHARACTERISTICS, SQUARE 'D' CLASS 8501, TYPE C OR EQUAL. INSTALL RELAY INSIDE METAL BOX ADJACENT TO FAN TO BE CONTROLLED..

2.10 LIGHTING CONTACTORS

A. LIGHTING CONTACTORS SHALL BE TOTALLY ENCLOSED, MAGNETIC TYPE, ELECTRICALLY HELD, WITH VOLTAGE RATING, AMPACITY AND NUMBER OF POLES AS INDICATED ON DRAWINGS. PROVIDE CONTACTOR CONTROL FROM TIME SWITCH AS SHOWN ON DRAWING.

B. CONTACTOR ENCLOSURE SHALL BE NEMA-1 TYPE CABINET FOR INTERIOR AND NEMA-3R FOR EXTERIOR LOCATIONS.

C. CONTACTOR 'G' SHALL BE TOTALLY ENCLOSED, MAGNETIC TYPE, 120V COIL MECHANICALLY HELD, WITH VOLTAGE RATING, AMPACITY AND NUMBER OF POLES AS INDICATED ON DRAWINGS. CONTACTOR TO OPEN WHEN 'EPO' SWITCH(ES) ARE PUSHED. PROVIDE RESET BUTTON TO RE-ENERGIZE CONTACTOR.

2.11 CONDUIT

A. ELECTRICAL METALLIC TUBING (EMT) WITH SET SCREW FITTINGS SHALL GENERALLY BE USED FOR BUILDING INTERIOR EXCEPT WHERE EXPOSED TO PHYSICAL DAMAGE, UNLESS OTHERWISE INDICATED OR SPECIFIED HEREIN.

B. RIGID OR INTERMEDIATE METAL CONDUIT WITH GALVANIZED FITTINGS AND HARDWARE SHALL BE USED ON BUILDING EXTERIOR WHERE EXPOSED TO WEATHER.

C. RIGID NONMETALLIC CONDUIT (SCHEDULE 40 PVC) SHALL BE USED UNDERGROUND AND IN CONCRETE SLABS. MINIMUM PVC SIZE SHALL BE 1". FLOOR PENETRATIONS SHALL BE RIGID GALVANIZED ELL'S.

D. FLEXIBLE CONDUIT SHALL BE USED FOR FINAL CONNECTIONS TO MOTORS, APPLIANCES AND VIBRATING EQUIPMENT.

E. ELECTRICAL NONMETALLIC TUBING (ENT) SHALL NOT BE USED.

F. ON EXISTING SOLID MASONRY WALLS IN FINISHED SPACES WHERE CONDUITS/BOXES CANNOT BE CONCEALED, PROVIDE SURFACE TYPE 'WIREMOLD' METAL RACEWAY SYSTEM AND FITTINGS OF SIZE AND TYPE REQUIRED. THE USE OF THIS TYPE RACEWAY SYSTEM SHALL HOWEVER BE KEPT TO A MINIMUM. SURFACE RACEWAYS SHALL INCLUDE ALL REQUIRED ACCESSORIES INCLUDING OUTLET/SERVICE BOXES, COUPLINGS, ELBOWS, TEES, COVERS, END PLATES AND INSTALLATION HARDWARE. SURFACE RACEWAYS SHALL INCLUDE ALL REQUIRED ACCESSORIES INCLUDING OUTLET/SERVICE BOXES, COUPLINGS, ELBOWS, TEES, COVERS, END PLATES AND INSTALLATION HARDWARE.

G. IN LOCATIONS WHERE EXTERIOR DEVICES ARE CONNECTED TO AN INTERIOR DEVICE VIA A COMMON RACEWAY, PROVIDE SILICONE SEALANT IN CONDUIT AT JUNCTION BOX IN INTERIOR AND EXTERIOR LOCATIONS AFTER BRANCH CIRCUIT WIRING HAS BEEN INSTALLED. SEALANT SHALL BE APPLIED TO INHIBIT AIR FLOW IN RACEWAY BETWEEN INTERIOR AND EXTERIOR DEVICE LOCATIONS.

2.12 TRANSIENT VOLTAGE SURGE SUPPRESSORS

A. VOLTAGE SURGE SUPPRESSOR SHALL BE UL 1449 LISTED, AND SHALL MEET OR EXCEED MAXIMUM FAULT CURRENT INDICATED FOR PANELBOARDS ON WHICH INSTALLED. ADVANCED PROTECTION TECHNOLOGIES IN NEMA-3R ENCLOSURE WITH INTEGRAL DISCONNECT MODEL #TE/2HPS/DS FOR 208V/3 /4W SERVICES, OR APPROVAL EQUAL BY, LIEBERT, OR INTERMATIC ONLY.

B. PROVIDE ALL WIRING/CONDUIT CONNECTIONS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

2.13 CONDUCTORS

A. ALL CONDUCTORS SHALL BE COPPER AND SHALL NOT BE SMALLER THAN #12 EXCEPT WHERE OTHERWISE NOTED. CONDUCTORS SMALLER THAN #8 SHALL BE SOLID. CONDUCTORS #8 AND LARGER SHALL BE STRANDED.

B. CONDUCTOR INSULATION SHALL GENERALLY BE XHHW OR THHN AS REQUIRED FOR DRY, DAMP OR WET LOCATIONS PER NEC. CONDUCTORS SUBJECTED TO HIGHER AMBIENT TEMPERATURES SHALL BE DERATED IN ACCORDANCE WITH NEC.

2.14 OUTLET BOXES

A. ALL OUTLET BOXES, EXTENSIONS, AND COVER FRAMES SHALL BE GALVANIZED SHEET STEEL FOR CONCEALED LOCATIONS OR CAST METAL FOR EXPOSED LOCATIONS UNLESS OTHERWISE NOTED. BOXES SHALL BE 1 1/2" DEEP, MINIMUM, AND SHALL BE SIZED TO ACCOMMODATE THE INSTALLED CONDUIT, CONDUCTORS AND DEVICE. BOXES TO WHICH FIXTURES ARE INSTALLED SHALL HAVE STUDS AND STRAPS TO SUPPORT FIXTURE WEIGHT. *WHERE MORE THAN TWO SWITCHES ARE LOCATED SIDE BY SIDE, OUTLET BOX SHALL BE MULTI-GANGED TYPE AS REQUIRED FOR SWITCHES TO BE MOUNTED UNDER SINGLE COVER PLATE. PROVIDE DIVIDER PLATE BETWEEN EACH DEVICE WITHIN MULTI-GANG OUTLET.

B. BOXES FOR INSTALLATION IN CONCRETE BLOCK WALL CONSTRUCTION SHALL BE GANG TYPE, 3 1/2" DEEP FOR SWITCH DEVICES AND 4" SQUARE BY 1 1/2" DEEP, WITH 1 1/4" SINGLE AND TWO GANG SQUARE CORNER EXTENSION COVERS FOR RECEPTACLE AND JUNCTION PURPOSES. BOXES FOR INSTALLATION IN BRICK WALL CONSTRUCTION SHALL BE GANG TYPE, 3 1/2" DEEP. BOXES INSTALLED IN PLASTERED WALLS SHALL BE 4" SQUARE BY 1 1/2" DEEP, WITH 3/4" SINGLE AND TWO GANG PLASTER COVERS. ALL BOXES SHALL HAVE INTERNAL MOUNTING EARS OR THREADED TAPPINGS.

C. FLOOR OUTLET BOXES SHALL BE FULLY ADJUSTABLE, FLUSH TYPE, WITH TOP COVER PLATES AND MATCHINGTILE/ CARPET FLANGE PLATES AS REQUIRED. BOXES FOR COMBINATION TYPE FLOOR OUTLETS SHALL BE 2-GANG SHALLOW STEEL FULLY ADJUSTABLE FLOOR BOX WIREMOLD #880M2, WITH 2-GANG CARPET/TILE BRUSHED ALUMINUM FLANGE #828TCAL, POWER SIDE BRUSHED ALUMINUM COVER PLATE #828RTCAL, WITH DATA SIDE BEZEL #CMMAB, WITH DATA SIDE COMMUNICATIONS MODULES #CM2-U2KEYA, & WITH DATA SIDE BRUSHED ALUMINUM COVER PLATE #828GFITCAL. SINGLE FLOOR OUTLET BOXES SHALL BE 1-GANG SHALLOW STEEL FULLY ADJUSTABLE FLOOR BOX WIREMOLD #880M1, WITH 1-GANG CARPET/TILE BRUSHED ALUMINUM FLANGE #817TCAL, POWER TYPE SHALL BE BRUSHED ALUMINUM COVER PLATE #828RTCAL, DATA TYPE SHALL BE BEZEL #CMMAB, WITH DATA TYPE COMMUNICATIONS MODULES #CM2-U1KEYA, & WITH DATA SIDE BRUSHED ALUMINUM COVER PLATE #828GFITCAL.

D. FLOOR OUTLET BOXES FOR BOTH COMBINATION TYPE FLOOR OUTLETS SINGLE SERVICE FLOOR OUTLETS, AND POKE THRU FLOOR OUTLETS SHALL BE UL LISTED FOR SCRUB WATER EXCLUSION TEST (UL514A AND UL514C).

2.15 PULL AND JUNCTION BOXES

A. PULL AND JUNCTION BOXES SHALL BE CONSTRUCTED OF CODE GAUGE GALVANIZED SHEET STEEL AND FITTED WITH SCREW COVERS HELD IN PLACE WITH CORROSION RESISTANT MACHINE SCREWS.

B. PROVIDE BOXES WHERE NOTED ON DRAWINGS OR WHERE NECESSARY TO FACILITATE CONDUCTOR PULLING AND SPLICING. SPLICING OF CONDUCTORS IS TO BE AVOIDED AS MUCH AS POSSIBLE WITH CONTINUOUS LENGTHS BEING PREFERRED. BOX SIZES SHALL CONFORM TO SIZES REQUIRED BY NEC OR AS INDICATED ON DRAWINGS.

2.16 WIRING DEVICES

A. ALL WIRING DEVICES SHALL BE COMMERCIAL GRADE AND PRODUCT OF ONE MANUFACTURER THROUGHOUT PROJECT EXCEPT AS OTHERWISE NOTED. DEVICE COLOR SHALL BE DETERMINED IN SHOP DRAWING STAGE AND SHALL BE AS DIRECTED BY ARCHITECT

B. WALL SWITCHES SHALL BE 20 AMPERE, 120-277V, A.C., TOGGLE HANDLE, QUIET TYPE, WITH SIDE OR BACK WIRING TERMINALS. SWITCHES SHALL BE SINGLE OR MULTI-POLE AS INDICATED ON DRAWINGS. *PILOT LIGHT TYPE SWITCHES SHALL BE PROVIDED WITH RED LIGHTED HANDLE WHICH ILLUMINATES WHEN SWITCH IS 'ON'.

C. WALL OCCUPANCY SENSORS SHALL BE WALL MOUNTED COMBINATION ULTRASONIC AND PASSIVE INFRARED TYPE, WITH INTEGRAL ON/OFF MANUAL SWITCH. OCCUPANCY SENSOR SHALL BE LINE VOLTAGE AND INTRINSICALLY GROUNDING TYPE. MANUFACTURER SHALL BE SENSOR SWITCH MODEL # WSD-PDT OR APPROVED EQUAL. PROVIDE VANDAL RESISTANT TYPE IN ALL LOCATIONS. OPEN AREA AND COOLER/FREEZER OCCUPANCY SENSORS SHALL BE CEILING MOUNTED COMBINATION ULTRASONIC AND PASSIVE INFRARED TYPE RATED FOR WET LOCATIONS AND OPERATION BELOW FREEZING. SENSOR SHALL BE EQUIPPED WITH AUTOMATIC GAIN CONTROL THEREBY ALLOWING SELF CALIBRATION. CONNECT FOR USE VIA WALL SWITCH GENERALLY AS INDICATED ON DRAWINGS. MANUFACTURER SHALL BE SENSOR SWITCH MODEL # CM-PDT-10/CM-BOXPLATE WITH PP-20 POWER PACK, OR APPROVED EQUAL BY HUBBEL OR WATTSTOPPER. CONTRACTOR SHALL COORDINATE LOCATION IN FIELD TO MAINTAIN 5' CLEAR BETWEEN CEILING MOUNTED SENSOR AND HVAC SUPPLY GRILLES.

D. DUPLEX RECEPTACLES SHALL BE STRAIGHT BLADE, 20 AMPERE 125V, A.C., OF GROUNDING TYPE, WITH SIDE OR BACK WIRING TERMINALS.

E. GFI TYPE RECEPTACLES SHALL BE EQUIPPED WITH INTEGRAL SAFETY MECHANISM TO REMOVE POWER FROM DEVICE UPON GFI COMPONENT FAILURE (UL943 COMPLIANT) WITH 'TEST' AND 'RESET' BUTTONS SHALL BE PROVIDED WHERE INDICATED. GFI TYPE RECEPTACLES SHALL BE PROVIDED WHERE INDICATED ON DRAWINGS, SERIES WIRING TO ENABLE GFI PROTECTION FOR NON-GFI TYPE RECEPTACLES SHALL NOT BE ALLOWED. RECEPTACLES SHALL BE MOUNTED WITH GROUNDING INSERT ON BOTTOM.

F. DEVICE PLATES SHALL BE RIGID THERMOPLASTIC TYPE FOR ALL FLUSH INSTALLED OUTLET BOXES IN FINISHED SPACES. WEATHERPROOF DEVICES SHALL BE EQUIPPED WITH RAIN TIGHT IN USE COVER. SURFACE MOUNTED DEVICE OUTLETS SHALL BE FITTED WITH APPROPRIATE SHEET STEEL OR CAST METAL COVER PLATES TO MATCH DEVICE AND BOX. NYLON COVERPLATES ARE NOT ALLOWED.

G. SPECIAL PURPOSE OUTLETS SHALL BE AS INDICATED ON DRAWINGS AND HAVE MATCHING COVER PLATE.

2.17 LIGHTING FIXTURES

A. FURNISH AND INSTALL ALL LIGHTING FIXTURES AS SHOWN ON DRAWINGS AND SPECIFIED IN FIXTURE SCHEDULE. THE FIXTURE SCHEDULE IS INTENDED AS A GUIDE FOR SELECTION. UNLESS OTHERWISE NOTED, FIXTURES OF OTHER MANUFACTURERS WILL BE ACCEPTABLE IF OF SIMILAR DESIGN AND CHARACTERISTICS, SUBJECT TO APPROVAL.

B. ALTHOUGH NOT SPECIFICALLY SHOWN OR SPECIFIED, ALL LIGHT FIXTURES SHALL BE PROVIDED WITH ALL NECESSARY OPTIONAL ACCESSORIES AND MOUNTING HARDWARE FOR INSTALLATION AS INDICATED OR REQUIRED.

C. ELECTRONIC BALLASTS FOR FLUORESCENT FIXTURES SHALL BE UL LISTED CLASS P, TYPE 1, FLICKER-FREE, FULL LIGHT OUTPUT TYPE AND MEETING THE APPLICABLE REQUIREMENTS OF THE FCC, IEEE AND ANSI WITH POWER FACTOR NOT LESS THAN 90%, CREST FACTOR 1.5 MAXIMUM, FREQUENCY NOT LESS THAN 25,000 HERTZ, THD LESS THAN 10% AND SOUND RATING CLASS A. BALLASTS SHALL BE SPECIFICALLY DESIGNED FOR USE WITH THE TYPE LAMPS INDICATED. *BALLASTS FOR USE WITH COMPACT FLUORESCENT LAMPS SHALL BE PROVIDED WITH 'END OF LIFE' PROTECTION TO PREVENT BALLAST OPERATION UPON LAMP FAILURE. BALLAST WARRANTY SHALL BE 5 YEARS MINIMUM. ALL FLUORESCENT FIXTURES SHALL BE PROVIDED WITH INTEGRAL DISCONNECT WHICH REMOVES POWER TO BALLAST.

D. BALLAST FOR HID FIXTURES SHALL BE HIGH POWER FACTOR TYPE SELECTED FOR TYPE AND WATTAGE OF LAMP SUPPLIED.

E. ALL RECESSED LIGHTING FIXTURES INSTALLED IN INSULATED CEILINGS OR CEILINGS WHICH ABUT AN ATTIC SPACE SHALL BE 'IC' RATED, GASKETED AND SEALED TO PREVENT AIR LEAKAGE INTO THE CONDITIONED SPACE, OR PROVIDED WITH A SEALED BOX (MIN 1/2" THICK GYPSUM WALL BOARD, PREFORMED POLYMERIC VAPOR BARRIER, OR OTHER AIR TIGHT ASSEMBLY MANUFACTURED FOR THIS PURPOSE) AND MAINTAINING REQUIRED CLEARANCES OF NOT LESS THAN 1/2" FOR COMBUSTIBLE MATERIAL AND NOT LESS THAN 3" FROM INSULATION MATERIAL.

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RENOVATIONS & ADDITIONS TO S & S FOOD STORE NO. 38
US 441 & I-75 ELLISVILLE, FLORIDA

9/16/09
1654ES1

DATE 09/21/09
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APPROVED TME

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OF 11 SHEETS

2.18 LAMPS

A. FURNISH AND INSTALL ONE COMPLETE SET OF LAMPS FOR ALINSTALLED FIXTURES AS DESIGNATED IN FIXTURE SCHEDULE, ON DRAWINGS OR SPECIFIED HEREIN. ALL LAMPS HALL BE OF PROPER DESIGN TO FIT SPECIFIC FIXTURE INDICATED. TO ENSURE UNIFORM LIGHTING AND COLOR, ALL LMPS OF THE SAME TYPE SHALL BE PROVIDED BY THE SAME MANUFACTURER.

B. INCANDESCENT LAMPS SHALL NOT BE ALLOWED. ALL A-19 MEIUM BASED LAMPS SHALL BE SELF BALASTED CFL TWST TYPE.

C. FLUORESCENT LAMPS SHALL BE COLOR AND SIZE AS SCHEDUD, AND DESIGNED FOR OPERATION WITH THE FIXTURE BALLAST. ENERGY EFFICIENT TYPE LAMPS SHALL BE SPECIFIKLLY APPROVED FOR OPERATION WITH THE SPECIFIED BALLAST.

PART 3 – EXECUTION

3.1 DEMOLITION

A. DEMOLITION SHALL INCLUDE ALL EXISTING BUILDING AREAS TOBE RENOVATED AND AS WELL AS OTHER DEMOLITION WORK AS INDICATED OR REQUIRED. REFER TO BOTH THE DEMOLITIO DRAWINGS AND CONSTRUCTION PLANS. DEMOLITION WORK SHALL INCLUDE DISCONNECTION AND REMOVAL OF ALL KISTING LIGHT FIXTURES, DEVICES, OUTLETS, BOXES, CONDUIT/WIRING, APPARATUS AND EQUIPMENT AS INDICATED R REQUIRED.

B. REMOVE ALL WIRING/CABLES, CONDUITS AND BOXES.

C. EXISTING PANELS SHALL NOT BE REUSED..

3.2 SALVAGE MATERIALS

A. MATERIALS AND ITEMS OF EQUIPMENT THAT IS TO BE REMOVE AND NOT REUSED SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER FOR INSPECTION AND DETERMINATN OF DISPOSITION.

B. MATERIALS AND ITEMS OF EQUIPMENT DESIGNATED AS "UNSALAGEABLE" BY THE OWNER SHALL BE PROMPTLY REMOVED FROM THE PREMISES, DISPOSED OF IN A COMPLETELY LEGAL ANNER, AND SHALL NOT BE RE-USED IN THE NEW WORK UNLESS SPECIFICALLY AUTHORIZED BY THE ARCHITECT.

C. MATERIALS AND ITEMS OF EQUIPMENT DESIGNATED AS "SALVÆABLE" BY THE OWNER TO KEEP FOR THEIR FUTURE USE SHALL BE CAREFULLY REMOVED DELIVERED TO OWNER DESIGNTED LOCATION (WITHIN 30 MILES OF THE PROJECT SITE), AND UNLOADED.

3.3 CUTTING AND PATCHING

A. PLACE ALL SLEEVES, INSERTS, CONDUIT HAGERS, ETC. AS CONSTRUCTION PROGRESSES TO AVOID ANY UNNECESSARY
CUTTING OF STRUCTURAL MEMBERS. COOPERATE WITH OTHERCONTRACTORS IN LOCATION OF ELECTRICAL OUTLETS THAT MAY CONFLICT WITH LOCATION OF OTHER EQUIPMENT.

B. OBTAIN AUTHORIZATION FROM THE ARCHITECT FOR ANY NECESARY CUTTING OF BUILDING STRUCTURE TO FACILITATE INSTALLATION OF THIS WORK AND DO NOT PROCEED UNTIL AUHORIZATION HAS BEEN RECEIVED. LIMIT NECESSARY CUTTING AND PATCHING TO THE MINIMUM SIZE REQUIRED FORNSTALLATION OF CONDUIT OR APPARATUS.

3.4 TRENCH EXCAVATION, PUMPING, BACKFILLING AND COMPACTIOI

A. EXCAVATE, BACK-FILL AND COMPACT ALL TRENCHES REQUIRE FOR UNDERGROUND ELECTRICAL WORK. MAINTAIN TRENCHES FREE OF WATER UNTIL INSTALLATION IS COMPLETE AND PROVIDE ALL NECESSARY SHORING.

B. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING UNDERGROUN UTILITIES AND AVOID DAMAGE TO SAME. WHERE EXISTING UTILITIES ARE DAMAGED, THE CONTRACTOR SHALL BE RESPONBLE FOR ALL REPAIRS OR REPLACEMENT.

C. BACK-FILL WITH LOOSE, DRY GRANULAR MATERIAL IN 6-INCHLIFTS AND THOROUGHLY COMPACT EACH LIFT. DISPOSE OF ALL SURPLUS MATERIAL AND ROCK AS DIRECTED BY THE RCHITECT. GRADE THE SURFACE TO A REASONABLE UNIFORMITY AND LEAVE THE MOUNDING IN NEAT CONDITION A APPROVED BY THE ARCHITECT.

D. BACK-FILL ALL TRENCHES PASSING UNDER FOUNDATIONS WITCONCRETE TO THE UNDERSIDE OF THE FOUNDATION AND AT A 2:1 SLOPE AWAY FROM EACH SIDE OF THE FOUNDATION BACK-FILL ALL TRENCHES THAT ARE PARALLEL AND DEEPER THAN FOUNDATIONS WITH CONCRETE TO A POINT THA WILL PLACE THE TOP OF THE CONCRETE ON A 2:1 SLOPE AWAY FROM THE FOUNDATION BOTTOM. DO NOT BACKFILL TRENCHES UNTIL REQUIRED INSPECTIONS ARE COMPLETED.

E. REPAIR OR REPLACE ALL TOPSOIL, SHRUBBERY, SOD, SIDEWALS, STREETS, WALLS, ETC. DISTURBED BY THE EXCAVATION, BACKFILLING OR PUMPING TO THE SATISFACTION OF THE ARCITECT. REPAIR SIDEWALKS IN COMPLETE BLOCKS; PARTIAL PATCHING WILL NOT BE ACCEPTED.

3.5 GROUNDING AND BONDING

A. PROVIDE GROUNDING ELECTRODE CONDUCTOR FOR ELECTRIC SRVICE EQUIPMENT SIZED AND CONNECTED IN ACCORDANCE WITH NEC.

B. BOND EQUIPMENT SUCH AS METALLIC HOUSING AND FEEDER KTALLIC CONDUITS TO GROUNDING CONDUCTOR. USE GROUNDING BUSHINGS, ON SERVICE CONDUIT AND AT OTHER INTS WHERE GROUNDING CONTINUITY IS BROKEN.

C. ALTHOUGH NOT SPECIFICALLY INDICATED OR REQUIRED BY COE, PROVIDE INSULATED GREEN EQUIPMENT GROUNDING CONDUCTOR FOR ALL FEEDERS AND BRANCH CIRCUITS.

D. PROVIDE A BONDING JUMPER FOR ANY EQUIPMENT, MOTOR, FIURE OR DEVICE TO WHICH CURRENT CARRYING CONDUCTORS ARE CONNECTED THAT IS NOT BONDED DIRECTL TO THE GROUNDED SYSTEM. CONNECT BONDING JUMPER TO APPROVED LUGS AND GROUNDING CONDUIT BUSHINGS OR AMPS. ALL NON-METALLIC CONDUIT SHALL CONTAIN AN EQUIPMENT GROUNDING CONDUCTOR.

E. ALL GROUNDING OR BONDING CONDUCTORS SHALL BE SIZED A REQUIRED BY NEC, OR AS HEREIN SPECIFIED, AND SHALL BE BARE COPPER OR TW INSULATED, WITH GREEN CODING.

3.6 RACEWAYS

A. FOLLOW ROUTING FOR CONDUIT INSTALLATION DESCRIBED ON DRAWINGS AS NEARLY AS POSSIBLE. ROUTING LAYOUT, HOWEVER, IS DIAGRAMMATICAL AND WHERE CHANGES ARE NECSSARY AS A RESULT OF STRUCTURAL CONDITIONS, APPARATUS, OR OTHER CAUSES, ROUTING WILL HAVE TO BE CHANGED TO MEET THESE CONDITIONS. CONDUIT RISERS AND OFFSETS ARE NOT INDICATED ON DRAWINGS BUT ARE INTNDED TO BE INSTALLED AS REQUIRED.

B. RUN CONDUIT REQUIRED TO BE EXPOSED PARALLEL OR PERPEDICULAR TO THE WALLS, CEILINGS, OR STRUCTURAL MEMBERS AND PROVIDE SUPPORTS AS REQUIRED BY NEC. INADDITION, INSTALL SUPPORTS AS REQUIRED TO FORM A SECURE AND FIRM INSTALLATION. SUPPORTS SHALL BE GALVNIZED PIPE STRAPS, HANGERS OR WALL BRACKETS. FIRMLY SUPPORT CONCEALED CONDUIT AT THE STRUCTURE AN INSTALL SO AS TO PREVENT ANY VIBRATION AGAINST STRUCTURE, PIPE OR DUCT WORK.

C. FIT CONDUIT INSTALLED IN CONCRETE OR SECURED TO STRUCTRAL MEMBERS THAT PASS THROUGH EXPANSION JOINTS CONSTRUCTED IN THE BUILDING WITH EXPANSION FITTINGS, COPLETE WITH COPPER BONDING JUMPER.

D. ALL METALLIC CONDUIT TERMINATING IN OUTLET, JUNCTION OPULL BOXES AND CABINETS MUST TERMINATE WITH BUSHING AND DOUBLE LOCKNUTS EXCEPT EXPOSED CAST BOXS, WHERE THEY MAY BE OMITTED. CONDUIT SIZES 1 1/4" AND ABOVE SHALL HAVE INSULATING FIBER BUSHINGS WITH DJBLE LOCKNUTS. GROUNDING TYPE BUSHINGS MUST BE USED AT POINTS WHERE GROUNDING CONTINUITY IS BROKEN AD AT SERVICE EQUIPMENT.

E. FIT ALL EMPTY CONDUIT SYSTEMS WITH SUITABLE NYLON PULLSTRING AND BLANK OFF TO PREVENT ENTRANCE OF FOREIGN MATTER UNTIL CONDUCTORS ARE INSTALLED.

F. AT MOTOR CONNECTIONS, FLEXIBLE CONNECTIONS, OR CONNECONS SUBJECT TO VIBRATION, USE FLEXIBLE GALVANIZED CONDUIT WITH PVC OUTER JACKET WITH GROUNDING CONDUCTR.

G. CONDUIT SHALL NOT BE SMALLER THAN ½" TRADE SIZE AND UST BE SIZED TO ACCEPT CONDUCTORS INDICATED.

3.7 WIRING

A. NO WIRING SHALL BE INSTALLED UNTIL THE REQUIRED RACEWAY SYSTEM INCLUDING JUNCTION, OUTLET AND DEVICE BOXES IS COMPLETED. INSTALL WIRING BEFORE PAINTING BEGS AND PROTECT AGAINST BEING PAINTED.

B. BRANCH CIRCUIT SIZES ARE NOTED ON DRAWINGS AND MUST E CONTINUOUS WITHOUT REDUCTION IN SIZE THROUGHOUT THEIR LENGTH EXCEPT WHERE CONNECTING TO FIXTURES OR EVICES.

C. BRANCH CIRCUIT WIRE SIZES SHALL BE INCREASED AS REQUIRD WHERE LONG RUNS WILL CAUSE EXCESSIVE VOLTAGE DROP PER NEC.

D. WIRE CIRCUITS AS DESCRIBED OR INDICATED ON DRAWINGS TOACHIEVE A CONNECTED LOAD AS SCHEDULED. SHOULD ANY CHANGE BE NECESSARY, IT MUST BE BROUGHT TO THE ARCHITECT'S ATTENTION.

3.8 BOXES

A. THE LOCATION OF OUTLETS ON DRAWINGS IS TO BE CONSIDERED AS APPROXIMATE ONLY INASMUCH AS OUTLETS ARE TO BE CENTERED IN BLOCKS, PANELS, OR OTHER MODULAR UNITS. BE FAMILIAR WITH REQUIREMENTS OF OTHER TRADES AS WELL AS THE BUILDING IN GENERAL TO BECOME AWARE OF VARIOUS MATERIALS AND FINISHED SURFACES IN WHICH OUTLETS ARE TO BE INSTALLED.

B. INSTALL BOXES SQUARE AND PLUMB WITH RECEPTACLE AND JUNCTION BOXES IN A VERTICAL POSITION. COVER ALL BOXES FOR FUTURE USE OR JUNCTION PURPOSES WITH BLANK PLATES.

C. BOXES IN EXTERIOR LOCATIONS SHALL BE CAST METAL BOXES WITH THREADED CONDUIT HUBS. SECURELY FASTEN BOXES TO BUILDING SURFACES.

3.9 PANELBOARDS

A. PANELBOARDS SHALL NOT BE INSTALLED UNDER ANY DUCTS, PIPING OR OTHER FOREIGN EQUIPMENT UP TO THE STRUCTURAL CEILING AS PER CODE REQUIREMENTS. WHERE IT APPEARS THAT THIS CONDITION WILL EXIST, CONTRACTOR SHALL NOTIFY THE ARCHITECT IMMEDIATELY FOR RESOLUTION BEFORE PROCEEDING WITH THE INSTALLATION. ANY REWORK CAUSED BY THE LACK OF TIMELY NOTIFICATION AND COORDINATION SHALL BE PROVIDED WITHOUT ADDITIONAL COST.

3.10 ACCESS PANELS

A. PROVIDE CEILING ACCESS PANELS FOR EQUIPMENT, DEVICES, BOXES AND OTHER LIKE ITEMS REQUIRING ADJUSTMENT OR MAINTENANCE ACCESSIBILITY IF THEY ARE NOT LOCATED OVER LAY-IN TYPE CEILINGS OR ARE NOT OTHERWISE ACCESSIBLE. OBTAIN APPROVAL FROM ARCHITECT FOR TYPE AND LOCATION OF ACCESS PANELS.

3.11 WIRING DEVICES

A. WHERE INDICATED, GANG DEVICES TOGETHER IN COMMON BOXES WITH DEVICE STRAPS BONDED TO METALLIC SYSTEM OR SEPARATE GROUNDING CONDUCTOR.

B. WIRING DEVICE MOUNTING HEIGHTS SHALL BE AS FOLLOWS, UNLESS OTHERWISE NOTED OR REQUIRED:
1. LIGHT SWITCHES AND CONTROLS– 48" ABOVE FLOOR TO TOP
2. RECEPTACLES– 16" ABOVE FLOOR TO BOTTOM
3. TELEPHONE AND COMPUTER OUTLETS– 16" ABOVE FLOOR TO BOTTOM

3.12 IDENTIFICATION LABELS

A. PROVIDE IDENTIFICATION LABELS FOR EACH MOTOR CONTROLLER, SAFETY SWITCH, PANELBOARD, CONTACTOR, TIME SWITCH, CONTROL DEVICE, AND CIRCUIT BREAKER. LABELS SHALL BE LAMINATED, PHENOLIC STRIPS 1/16" THICK AND ENGRAVED TO SHOW BLACK LETTERS ON WHITE BACKGROUND NOT LESS THAN 1/4" HIGH. EMERGENCY EQUIPMENT AND CONTROL DEVICE LABELS SHALL BE PROVIDED PER CODE ON ALL EMERGENCY EQUIPMENT. LABELS SHALL BE CONSIST OF WHITE LETTERS ON RED BACKGROUND. WHERE BRACKETS ARE NOT PROVIDED, LABELS SHALL BE MOUNTED WITH SCREWS, OR APPROVED ADHESIVE.

B. WHERE CONTROL APPARATUS IS INSTALLED ON OR IMMEDIATELY ADJACENT TO EQUIPMENT, LABELS ARE NOT REQUIRED.

C. PROVIDE UL APPROVED ARC-FLASH HAZARD MARKING ON FRONT COVER (OR OTHER CLEARLY VISIBLE LOCATION) OF ALL ELECTRICAL EQUIPMENT AS REQUIRED BY THE NEC 110.

3.13 LIGHTING FIXTURES

A. ALL LIGHT FIXTURES SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS OR RECOMMENDATIONS.

B. CONNECT SINGLE-CONNECTED FIXTURES, SURFACE OR STEM HUNG, WITH HEAT RESISTANT FIXTURE WIRE. CONNECT MULTIPLE-CONNECTED FLUORESCENT FIXTURES, SURFACE OR STEM HUNG, WITH TYPE THHN HEAT RESISTANT THERMOPLASTIC WIRE OF A SIZE INDICATED FOR BRANCH CIRCUIT.

C. SUPPORT FIXTURES TO BE RECESSED IN READILY REMOVABLE TILE CEILINGS (LAY-IN TYPE) FROM THE T-BAR TILE SUPPORT AND CONNECT TO REMOTE MOUNTED 4" SQUARE JUNCTION BOXES WITH APPROVED SIX FOOT LONG, 3/8" FLEXIBLE CONDUIT 'FIXTURE WHIP' WITH GROUNDING CONDUCTOR BONDED BETWEEN CONDUIT SYSTEM AND FIXTURE.

D. LAY-IN TYPE LIGHT FIXTURES INSTALLED IN FIRE RATED CEILINGS SHALL BE INDEPENDENTLY SUPPORTED PER UL REQUIREMENTS.

E. UPON PROJECT COMPLETION AND JUST PRIOR TO DELIVERING PROJECT TO THE OWNER, CLEAN ALL FIXTURES AND REMOVE ALL INSTRUCTION TAGS.

3.14 LAMPS

A. DO NOT INSTALL FULL SET OF LAMPS UNTIL SPECIFIC PERMISSION OF THE ARCHITECT HAS BEEN OBTAINED. TEMPORARY LAMPS MAY BE INSTALLED IN PERMANENT FIXTURES FOR CONSTRUCTION PURPOSES, BUT THEY MUST BE REPLACED WITH NEW LAMPS WHEN DIRECTED.

3.15 TELEPHONE AND COMPUTER CONDUIT SYSTEM

A. INSTALL CONDUITS, OUTLET BOXES AND BACKBOARDS AS SHOWN ON DRAWINGS. CONDUIT SHALL BE AS PREVIOUSLY SPECIFIED, WITH 3/4" AS THE MINIMUM SIZE. PROVIDE ALL CONDUITS WITH PULL-WIRE. BACKBOARDS SHALL BE 3/4" PLYWOOD PAINTED LIGHT GRAY WITH FIRE RESISTANT PAINT.

B. WALL OUTLETS SHALL BE 4" SQUARE BY 1 1/2" DEEP WITH SINGLE GANG EXTENSION COVERS AND COVERED WITH BLANK SPECIFIED PLATES. *FLOOR OUTLETS SHALL BE FLOOR OUTLET BOXES AS PREVIOUSLY SPECIFIED.

C. COORDINATE WITH LOCAL TELEPHONE COMPANY AND VERIFY ROUTING AND TERMINATION POINT OF BUILDING TELEPHONE SERVICE ENTRY CONDUITS.

D. PROVIDE TELEPHONE SERVICE ENTRY CONDUITS AND BACKBOARD WITH RECEPTACLES AND GROUND CONDUCTOR IN ACCORDANCE WITH TELEPHONE COMPANY REQUIREMENTS.

E. PROVIDE #6 STRANDED, GREEN INSULATED, GROUND CONDUCTOR FROM BACKBOARD TO THE ELECTRICAL SERVICE GROUND AND/OR OTHER GROUND SOURCES APPROVED AND VERIFIED BY THE TELEPHONE COMPANY.

F. PROVIDE GROUNDING ELECTRODE CONDUCTOR AT TELEPHONE SERVICE ENTRY SIZED AND CONNECTED IN ACCORDANCE WITH NEC. GROUND ROD SHALL BE MINIMUM 10' IN LENGTH AND 3/4" IN DIAMETER.

3.16 EQUIPMENT CONNECTIONS

A. MAKE ALL FINAL POWER FEED CONNECTIONS TO STARTERS AND/OR MOTORIZED EQUIPMENT INSTALLED BY HEATING AND AIR CONDITIONING AND PLUMBING CONTRACTORS AS INDICATED OR REQUIRED. REFER TO ELECTRICAL SECTIONS OF THE OTHER CONTRACTORS' SPECIFICATIONS FOR FURTHER INFORMATION.

B. *FOR AIR HANDLING EQUIPMENT WITH SEPARATE 'FIELD INSTALLED' HEATER UNIT, PROVIDE FUSE BLOCK WITH FUSES, WIRING AND POWER CONNECTIONS FOR FAN MOTOR TAPPED TO UNIT DISCONNECT SWITCH.

C. CONTRACTOR SHALL ASSUME THAT ALL CIRCUIT BREAKERS INDICATED FOR 'HERMETIC REFRIGERATE MOTOR-COMPRESSOR' A/C EQUIPMENT ARE THE WRONG SIZE. THE CONTRACTOR SHALL FIELD VERIFY AND PROVIDE 'HACR' TYPE CIRCUIT BREAKER SIZED FOR 'MAXIMUM-OVERCURRENT-PROTECTION' IN ACCORDANCE WITH THE NAMEPLATE DATA FOR THE EQUIPMENT ACTUALLY SUPPLIED.

D. VERIFY ALL EQUIPMENT FOR SERVICE AND CHARACTERISTICS PROVIDED PRIOR TO ROUGH-IN AND CONNECTION. PROVIDE A GROUNDING CONDUCTOR FOR ALL EQUIPMENT CONNECTED WITH FLEXIBLE CONDUIT AND BOND TO CONDUIT SYSTEM AND METALLIC FRAME OF EQUIPMENT.

E. BE RESPONSIBLE FOR SECURING AND INSTALLING PROPER INSULATED CONDUCTORS REQUIRED FOR EQUIPMENT OF HIGHER TEMPERATURE RANGE BEYOND THAT OF SPECIFIED BRANCH CIRCUIT TYPE.

END OF SECTION 16000

SECTION 16613
MANUAL TRANSFER SWITCH

PART 1 – GENERAL

1.1 CONTRACT

A. GENERAL REQUIREMENTS, INCLUDED IN SECTION 0100, ARE HEREBY MADE A PART OF THIS SECTION AS IF FULLY REPEATED HEREIN.

B. SPECIFICATIONS AND DRAWINGS SHALL BE CONSIDERED AS SUPPLEMENTARY TO EACH OTHER, REQUIRING MATERIALS AND LABOR INDICATED, SPECIFIED, OR IMPLIED BY EITHER SPECIFICATIONS OR DRAWINGS. CONTRADICTIONS SHALL BE PRESENTED TO THE ARCHITECT/ENGINEER FOR RESOLUTION.

C. INTERPRETATION OF SPECIFICATIONS OR DRAWINGS, WHERE DEEMED NECESSARY, SHALL BE MADE ONLY BY THE ARCHITECT/ENGINEER.

D. THE SUBCONTRACTOR SHALL OBTAIN AND PAY FOR ALL APPLICABLE SERVICE CHARGES, FEES, PERMITS, ROYALTIES, TAXES AND INSURANCE FOR WORK PERFORMED UNDER THIS SECTION.

1.2 SCOPE OF WORK

A. IT IS THE INTENT OF THIS SPECIFICATION TO SECURE A MANUAL TRANSFER SWITCH THAT HAS BEEN PROTOTYPE TESTED, FACTORY BUILT, PRODUCTION TESTED, SITE TESTED, TOGETHER WITH ALL ACCESSORIES NECESSARY FOR A COMPLETE INSTALLATION AS SHOWN ON THE PLANS AND DRAWINGS AND SPECIFIED HEREIN. THE MANUAL TRANSFER SWITCH SHALL CONFORM TO THE REQUIREMENTS OF NEMA STANDARD ICS 2-447 AND UNDERWRITERS' LABORATORIES UL-1008 AND SHALL BE UL LISTED AS FOLLOWS:

1. FOR USE IN EMERGENCY SYSTEMS IN ACCORDANCE WITH ARTICLES 517 AND 700 OF THE NATIONAL ELECTRIC CODE.

2. RATED IN AMPERES FOR TOTAL SYSTEM TRANSFER INCLUDING CONTROL OF MOTORS, ELECTRIC_DISCHARGE LAMPS, ELECTRIC_HEATING AND TUNGSTEN_FILAMENT LAMP LOAD. SWITCHES RATED ABOVE 400 AMPERES SHALL BE SUITABLE FOR 30% OR 400 AMPERES TUNGSTEN_FILAMENT LAMP LOAD, WHICHEVER IS HIGHER.

1.3 SUBMITTALS

A. SUBMITTAL SHALL INCLUDE SPECIFICATION SHEETS SHOWING ALL STANDARD AND OPTIONAL ACCESSORIES TO BE SUPPLIED, SCHEMATIC WIRING DIAGRAMS, DIMENSION DRAWINGS, AND INTERCONNECTION DIAGRAMS IDENTIFYING BY TERMINAL NUMBER EACH REQUIRED INTERCONNECTION BETWEEN THE GENERATOR SET, THE TRANSFER SWITCH, AND OTHER REMOTE DEVICES IF INCLUDED ELSEWHERE IN THESE SPECIFICATIONS.

1.4 TESTING

A. CERTIFIED LABORATORY TEST DATA ON A SWITCH OF THE SAME DESIGN AND RATING SHALL BE PROVIDED TO CONFIRM THE FOLLOWING SWITCHING ABILITIES:

1. OVERLOAD AND ENDURANCE PER TABLES 21.2 AND 23.2 OF UL-1008 WHEN ENCLOSED ACCORDING TO PARAGRAPH 1.6.
2. TEMPERATURE RISE TESTS AFTER THE OVERLOAD AND ENDURANCE TESTS TO CONFIRM THE ABILITY OF THE TRANSFER SWITCHES TO CARRY THEIR RATED CURRENT WITHIN THE ALLOWABLE TEMPERATURE LIMITS OF THE INSULATION IN CONTACT WITH CURRENT CARRYING PARTS.
3. NO WELDING OF CONTACTS. TRANSFER SWITCH MUST BE OPERABLE TO ALTERNATE SOURCE AFTER THE WITHSTAND CURRENT TESTS.
4. DIELECTRIC TESTS AT 1960 VOLTS, RMS, MINIMUM AFTER THE WITHSTAND CURRENT TEST.
5. ALL PRODUCTION UNITS SHOULD BE SUBJECTED TO THE FOLLOWING FACTORY TESTS:
   a. THE COMPLETE MANUAL TRANSFER SWITCH SHALL BE TESTED TO ENSURE PROPER OPERATION OF THE INDIVIDUAL COMPONENTS AND CORRECT OVERALL SEQUENCE OF OPERATION AND TO ENSURE THAT THE OPERATING VOLTAGE, FREQUENCY AND TIME DELAY SETTINGS ARE IN COMPLIANCE WITH THE SPECIFICATION REQUIREMENTS.
   b. THE COMPLETE MANUAL TRANSFER SWITCH SHALL BE SUBJECTED TO A DIELECTRIC STRENGTH TEST PER NEMA STANDARD ICS 1-109.05.

B. CONTROL PANEL SHALL MEET OR EXCEED THE VOLTAGE SURGE WITHSTAND CAPABILITY IN ACCORDANCE WITH IEEE STANDARD 472-1974 (ANSI C37.90A-1974) AND THE IMPULSE WITHSTAND VOLTAGE TEST IN ACCORDANCE WITH NEMA STANDARD ICS 1-109.

1.5 WARRANTY

A. THE MANUAL TRANSFER SWITCH SHALL BE WARRANTED BY THE MANUFACTURER FOR ONE YEAR FROM THE DATE OF INSTALLATION.

PART 2 – PRODUCTS

2.1 MANUAL TRANSFER SWITCH

A. THE MANUAL TRANSFER SWITCH SHALL BE RATED TO WITHSTAND THE RMS SYMMETRICAL SHORT CIRCUIT CURRENT AVAILABLE AT THE MANUAL TRANSFER SWITCH TERMINALS, WITH THE TYPE OF OVER CURRENT PROTECTION, VOLTAGE AND X/R RATIO AS SHOWN ON THE PLANS.

B. THE MANUAL TRANSFER SWITCH SHALL CONSIST OF A POWER TRANSFER MODULE AND A CONTROL MODULE, INTERCONNECTED TO PROVIDE COMPLETE MANUAL OPERATION. THE MANUAL TRANSFER SWITCH SHALL BE MECHANICALLY HELD AND ELECTRICALLY OPERATED BY A SINGLE_SOLENOID MECHANISM ENERGIZED FROM THE SOURCE TO WHICH THE LOAD IS TO BE TRANSFERRED. THE SWITCH SHALL BE RATED FOR CONTINUOUS DUTY AND BE INHERENTLY DOUBLE_THROW. THE SWITCH SHALL BE MECHANICALLY HELD AND INTERLOCKED TO ENSURE ONLY ONE OF TWO POSSIBLE POSITIONS _ NORMAL OR EMERGENCY. THE MANUAL TRANSFER SWITCH SHALL BE SUITABLE FOR USE WITH EMERGENCY SOURCES SUCH AS AN ENGINE OR TURBINE GENERATOR SOURCE OR ANOTHER UTILITY SOURCE.

C. THE CONTROL MODULE SHALL BE SUPPLIED WITH A PROTECTIVE COVER AND BE MOUNTED SEPARATELY FROM THE TRANSFER SWITCH FOR EASE OF MAINTENANCE. SENSING AND CONTROL LOGIC SHALL BE SOLID_STATE AND MOUNTED ON PLUG_IN PRINTED CIRCUIT BOARDS. PRINTED CIRCUIT BOARDS SHALL BE KEYED TO PREVENT INCORRECT INSTALLATION. INTERFACING RELAYS SHALL BE INDUSTRIAL_CONTROL_GRADE, PLUG_IN TYPE WITH DUST COVERS AND LOCKING CLIPS. THE FOLLOWING SHALL ALSO BE PROVIDED FOR THE CONTROL MODULE:

1. FOR THREE_PHASE SWITCHES ALL PHASES OF THE NORMAL SHALL BE MONITORED LINE_TO_LINE. CLOSE DIFFERENTIAL VOLTAGE SENSING SHALL BE PROVIDED. THE PICKUP VOLTAGE SHALL BE ADJUSTABLE FROM 72% TO 100% OF NOMINAL AND THE DROPOUT VOLTAGE SHALL BE ADJUSTABLE FROM 72% TO 98% OF THE PICKUP VALUE. THE TRANSFER TO EMERGENCY WILL BE INITIATED UPON REDUCTION OF THE NORMAL SOURCE TO 85% OF NOMINAL VOLTAGE AND RETRANSFER TO NORMAL SHALL OCCUR WHEN NORMAL SOURCE RESTORES TO 95% OF NOMINAL.

2. NEUTRAL CONDUCTOR TERMINAL LUGS AS REQUIRED FOR THE SYSTEM.

3. ALL MOVABLE PARTS OF THE OPERATING MECHANISM SHALL REMAIN IN POSITIVE MECHANICAL CONTACT WITH THE MAIN CONTACTS DURING THE TRANSFER OPERATION WITHOUT THE USE OF SEPARATE MECHANICAL INTERLOCKS.

4. MANUAL OPERATION OF THE SWITCH SHALL NOT REQUIRE POWER FROM ANY SOURCE OTHER THAN THE LINE_TO_LINE VOLTAGE OF THE SOURCE TO WHICH THE SWITCH IS TRANSFERRING.

D. EACH MANUAL TRANSFER SWITCH SHALL INCLUDE THE FOLLOWING STANDARD ACCESSORIES:

1. FREQUENCY/VOLTAGE RELAY FOR EMERGENCY SOURCE.

2. TEST PUSHBUTTON TO SIMULATE A POWER FAILURE ON NORMAL.

3. DISCONNECT PLUG ON WIRING HARNESS TO DISCONNECT SWITCH CONTROL LOGIC.

4. MAIN SHAFT AUXILIARY CONTACT RATED 10 AMPERE AT 208V (ONE CLOSED ON NORMAL AND ONE CLOSED ON EMERGENCY).

5. MANUAL TRANSFER, 208 VOLT, 3 POLE 3 PHASE, 4 WIRE, NEMA 1, 800 AMPSERVICE ENTRANCE RATED SWITCH.

6. TIME DELAY NEUTRAL OR IN-PHASE MONITOR FEATURE TO PREVENT RE-TRANSFER OUT OF PHASE.

PART 3 – INSTILLATION AND TESTING

3.1 INSTILLATION

A. THE TRANSFER SWITCH SHALL BE INSTALLED AS SHOWN ON THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND ALL APPLICABLE CODES.

3.2 TESTING

A. AN INSTALLATION CHECK, AND BUILDING LOAD TEST, SHALL BE PERFORMED BY THE MANUFACTURER'S LOCAL REPRESENTATIVE. THE ENGINEER, REGULAR OPERATORS, AND THE MAINTENANCE STAFF SHALL BE NOTIFIED OF THE TIME AND DATE OF THE SITE TEST. THE TESTS SHALL INCLUDE MANUAL START_UP BY MEANS OF SIMULATED POWER OUTAGE TO TEST REMOTE_MANUAL STARTING, TRANSFER OF THE LOAD, AND MANUAL SHUTDOWN. PRIOR TO THIS TEST, ALL TRANSFER SWITCH TIMERS SHALL BE ADJUSTED FOR PROPER SYSTEM COORDINATION.

END OF SECTION 16613

CONSTRUCTION DOCUMENTS

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RENOVATIONS & ADDITIONS TO
S & S FOOD STORE NO. 38
US 441 & I-75 ELLISVILLE, FLORIDA

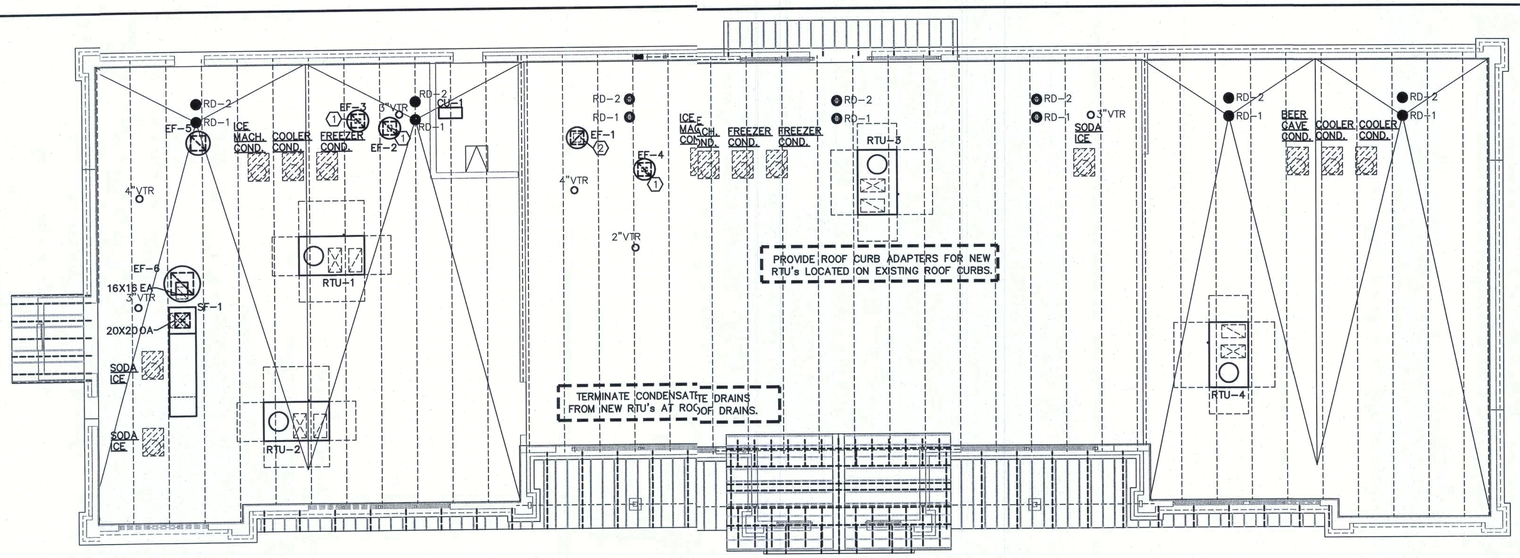
9/16/09
1654ES2

DATE 09/21/09
DRAWN BMV
APPROVED TME

0920

ES-2

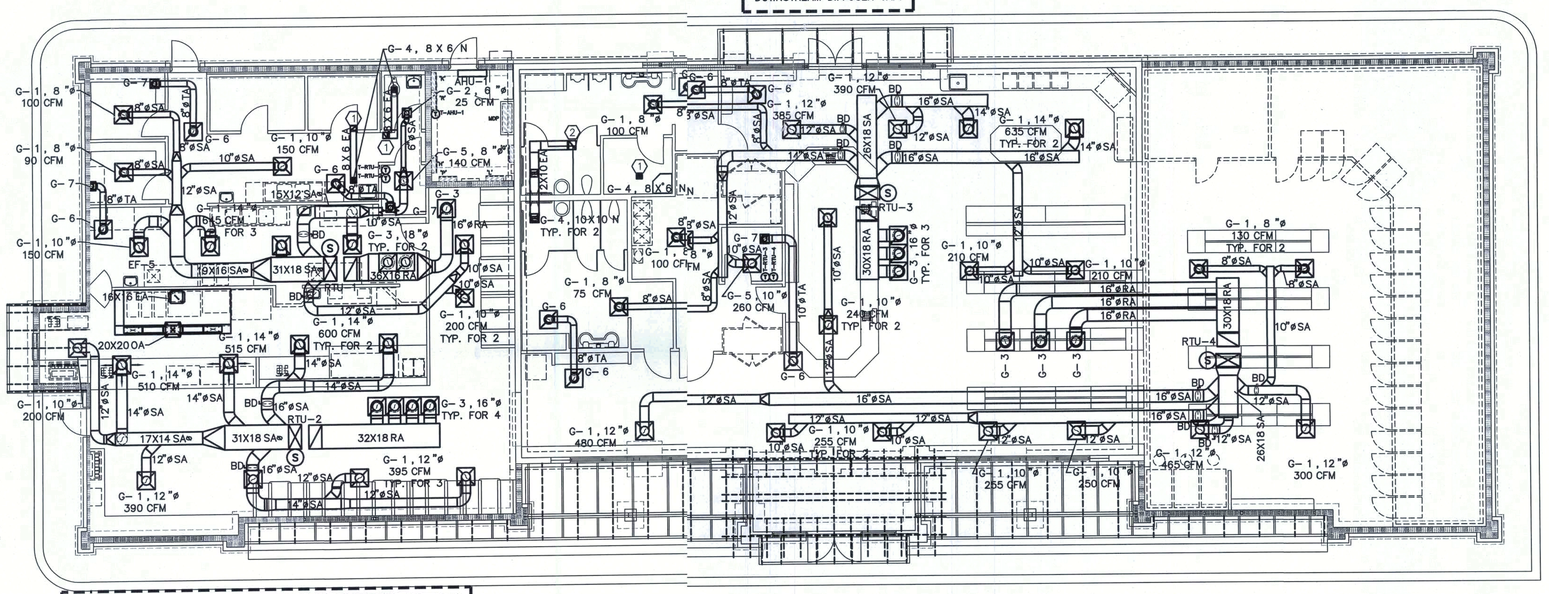
OF 11 SHEETS



1 8X6 EA UP FROM BELOW.
2 12X10 EA UP FROM BELOW.

HVAC ROOF PLAN
SCALE: 1/8" = 1'-0"

PROVIDE MINIMUM 3' BETWEEN SMOKE DETECTOR AND FIRST DOWNSTREAM DIFFUSER TAP.



ALL FOOD EXHAUST DUCT LOCATED WITHIN 18" OF COMBUSTIBLE MATERIALS SHALL BE INSULATED WITH MINIMUM 1.5" FIREWRAP INSULATION PROVIDING A "0" LEARANCE TO COMBUSTIBLES. INSULATION SHALL BE SIMILAR TO "UNRAX EZ 1.5" INSTALLED PER MANUFACTURER INSTRUCTION.

1 8X6 EA UP TO EXHAUST FAN ON ROOF.
2 12X10 EA UP TO EXHAUST FAN ON ROOF.

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

CONSTRUCTION DOCUMENTS

WALL TYPE LEGEND

NON RATED:	
1 HR. RATED:	
2 HR. RATED:	

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RENOVATIONS & ADDITIONS TO
S & S FOOD STORE NO. 38
US 441 & I-75
ELLISVILLE, FLORIDA

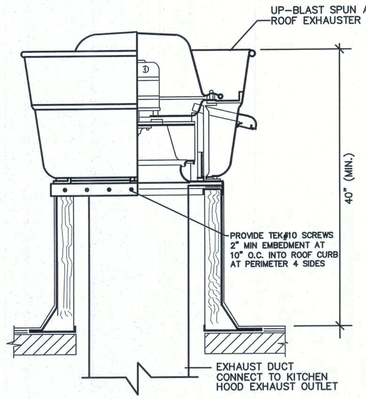
9/16/09
1654M101

DATE	09/21/09
DRAWN	CJF
APPROVED	LRH

0920

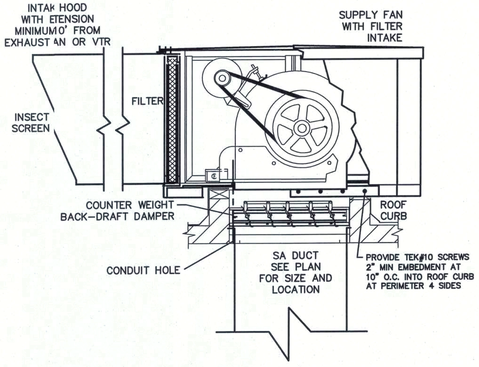
M-1

OF 39 SHEETS

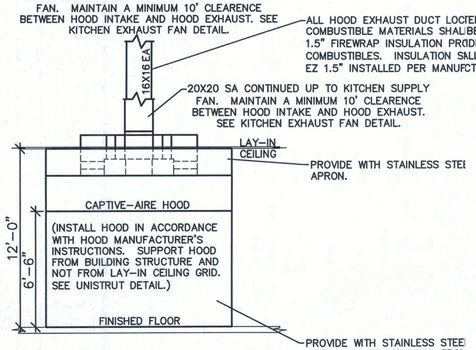


ALL HOOD EXHAUST DUCT LOCATED WITHIN 18" OF COMBUSTIBLE MATERIALS SHALL BE INSULATED WITH MINIMUM 1.5" FIREWRAP INSULATION PROVIDING A "0" CLEARANCE TO COMBUSTIBLES. INSULATION SHALL BE SIMILAR TO "UNIFRAX EZ 1.5" INSTALLED PER MANUFACTURER INSTRUCTION.

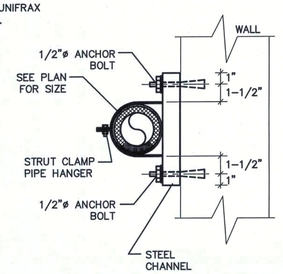
DETAIL – KITCHEN EXHAUST FAN
NOT TO SCALE



DETAIL – FILTERED SUPPLY FAN
NOT TO SCALE

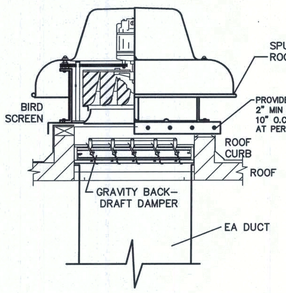


DETAIL – KITCHEN HOOD
N.T.S. (PIZZA OVEN HOOD SIMILAR)



NOTE: SEE SPEC. FOR PIPE SUPPORT SPACING.

DETAIL – PIPE SUPPORT
NOT TO SCALE



DETAIL – ROOF EXHAUST FAN
N.T.S.

EQUIPMENT SCHEDULE – DIFFUSERS, GRILLES & REGISTERS

NOTES: SEE ARC REFLECTED CEILING PLAN FOR EXACT LOCATION OF CEILING DIFFUSERS. ALL FLEXILE DUCT CONNECTIONS TO RECTANGULAR DUCT TO BE SPIN-INS WITH AIR SCOOP AND BALNCE DAMPER. NECK SIZE AS SHOWN ON THE DRAWINGS.

APPROVED MANUFACTURER:		TITUS (EXCEPT AS NOTED *)	
EQUIP. NO.	MOUNTING TYPE	MODEL NUMBER	ACCESSORIES/REMARKS
G-1	LAYIN CEILING (SUPPLY)	TMS (24X24)	(1)
G-2	LAYIN CEILING (SUPPLY)	TMS (12X12)	(1)
G-3	LAYIN CEILING (RETURN)	50FF (24X24)	(1) FILTERED RETURN
G-4	SRFACE (EXHAUST)	350RL	AG-15 DAMPER
G-5	LAYIN CEILING (SUPPLY)	TF-HC (24X24)	(1) * ACUTHERM VAV DIFFUSER
G-6	LAYIN CEILING (RETURN)	PAR (24X24)	(1)
G-7	LAYIN CEILING (RETURN)	PAR (12X12)	(1)

(1): WHERE USE IN GYP BOARD CEILINGS, PROVIDE ANGLE FRAME FOR CUT OPENING AND USE LAY-IN TYP DIFFUSER.

AIR BALANCE SCHEDULE

MARK	SUPLY AIR CFM	RETURN AIR CFM	OUTSIDE AIR CFM	EXHAUST AIR CFM	DIFFERENTIAL CFM
RTU-1	320	2985	215	0	0
RTU-2	440	3630	370	0	0
RTU-3	300	2770	230	0	0
RTU-3	300	2540	460	0	0
EF-1		0	0	350	0
EF-2		0	0	50	0
EF-3		0	0	100	0
EF-4		0	0	100	0
EF-6		0	0	2700	0
SF-1		0	2160	0	0
TOTAL	1390	11925	3435	3300	135

EQUIPMENT SCHEDULE – FAN

APPROVED MANUFACTURER		LOREN COOK CO.					CAPTIVE AIR	
EQUIPMENT NUMBER		EF-1	EF-2	EF-3	EF-4	EF-5	EF-6	SF-1
MOUNTING TYPE		ROOF	ROOF	ROOF	ROOF	ROOF	ROOF	ROOF
FAN	TYPE	CENTRIF.	CENTRIF.	CENTRIF.	CENTRIF.	CENTRIF.	CENTRIF.	CENTRIF.
	DRIVE	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT	BELT	BELT
	RPM	1060	1285	1241	1241	782	1078	902
	CFM	350	50	100	100	500	2700	2160
	S.P.	0.25	0.25	0.25	0.25	0.25	1.25	0.65
MOTOR	HP	94 watts	61watts	65watts	65watts	0.25	1.50	1.0
	VOLTS/PHASE	120V/1ø	120V/1ø	120V/1ø	120V/1ø	120V/1ø	208V/1ø	280V/1ø
MODEL NUMBER		100C15DH	70C15DL	70C15DH	70C15DH	120C15D	NCA16FA	NSAU1-G10
ACCESSORIES/REMARK		(1)(2)(3)(4)(5)	(1)(2)(3)(4)(6)	(1)(2)(3)(4)(5)	(1)(2)(3)(4)(5)	(1)(2)(3)(4)(7)	(1)(2)(3)(4)(8)	(1)(2)(3)(4)(8)

NOTE:
(1): ROOF CURB
(2): BACK DRAFT DAMPER
(3): SPEED CONTROLLER – SEE MOUNTING DETAIL
(4): UNIT MOUNTED DISCONNECT – SEE MOUNTING DETAIL
(5): CONTROL BY SALES AREA LIGHT SWITCH.
(6): CONTROL BY LIGHT SWITCH.
(7): INTERLOCATED WITH KITCHEN HOOD TO OPERATE ONLY WHEN HOOD IS TURNED OFFAND KITCHEN IS IN OCCUPIED MODE.
(8): CONTROL BY KITCHEN HOOD.

EQUIPMENT SCHEDULE – UNITARY SYSTEMS

APPROVED MANUFACTURER			TRANE			
DESIGN TEMPERATURE	OUTDOOR	SUMMER	95°F DB/77°F WB			
		WINTER	29°F			
	INDOOR	SUMMER	75°F			
		WINTER	72°F			
TYPE (HEAT PUMP OR A/C)			AC	AC	AC	AC
EQUIPMENT NUMBER			RTU-1	RTU-2	RTU-3	RTU-4
COOLING CAPACITY	ENT. AIR	DB/WB TEMP.	76.8°F/65.1°F	77.5°F/66.4°F	76.8°F/65.1°F	78.1°F/66.0°F
	SENSIBLE	LOAD – MBH	66.85	84.93	66.85	68.34
	TOTAL	LOAD – MBH	89.79	117.18	89.79	91.15
HEATING CAPACITY (AT 47 °F) –MBH			0	0	0	0
AUXILIARY HEAT	TYPE		ELECTRIC	ELECTRIC	ELECTRIC	ELECTRIC
	CAPACITY		13.5 KW	20.3 KW	13.5 KW	20.3 KW
FAN	TYPE		CENTRIFICAL	CENTRIFICAL	CENTRIFICAL	CENTRIFICAL
	DRIVE		BELT	BELT	BELT	BELT
	HP		4	4	4	4
	EXT. S.P. – IN.		1.0" W.C.	1.0" W.C.	1.0" W.C.	1.0" W.C.
CFM	TOTAL		3000	4000	3000	3000
	OUTSIDE AIR		215	370	230	460
FILTER	TYPE		DISPOSABLE	DISPOSABLE	DISPOSABLE	DISPOSABLE
	THICKNESS – IN.		2"	2"	2"	2"
ELECTRICAL DATA	UNIT		208V/3ø	208V/3ø	208V/3ø	208V/3ø
	HEATER		208V/3ø	208V/3ø	208V/3ø	208V/3ø
MODEL NUMBER			THC092	THC120	THC092	THC092
EER OR (SEER) – MIN.			12.6	12.5	12.6	12.6
COP AT 47°F (HSPF) – MIN.			N/A	N/A	N/A	N/A
ACCESSORIES	2" DISPOSABLE FILTERS					
	PROG. THERMOSTSTS		YES	YES	YES	YES
	SEE NOTES BELOW		(1)(2)(3)(4)(5)(6)	(1)(2)(3)(4)(5)(6)	(1)(2)(3)(4)(5)(6)	(1)(2)(3)(4)(5)(6)

(1) LOW AMBIENT HEAD PRESSURE CONTROLS TO 35°F.
(2) ANTI SHORT CYCLE TIMER
(3) FACTORY APPLIED EPOXY COATING ON CONDENSER COILS FOR CORROSION PROTECTION.
(4) FIELD MOUNTED OUTDOOR THERMOSTAT TO PREVENT ELECTRIC HEAT FROM OPERATING ABOVE 40°F.
(5) PROVIDE WITH MOTORIZED DAMPER TO PROVIDE OUTSDIE AIR AS SCHEDULED.
(6) PROVIDE WITH MINIMUM 2 STAGE COOLING.

EQUIPMENT SCHEDULE – SPLIT SYSTEMS

APPROVED MANUFACTURER			MITSUBISHI MR. SLIM			
DESIGN TEMPERATURE	OUTDOOR	SUMMER	95°F DB/77°F WB			
		WINTER	29°F			
	INDOOR	SUMMER	75°F			
		WINTER	72°F			
TYPE (HEAT PUMP OR A/C)			AC			
EQUIPMENT NUMBER	OUTDOOR UNIT		CU-1-1			
	INDOOR UNIT		AHU-1-1			
COOLING CAPACITY	ENT. AIR	DB/WB TEMP.	80°F/67°F			
	SENSIBLE	LOAD – MBH				
	TOTAL	LOAD – MBH	12.0			
HEATING CAPACITY (AT 47 °F) –MBH			0			
AUXILIARY HEAT	TYPE		ELECTRIC			
	CAPACITY (MINIMUM)		NONE			
FAN	TYPE		CENTRIFUGAL			
	DRIVE		DIRECT			
	HP		30 WATTS			
	EXT. S.P.		0.5" W.G.			
CFM	TOTAL		425			
	OUTSIDE AIR		0			
ELECTRICAL DATA	OUTDOOR UNIT		208 V/1ø			
	INDOOR UNIT	FAN	208 V/1ø			
		HEATER	N/A			
MODEL NUMBERS	OUTDOOR UNIT		PUY-A12NHA			
	INDOOR UNIT		PKA-A12GA			
EER OR (SEER) – MIN.			(13.8)			
COP AT 47°F (HSPF) – MIN.			N/A			
ACCESSORIES	DISPOSABLE FILTERS					
	PROG. THERMOSTATS					
	SEE NOTES BELOW		(1)(2)			
			DRY MODE			

NOTE: SIZE REFRIGERATION LINES PER EQUIPMENT MANUFACTURER'S RECOMMENDATIONS BASED ON EQUIPMENT SIZE AND PIPING ROUTE. CONTRACTOR IS RESPONSIBLE FOR PROVIDING OPTIONS AND ACCESSORIES RECOMMENDED BY MANUFACTURER FOR LONG-LINE OR BURIED LINE APPLICATIONS.

NOTE:
(1): SINGLE POINT POWER CONNECTION.
(2): PROVIED AHU WITH CONDENSATE PUMP. TERMINATE CONDENSATE AT MOP SINK.

LEGEND

12x12	DUCT W/ SIZE SHOWN	M	MOTORIZED DAMPER
	SUPPLY DUCT	T	THERMOSTAT
	RETURN/EXHAUST DUCT	TS	REMOTE DUCT MOUNTED TEMPERATURE SENSOR
	DUCT ELEV. CHANGE R-RISE/D-DOWN	S	SMOKE DETECTOR
	ELBOW W/ TURNING VANES	SA	SUPPLY AIR
	DUCT TRANSITION	RA	RETURN AIR
G-X	SUPPLY DIFFUSER/GRILLE	EA	EXHAUST AIR
G-X	RETURN DIFFUSER/GRILLE	EF	EXHAUST FAN
	FLEX DUCT	OA	OUTSIDE AIR
	BALANCE DAMPER	BD	BALANCE DAMPER
	CONTROL DAMPER-MANUAL		OVAL DOUBLE WALL DUCT
		ø	ROUND DUCT DOUBLE WALL WHERE NOTED

HVAC GENERAL NOTES

1. CONTRACTOR SHALL COMPLY WITH LATEST EDITION OF A.S.H.R.A.E., S.M.A.C.N.A. AND ALL APPLICABLE NATIONAL, STATE AND LOCAL CODES.

2. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO SUBMITTING BID. BY SUBMITTING BID, CONTRACTOR STATES THAT HE HAS EXAMINED ALL EXISTING CONDITIONS. IF CONTRACTOR ENCOUNTERS EXISTING CONDITIONS WHICH NEED CLARIFICATION, CONTACT OWNER'S REPRESENTATIVE FOR RESOLUTION OR CLARIFICATION.

3. PERMITS AND FEES: CONTRACTOR SHALL OBTAIN ALL PERMITS AND PAY ALL FEES AND CHARGES REQUIRED FOR THE CONSTRUCTION AND UTILITIES CONNECTIONS.

4. ALL WORK PERFORMED UNDER THIS CONTRACT SHALL HAVE ONE (1) YEAR WRITTEN GUARANTEE FOR ALL MATERIALS AND WORKMANSHIP. ALL COMPRESSORS SHALL HAVE FIVE (5) YEAR FACTORY WARRANTY.

5. ALL MATERIALS SHALL BE NEW AND OF FIRST CLASS QUALITY. NO "USED" MATERIALS WILL BE PERMITTED TO BE INSTALLED ON THIS PROJECT.

6. AT COMPLETION OF PROJECT, CONTRACTOR SHALL DELIVER TO OWNER ALL DOCUMENTS (INCLUDING BUILDING PERMITS, OPERATION AND MAINTENANCE MANUALS AND ALL OTHER FINAL CLOSE OUT DOCUMENTS).

7. ALL DUCTWORK SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH THE LATEST S.M.A.C.N.A. MANUALS.

8. ALL DUCT SIZES INDICATED ARE "FREE AREA" INSIDE DIMENSION REQUIREMENTS.

9. ALL SUPPLY, RETURN AND EXHAUST DUCTWORK SHALL BE SHEET METAL UNLESS OTHERWISE INDICATED OR NOTED ON PLANS.

10. ALL FLEXIBLE DUCT RUN OUTS TO DIFFUSERS SHALL BE CLASS 1 PRE-INSULATED FLEXIBLE DUCT. THE MAXIMUM LENGTH OF FLEXIBLE DUCT SHALL BE 8'-0". WHERE RUN OUT EXCEEDS THIS DISTANCE, USE ROUND RIGID SHEET METAL WITH 1" THICK EXTERNAL FIBERGLASS INSULATION.

11. ALL OUTSIDE AIR SUPPLY DUCTWORK SHALL BE SHEET METAL.

12. PIPING MATERIALS: REFRIGERANT PIPING SHALL BE TYPE K COPPER SIZED AND INSTALLED IN ACCORDANCE WITH EQUIPMENT MANUFACTURER'S RECOMMENDATIONS. PROVIDE SIGHT GLASS AND FILTER DRIER ON EACH SYSTEM. CONDENSATE DRAIN PIPING SHALL BE SCHEDULE 40 STEEL. SCHEDULE 40 PVC MAY BE USED IF APPROVED BY LOCAL CODES. RUN TO APPROVED WASTE OR DRYWELL AS REQUIRED BY GOVERNING AUTHORITY.

13. INSULATION: ALL REFRIGERANT PIPING SHALL BE INSULATED WITH 3/4" THICK CLOSED CELL ELASTOMERIC INSULATION. ALL KITCHEN HOOD MAKEUP DUCTWORK SHALL BE INSULATED WITH 1" THICK EXTERNAL FIBERGLASS INSULATION WRAP. CONDENSATE DRAIN PIPING SHALL BE INSULATED WITH 3/4" THICK CLOSED CELL ELASTOMETRIC INSULATION.

14. AIR CONDITIONING EQUIPMENT SHALL BE AS SCHEDULED ON THE DRAWINGS. SYSTEMS SHALL BE COMPLETE WITH FILTERS, MOTOR STARTERS, MOTOR DISCONNECTS, AND ROOF CURBS (WHERE UNITS ARE ROOF MOUNTED) AND ALL OTHER ACCESSORIES, RELAYS, AND OTHER ITEMS OF EQUIPMENT REQUIRED FOR A COMPLETE, OPERATING SYSTEM.

15. FANS SHALL BE AS SCHEDULED ON THE DRAWINGS. FANS SHALL BE COMPLETE WITH BACKDRAFT DAMPERS, BIRD SCREEN, MOTOR STARTERS, MOTOR DISCONNECTS, AND ROOF CURBS (WHERE FANS ARE ROOF MOUNTED).

16. CONTROLS: EACH A/C SYSTEM SHALL BE CONTROLLED BY A THERMOSTAT WITH "HEAT-OFF-COOL" SWITCH AND FAN "ON-AUTO" SWITCH. EACH SYSTEM HANDLING 2,000 CFM AND GREATER SHALL HAVE FIRESTATS INSTALLED IN THE SUPPLY AND RETURN AIR DUCTWORK.

17. AIR DEVICES SHALL BE AS SCHEDULED ON THE DRAWINGS. DEVICES SHALL BE COMPLETE WITH ALL MOUNTING HARDWARE REQUIRED FOR A COMPLETE INSDETALLATION. ALL SIDEWALL SUPPLY REGISTERS SHALL HAVE DOUBLE DEFLECTION LOUVERS WITH FRONT SET VERTICALLY MOUNTED. DEVICES SHALL BE FIELD PAINTED IF INDICATED ON ARCHITECTURAL DRAWINGS. (COLOR TO BE SELECTED BY OWNER.)

18. COORDINATE EXACT LOCATION OF ALL AIR DEVICES IN CEILING WITH LIGHTING FIXTURES. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR LOCATIONS IN CEILINGS. COORDINATE EXACT LOCATION OF ALL WALL MOUNTED AIR DEVICES WITH ARCHITECTURAL INTERIOR ELEVATIONS AND STRUCTURAL COMPONENTS.

19. DAMPERS SHALL BE PROVIDED AT ALL BRANCH TAKE-OFFS FROM MAIN DUCTWORK AND AT EACH AIR DEVICE FOR SYSTEM BALANCING. DAMPERS AT DEVICES SHALL BE OF THE OPPOSED BLADE TYPE.

20. CONTRACTOR SHALL TEST AND BALANCE THE SYSTEMS UPON COMPLETION OF WORK. ANY DEFECTS OR DEFICIENCIES DISCOVERED AS A RESULT OF TESTS SHALL BE IMMEDIATELY CORRECTED OR REPAIRED AND TESTS SHALL BE REPEATED UNTIL THE TEST REQUIREMENTS ARE FULLY COMPLIED WITH. SUBMIT TEST AND BALANCE REPORT TO OWNER AT COMPLETION OF TESTING.

21. CONTRACTOR SHALL FURNISH SUBMITTAL DATA TO OWNER FOR APPROVAL ON ALL A/C EQUIPMENT, FANS, AIR DEVICES, ETC. PRIOR TO ORDERING ANY ITEMS. CONTRACTOR MAY OFFER SUBSTITUTIONS ON ITEMS FOR APPROVAL BY OWNER. SUBSTITUTIONS MUST BE EQUAL IN ALL RESPECTS TO ITEMS SCHEDULED OR SPECIFIED.

22. CONTRACTOR SHALL PROVIDE ALL MATERIAL AND LABOR REQUIRED TO MAKE ALL FINAL CONNECTIONS TO OWNER/FOOD SERVICE EQUIPMENT. REFER TO FOOD SERVICE DRAWINGS FOR ADDITIONAL NOTES AND INSTALLATION DETAILS FOR FOOD SERVICE EQUIPMENT (INCLUDING ALL ROUGH-IN LOCATIONS).

CRAIG SALLEY AND ASSOCIATES
ARCHITECTS • PLANNERS • INTERIOR DESIGNERS
3911 NEWBERRY ROAD • GAINESVILLE, FLORIDA • LIC. NO. AA0002479 • 352-372-8424

RENOVATIONS & ADDITIONS TO S & S FOOD STORE NO. 38
US 441 & I-75
ELLISVILLE, FLORIDA

9/16/09
1654M201

DATE	09/21/09
DRAWN	CJF
APPROVED	LRH

0920

M-2

OF 39 SHEETS

CONSTRUCTION DOCUMENTS

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SECTION 15500
HEATING, VENTILATING & AIR CONDITIONING

PART 1 – GENERAL

1.1 DESCRIPTION OF WORK

A. The General Provisions of the Contract, Division 1, including the General RequirementsSupplementary Conditions and Special Conditions, along with the General Requirements, are hereby made a part of this Section as if fully reated herein.

B. Scope of Work: The scope of the work included under this section of these specifications shall include complete heating, ventilating and air conditioning systems as shown on the drawings and specified herein. This work shalnclude:

1. Ductless split systems.
2. Self-contained single zone rooftop A/C units including roof curbs.
3. Ventilating system.
4. Kitchen hoods (including fire suppression system and certification of test).
5. Kitchen hood supply/exhaust systems.
6. Refrigeration piping.
7. Condensate drain piping.
8. Equipment supports, inertia bases, vibration isolators, and identification.
9. Duct work.
10. Insulation.
11. Air distribution equipment.
12. Access doors.
13. Controls and control wiring.
14. Testing, adjusting and balancing work shall be completed by a Test and Balance Agency.
15. Demolition.

C. Related Work Specified Elsewhere:

1. Instruments and Controls for HVAC: Building Automation System (BAS) – By Owner
2. Power wiring: Electrical – 16000.

D. Prior to start of any work, the successful Contractor shall meet with the Architect to determine that no questions remain concerning the intent of the drawings or specifications. The Contractor shall bring up for discussionand decision any questions concerning the project. No work shall be performed prior to this meeting. The Architect shall set the date, time and place of conference.

1.2 CODES, ORDINANCES AND PERMITS

A. Comply with all codes applying to the Work of this contract including but not limitedto the Florida Energy Efficiency Code, Florida Building Code 2007 and Florida Building Code 2007 – Mechanical. Obtain information on all code restrictions and requirements. In case of conflict between the contract documents and a governing code or ordinance, such conflict shall be immediately brought to the attention of the Architect for resolution. Extra payment will not be allowed for Work required by codrestrictions except through written agreement with the Owner.

B. Apply for, obtain, and pay for all required permits and inspection certificates. Final payment is contingent upon delivery of such certificates to the Architect.

C. Where applicable, all materials and equipment shall bear the Underwriters' Laboratories seal or ASME code stamp. Certificates to this effect shall be furnished to the Architect upon request.

1.3 INDUSTRY STANDARDS

A. Industry Standards: Unless modified by these specifications, the design, manufacture,esting and method of installing all materials, apparatus and equipment shall conform to the following:

1. ASHRAE Standard 90, Energy Conservation in New Building Design.
2. ANSI B9.1 Safety Code for Mechanical Refrigeration.
3. Standards of National Fire Protection Association.
4. ASHRAE Handbook of Fundamentals.
5. SMACNA Standards for Duct work.
6. Associated Air Balance Council Standards for Field Measurement and Instrumentati.
7. Underwriters' Laboratories.
8. National Electrical Code.
9. Air Moving & Conditioning Association.
10. Air Conditioning & Refrigeration Institute.

1.4 SITE INSPECTION

A. Visit the site and thoroughly inspect conditions affecting the Work before submitting d. Assume responsibility for meeting all existing conditions including access and work space limitations.

1.5 DRAWINGS AND SPECIFICATIONS.

A. Refer to the general construction drawings which are bound with the drawings of thisWork for construction details, elevations, etc. Architectural and structural drawings shall take precedence over Division 15 drawings (Mechanical Drawings). It is the intent of the Mechanical Drawings to show the general arrangement of the system and not to indicate all offsets, fittings and accessories which may be required, nor to show exact locations of piping, duct work or equipment except where actual dimensions are given. All vertical piping shall be located in walls in finished spaces unless otherwise noted.

B. Specifications and drawings shall be considered as supplementary to each other, requiring materials and labor indicated, specified, or implied by either specifications or drawings. It is the intent of the drawings and specifications to call for finished Work, tested, and ready for operation, and in complete conformance with all applicable codes, rules and regulations. Minor details not usually shown or specified, but manifestly necessary for the proper installation and operation of the various systems, shall be included in the Work and in the proposal, the same as if specified or shown on the drawings.

C. If any departures from the drawings and specifications are deemed necessary, details of such departures and the reasons therefore shall be submitted to the Architect for approval. No departures shall be made without prior approval of the Architect.

D. Specific reference in the specifications to any article, device, product, material, fixture or type of construction, etc., by proprietary name, make or catalog number shall be interpreted as establishing a standard of quality and shall not be construed as limiting competition. Substitutes may be used subject to compliance with requirements set forth in the General Requirements, Division 1, and as approved by the Architect.

E. Submit cost implications to contract in bid when providing substitutes for specified equipment and for all alternatives requested in the construction documents.

1.6 MANUFACTURER'S SPECIFICATIONS

A. Where the name of a concern or manufacturer is mentioned on the Drawings or in Specifications in reference to his required service or product, and no qualifications or specification of such is included, then the material, design, details of manufacturer, finish, etc., shall be in accordance with his standard practice, directions or specifications. The Contractor shall be responsible for any infringement of patents, royalties, or copyrights which may be incurred thereby.

B. Equipment scheduled on drawings was used to arrive at space, maintenance access, utility service and equipment supports. If other equipment is submitted and approved, take responsibility for maintaining these space, maintenance access, utility service requirements and any revisions required for installation such as equipment supports, roof curbs and access ladders. Take responsibility for the coordination and cost for any resulting changes including cost to change electrical service required by substituted equipment.

C. All materials and equipment shall be new and first class in every respect. As far as is practical, similar products shall be by one manufacturer. Equipment designed to operate as a system such as outdoor condenser or heat pump units with indoor air handling units shall be from one manufacturer unless scheduled otherwise.

1.7 SUBMITTALS

A. Submit shop drawings in accordance with the General Requirements, Division 1.

B. Samples of insulation, diffusers, dampers or any other mechanical equipment or materials shall be submitted if requested by the Architect. If a sample is requested, have the sample delivered to the Architect or arrange for thArchitect to examine it elsewhere. Failure to comply may be cause for rejection.

C. Submit shop drawings or catalog data for the Architect's approval before purchasing or installing the following:

1. Ductless split systems.
2. Self-contained single zone rooftop A/C units including roof curbs.
3. Grilles, diffusers and registers.
4. Duct shop drawing (where different from design drawing).
5. Exhaust and supply fans.
6. Insulation.
7. Kitchen hoods (including fire suppression system).
8. Kitchen hood supply/exhaust system.
9. Controls and wiring diagrams.

D. Submit detailed and dimension plan showing all pipe sleeves and duct openings requid in building structure including floors and roof deck.

1.8 PERFORMANCE DATA

A. All performance data specified herein shall be considered actual performance of equipment as installed. Make suitable allowances if installation details are such that actual operating conditions unfavorably affect performance as compared to conditions under which the equipment was rated.

1.9 CATALOG, OPERATION AND MAINTENANCE DATA

A. Provide four (4) complete sets of a compilation of catalog data of each manufacturer item of equipment used in the Mechanical Work. In addition to the catalog data, installation, operating and maintenance data and bill of materials for all operating equipment shall be submitted. Each of the four sets of data shall be bound in loose leaf binders and submitted to the Architect before final payment is made. A complete double index shall be provided as follows:

1. Listing the products alphabetically by name.
2. Listing the names of manufacturers alphabetically by name together with their addresses and the names and addresses of local sales representatives.

B. It is the intent of this catalog, operation and maintenance data to provide the Ownewith complete instructions on the proper operation and use, lubrication and periodic maintenance, together with the source of replacement parts and service, for the items of equipment covered.

1.10 CONTRACTOR COORDINATION

A. The Electrical Contractor will furnish, set and wire all disconnect devices and starters as required for all equipment except for those items furnished with integral disconnect devices and/or starters.

B. Furnish detailed information to the Electrical Contractor as soon as practical. This shall include all diagrams and instructions necessary for the Electrical Contractor to make connections properly. If equipment actually purchased requires larger electrical service than equipment scheduled, arrange and pay for required electrical service change.

C. Provide all air conditioning control devices, including thermostats and smoke detectors, and complete all control wiring, including final connections. The Building Automation System (BAS) Contractor will furnish, set and wire all air conditioning control devices. BAS contractor will complete all control wiring, including final connections. Furnish detailed information to the BAS Contractor on control devices furnished with the HVAC equipment.

D. Coordinate location of equipment, piping, and duct work with Electrical Contractor and Plumbing Contractor to maintain clearance for equipment maintenance, prevent interference with duct and piping runs, and to prevent ducts and piping from being installed over electrical panels. If interference develops, the Architect will decide which equipment, conduit, duct, piping, etc., must be relocated regardless of installation order. Take responsibility for relocating Mechanical work, if so ordered, including all associated costs.

E. Within 30 days following award of the contract, report to the Architect in writing, all real or potential errors, ambiguities and/or conflicts on the Mechanical Work or between the trades and obtain an agreement with the Architect on a solution. Those reported after 30 days, except as a result of unforeseen circumstances, shall be resolved at the discretion of the Architect. Report conflicts resulting from the progress of Work to the Architect immediately or accept the expense for corrective work caused by failure to report such a conflict.

1.11 CHANGES

A. Do not make any changes in design without the written approval of the Architect. Changes in design means any change which will affect the capacity, reliability, operation or safety of the systems or any parts thereof, including changes which may be required to conform to local regulations or codes.

1.12 MECHANICAL CONTRACTOR'S WARRANTY

A. Provide written warranties as specified in the General Requirements, Division 1, and provide a five year warranty for all refrigeration compressors against defects in materials and workmanship. Repair any defects becoming apparent within the warranty period as directed by the Architect.

1.13 PROTECTION OF MATERIALS AND EQUIPMENT

A. Provide complete protection against weather, rain, windstorms, frost, ice, heat, and acts of vandalism, so as to maintain all materials and equipment free from injury or damage, including physical damage of any nature. At end of each workday, cover work as required to provide such protection. This shall include but not be limited to erection of all temporary shelters to protect adequately any materials and equipment stored on site, cribbing of any materials and equipment above the floor of the construction, and the covering of materials and equipment in the building under construction with protective covering.

B. Provide dry storage facilities for materials and equipment; including but not limited to duct work, insulation, air handling units, controls, motor operated equipment, etc.; sensitive to damage by moisture. Outside, unprotected storage will not be accepted. Storage inside building being constructed will not be accepted until roof and walls are weather tight unless temporary protection is provided Failure to comply shall be sufficient cause for rejection of damaged materials and equipment. Replace any damaged material or equipment and place the systems in perfect working condition.

PART 2 – PRODUCTS

2.1 DUCTLESS SPLIT SYSTEM A/C AND COMPRESSOR/CONDENSER UNITS

A. Capacity shall be as scheduled on the drawings and adjusted for line losses of refrigerant piping. Capacity shall be combined rating at actual conditions entering the evaporator and 95 degrees F outdoor ambient temperature.

B. Air handling units shall be draw through type with 1" thick, standard size, disposable type filters and shall have DX cooling coils and electric heating coils as scheduled on drawings with minimum unit capacities as indicated. Fan capacities shall be as scheduled on drawings. Fans shall be direct drive with two or three speed motors or belt drive as scheduled. Fans and motors shall be mounted on vibration isolators. Casing shall be constructed of heavy duty, factory painted, galvanized sheet steel adequately reinforced with structural members. All unit panels shall be internally insulated to meet requirements of the Florida Energy Code. All insulating materials shall meet the requirements of NFPA 90–A. Units shall be equipped with single point power connection.

C. The compressor shall be a direct current rotary and/or scroll compressor with Variable Compressor Speed Inverter Technology. The compressor shall be driven by inverter circuit to control compressor speed. The compressor speed shall dynamically vary to match the room load for significantly increasing the efficiency of the system which results in vast energy savings. The outdoor unit shall have an accumulator and high pressure safety switch. The compressor shall be mounted to avoid the transmission of vibration

D. Condenser Unit shall have all operating components assembled on one common base. These shall include: compressor, condenser coil, condenser fan and motor, charging valves, all controls, and a holding charge of refrigerant. Units shall be designed for outdoor installation with all exterior surfaces factory painted with primer and enamel for weather protection. Drain holes shall be provided for elimination of rain. Provide removable panels for access to components.

E. Refrigeration circuit components shall include liquid line service valve, suction line service valve, and full charge of compressor oil and holding charge of refrigerant.

F. System shall be provided with controls specified on the drawings and all standard controls including the following even if not considered standard:

1. Single point power connection.
2. Compressor and fan contactors.
3. Motor overload protection for ungrounded legs.
4. Crankcase oil heater.
5. High pressure cut–out.
6. Auto reset low–pressure switch to stop compressor if refrigerant pressure drops below 7 psig.
7. 24 volt transformer for unit controls.
8. Compressor anti–cycling relays set between 3 and 5 minutes.
9. Low–ambient controller down to 0° F. for winter operation.
10. Indoor time delay relay to continue indoor blower motor after compressor cycles off.
11. Refrigerant filter dryer (two–way for heat pumps).
12. Thermostatic expansion valve kit.
13. Liquid solenoid valve to stop and start liquid refrigerant flow in response to compressor operation.
14. Service alarm to signal compressor not operating during heating mode with indicating light on indoor thermostat.
15. Dry Mode control operation for humidity control.
16. Condensate overflow switch to turn off unit in the event of condensate overflow.

G. Approved Manufacturers: EMI, Fujitsu, Mitsubishi, Sanyo, or approved equal.

2.2 SELF–CONTAINED SINGLE ZONE ROOF TOP A/C UNITS

A. Unit shall be of the completely self–contained type with factory wired controls and factory assembled components and piping. Unit shall be completely weatherized for roof mounting. The unit shall be a single vertical discharge package cooling unit for outdoor installation. The unit shall be equipped with factory fabricated, 14 inches high, galvanized steel, channel frame, roof curb which shall support unit from structural framing. Roof curb shall meet NRCA Standards, shall be internally lined with minimum of 1–1/2" thick, 3 pcf density, fiberglass insulation, and shall provide weatherproof seal for unit and duct penetrations and permit thru–the–curb service connections for power and control wiring. If supply and return air plenum is part of roof curb unit, each plenum shall be internally lined on all surfaces with minimum 1–1/2" thick, 3 pcf density, fiberglass duct liner. Roof curb shall be designed to compensate for roof slope such that top of curb is level in all directions.

B. Casing shall be constructed of heavy duty galvanized sheet steel adequately reinforced with galvanized steel structural members. Units shall include drain pan with at least 2" thick insulation extending under coil and fan sections with drain connection. Hinged access doors or removable, fully–gasketed panels with quick release fasteners shall provide access to all internal parts for maintenance. All unit panels shall be insulated with at least 2" thick fiberglass blanket with neoprene coated air side surface. All insulating materials shall meet the requirements of NFPA 90–A. Units shall be equipped with duct collars on intake and discharge of unit.

C. Supply fan shall be resiliently mounted, forward curved centrifugal type with v–belt drive with adjustable variable pitch motor pulley, dependent on unit and motor size, and isolated hinge mounted motor. Fan motor and bearing lubrication lines shall be extended to exterior of section for maintenance. Fan capacities shall be as scheduled on drawings.

D. Air filters shall mount integral within unit and be accessible by hinged access doors or removable, fully–gasketed panels with quick release fasteners. Filters shall be two inch thick with 65% efficiency rating and shall be disposable type.

E. Condenser fans shall be statically and dynamically balanced, weatherproofed, and shall be powered by heavy duty, permanently lubricated ball bearing motors with thermal overload protection.

F. Condenser and evaporator coils shall be of the continuous aluminum plate fin and copper tube type and shall have an equalizing type distributor. The coil shall be tested with refrigerant and sealed with a holding charge of nitrogen at 10 PSIG.

G. Compressors shall be hermetic scroll or reciprocating type mounted on vibration isolators and have forced feed lubrication, hot gas muffler in the discharge line and crankcase heaters. The compressor shall be enclosed in a sound–attenuating compartment.

H. Controls shall be mounted in separate panel on the side of the unit for installation and service access. Units shall be provided with the following controls:

1. Twenty–four volt control transformers sized to accommodate unit control, heater contactors and fire protection thermostats.
2. Compressor and fan contactors.
3. Motor overload protection for ungrounded legs.
4. Low and high refrigerant pressure contacts.
5. Low oil pressure cutout.
6. Compressor anti–cycling relays set between 3 and 5 minutes.
7. Low ambient controls down to 0 deg. F.
8. Time–delay relays for non simultaneous start of multiple compressors.
9. Compressor motor winding thermostat.
10. Evaporator freeze thermostat.
11. Refrigerant filter dryer, two way flow.

I. Electric heating coil assembly shall have heavy duty nickel chromium elements. Three phase units shall be internally delta connected. Electric heating coil shall be factory installed and protected with air flow switch. Heaters over 10 KW shall have heating elements sequenced on and off in at least two (2) stages and shall be wired for multiple stage operation. Assembly shall include minimum air–flow switch, circuit breakers, manual reset limit switches and heat limiters for primary and secondary overcurrent and thermal protection. Assembly shall be Underwriters' Laboratory approved.

J. Heating and cooling capacity of unit shall be as scheduled on drawings. (Capacities shall be rated in accordance with ARI Standard 210–75 for units less than or equal to 135,000).

K. Provide low voltage and phase loss protective controls for all three phase motors. Totaline solid–state three phase monitor or approved equal.

L. Provide motor operated outside air damper where scheduled on drawings. Damper actuator shall have 2 to 10 volt motor. Controller will be provided and installed by BAS Contractor. Outside air inlet damper shall be equipped with minimum position control and spring return for closure during unit shutdown or power interruption. Dampers shall be ultra low leak dampers with polyvinyl gasketing and leakage rate shall not to exceed 1.0% of nominal air flow. Leakage rates shall be based on one inch W.G. static pressure and shall be determined in accordance with AMCA Standard 575.

M. Unit controls shall be factory installed solid state microprocessor based controller used to control each function of equipment using direct digital control (DDC). DDC system shall be capable of providing stand–alone operation and shall accept analog and digital signals from sensors, switches, relays, etc., and shall multiplex various signals into digital format. All closed–loop DDC shall utilize microprocessor memory resident software algorithms. Algorithms shall operate independently of online host computer or any other networked controller. DDC system shall provide capability to perform following functions:

1. Control up to 8 stages of direct expansion cooling to maintain supply air temperature in variable volume systems or room temperature in constant volume systems to an occupied or unoccupied set–point.

N. Approved Manufacturers: Trane or American Standard.

2.3 SUPPLY AND EXHAUST FANS

A. Fans shall be of size, type and capacity indicated on the drawings. Power supply shall be as scheduled. The complete units shall be approved by the Underwriters' Laboratories and be in full accordance with all provisions of the National Electric Code.

B. Provide fan with internal integral thermal protector and unit mounted disconnect.

C. Pre–wired, factory mounted speed controller for direct drive units.

D. Approved Manufacturers: Acme, Aerovent, American Coolair, Greenheck, Hartzell, Loren Cook, Penn Ventilator, Swartwout, Twin City.

2.4 CENTRIFUGAL ROOF EXHAUST FANS

A. Centrifugal roof exhaust fans shall be fully enclosed, single width, single inlet, round, with drive, capacity, and electrical characteristics as scheduled on drawings. Complete units shall be approved by the Underwriters' Laboratories and be in full accordance with all provisions of the National Electric Code.

B. Fan wheels shall be backward curved, hollow airfoil blade, non–overloading, aluminum impellers, rigidly constructed to resist torsional stresses. Fan shall be statically and dynamically balanced. Motor shall be supported on vibration isolators on rigid structural frame. Equivalent fan selections shall not change motor horsepower (wattage), increase noise level by more than 10 % nor increase inlet air velocity by more than 20% from fan scheduled on drawings.

C. Housing shall be constructed of heavy gauge aluminum with external fasteners of stainless steel. All other parts shall be zinc plated and chromate treated steel to prevent corrosion. Motors shall be located out of exhaust air stream. Inlet rings shall be smoothly contoured to reduce turbulence. All non–aluminum parts shall be factory primed and painted inside and out including fan wheel.

D. Accessories shall include the following:

1. Unit mounted, factory wired disconnect switch.
2. Back–draft damper with extruded aluminum frame and blades complete with extruded vinyl edge seals locked into blade edges. Damper shall have adjustable counterbalance for vertical air flow with pressure differential range of 0.01 to 0.05 inches W.G.
3. Pre–wired, factory mounted speed controller for direct drive units.
4. Extruded aluminum safety guard frame with bird screen and removable for motor and fan access.
5. Factory fabricated roof curbs with minimum height of 14 inches and foam rubber gasket on top surface. Curb shall be completely insulated with at least 1–1/2" thick, 3 pcf density, fiberglass insulation. Frame shall be heavy gauge steel with welded joints and hot dip galvanized after fabrication. Roof curb shall be designed to compensate for roof slope such that top of curb is level in all directions.

E. Approved Manufacturers: Acme, Aerovent, American Coolair, Greenheck, Hartzell, Loren Cook, Penn Ventilator, Swartwout, Twin City.

2.5 KITCHEN HOOD

A. Hood shall be Model wall type, compensating hood as manufactured by Captive–aire Systems. Unit shall be 60" wide X 144" long and shall be designed to provide 80% make–up air to the internal capture area.

B. Hood shall be double wall type fabricated of Type 430 stainless steel with #3 or #4 polish finish on all exposed surfaces. All seams and joints shall be heliarc welded and polished to blend. Hood shall be provided with hanging angles on top of each side and end. Construction shall be in accordance with U.L. (classification #9168), U.L.C., N.F.P.A. #96, N.S.F. #1362, B.O.C.A. #86–48, S.B.C.C.I. #8675, and I.C.B.O. #4416.

C. Provide following options:

1. Utility Cabinet: Integral cabinet fabricated of same material and finish as hood to house pre–piped fire suppression system and UL listed, pre–wired electrical controls. Pre–wire package contains light switches, lighted fan control switches, and internal factory wiring components including starters, relays, etc. Terminal box shall consist of numbered terminal strip with all factory wiring color coded and numbered, and wiring diagram, and magnetic, track mounted, motor starters with adjustable overloads for each three phase fan.
2. Exhaust Fire Damper: UL listed and installed in exhaust collar, activated by fusible link.
3. Standoff: Integral 3" air space provided to meet NFPA 96 clearance requirements against limited combustible walls or insulated air space provided to meet NFPA 96 clearance requirements against combustible walls.
4. Enclosure Panels: Enclosure panels, factory fabricated of same material and finish as hood, and designed for field installation, sized to extend from top of hood to 4" above ceiling.
5. End Panels: End panels, factory fabricated of same material and finish as hood.

D. Hood lights shall be U.L. Listed suitable for grease hood applications and shall be supplied with plastic coated glass globes. Each light shall accommodate a single standard 100 watt bulb and shall be pre–wired to junction boxes on top of hood.

E. Hood grease drain system shall consist of removable ½ pint cup grease collector and U.L. Classified, flame guard, stainless steel (Teflon coated), baffle type filters designed for easy removal and cleaning.

F. Hood supply air plenum shall be completely lined with ½" thick insulation and metal liner to prevent condensation and shall contain perforated metal plates for even air distribution. Supply air riser on top of hood shall contain combination fire and volume damper. Volume damper shall be adjustable by means of 90 degree swivel handle and lock nut. Bottom of supply plenum shall contain full length access panel to facilitate cleaning.

G. Hood shall contain liquid agent fire suppression system which shall be designed for the duct, plenum and equipment. Tank shall be contained in 12" deep fire protection cabinet which shall be an integral part of the hood canopy. Fire suppression system shall be completely factory pre–piped. Field hook–up and testing shall be completed by qualified fire system personnel after hood installation and shall be certified to meet applicable code requirements. Copy of certificate shall be provided to the Architect. System shall be capable of automatic detection and actuation and with local or remote manual actuation. System shall include an auxiliary contact (minimum 4 pole double throw switch) for connection to fire alarm system and to provide automatic shut–off for electric grille and frier.

CONSTRUCTION DOCUMENTS

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RENOVATIONS & ADDITIONS TO
S & S FOOD STORE NO. 38
US 441 & I-75
ELLISVILLE, FLORIDA

9/16/09
1654M301

DATE	09/21/09
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2.6 KITCHEN SUPPLY/EXHAUST UNIT

A. Kitchen supply/exhaust unit shall be roof mounted, pre-engineered combination exhaust and supply fan packages in sizes scheduled on drawings. Fan package assembly shall be complete system containing both exhaust and supply fans. Master control panel shall be prewired through disconnect switch, fused motor starter with factory selected overload heaters, designed to meet U.L. and N.E.C. codes.

B. Supply fan shall be double inlet, forward curved centrifugal blower of capacity scheduled on drawings. Blower assembly shall be mounted on vibration isolators. Drives shall be sized for minimum of 125% of driven horsepower.

C. Exhaust fan shall be up-blast centrifugal roof exhauster of capacity scheduled on drawings. Housing shall be spun aluminum construction and shall have drain at bottom. Fan shall be weather proof, backward inclined aluminum wheels, spark resistant, and nonoverloading.

D. Rooftop unit shall include extended intake duct with cleanable mesh filters and removable bird screen. Intake duct shall be of adequate length to hold intake minimum of 10 feet from edge of exhaust fan. Duct shall be constructed of minimum 18 gage painted galvanized steel. Roof curb shall be fully welded, 18 gage galvanized steel construction and lined with 2" thick 3 lb density fiberglass insulation and shall have 18 gage galvanized curb cap. Roof curb shall be designed to compensate for roof slope such that top of curb is level in all directions. Entire assembly shall be factory painted.

E. Approved Manufacturers: Captive-Air Systems, Inc.

F.

2.7 REFRIGERANT PIPING AND ACCESSORIES

A. Piping shall be type "L" hard drawn copper with wrought copper, refrigerant grade fittings. All elbows shall be long radius.

B. Moisture indicator shall be installed in the liquid line just before the refrigerant solenoid valve. Thermostatic expansion valves shall be provided for each evaporator circuit. Valves shall be equipped with external equalizer.

2.8 CONDENSATE DRAIN PIPING

A. Condensate piping located outside building shall be non-insulated copper. Condensate piping located inside building shall be insulated copper. Non-insulated piping located above ceilings, whether used for return or supply air plenums or not, will not be allowed.

2.9 CONDENSATE DRAIN PAN MOISTURE MONITORS

A. Moisture monitors shall be Liebert 'Liqui-tect 410" or approved equal. Unit shall have height adjustable gold plated probes, hermetically sealed electronics, designed to operate on 24 VAC or VDC, and shall have two (2) Form-C dry contacts rated at 24 VAC @ 3 amps.

2.10 PIPE HANGERS

A. Pipe hangers for refrigerant and condensate piping located inside building shall be non-metallic strap hangers designed to rigidly support piping without damage to pipe insulation.

B. Pipe hangers shall be Auto-Grip, Fee and Mason, Grinnel, galvanized steel clevis hangers, roller or fixed as shown on drawings, selected within the manufacturer's published load ratings.

C. Galvanized steel hanger rods shall be at least:

Pipe to 2"	3/8" diameter
2-1/2" to 3"	1/2" diameter
4" to 5"	5/8" diameter
6"	3/4" diameter
8" and larger	7/8" diameter

D. Rods for trapeze hangers supporting several pipes shall be sized for the equipment load.

E. Hangers for copper pipe shall be either copper-plated type or there shall be a shield of 4 pounds sheet lead to completely surround the pipe to prevent direct contact with the hanger.

F. Supports for pipes with vapor barrier type covering shall not contact the pipe but shall surround the unbroken covering. Provide galvanized steel shields with mitered corners properly formed to the jacket outside diameter between hanger clevises and the lower 1/3 of the circumference. Size shields as follows:

Pipe up to 1"	18 gauge x 8" long
1-1/4" to 2"	16 gauge x 12" long
2-1/2" to 4"	14 gauge x 16" long
5" and larger	12 gauge x 20" long

G. Use vibration isolators in hanger rods to isolate vibration in piping subject to vibration, or where shown on drawings.

2.11SLEEVES AND ESCUTCHEONS

A. Sleeves shall be 18 gauge galvanized steel or pre-formed plastic. Sleeves shall be sized to allow approximately 1/8" gap around the pipe or its insulation.

B. Sleeves through floors or fire walls shall be galvanized steel pipe of proper size. Sleeves through floors shall extend 1/2" above the finished floor. Sleeves penetrating fire-rated walls, floors or ceilings shall be filled with fire-rated material capable of maintaining the fire-resistance rating of the wall, floor or ceiling.

C. Escutcheon plates for finished spaces shall be nickel-plated.

2.12 EQUIPMENT SUPPORTS, VIBRATION ISOLATORS, AND IDENTIFICATION

A. Equipment supports shall be sized and designed to support the equipment and shall be fabricated from galvanized steel.

B. Hangers for horizontal air handling units including in-line supply and exhaust fans and fan terminal units shall be sized for equipment load but shall not be less than 3/8" diameter steel rod and shall all have spring isolators designed for 1" maximum deflection. Hanger straps and/or wire will not be accepted.

C. Supports for vertical air handling units up thru 2,000 cfm shall be fabricated from galvanized steel angles designed to support the unit. Angles shall be at least 1-1/2" x 1-1/2" x 1/4" thick. Supports shall be designed to allow clearance for return air ducts or plenum.

D. Vibration isolators for air handling units over 2,000 cfm, except for AHUs scheduled to have secondary drain pans or equipment scheduled to have concrete inertia base, shall be housed spring type vibration isolators, similar to Kinetics Model SL and SM, sized for equipment load, and designed for 1" maximum deflection. Air handling units with internal spring isolation shall have neoprene inertia pads, similar to Kinetics Model NP or NG, sized and designed for unit load.

E. Vibration isolators for floor-mounted air handling units with secondary drain pans shall be neoprene inertia pads, similar to Kinetics Model NP or NG, sized and designed for unit load.

F. Concrete inertia base and spring isolators for equipment scheduled to have concrete inertia base shall be designed for equipment load to prevent equipment vibration transmission to floor. Inertia base frames shall be pre-engineered welded steel pouring frames with welded-in concrete reinforcement, equipment mounting bolts and vibration isolator bracket. Frames shall be similar to Kinetics Model CIB-H or L depending on equipment type.

G. All identification legends, arrows and color bands shall be stenciled on pressure-sensitive labeling material approved by the Architect. Labeling material colors for use on piping shall be as specified in ANSI A 13.1 latest revision. Equipment labels shall be laminated, phenolic strips 1/16" thick and engraved to show black letters on white background not less than 1/4" high.

H. Valve tags shall be plastic, aluminum or brass at least 1" in diameter and stamped with contrasting colored figures as large as possible.

I. Pipe markers shall be Seton style RPM or approved equal.

2.13 MOTORS

A. Full Load Motor Efficiencies: All motors installed in equipment specified in these specifications shall be classified under the National Electric Manufacturers Association's Standard as "Energy Efficient" or shall otherwise meet the requirements of the Florida Energy Code.

B. Except where otherwise specified, all motors shall be designed for continuous service and for regular starting on full-line voltage with normal starting current. The limits on service factor and temperature rise above 40° C. ambient at rated load shall be as follows:

Motor Enclosure	Service Factor	Temperature Rise
Drip-Proof	115%	40° C.
Totally Enclosed	None	55° C.

C. The insulation portion of the motor leads between the lug and motor frame shall be at least 5" in length when four or less motor leads are used and at least 8" in length when more than four motor leads are used. When terminal type lugs are supplied, they shall be solderless, Burndy "Hy-Dent" type or approved equal.

D. Motors shall be furnished for operation as specified or as noted on the drawings. All motors shall conform to IEEE, NEMA and ANSI standards.

E. Motors furnished for indoor installation shall be of the open, drip-proof design. Motors furnished for installation in wet locations or outdoors shall be of the totally-enclosed design. Motors furnished for installation in hazardous locations shall be of the explosion-proof design.

2.14 DUCT WORK

A. Supply air, return air, outside air, transfer air, and exhaust air (except kitchen hood exhaust) duct work shall be galvanized sheet metal.

B. Supply air duct work designated as single wall spiral shall be round spiral lock-seam with matching fittings. Duct and fittings shall be made from galvanized steel per ASTM A-527. Zinc coating shall be G-60 or higher. Elbows shall have center-line radius of 1.5 times the diameter. Fitting seams shall be of tack welded or punch lock construction and sealed with high pressure duct sealant as required by SMACNA.

C. Double Wall Duct Work:

1. Double wall, pre-insulated, galvanized sheet metal, supply ducts, including connection fittings for diffusers, shall be used where noted on drawings or specified herein. Outer wall shall be solid, inner wall shall be perforated, and insulation shall have maximum "K" factor of 0.27 (BTU x inch) / (sq. ft. x °. F. x hr). Joints shall be either slip or flanged connections. Elbows shall be full radius.
2. Supply ducts shall be round and flat oval duct similar to Acousti-K27 with minimum 1" thick insulation.
3. Approved Manufacturers: Eastern Sheet Metal, Impulse Air, United McGill.

D. Fabricate sheet metal duct work in accordance with latest edition of "HVAC Duct Construction Standards - Metal and Flexible" as published by SMACNA and to meet construction requirements for 1" W.G. minimum static pressure and seal class "C". *the following minimum static pressures: *

1. Supply air ducts at discharge of constant volume air handling units shall be constructed for 2" W.G. and seal class "C".
2. Return air ducts to constant volume air handling units, outside air and exhaust air ducts shall be constructed for 1" W.G. negative and seal class "C".
3. Exhaust air ducts for kitchen hoods shall be constructed for 2" W.G. negative static pressure.
4. Other exhaust air ducts shall be constructed for 1" W.G. negative and seal class "C".

E. Fabricate and seal duct joints and connections such that air leakage does not exceed five (5) percent of design air volume.

F. Exhaust ducts for kitchen hoods shall be 16 gage minimum thickness stainless steel. Seams and joints shall be liquid tight with continuous external welds. Cleanout access doors for kitchen exhaust ducts shall be double wall insulated construction of same material and gage as exhaust ducts. Doors shall be provided with hand operated adjustable tension catches and shall be completely gasketed around their perimeter to make them liquid-tight.

G. Duct dimensions shown on drawings are finished inside dimensions. Increase duct sizes to allow for acoustic duct liner or fiberglass duct system wall thickness where applicable.

H. Changes in direction, including Tees, in square and rectangular duct work for both supply air, outside air, and return air shall be made with mitered elbows fitted with closely spaced full radius air foil type turning vanes constructed for maintaining constant velocity through elbow. Changes in direction in supply and return ducts may be made with radius elbows instead of mitered elbows and turning vanes if space limitations permit or if shown on drawings. Radius elbows in round duct work do not require turning vanes for either supply or return air.

2.15 A/C DUCT WORK ACCESSORIES

A. Manual balance/volume dampers shall be opposed blade type and shall be 16 gauge minimum galvanized steel with zinc-plated hardware and bronze or nylon bearings. Blades shall not be over 8" wide nor less than 16 gage galvanized steel. Maximum leakage shall be less than 1% at static pressure of 4" W.G. Provide locking quadrant damper operators on manual dampers.

B. Turning vanes shall be factory fabricated full radius double thickness air foil type with 24 gauge rails and hollow vanes.

C. Extractors at branch take-offs shall be adjustable push rod type with locking hardware. Extractors at sidewall supply grilles shall be adjustable by removing the grille face.

D. Splitters shall be constructed of at least the same gauge galvanized steel as the duct wherein they are used and shall not be less than 24 gauge. Blades shall be formed in two thickness of metal to provide rounded nose to air flow.

E. Access doors shall be factory fabricated, double wall insulated type of 24 gauge minimum galvanized steel. Doors shall be non-hinged, completely removable with hand operated adjustable tension catches and shall be completely gasketed around their perimeter. Doors shall be as large as the duct size will permit (within 1" of each duct edge) and large enough to permit access to fire dampers and other items requiring access. Doors larger than 12" shall have latches on all four sides.

F. Flexible connectors shall meet requirements of UL 191 for Class 1 connectors.

2.16 FLEXIBLE DUCT

A. Flexible duct shall be pre-insulated type, listed by Underwriters' Laboratories, Inc., Class 1 ducts, polymer film supported by helically wound, spring-steel wire; fibrous-glass insulation; aluminized vapor-barrier film and shall conform to NFPA Bulletin 90-A.

B. Insulation shall be the required thickness and material to provide a minimum thermal resistance "R" of 6.0 when located outside of the building thermal envelop and 'R' of 4.2 when located inside the building thermal envelope. Comply with ASHRAE/IESNA 90.1-2004.

C. Flexible duct connectors shall be stainless-steel band with cadmium-plated hex screw to tighten band with a worm-gear action.

2.17 INSULATION - GENERAL

A. All insulation materials and coatings shall meet flame spread and smoke developed ratings per NFPA Bulletin 90-A when tested in accordance with ASTM Standard E-84. Smoke developed less than or equal to 50, and flame spread less than or equal to 25. All coatings and mastics shall be nonflammable in wet state.

B. Approved Manufacturers: Armstrong World Industries, CertainTeed Corp., Manville, IMCOA, NOMACO, Owens-Corning Fiberglas Corp., Pittsburg Corning Corp.

2.18 DUCT WORK INSULATION

A. General: Duct insulation shall be the required thickness and material to provide a minimum thermal resistance "R" of 8 when duct is located outside building, "R" of 6.0 when duct is located in areas within the building but on the non-air conditioned side of the building insulation and 4.2 when located on the air conditioned side of the building insulation unless otherwise noted on the drawings. These R values are "as-installed" minimums. Insulation nominal thickness shall not exceed 2".

B. Flexible external insulation shall be fiberglass and shall have an "as-packaged" R value not less than 25% greater than the required "as-installed" value and shall have a duplex laminated, reinforced aluminum foil vapor barrier.

C. Semi-rigid external insulation shall be fiberglass and shall have an "as-packaged" R value not less than the required "as-installed" value and shall have all service jacket (ASJ) facing.

D. Acoustical duct liner shall be fiberglass insulation with air stream side faced with nonabrasive, fire-resistant coating to minimize air flow resistance and prevent microbial growth per ASTM C21 and C22. Maximum K factor shall be 0.23 (BTU x inch) / (sq. ft. x ° F. x hr). Thickness shall be determined by required "R" value depending on duct location. Minimum of 1" thick duct liner with additional external insulation sufficient to provide required "R" value may be use. ToughGard Duct Liner as manufactured by CertainTeed or approved equal.

2.19 REFRIGERANT SUCTION PIPING INSULATION

A. Above grade piping inside building and when installed in PVC conduit: 3/4" thick, pre-formed, flame-retardant, elastomeric, polyethylene, pipe insulation similar to IMCOA Imolock or NOMACO Nomalock, and installed in accordance with manufacturer's instructions.

B. Exposed piping outside building: 3/4" thick, pre-formed, flame-retardant, elastomeric, polyethylene, pipe insulation similar to IMCOA Imolock or NOMACO Nomalock, and installed in accordance with manufacturer's instructions and, in addition, provide banded aluminum jackets to floor or wall penetration. Install and secure aluminum jackets in accordance with manufacturer's instructions.

2.20 CONDENSATE DRAIN PIPING INSULATION

A. Copper primary or secondary condensate piping located inside building above ceilings shall be insulated with 1/2", pre-formed, flame-retardant, elastomeric, polyethylene, pipe insulation similar to IMCOA Imolock and Armstrong Armaflex. Install pipe insulation in accordance with manufacturer's instructions.

2.21 AIR DISTRIBUTION EQUIPMENT

A. Air distribution devices shall be as scheduled on the drawings. All supply diffusers shall be selected to deliver the indicated volume of supply air without exceeding the available throw and with an NC rating not to exceed 25, including half open damper. Submittal data shall clearly indicate performance of selected devices including air quantity, pattern, throw, pressure drop, sound level, finish, dimensions and construction of all air distribution devices.

B. Refer to Architectural reflected ceiling plans for exact location of air distribution devices. All supply, return and exhaust diffusers, grilles and registers shall be steel construction unless scheduled otherwise and shall have baked enamel finish with color selected by the Architect.

C. Ceiling surface and sidewall supply registers shall, unless otherwise scheduled, have opposed blade type key operated dampers with a detachable key. One (1) key shall be furnished for each registar.

D. Thermally powered VAV diffusers shall be Therma-fuser as manufactured by Acutherm, Hayward, CA. Diffusers shall be thermally powered using two room temperature sensing elements (one for cooling control and one for heating control) and one changeover element for switching the diffuser from cooling mode to heating mode by sensing supply air temperature. All sensing elements shall be built into diffuser. Room temperature sensing elements shall be field adjustable. Changeover element shall be factory set to engage heating mode at 81° F and engage cooling mode at 70° F. *Optional wall mounted, remote, adjustable, temperature controls shall be provided as scheduled. Diffusers shall have five (5) year warranty.

E. Approved Manufacturers: Acutherm, Anemostat, Krueger, Metalaire, Metal Industries, Nailor, Price, Selho, Titus, Tuttle & Bailey.

2.22 CORROSION PROTECTION FOR ALL CONDENSER/HEAT PUMP UNITS

A. Provide corrosion protection for all condenser/heat pump units. Corrosion protection system shall be Bronze Glow, Heresite, Adsil, or pre-approved equal, applied only by applicators certified and/or licensed by system manufacturer.

2.23 CONTROLS

A. Room temperature thermostats shall be programmable type designed for minimum two stage cooling and three stage heating or heat pump with electric emergency heating applications as applicable. Unit shall have automatic heating/cooling changeover with system light; digital display indicating time of day, day of week, room temperature, current program operating mode, and current active stage; 3 hour timed override; two occupied and two unoccupied programs per day; keyboard disable to prevent tampering; 7-day program basis; status indicating lights displayed in digital display; constant fan operation during occupied mode; auto fan operation during setback (set applicable dip switch or program mode); remote duct-mounted temperature sensor. "Auto" fan mode shall allow supply fan to run only when cooling or heating is required by the room thermostat.

B. Provide clear plastic lockable covers to fit over all thermostats. Cover shall have vent holes top and bottom to provide fast thermal response for thermostat.

C. Controller shall compare actual building inside and outside air pressures. Pressurization set-point shall be field adjustable to positive or negative value. Economizer cycle shall be controlled by automatic enthalpy controller. Economizer cycle shall be controlled by automatic enthalpy controller. Provide microprocessor supply air discharge controller and supply air sensor. Microprocessor unit shall provide capacity staging, adjustable set-point of discharge air temperature, indoor air reset, and control band adjustment range from 2 to 16 degrees F.

D. Motor operated dampers shall have galvanized steel frames blades with synthetic elastomeric mechanically attached, field replaceable blade seals. Pneumatic operators shall be rolling diaphragm piston type with adjustable stops. Pilot positioners shall have starting point adjustable from 2 to 12 psig and operating span adjustable from 5 to 13 psig. Inlet vane operator shall be high pressure with pilot positioners and sufficient force to move vanes when fan is started with vanes in closed position. Return vane operator to closed position on fan shutdown.

E. Smoke detectors shall be duct mounted, UL approved, photoelectric type complete with duct width inlet and return tubes, detector head assembly, with audio & visual indicators and shall meet the requirements of NFPA 90-A. In addition, provide detector with remote station complete with alarm horn, alarm L.E.D., pilot L.E.D., and key operated test/reset switch. Provide wiring connections to remote station for annunciation, and relay as required to shut off AC unit fan motor upon activation of duct smoke detector. Unit shall operate on 24 V power from RTU. All exposed wiring shall be in conduit. Duct smoke detectors and remote stations shall be as manufactured by Air Products and Controls, Ltd., RW Series, model #MS-KA/P/R or approved equal.

F. Control wiring conduit shall be EMT. All control wiring run in plenum containing supply or return air shall be installed in conduit or be plenum rated wire.

2.24 ACCESS DOORS

A. Access doors shall be as similar to those manufactured by Milcor Division of Inland-Ryerson of type as follows:

Door Location	Door Type
Drywall	Style "DW"
Masonry or Tile	Style "M-Stainless"
Acoustical Tile	Style "AT"
Plaster	Style "K"
Fire Rated Walls/Ceilings	Style "Fire Rated"

B. Each door shall be equipped with two flush, screwdriver operated, cam latches and, other than Style "M", shall be finished to match adjacent surface. Door sizes shall be applicable to access required for normal service.

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RENOVATIONS & ADDITIONS TO
S & S FOOD STORE NO. 38
US 441 & I-75
ELLISVILLE, FLORIDA

9/15/09
1654M301

DATE	09/21/09
DRAWN	CJF
APPROVED	LRH

0920

MS-2

OF 39 SHEETS

CONSTRUCTION DOCUMENTS

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PART 3 – EXECUTION

3.1 DEMOLITION

A. Remove all existing air handling units, outdoor condensing units, RTU's, exhaust andupply fans, duct work, and piping related to HVAC work.

B. Provide refrigerant recovery in accordance with applicable codes and local requiremes for all equipment being remove which contain refrigerant.

3.2 SALVAGE MATERIALS

A. Materials and items of equipment that is to be removed and not reused shall be bught to the attention of the Owner for inspection and determination of disposition.

B. Materials and items of equipment designated as "unsalvageable" by the Owner shall promptly removed from the premises, disposed of in a completely legal manner, and shall not be re-used in the new Work unless specifica authorized by the Architect.

C. Materials and items of equipment designated as "salvageable" by the Owner to keepfor their future use shall be carefully removed and made available for pick-up by Owner's personnel at the job site, delivered to Owner desiated location (within 30 miles of the project site), and unloaded.

3.3 CUTTING AND PATCHING

A. Cut and patch existing construction as required for the proper installation of this Wk. Cut openings carefully without undue weakening of the structure or damage to the building. Do not cut structural members without permsion and being under the direction of the Architect. Provide required bracing, shoring, weather protection, etc. for openings.

B. Patching shall replace the Work to a condition at least equal to its condition beforthe cutting was done. Use materials and methods approved by the Architect.

C. Repainting will not be required under this contract for normal cutting and patching. This does not reduce the responsibility for redecorating of existing Work that is damaged unnecessarily by carelessness.

D. Cutting and patching includes necessary relocation of existing pipes, conduits, etc, at pass through openings and the proper closing of openings in walls, floors, ceilings, etc. where abandoned mechanical facilities are removed.

3.4 INSTALLATION OF THE WORK

A. Examine the site and all drawings before proceeding with the layout and installatiorof the Work.

B. Arrange the Work essentially as shown, exact layout to be made on the job to subctual conditions. Confer and cooperate with other trades on the job so all Work will be installed in proper relationship and coordinate precisocation of parts with the Work of others.

C. Arrange for required chases, slots and openings with the General Contractor includi locations of required pipe sleeves through walls and foundations. Assume liability for cutting or patching made necessary by failure to ake proper arrangements in this respect. *Provide detailed and dimension plan showing all pipe sleeves and duct openings required in ilding structure including floors and roof deck.

D. Indicated equipment connections are necessarily based on equipment of a given mafacture. Assume responsibility for proper arrangement of pipes, ducts, etc. to connect approved equipment in a proper and approved manne Follow equipment manufacturer's detailed instructions and recommendations in the installation and connection of all equipment. In case of cflict between manufacturer's instructions and the contract documents, notify the Architect before proceeding. No equipment installation or cnections shall be made in a manner that voids the manufacturer's warranty.

E. Duct work shown on drawings is designed to produce required air quantity at estimed pressure drop which is used for air handling unit air quantity, pressure, and motor horsepower. Actual field installation may result in lor or higher pressure drop at the design air quantity which may require adjustment of fan speed. Take responsibility for this adjustment inclusg replacement of fan sheave, if required, to obtain required air quantity and maintain required duct static pressure.

F. Install all Work in a neat and workmanlike manner, using only workmen thoroughly alified in the trade or duties they are to perform. Rough Work will be rejected.

3.5 ROOF CURB MODIFICATIONS

A. Modify existing roof curbs to fit new rooftop A/C units. The roof curb modificatior shall meet NRCA Standards, shall be internally lined with minimum of 1–1/2" thick, 3 pcf density, fiberglass insulation, and shall provide weaerproof seal for unit and duct penetrations and permit thru–the–curb service connections for power and control wiring. Roof curb modifications shall be designed to compensate for roof slope such that top of curb is level in all directions.

3.6 CONDENSATE DRAIN PIPE INSTALLATION

A. Install condensate piping in a workmanlike manner, according to the best practice s the trade, properly pitched and vented to eliminate air pockets or traps, and to ensure rapid drainage from each unit. Cut pipe squarely accurate length for full penetration into fittings. Remove burrs from ends of copper pipe, clean soldering surface thoroughly, flux, assemble d solder before surfaces oxidize. Use approved non–corrosive flux. Use sufficient heat for complete penetration of solder and wipeway excess flux and solder.

B. Provide a valve, female hose connection with hose thread cap and rubber washer, d 4" deep trap to prevent back suction into the air unit as detailed on drawings.

C. Run condensate drain line from each A/C unit to as noted on the drawings.

D. Install condensate drain trap float switch, when approved by local municipal Authori having jurisdiction, to turn off unit if condensate backs up in trap.

E. Run condensate drain line from each rooftop A/C unit to roof drainage system ansupport piping as shown on drawings. Do not combine multiple units into one common drain line.

3.7 CONDENSATE DRAIN PAN MOISTURE MONITORS

A. Install Liebert "Liqui–tect 410" or approved equal moisture monitor in each condense drain pan in all rooftop A/C and all air handling units unless the units are provided with secondary drains or condensate drain trap float vitches. Bond the monitor mounting legs, do not use mechanical fasteners such as screws or bolts, to the condensate drain pan bottomwith adhesive suitable for the application. Adjust the height of the monitor contacts at least ¼" below top edge of drain pan. Connect oisture monitor output contacts to rooftop units and air handling units to shut down the unit fan(s) if water is detected within 1/4" of thecondensate drain pan top and adjust moisture monitor probes accordingly. Provide 24 VAC or VDC source and connect to moisture monit.

3.8 REFRIGERANT PIPE INSTALLATION

A. Size and install all refrigerant piping to complete the system connecting heat pump/condensers to air handlers in accordance with the equipment manufacturer's instructions based on equipment size, route of piping, an good refrigeration system practice. Layout piping in most direct route to minimize amount of system refrigerant. Install refrigerant tube sizso minimize pressure drop and provide for oil return to compressor. Braze all joints with 15% minimum silver alloy solder.

B. Run horizontal piping above ceilings and vertical piping inside walls in finished spac (not including mechanical rooms).

C. After completion of entire system and before any pipe is covered, test the entire rigerant circuit to assure that it is absolutely tight. Conduct low–side test at 150 psi; high–side at 300 psi.

D. After completion of leak testing, evacuate and charge the system utilizing a procere approved by air conditioning unit's manufacturer.

E. Install all refrigerant lines located underground or under the building floor in PVC cduit sized to contain both the liquid and hot gas lines including required insulation. Seal space between piping and PVC conduit at each d of conduit to eliminate entry of water.

3.9 PIPE ASSEMBLY

A. Sweat Joints in Copper Pipe (other than refrigerant piping): Cut pipe squarely to aurate length for full penetration into fittings. Remove burrs from ends, clean soldering surface thoroughly, flux, assemble and solder befo surfaces oxidize. Use approved non–corrosive flux. Use sufficient heat for complete penetration of solder and wipe away excess flux and sder.

3.10 VALVE INSTALLATION

A. Install all valves with the stems or spindle above the horizontal where possible andxercise utmost care not to install valves over electrical equipment.

B. Locate ball valves at all automatic valves, check valves, at all equipment so they a be isolated for repairs, at all branch lines connecting mains, and elsewhere as shown on drawings.

3.11PIPE HANGER INSTALLATION

A. Space hangers for horizontal pipe as follows:

Copper pipe	
1/2" and smaller	6' on center maximum
3/4" to 1–1/2"	8' " " "
Steel pipe	12' on center maximum

B. Attach hanger rods to sufficiently rigid structural building members. If hangers shc be attached to either the top chord or bottom chord of steel bar joist, attach the rods by clamp at the panel points. Do not under any cumstances burn or drill holes in either chord. Do not weld either chord.

C. Provide additional hangers or anchoring devices necessary for proper support of pipg at corners, tops of risers, etc.

D. Provide galvanized steel shields over pipe insulation at pipe supports.

3.12 SLEEVE AND ESCUTCHEON INSTALLATION

A. Accurately locate and set required sleeves. Where more than one pipe is necessari passed through a single sleeve as to a unit piping enclosure or other conditions resulting in larger than 1/8" gap within the sleeve, titly pack space with proper material to form a barrier against sound, vermin, fire, etc.

B. Fill all spaces between piping and sleeves passing through fire–rated walls, floors, ceilings with material capable of maintaining the fire–resistance rating of the wall, floor or ceiling.

C. Provide properly fitted sheet metal flanges around sheet metal ducts entering expod into finished spaces and/or to cover excessive gaps around ducts entering into non–finished spaces. In addition provide metal flashing round duct work penetrating exterior walls and seal to provide weather tight system.

D. Provide escutcheons on all finished surfaces where exposed piping, bare or insulatepass through floors, walls or ceilings, except in boiler, utility or equipment rooms. Fasten escutcheons securely to pipe or pipe covering.

3.13 HVAC DUCT WORK

A. Install all duct work in accordance with SMACNA stcstandards. Install extractors and air balance dampers in all branch take offs including take offs to supply diffusers. Paint inside of diffusers aand duct visible through diffusers flat black.

B. Support duct from building structure with straps, rods, or angles as detailed in "HVAC Duct Construction Standards – Metal and Flexible" as published by SMACNA. Horizontal and diagonal joist at bridging shall not be considered part of building structure for duct supporting purposes. Where joist are located too far apart for duct support or duct runs are parallel to joist, provide angles between joist designed to support duct without sagging.

C. Seal all transverse joints and longitudinal seams in ductwork in accordance with SMACNA standards regardless of pressure and seal class. Pressure test all ductwork in accordance with SMACCNA "HVAC Air Duct Leakage Test Manual" and provide test results in a report form for approval by the Engineer prior to installing duct insulation.

D. Install flexible ducts with a minimum run and with a minimum of bends. No run shall exceed 6 feet for diffusers and bends shall have a minimum radius of 1–1/2 times the diameter of the duct measured from the center line. Seal all joints and connections. Connect flex duct to spin–in and air distribution fittings using metal clamps; nylon draw bands and wire straps will not be accepted. Support flexible duct from building structure. Do not lay on light fixtures or ceiling. Flexible duct sizes shall be as noted on drawings. *Transitions for flexible duct size shown and inlet connections for VAV boxes and FTUs shall be made at inlet connection.

E. Install double wall duct work in accordance with duct manufacturer's instructions and details.

F. Make all supply, return and outside air duct connections to rooftop units with flexible connectors specifically designed for equipment used.

3.14 BALANCE DAMPERS

A. Install balance dampers at all branch connections and other locations shown on drawings. Install balance dampers at all flex duct connections for diffusers except where only one diffuser is connected to branch duct.

B. Install automatic/motor operated volume dampers where shown on drawings and in accordance with manufacturer's instruction.

3.15 ACCESS DOORS

A. Provide wall/ceiling access doors at dampers, valves, air vents, fire damper access doors, and like items requiring adjustment or maintenance accessibility if they cannot be located over lay–in type ceilings or in attic and mechanical rooms. Obtain approval from Architect for location of access doors.

B. Provide access doors in ducts within arm–reach of fire dampers and located to permit opening and resetting fire damper shutter. Locate access doors over lay–in type ceilings. Provide ceiling access doors if duct access doors cannot be located over lay–in type ceilings. Provide access doors in walls behind which duct access doors are located. Obtain approval from Architect for location of access doors.

C. Provide visible markers on finished side of lay–in type ceilings to indicate locations of duct access doors, valves, adjustable dampers, air vents, fire damper access doors and like items. See Architect for marker type.

3.16 CONTROLS – GENERAL

A. Furnish all controls and control wiring to provide for proper performance of equipment.

B. Install all high voltage (120 V or above) control wiring in EMT conduit. Install low voltage control wiring in conduit unless concealed in walls or above finished ceilings. Use plenum rated wire above ceilings when used as supply and return air plenums. Do not run low voltage control wiring in the same conduit as high voltage control or power wiring.

C. Install room thermostats where shown on drawings at 48" above the floor unless otherwise noted on drawings. Program thermostats to run supply fan continuously during building occupied periods and in the "auto" mode during building unoccupied periods.

D. Install smoke detectors in supply air ducts in accordance with manufacturer's instructions. Locate smoke detectors in supply ducts up–stream from first diffuser or branch duct connection. Connect smoke detectors to rooftop units as required to turn off supply air fan and associated equipment when smoke is detected. Remote station lens shall be flush mounted in 4" square box, and located in a normally occupied area generally as indicated on drawings.

3.17 EQUIPMENT SUPPORTS INSTALLATION

A. Furnish, fabricate, shop paint, and erect all structural supports and platforms as required for all equipment installed in this Work, unless otherwise specified. Make these supports and platforms independent of all other equipment supports and suspend them from the building structural steel, inserts imbedded in concrete slabs, or support them on columns as required by the drawings. Attachments to steel bar joists shall be approved by the Architect and must only be at panel points. Do not, under any circumstances, burn, drill or weld either chord of steel bar joist.

B. Install galvanized steel supports under vertical air handling units up to 2,000 cfm to allow installation of return air ducts and access to filters and unit access panels.

C. Prepare and furnish drawing and templates indicating all concrete Work required for equipment furnished under this Work. All concrete required will be provided by the General Contractor. Provide, at the time concrete foundations, bases, or curbs are formed, all necessary anchor bolts as required for the various equipment in this Work. Grout all spaces between the equipment base and concrete supports.

3.18 EQUIPMENT INSTALLATION

A. Install all equipment in accordance to equipment manufacturer's instructions. Install all equipment to permit removal of coils, fan shafts and wheels, filters, belt guards, sheaves and drives, and all other parts requiring periodic replacement or maintenance.

B. Arrange equipment to permit ready access to valves, cocks, traps, starters, motors and control components, and to clear the openings of swinging and overhead doors and of access panels.

C. Install vibration isolation rails between rooftop units and roof curbs.

3.19 KITCHEN HOOD

A. Install kitchen hood in accordance with manufacturers instructions. Support hood with hanger rods as shown on architectural drawings. Bottom of hood shall be 78" above finished floor.

B. Hook up and test liquid agent fire system including local or remote actuator. Provide test certificate to Architect.

3.2 KITCHEN HOOD EXHAUST AND SUPPLY SYSTEM

A. Install hood exhaust and supply unit on roof where indicated on drawings and in accordance with equipment manufacturer's instructions.

B. Install all sections of exhaust duct without forming dips and traps. Slope exhaust ducts 1 inch per foot toward hood or to approved residue trap. Provide cleanout access openings at each change of direction. Locate openings in side of duct. Support duct system securely without penetrating the duct with supports or fasteners. Do not install exhaust ducts within 18 inches of combustible materials nor within 3 inches of any fire rated wall.

A. Install supply duct system as specified for A/C Ductwork.

3.20 IDENTIFICATION OF EQUIPMENT

A. Securely attach manufacturer's nameplate to all equipment giving data as to design and operating characteristics.

B. Securely attach nameplates to all switches, starters, gauges, control devices, including thermostats, and similar items, giving the name and number of the item of equipment to which it is connected.

C. Identify all RTU's, air handling units, compressor/condenser units, fans, pumps, control devices and other items of machinery or apparatus by stenciled letters.

3.21 OILING AND SERVICING

A. Protect all bearings and packing glands during installation. Before the equipment is placed in operation, fill all bearings and packing glands with the type lubricant recommended by the equipment manufacturer. Prior to final acceptance adjust all equipment to operate properly.

3.22 INSULATION – GENERAL

A. Use application details in accordance with the insulating material supplier's recommendations except where a higher standard is specified herein. Clean exterior of all piping and duct work of foreign substances, including moisture, prior to application of insulation. Apply insulation to piping and duct work with all joints tightly fitted to eliminate voids. Replace broken or damaged insulation with new insulation and joint material.

B. Replace or repair all existing insulation disturbed by new work and refinish to match adjacent insulation.

3.23 REFRIGERANT PIPING INSULATION

A. Run covering for piping unbroken through hangers. Cover all insulated refrigerant piping exterior to building with banded aluminum jackets. Install and secure all aluminum jackets in accordance with manufacturer's instructions.

3.24 PIPING INSULATION – GENERAL

A. Run covering for piping unbroken through hanger shields, sleeves, etc. Avoid metal–to–metal contact between pipes and hangers. Cover all insulated piping exterior to building with banded aluminum jackets. Install and secure all aluminum jackets in accordance with manufacturer's instructions.

B. Provide an insert, not less than 6" long, of the same thickness and contour as adjoining insulation, between support shield and piping, but under the finish jacket, on piping 2" or larger, to prevent insulation from sagging at support points. Use heavy density insulating materials suitable for the specified temperature range and strong enough to prevent crushing. Cover fittings, valves, irregular surfaces, etc., with same insulation specified for piping including jacket. Cut jacket to fit without wrinkles or folds.

3.25 DUCT WORK INSULATION

A. Insulate all sheet metal supply air, transfer air, and return air duct work, except those specified for acoustic duct liner or as pre–insulated double wall ducts, located in concealed spaces with flexible external insulation.

B. Insulate backs and necks of all diffusers and return grilles with flexible external insulation.

C. Lap all joints a minimum of 2" with glass cloth and embed glass fabric in coat of white mastic and cover glass fabric with white mastic (Duct tape shall not be used). Adhere insulation to duct with adhesive applied with a 2" wide brush at 8" on centers. On ducts over 24 " on any side, additionally attach insulation to duct work on bottom and sides with Graham pin studs and speed washer or stick clips placed 18" on center each way.

3.26 AIR SYSTEM TEST AND BALANCE

A. The Test and Balance (TAB) Agency, completely independent from Contractors installing work under this specification section, shall perform all test and balance work in accordance with the recommendations of the Associated Air Balance Council, and after the entire mechanical system has been completed and is in full working order.

B. TAB Agency shall contact the Architect and provide the schedule for TAB work at least one week prior to start of TAB work to afford the Architect the opportunity to visit the job site during the TAB work.

C. TAB Agency shall make provisions in the contract to meet the Architect at the job site after the TAB report has been submitted to spot check at least 10% of the TAB tested points. TAB Agency shall furnish equipment and TAB technician to complete these spot checks in the presence of the Engineer.

D. The following organizations are approved for Test and Balance work for this project: Environmental Balance Corp., First Coast Test & Balance Holistic Test & Balance, Perfect Balance, Inc., TABCO, Thermal Systems Balancing, Inc. and Tisdale Air Balance.

E. Take responsibility for the following:

1. Place all heating, ventilating, and air conditioning systems and equipment into full operation and maintain operation during each working day of the TAB Agency.
2. Make any changes required for correct balance, as recommended by the TAB Agency, at no additional cost to the Owner. Such changes may encompass but are not limited to pulleys, belts, duct work, dampers, or the addition of dampers and access doors.
3. Furnish TAB Agency with full set of applicable shop drawings, submittal data, and manufacturer's performance data.

F. TAB Agency shall complete all following specified work:

1. Mark all duct traverse points and other information on set of reproducible HVAC drawings. Assign ID numbers to all diffusers and grilles, note ID numbers on reproducible HVAC drawing, and use ID numbers in TAB report.
2. Before commencing work, verify that systems are complete and operable. Ensure the following:
   a. Equipment is operable and in a safe and normal condition.
   b. Temperature control systems are installed complete and operable.
   c. Proper thermal overload protection is in place for electrical equipment.
   d. Final filters are clean and in place.
   e. Correct fan rotation.
   f. Duct systems are clean of debris.
   g. Fire and volume dampers are in place and open.
   h. Coil fins have been cleaned and combed.
   i. Access doors are closed and duct end caps are in place.
   j. Air outlets are installed and connected.
   k. Duct system leakage has been minimized.
3. Report any defects or deficiencies noted during performance of services to the Engineer. Promptly report abnormal conditions in mechanical systems or conditions which prevent system balance. Beginning of balance work means acceptance of existing conditions.
4. Adjust all air systems to the design values.
5. Test and record all actual motor currents and note corresponding nameplate full load amperes.
6. Test and adjust rpm of all blowers, fans, and similar air handling devices to plus or minus 5% of design quantities. Make pitot tube traverses of all main exhaust, supply, and return ducts and obtain air flow of each fan. Test and record each system's starting pressure, suction and discharge. Test and adjust system for design recirculated and outside air flows.
7. Test and adjust each diffuser, grille and register to within 5% of design requirements and identify and list each grille, diffuser and register. Use manufacturer's ratings on all equipment for required calculations.
8. Recorded data shall represent actually measured, or observed conditions.
9. Permanently mark settings of dampers and other adjustment devices allowing settings to be restored. Set and lock memory stops.
10. After adjustment, make measurements to verify balance has not been disrupted or that such disruption has been rectified.
11. Leave systems in proper working order, replacing belt guards, closing access doors, closing doors to electrical switch boxes, and restoring thermostats to specified settings.
12. Upon completion of test and balance work, insert all data, including copy of marked–up HVAC drawing, into a complete typewritten report and submit six (6) copies of this report to the Architect.

3.27 INSTRUCTION OF OWNER'S REPRESENTATIVE

A. After final acceptance of all Work and occupancy of building, provide service to make system adjustments to suit conditions created by the occupancy; instruct Owner's operating personnel in operation adjustment and maintenance procedures of system components, acquaint them with locations and functions of valves, control devices, etc., in the system, and instruct them in the operation of the HVAC control system.

B. The actual time of instruction shall be as required to fully prepare Owner's operating personnel to properly operate and maintain the systems as designed and installed but shall not be less than one (1) day for all equipment location and adjustments and *four (4) days of three (3) hour periods each day for BAS.

3.28 CLEANING AND RUBBISH

A. During the Work, keep the premises clear of rubbish created as a result of the Work. Protect and prevent unnecessary induction of dirt and thoroughly clean all equipment used for temporary heat and/or ventilation.

B. Use and maintain adequate filters in all fan coil equipment used for temporary heat and/or ventilation. Replace with new filters after construction and before units are placed in service. Close all air duct openings to effectively prevent the entrance of dust and construction debris during construction.

C. On completion of the Work, remove all rubbish and debris resulting from the Work and dispose of same. Thoroughly clean and leave in a satisfactory condition for use all equipment, pipe, fixtures, duct work, etc.

3.29 RECORD DRAWINGS

A. The Architect will furnish prints of the mechanical drawings as issued for this contract. Use these prints to indicate accurately and neatly any deviation in the actual installation from the drawings as issued. At the completion of the job, deliver the marked–up drawings to the Architect for a permanent record of the exact location of all equipment, pipe runs, etc. as incorporated in the job.

3.30 COMPLETE SYSTEMS

A. Leave all systems completely operative in all details and in satisfactory working condition, as determined by the Architect. Furnish and install as part of this contract all apparatus and material obviously a part of the systems and necessary for their operation.

B. Coordinate work specified herein and shown on mechanical drawings and insure completion in a timely and proper manner. Prior to requesting "Substantial Completion Inspection", provide the Architect with letter stating all requirements of this section have been met. Letter shall contain itemized list indicating each item has been personally checked by the Superintendent and that it is ready for inspection. With letter, provide reports, schedules, etc., as required. This section is intended as a checklist to insure items specified are properly installed and to insure against premature "Substantial Completion Inspection" requests.

C. Check air distribution systems and insure systems are properly tested and balanced. Check filters and, if dirty, install new filters in units with disposable type filters and remove, wash and reinstall filters in units with permanent type filters. Dirty filters shall be defined as pressure drop exceeding 0.5" W.G. Provide one additional set of disposable and/or metal, washable, permanent, type filters as applicable for each unit. Lubricate fans, motors, and all other moving equipment requiring lubrication. Provide a maintenance schedule listing each piece of equipment requiring lubrication, points to be lubricated, product and device to be used, and frequency of lubrication required.

D. Check and insure all equipment is properly installed, mounted as specified or shown and in accordance with manufacturer's recommendations. At equipment start–up, insure controls, power wiring, and interlocks are complete. Check alignment of motors and drives. Verify overload heaters are properly sized and installed. Check for proper motor rotation. Provide specified system identification.

E. Provide for thorough cleaning of installation. Cleaning shall include removing temporary covers; removing adhesive applied stickers except those giving specific maintenance instructions which were intended to remain on equipment; removing cord and wire affixed tags; removing paint, coating and adhesive spatters; and vacuuming inside air handling unit plenums.

F. Provide for touch–up painting of factory finished equipment. Touch–up painting is intended to cover minor dents, scratches, and scuff marks Prepare surface by light sanding or remove rust with chemical compounds designed for application and coat surface with primer followed by matching top coat. Where equipment has major surface damage and/or rusting, refinish entire equipment surfaces as directed by the Architect.

G. Provide all specified operation and maintenance manuals. Obtain letter from Owner stating specified operating instructions have been completed.

END OF SECTION 15500

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ARCHITECTS • PLANNERS • INTERIOR DESIGNERS
3911 NEWBERRY ROAD • GAINESVILLE, FLORIDA • LIC. NO. AA0002479 • 352–372–8424

RENOVATIONS & ADDITIONS TO
S & S FOOD STORE NO. 38
US 441 & I-75
ELLISVILLE, FLORIDA

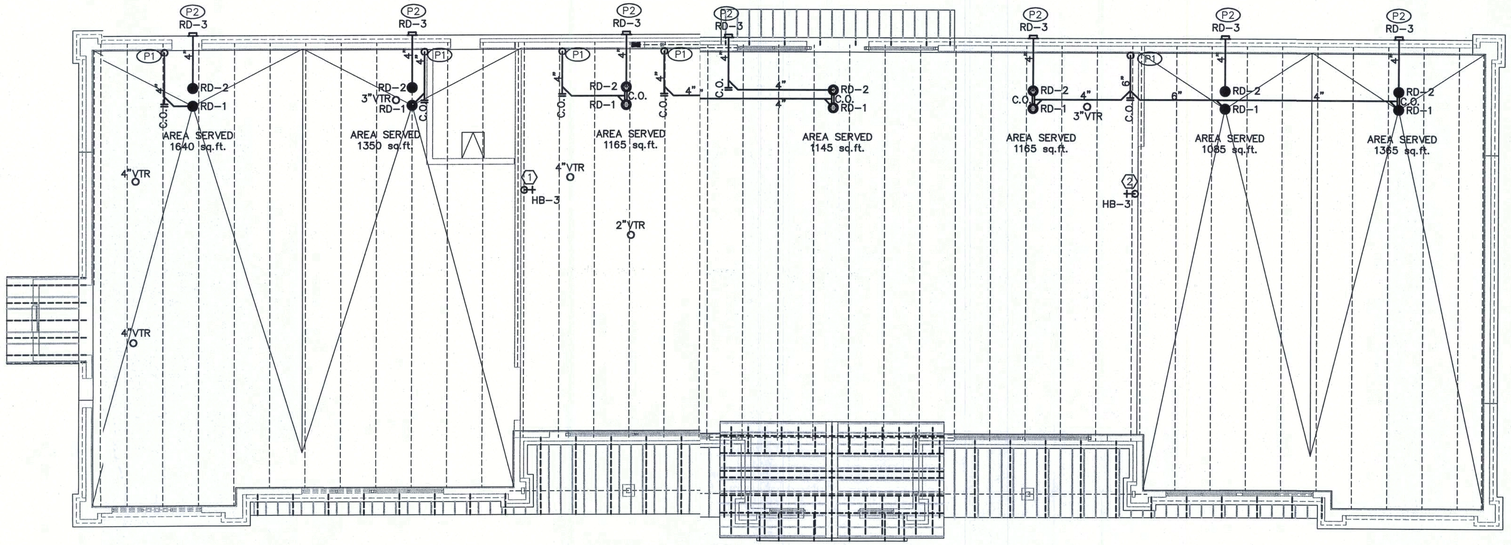
9/16/09
1654M302

DATE 09/21/09
DRAWN CJF
APPROVED LRH

0920

MS-3

OF 39 SHEETS

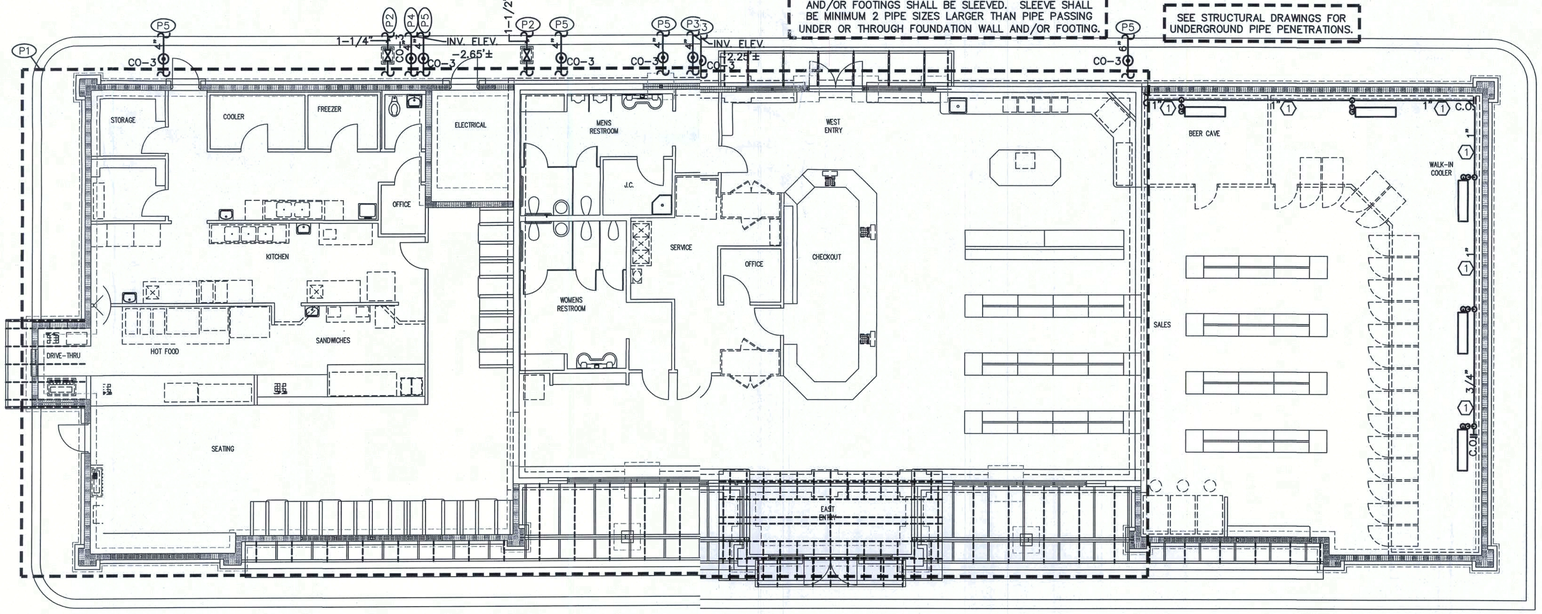


P1 STORM DRAIN DOWN TO FLOOR BELOW.
P2 STORM OVERFLOW DRAIN, TERMINATE THROUGH WALL. SEE ARCHITECTURAL ELEVATIONS.
1 TERMINATE DRAIN FROM HB-3 AT MOP SINK.
2 TERMINATE DRAIN FROM HB-3 AT HUB DRAIN.

PLUMBING ROOF PLAN
SCALE: 1/8" = 1'-0"

PIPE PASSING UNDER OR THROUGH FOUNDATION WALL AND/OR FOOTINGS SHALL BE SLEEVED. SLEEVE SHALL BE MINIMUM 2 PIPE SIZES LARGER THAN PIPE PASSING UNDER OR THROUGH FOUNDATION WALL AND/OR FOOTING.

SEE STRUCTURAL DRAWINGS FOR UNDERGROUND PIPE PENETRATIONS.



P1 SEE ENLARGED PLUMBING PLAN "P-1A" ON SHEET "P-2" FOR PLUMBING DETAILS IN THIS AREA.
P2 DOMESTIC WATER, SEE CIVIL DWG. FOR CONT.
P3 SANITARY, SEE CIVIL DWG. FOR CONT.
P4 GREASE WASTE, SEE CIVIL DWG. FOR CONT.
P5 STORM DRAIN, SEE CIVIL DWG. FOR CONT.
1 TERMINATE CONDENSATE PIPE FROM WALK-IN COOLER EVAPORATORS AT DRY WELL. PROVIDE SPACERS TO KEEP CONDENSATE PIPING OFF WALL WITHIN COOLER AND INSULATE PIPING WITH 1" THICK INSULATION TO PREVENT FREEZING. FIELD VERIFY CONDENSATE DRAIN SIZE AND LOCATION.

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

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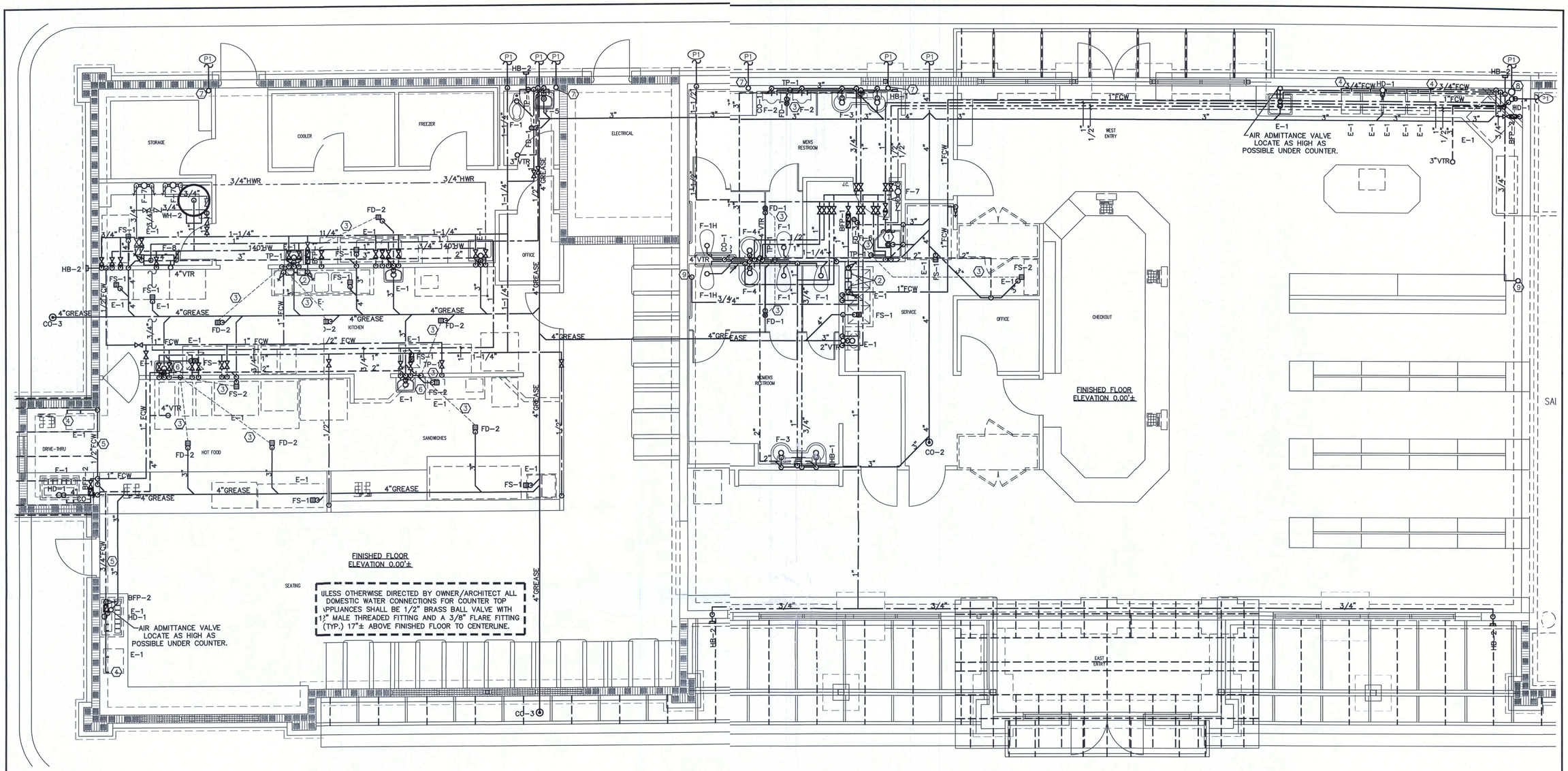
P-1

OF 39 SHEETS



(P1) SEE PLUMBING FLOOR PLAN ON SHEET "P-1" FOR CONT.
(1) 1"CW & 1"HW TO WH-1 ON SHELF MOUNTED ABOVE MOP SINK.
(2) E-1, WATER FILTER WITH SCALE INHIBITOR BY OWNER.
(3) 1/2" TRAP PRIMER LINE.
(4) 1/2" VALVED FCW CONNECTION CAPPED FOR FUTURE.
(5) EQUIPMENT SUPPLY LINES LOCATED UNDER FLOOR SHALL BE SLEEVED WITH MINIMUM 4" DIAMETER SCH. 40 CONDUIT WITH MINIMUM 24 INCH RADIUS BENDS. CONDUIT SHALL BE CARLON P.V-DUIT PLUS SCHEDULE 40 CONDUIT AND FITTINGS, OR EQUAL. TRIM EXPOSED ENDS 4 INCHES ABOVE FINISHED FLOOR AND SEAL THE OPEN ENDS OF THE CONDUIT (WATERTIGHT) APPROX. 2 TO 4 INCHES AT EACH END.
(6) PROVIDE SPLASH GUARD BETWEEN HAND SINK AND PREP. SINK. SPLASH GUARD SHALL START 6"± BELOW DRAIN BOARD AND CONTINUE UP 24" ABOVE DRAIN BOARD AND SHALL EXTEND OUTWARD TO THE OUTTER EDGE OF DRAINBOARD. MATERIAL AND INSTALLATION TO COMPLY WITH HEALTH DEPARTMENT REQUIREMENTS.
(7) 4" STORM DRAIN DOWN FROM ROOF.
(8) 6" STORM DRAIN DOWN FROM ROOF.
(9) 3/4"CW UP TO HB-3 ON ROOF.

ENLARGED PLUMBING PLAN "P-1A"
SCALE: 1/4" = 1'-0"

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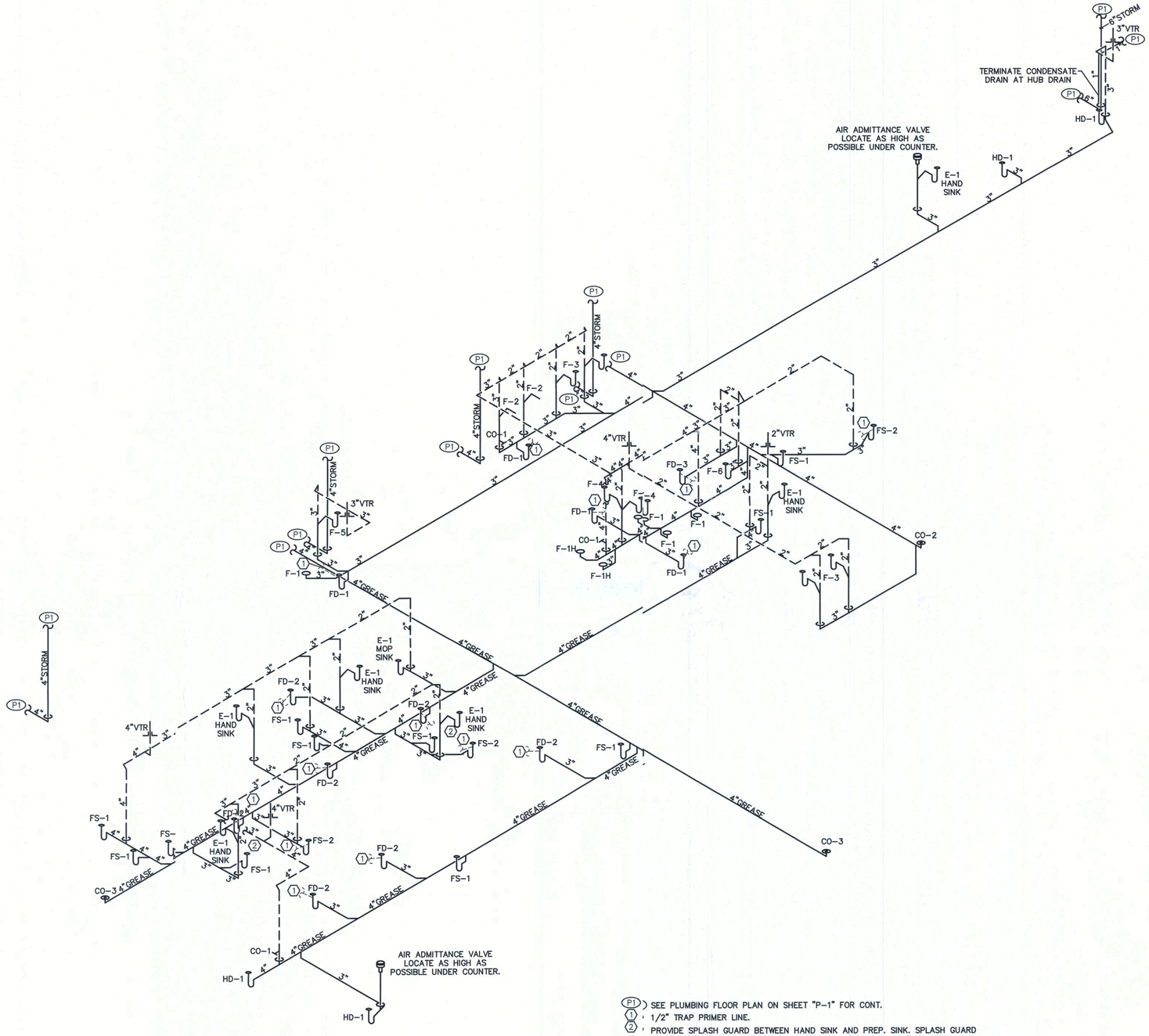
P-2

OF 39 SHEETS



P1 SEE PLUMBING FLOOR PLAN ON SHEET "P-1" FOR CONT.

1 1/2" TRAP PRIMER LINE.

2 PROVIDE SPLASH GUARD BETWEEN HAND SINK AND PREP. SINK. SPLASH GUARD SHALL START 6"± BELOW DRAIN BOARD AND CONTINUE UP 24" ABOVE DRAIN BOARD AND SHALL EXTEND OUTWARD TO THE OUTTER EDGE OF DRAINBOARD. MATERIAL AND INSTALLATION TO COMPLY WITH HEALTH DEPARTMENT REQUIREMENTS.

SANITARY RISER DIAGRAM "P-1A"

NOT TO SCALE

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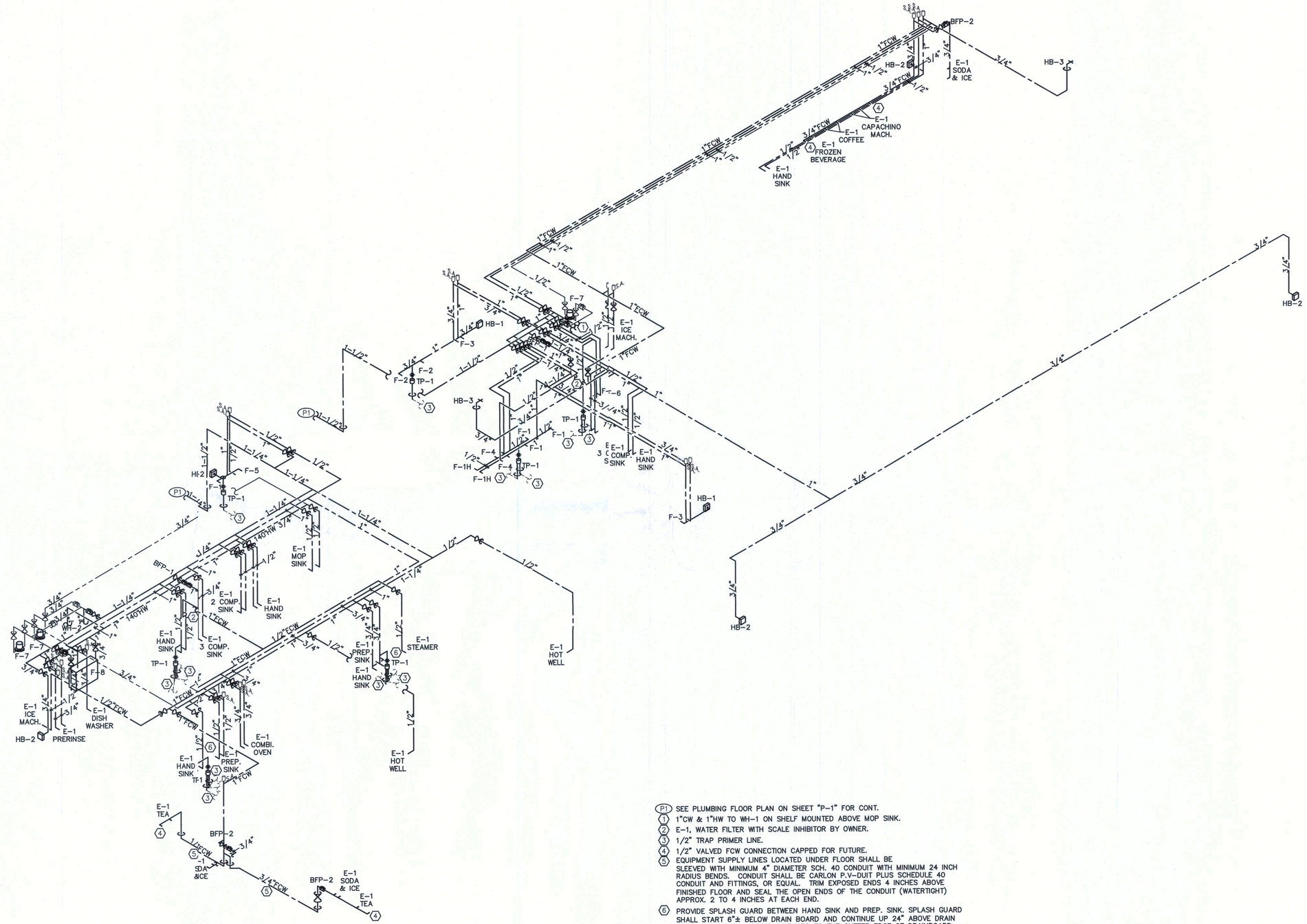
P-3

OF 39 SHEETS



(P1) SEE PLUMBING FLOOR PLAN ON SHEET "P-1" FOR CONT.

(1) 1"CW & 1"HW TO WH-1 ON SHELF MOUNTED ABOVE MOP SINK.

(2) E-1, WATER FILTER WITH SCALE INHIBITOR BY OWNER.

(3) 1/2" TRAP PRIMER LINE.

(4) 1/2" VALVED FCW CONNECTION CAPPED FOR FUTURE.

(5) EQUIPMENT SUPPLY LINES LOCATED UNDER FLOOR SHALL BE SLEEVED WITH MINIMUM 4" DIAMETER SCH. 40 CONDUIT WITH MINIMUM 24 INCH RADIUS BENDS. CONDUIT SHALL BE CARLON P.V.-DUIT PLUS SCHEDULE 40 CONDUIT AND FITTINGS, OR EQUAL. TRIM EXPOSED ENDS 4 INCHES ABOVE FINISHED FLOOR AND SEAL THE OPEN ENDS OF THE CONDUIT (WATERTIGHT) APPROX. 2 TO 4 INCHES AT EACH END.

(6) PROVIDE SPLASH GUARD BETWEEN HAND SINK AND PREP. SINK. SPLASH GUARD SHALL START 6"± BELOW DRAIN BOARD AND CONTINUE UP 24" ABOVE DRAIN BOARD AND SHALL EXTEND OUTWARD TO THE OUTTER EDGE OF DRAINBOARD. MATERIAL AND INSTALLATION TO COMPLY WITH HEALTH DEPARTMENT REQUIREMENTS.

DOMESTIC WATER RISER DIAGRAM "P-1A"

NOT TO SCALE

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P-4

OF 39 SHEETS

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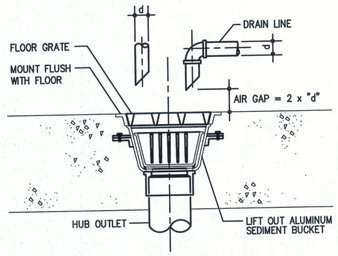
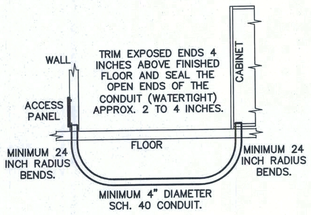
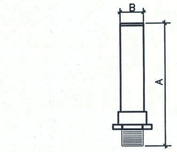


FLOOR SINK DETAIL
SCALE: NTS



CONDUIT SHALL BE CARLON P.V-DUIT PLUS SCHEDULE 40 CONDUIT AND FITTINGS, OR EQUAL.

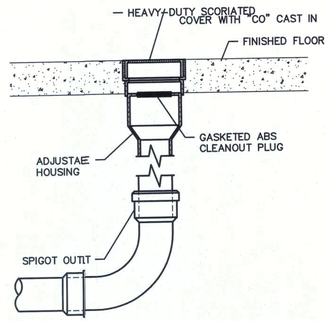
EQUIPMENT SUPPLY LINE CONDUIT
NOT TO SCALE



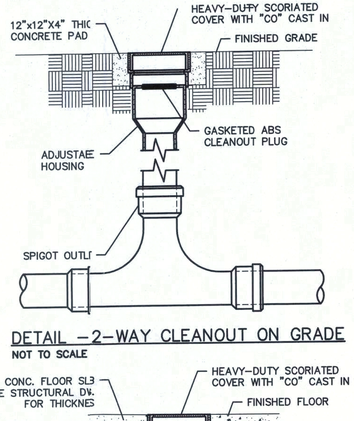
MODEL	PDI SIZE	MIPS THREAD	DIMENSIONS (APPROXIMATE) A	DIMENSIONS (APPROXIMATE) B	AIR CHAMBER VOLUME	FIXTURE UNIT CAPACITY
		in.	in.	in.	cubic in.	
1250-A	A	1/2	5 1/4	1 1/8	3.5	1-11
1250-B	B	3/4	6 1/8	1 3/8	4.3	12-32
1250-C	C	1	8	1 3/8	6.5	33-60
1250-D	D	1	10 5/8	1 3/8	10	61-113
1250-E	E	1	9 7/8	2 1/8	22.36	114-154
1250-F	F	1	13 7/8	2 1/8	34.4	155-330

NOTES:
1. SUGGESTED MANUFACTURER SHALL BE "WILKINS".
2. "PDI" REFERS TO THE PLUMBING AND DRAINAGE INSTITUTE.

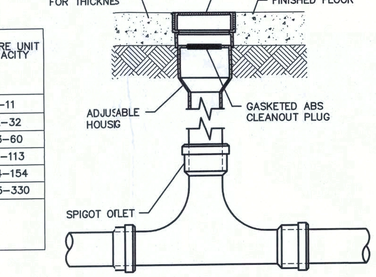
WATER HAMMER ARESTOR
NOT TO SCALE



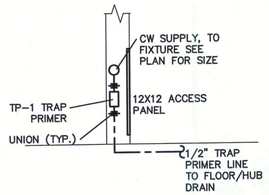
DETAIL -ONE-WAY FLOOR CLEANOUT
NOT TO SCALE



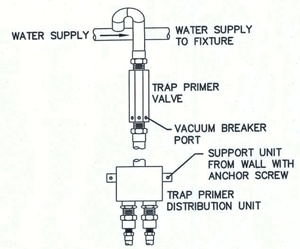
DETAIL -2-WAY CLEANOUT ON GRADE
NOT TO SCALE



DETAIL- 2-WAY FLOOR CLEANOUT
NOT TO SCALE

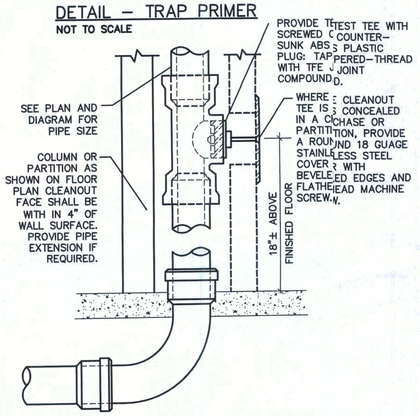


DETAIL - TRAP PRIMER
NOT TO SCALE



1/2" TRAP PRIMER LINES TO FLOOR RECEPTOR, SEE PLAN FOR RECEPTOR LOCATION AND NUMBER OF TRAP PRIMER LINES

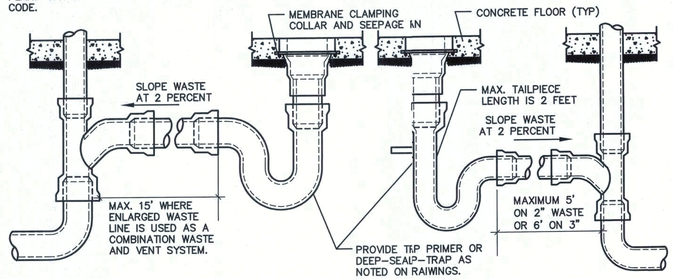
DETAIL - TRAP PRIMER
NOT TO SCALE



NOTE:
PROVIDE WCO WHERE SHOWN ON PLAN, AND ON SANITARY WASTE BRANCHES NOT SERVED WITH A FLOOR CLEANOUT: LOCATE E ABOVE FLOOD RIM WITHIN 4' OF FLOOR. CONSULT LOCAL CODES FOR OTHER WCO REQUIREMENTS.

DETAIL - WALL CLEANOUT
NOT TO SCALE

PROVIDE AN INDIVIDUAL VENT ON FLOOR DRAINS WHERE INDICATED. INSTALENT IN PARTITION OR CHASE WHERE SHOWN ON PLAN. HORIZONTAL VENT BELOW FLOOR IS NOT PERMITTED. OTHER VENTINGMETHODS MAY BE USED IF APPROVED BY LOCAL CODE.



LOCATE FLOOR DRAINS WHERE SHOWN ON DIMENSIONED ARCHITECTURAL PAN. IF FLOOR STRUCTURE INTERFERES WITH FLOOR DRAIN, MOVE SIDEWAYS IF POSSIBLE, OTHERWISE MOVE BACK. ALAYS LOCATE WHERE EASILY ACCESSIBLE, BUT NOT IN FOOT TRAFFIC. IF SITUATION IS FLOOR SLAB ON GRADE, PROVIDEBACKFILL PER SPECIFICATIONS. IF CONCRETE FLOOR IS NOT EXISTING, SET DRAIN IN PLACE AND POUR AROUND IT. IFONCRETE FLOOR IS EXISTING, SAW CUT OR CORE DRILL IT. SET DRAIN BODY IN PLACE AND POUR AROUND IT. RECIS TOP OF FLOOR DRAIN 1/2" BELOW FLOOR SURFACE AND SLOPE FLOOR TO IT.

FLOOR DRAIN DTAIL
SCALE: NTS

PLUMBING EQUIPMENT SCHEDULE

E-1
EQUIPMENT PROVIDED AND INSTALLED BY OTHERS. PLUMBING CONTRACTOR TO PROVIDE AND INSTALL ALL REQUIRED ACCESSORIES (ie. WALL SUPPLIES, SUPPLY LINES, DRAIN, P-TRAP, ETC.) FOR A COMPLETE AND FINAL CONNECTION TO EQUIPMENT. COORDINATE ROUGH-IN DIMENSIONS AND LOCATIONS, PIPE SIZES, ETC. WITH EQUIPMENT CUT-SHEETS AND/OR MANUFACTURER PRIOR TO INSTALLATION.
F-1
WHITE VITREOUS CHINA FLOOR MOUNTED TANK TYPE WATER CLOSET WITH ELONGATED BOWL AND KOHLER WELLWORTH TOILET MODEL K-3422 WITH KOHLER LUSTRA MODEL K-4650 OPEN FRONT SEAT AND KOHLER MODEL K-7600 ANGLE SUPPLY WITH STOP.
F-1H
WHITE VITREOUS CHINA FLOOR MOUNTED TANK TYPE WATER CLOSET WITH ELONGATED BOWL FOR HANDICAPPED. KOHLER WELLWORTH COMFORT HEIGHT TOILET MODEL K- 3481 WITH KOHLER LUSTRA MODEL K-4650 OPEN FRONT SEAT AND KOHLER MODEL K-7600 ANGLE SUPPLY WITH STOP.
F-2
WHITE VITREOUS CHINA WALL HUNG URINAL WITH ELONGATED RIM. KOHLER BARDON URINAL MODEL K-4960-ET WITH SLOAN ROYAL OPTIMA 186-0.5-SMO BATTERY POWERED FLUSH VALVE AND HEAVY DUTY CHAIR CARRIER.
F-3
2-STATION LAVATORY SYSTEM CONSTRUCTED OF TERREON SOLID SURFACE; BRADLEY MODEL MG-2-BIR3-LSD-2-TMA WITH BATTERY POWERED INFRORED SPREYHEAD CONTROL, LIQUID SOAP DISPENSER, WALL HUNG PEDESTAL AND THERMOSTATIC MIXING VALVE. PROVIDE WITH 17 GA. POLISHED CHROME CAST BRASS P-TRAP(S) AND LOOSE T-KEY WALL SUPPLIES.
F-4
WHITE VITREOUS CHINA WALL HUNG LAVATORY FOR HANDICAPPED. KOHLER KINGSTON MODEL K-2005 WITH KOHLER TRITON MODEL K-7401-K 4" CENTER SET FAUCET WITH K-16010-4 LEVER HANDLE, KOHLER K-13885 OFFSET GRID DRAIN, K-8998 P-TRAP, K-7601-P LOOSE KEY WALL SUPPLIES AND HEAVY DUTY CHAIR CARRIER. PROVIDE WITH LEONARD POINT OF USE MIXING VALVE MODEL 170 WITH RECESS MOUNTED LOCKING VALVE BOX. INSULATE SUPPLY AND DRAIN LINES TO MEET A.D.A. REQUIREMENTS.
F-5
WHITE VITREOUS CHINA WALL HUNG LAVATORY FOR HANDICAPPED. KOHLER KINGSTON MODEL K-2005 WITH KOHLER TRITON MODEL K-7401-K 4" CENTER SET FAUCET WITH K-16010-4 LEVER HANDLE, KOHLER K-13885 OFFSET GRID DRAIN, K-8998 P-TRAP, K-7601-P LOOSE KEY WALL SUPPLIES AND HEAVY DUTY CHAIR CARRIER. PROVIDE WITH LEONARD POINT OF USE MIXING VALVE MODEL 170 WITH RECESS MOUNTED LOCKING VALVE BOX. INSULATE SUPPLY AND DRAIN LINES TO MEET A.D.A. REQUIREMENTS.
F-6
24" x 24" x 12" DEEP NEO-CORNER TERRAZZO MOP SERVICE BASIN; FIAT MODEL TSBC-1610. PROVIDE WITH FIAT MODEL 830-AA SERVICE FAUCET WITH VACUUM BREAKER, MSG-2424 STAINLESS STEEL WALL GUARD, 1453-BB STAINLESS STEEL STRAINER AND 889-CC MOP BRACKET.
F-7
IN-LINE HOT WATER CIRCULATION PUMP WITH BRONZE CONSTRUCTION. BELL AND GOSSETT MODEL NBF-22 SYSTEM LUBRICATED CIRCULATOR WITH 120 VOLTS, 1/25 HP MOTOR. PUMP CAPACITY SHALL BE 5 GPM AT 12 FT. HEAD. PROVIDE WITH BELL AND GOSSETT AQUASTAT MODEL AQ, INSTALL PER MANUFACTURES RECOMMENDATIONS.
F-8
HOT WATER TEMPERATURE TEMPERING VALVE WITH INTEGRAL CHECK STOPS, REMOVABLE CARTRIDGE WITH STRAINER. FURNISH UNIT WITH SHUT OFF VALVE, THERMOMETER AND UNIONS. SYMMONS MODEL 5-200B-102-PRVM. PROVIDE WITH VANDAL RESISTANT LOCKABLE HANDLE. SET LEAVING WATER TEMPERATURE AT 110 deg. F. MAXIMUM.
BFP-1
INLINE SERVICEABLE DOUBLE CHECK BACKFLOW PREVENTER, WATTS SERIES L7. PROVIDE UNIT WITH BRONZE STRAINER AND SHUT-OFF VALVES.
BFP-2
BACKFLOW PREVENTER WITH ATMOSPHERIC VENT, WATTS SERIES 9D. PROVIDE UNIT WITH BRONZE STRAINER AND SHUT-OFF VALVES. TERMINATE DRAIN AT NEAREST FLOOR SINK WITH AIR GAP PER APPLICABLE CODE REQUIREMENTS
CO-1
WALL CLEANOUT; J. R. SMITH MODEL 4472-U WITH STAINLESS COVER AND VANDAL PROOF SCREW.
CO-2
FLOOR CLEANOUT; J. R. SMITH MODEL 4031-U WITH VANDAL PROOF TOP. PROVIDE WITH OPTION Y CARPET MARKER WHERE APPLICABLE.
CO-3
HEAVY DUTY FLOOR CLEANOUT; J. R. SMITH MODEL 4231-U-M WITH VANDAL PROOF DUCTILE IRON COVER.
HB-1
RECESS WALL MOUNTED HYDRANT FOR THIN WALL WITH CHROME FINISH, WOODFORD MODEL B79. PROVIDE UNIT WITH LOCKABLE COVER AND BACKFLOW PROTECTOR.
HB-2
RECESS WALL MOUNTED FREEZELESS HYDRANT WITH CHROME FINISH, WOODFORD MODEL B65. PROVIDE UNIT WITH LOCKABLE COVER AND VACUUM BREAKER.
HB-3
FREESELESS ROOF POST HYDRANT, WOODFORD MODEL RHY2. TERMINATE DRAIN FROM HYDRANT AT NEAREST MOP SINK OR HUB DRAIN.
FD-1
FLOOR DRAIN; J. R. SMITH MODEL 2005-B-P050-U WITH SEDIMENT BUCKET, 1/2" TRAP PRIMER CONNECTION AND ADJUSTABLE VANDAL PROOF TOP.
FD-2
FLOOR DRAIN, J. R. SMITH 2005-B-B-P-U WITH VANDAL PROOF SQUARE TOP, SEDIMENT BUCKET AND 1/2" TRAP PRIMER CONNECTION.
FD-3
FLOOR DRAIN, J. R. SMITH 2341-B-U-M WITH HEAVY DUTY GRATING, SEDIMENT BUCKET, VANDAL PROOF DUCTILE IRON TOP AND 1/2" TRAP PRIMER CONNECTION. PROVIDE FLOOR DRAIN 4" DEEP TRAP.
FS-1
FLOOR SINK, J.R. SMITH 3411-CI WITH DUCO CAST IRON BODY, FULL GRATE, 6" DEEP W/ ACID RESISTANT INTERIOR, ANTI-SPLASH INTERIOR BOTTOM DOME STRAINER, SEDIMENT BUCKET AND VANDAL PROOF SECURE TOP. PROVIDE WITH MINIMUM 4" DEEP SEAL TRAP.
FS-2
FLOOR SINK, J.R. SMITH 3411-CI WITH DUCO CAST IRON BODY, FULL GRATE, 6" DEEP W/ ACID RESISTANT INTERIOR, ANTI-SPLASH INTERIOR BOTTOM DOME STRAINER, SEDIMENT BUCKET, VANDAL PROOF SECURE TOP AND 1/2 " TRAP PRIMER CONNECTION. PROVIDE WITH MINIMUM 4" DEEP SEAL TRAP.
HD-1
HUB DRAIN, J.R. SMITH 3821 WITH 6" DIA. FUNNEL TOP, P-TRAP AND 4" DEEP SEAL TRAP.
RD-1
ROOF DRAIN, J. R. SMITH 1010-U WITH VANDAL PROOF CAST IRON DOME.
RD-2
OVERFLOW DRAIN, J.R. SMITH 1070-U WITH VANDAL PROOF CAST IRON DOME.
RD-3
DOWNSPOUT NOZZLE, J.R. SMITH 1770 WITH BRONZE FINISH.
TP-1
TRAP PRIMER, MIFAB MODEL MR-500 WITH MODEL MI-DU DISTRIBUTION UNIT (WHERE REQUIRED).
WH-1
COMMERCIAL GRADE U. L. LISTED ELECTRIC WATER HEATER WITH GLASS LINED 30 GALLONS STORAGE TANK. PROVIDE HEATER WITH MINIMUM FOAM INSULATION AND HEAVY DUTY MEDIUM WATT DENSITY INCOLOY SHEATHED HEATING ELEMENTS. A.O. SMITH DURA-POWER MODEL DEL-30; 8KW (SIMULTANEOUS 4 KW), 208 VOLTS/3 PHASE. PROVIDE WITH FACTORY PRE-CHARGED DIAPHRAGM TYPE EXPANSION TANK FOR POTABLE WATER. WATTS MODEL DET-5-M1. PROVIDE WITH WALL MOUNTING BRACKET AND INSTALL PER MANUFACTURE INSTRUCTION.
WH-2
COMMERCIAL GRADE U. L. LISTED ELECTRIC WATER HEATER WITH GLASS LINED 100 GALLONS STORAGE TANK. PROVIDE HEATER WITH MINIMUM FOAM INSULATION AND HEAVY DUTY MEDIUM WATT DENSITY INCOLOY SHEATHED HEATING ELEMENTS. A.O. SMITH DURA-POWER MODEL DSE-100; 54KW, 208 VOLTS/3 PHASE. PROVIDE WITH FACTORY PRE-CHARGED DIAPHRAGM TYPE EXPANSION TANK FOR POTABLE WATER. WATTS MODEL DET-12-M1. PROVIDE WITH WALL MOUNTING BRACKET AND INSTALL PER MANUFACTURE INSTRUCTION.

ALL FIXTURE AND TRIM SELECTIONS SUBJECT TO OWNER FINAL APPROVAL. ALL FIXTURE COLOR AND TRIM FINISH SELECTIONS SUBJECT TO OWNER FINAL APPROVAL.

LEGEND

	FLOOR DRAIN		PIPE RISERS (DROP)
	FLOOR CLEANOUT		PIPE RISERS (UP)
	WALL CLEANOUT		PIPE END (CAPPED)
	TRAPPED DRAIN	S	SANITARY SEWER LINE
	TRAP	V	VENT LINE
INV. EL.	INVERT ELEVATION	VTR	VENT THRU ROOF
CW	COLD WATER		HOT WATER
	UNION		WALL HYDRANT
	BALL VALVE (EXCEPT OTHERWISE NOTED)	S.A.	SHOCK ABSORBER
	VALVE (NORMAL CLOSE)	A.P.	ACCESS PANEL
	PRESSURE RELIEF VALVE		CHECK VALVE
	CONTROL VALVE/REGULATOR		GAS
	STRAINER/FILTER	FCW	FILTERED COLD WATER
CA	COMPRESSED AIR (CA)		

PLUMBING GENERAL NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO SUBMITTING BID. BY SUBMITTING BID, CONTRACTOR STATES THAT HE HAS EXAMINED ALL EXISTING CONDITIONS. IF CONTRACTOR ENCOUNTERS EXISTING CONDITIONS WHICH NEED CLARIFICATION, CONTACT OWNER'S REPRESENTATIVE FOR RESOLUTION OR CLARIFICATION.

2. CONTRACTOR SHALL OBTAIN ALL PERMITS AND PAY ALL FEES AND CHARGES REQUIRED, INCLUDING UTILITY CONNECTION CHARGES APPLICABLE TO HIS WORK.

3. ALL WORK PERFORMED UNDER THIS CONTRACT SHALL HAVE ONE (1) YEAR WRITTEN GUARANTEE FOR ALL MATERIALS AND WORKMANSHIP.

4. ALL MATERIALS SHALL BE OF FIRST CLASS QUALITY. NO "USED" MATERIALS WILL BE PERMITTED TO BE INSTALLED ON THIS PROJECT, UNLESS SPECIFICALLY NOTED ON THE DRAWINGS.

5. AT COMPLETION OF PROJECT, CONTRACTOR SHALL DELIVER TO OWNER ALL DOCUMENTS (INCLUDING BUILDING PERMITS, OPERATION AND MAINTENANCE MANUALS, ETC.)

6. ALL WASTE AND VENT PIPING SHALL BE SCHEDULE 40 PVC WITH SOLVENT WELD JOINTS. EXPOSED WASTE PIPING SHALL BE CHROME PLATED BRASS. ALL PENETRATIONS THROUGH WALLS SHALL HAVE CHROME PLATED ESCUTCHEON PLATES.

7. ALL INTERIOR ABOVE GRADE WATER PIPING SHALL BE TYPE L COPPER WITH SWEATED JOINTS. WATER PIPING BELOW SLAB SHALL BE TYPE K SOFT COPPER WITH NO JOINTS BELOW SLAB. WRAP ALL PIPING PENETRATIONS OF SLAB WITH TWO (2) LAYERS OF 30 LB. ROOFING FELT OR PLASTIC SLEEVES MADE SPECIFICALLY FOR THIS PURPOSE.

8. EXTERIOR WATER PIPING SHALL BE SCHEDULE 40 PVC WITH SOLVENT WELD JOINTS, UNLESS OTHERWISE NOTED ON THE CIVIL DRAWINGS. PROVIDE THRUST BLOCKING AT ALL ELBOWS AND OFFSETS IN PIPING SYSTEM. REFER TO CIVIL DRAWINGS FOR ADDITIONAL INFORMATION.

9. CONTRACTOR SHALL COORDINATE SERVICES TO BUILDING WITH LOCAL UTILITY COMPANIES. CHARACTERISTICS AND SIZE OF SERVICE SHALL BE AS INDICATED ON THE DRAWINGS. REFER TO CIVIL DRAWINGS FOR SPECIFIC INFORMATION.

10. PIPING INSULATION: ALL HOT WATER PIPING SHALL BE INSULATED WITH 1" THICK CLOSED CELL ELASTOMERIC INSULATION. ALL COLD WATER PIPING EXPOSED TO AMBIENT TEMPERATURES (INCLUDING ATTICS AND EXTERIOR WALLS) SHALL BE INSULATED WITH 3/4" THICK CLOSED CELL ELASTOMERIC INSULATION. HORIZONTAL STORM PIPING SHALL BE INSULATED WITH 1" THICK FIBERGLASS INSULATION WITH VAPOR BARRIERS. WASTE PIPING FOR LAVATORIES SHALL HAVE 3/4" THICK ELASTOMERIC INSULATION.

11. PLUMBING FIXTURES SHALL BE AS SCHEDULED ON THE DRAWINGS. FIXTURES SHALL BE FURNISHED COMPLETE WITH SHUT-OFF VALVES, TRAPS, FAUCETS, AND ALL OTHER REQUIRED TRIM. ALL FIXTURES SHALL COMPLY WITH LOCAL WATER CONSERVATION RULES AND REGULATIONS.

12. WATER HEATERS SHALL BE AS SCHEDULED ON THE DRAWINGS. HEATERS SHALL HAVE FIVE (5) YEAR FACTORY WARRANTY (MINIMUM) ON TANK.

13. WATER SYSTEM SHALL BE PROVIDED WITH VALVES ON COLD WATER AND HOT WATER CONNECTIONS AT EACH FIXTURE, AT PLACES INDICATED ON THE DRAWINGS AND AS REQUIRED BY FIELD CONDITIONS FOR SERVICING SYSTEM.

14. EACH PLUMBING FIXTURE SHALL BE PROVIDED WITH 12" LONG AIR CHAMBERS ON BOTH THE COLD WATER AND HOT WATER CONNECTIONS TO FIXTURE.

15. ALL INDIRECT WASTE PIPING SHALL BE TYPE M COPPER WITH SWEATED JOINTS. COPPER PIPING SHALL BE ISOLATED FROM STAINLESS STEEL FIXTURES OR CASEWORK WITH TWO (2) LAYERS OF INSULATING TAPE.

16. CONTRACTOR SHALL FURNISH SUBMITTAL DATA TO OWNER FOR APPROVAL ON ALL FIXTURES, EQUIPMENT, WATER HEATERS, ETC. PRIOR TO ORDERING ANY ITEMS. CONTRACTOR MAY OFFER SUBSTITUTIONS ON ITEMS FOR APPROVAL BY OWNER. SUBSTITUTIONS MUST BE EQUAL IN ALL RESPECTS TO ITEMS SCHEDULED OR SPECIFIED.

17. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT MOUNTING HEIGHTS OF ALL FIXTURES. HEIGHTS SHALL COMPLY WITH A.D.A. CODE REQUIREMENTS.

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3911 NEWBERRY ROAD • GAINESVILLE, FLORIDA • LIC. NO. AA0002479 • 352-372-8424

RENOVATIONS & ADDITIONS TO
S & S FOOD STORE NO. 38
US 441 & I-75
ELLISVILLE, FLORIDA

9/14/09
1654P401

DATE	09/21/09
DRAWN	CJF
APPROVED	LRH

0920

P-5

OF 39 SHEETS

CONSTRUCTION DOCUMENTS

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SECTION 15400
PLUMBING

PART 1 – GENERAL

1.1 DESCRIPTION

A. The General Provisions of the Contract, including the General Requirements, Supplementary Conditions and Special Conditions, are hereby made a part of this Section as if fully repeated herein.

B. Scope of Work: Work included under this section of the specifications shall include complete plumbing systems as shown on the drawings and as specified herein.

1. Trench excavation, pumping, backfilling and compaction for underground piping and plumbing.
2. Soil, waste and vent piping.
3. Domestic hot and cold water piping.
4. Fixtures.
5. Water heaters and water heater drain pans.
6. Fittings, hangers, valves, sleeves, escutcheons, etc.
7. Lead flashing.
8. Insulation.
9. Backflow preventer.
10. Roof drainage system.
11. Circulating pumps.
12. Grease interceptor.
13. Controls.
14. Connections to equipment furnished and installed by others.
15. Installation of and connection to equipment furnished by others.
16. Demolition.
17. Disinfection of potable water piping.

C. Related Work: The following work is specified in other sections of these specifications:

D. Power wiring: Electrical – 16000

1. Point of Connection: Underground water and sanitary piping shall commence where shown on the drawings. Water meter will be furnished by the Water Utility Co. where shown on the drawings. Provide backflow prevention device where shown on drawings, in accordance with governing regulations. Provide and install insulation for backflow preventer to prevent freeze or as required.

E. Prior to start of any work, the successful Contractor shall meet with the Architect to determine that no questions remain concerning the intent of the drawings or specifications. The Contractor shall bring up for discussion and decision any questions concerning the project. No work shall be performed prior to this meeting. The Architect shall set the date, time, and place of conference.

1.2 CODES, ORDINANCES AND PERMITS

A. Comply with all codes applying to the Work of this contract including Florida Building Code 2007, Florida Building Code 2007 – Mechanical and Florida Building Code 2007 – Plumbing. Obtain information on all code restrictions and requirements. In case of conflict between the contract documents and a governing code or ordinance, such conflict shall be immediately brought to the attention of the Architect for resolution. Extra payment will not be allowed for Work required by code restrictions except through written agreement with the Owner.

B. Apply for, obtain, and pay for all required permits and inspection certificates. Final payment is contingent upon delivery of such certificates to the Architect.

C. Where applicable, all materials and equipment shall bear the Underwriters' Laboratories seal or ASME code stamp. Certificates to this effect shall be furnished to the Architect upon request.

1.3 SITE INSPECTION

A. Visit the site and thoroughly inspect conditions affecting the Work before submitting bid. Assume responsibility for meeting all existing conditions including access and workspace limitations.

1.4 DRAWINGS AND SPECIFICATIONS.

A. Refer to the general construction drawings which are bound with the drawings of this Work for construction details, elevations, etc. Architectural and structural drawings shall take precedence over plumbing drawings. It is the intent of the plumbing drawings to show the general arrangement of the system and not to indicate all offsets, fittings and accessories which may be required, nor to show exact locations of piping, fixtures or equipment except where actual dimensions are given. All vertical piping shall be located in walls in finished spaces unless otherwise noted.

B. Specifications and drawings shall be considered as supplementary to each other, requiring materials and labor indicated, specified, or implied by either specifications or drawings. It is the intent of the drawings and specifications to call for finished Work, tested, and ready for operation, and in complete conformance with all applicable codes, rules and regulations. Minor details not usually shown nor specified, but manifestly necessary for the proper installation and operation of the various systems, shall be included in the Work and in the bid proposal, the same as if specified or shown on the drawings.

C. If any departures from the drawings and specifications are deemed necessary, details of such departures and the reasons therefore shall be submitted to the Architect for approval. No departures shall be made without prior approval of the Architect.

1.5 APPROVED MANUFACTURERS

A. Specific reference in the specifications to any article, device, product, material, fixture or type of construction, etc., by proprietary name, make or catalog number shall be interpreted as establishing a standard of quality and shall not be construed as limiting competition. Equal products may be submitted for approval to be used subject to compliance with requirements set forth in the General Requirements, Division 1, and, if applicable, in the Instructions to Bidders.

1.6 MANUFACTURER'S SPECIFICATIONS

A. Where the name of a concern or manufacturer is mentioned on the drawings or in specifications in reference to his required service or product, and no qualifications or specification of such is included, then the materials, gauges, details of manufacturer, finish, etc., shall be in accordance with his standard practice, directions or specifications. The Contractor shall be responsible for any infringement of patents, royalties or copyrights which may be incurred thereby.

B. Equipment scheduled on the drawings was used to arrive at space, maintenance, and utility service. If other equipment is submitted and approved, take responsibility for maintaining these space, maintenance, and utility service requirements and cost for any resulting changes including cost to change electrical service required by substituted equipment.

C. All materials and equipment shall be new and first class in every respect. As far as is practical, similar products shall be by one manufacturer.

1.7 SUBMITTALS

A. Submit shop drawings in accordance with the General Requirements, Division 1.

B. Samples of any plumbing equipment or materials shall be submitted if requested by the Architect. If a sample is requested, have the sample delivered to the Architect or arrange for the Architect to examine it elsewhere. Fare to comply may be cause for rejection.

C. Submit shop drawings or catalog data for the Architect's approval before purchasing or installing the following:

1. Piping (where revised from the drawings).
2. Fixtures.
3. Water coolers.
4. Water heaters and water heater drain pans.
5. Valves and appurtenances.
6. Pipe hangers.
7. Insulation.
8. Backflow preventer.
9. Floor drains and trap primers.
10. Roof drains.
11. Circulating pumps.
12. Controls.
13. Grease interceptor.
14. Thermostatic mixing valves.

1.8 PERFORMANCE DATA

A. All performance data specified herein shall be considered actual performance of equipment as installed. Make suitable allowances if installation details are such that actual operating conditions unfavorably affect performance as compared to conditions under which the equipment was rated.

1.9 CATALOG, OPERATION AND MAINTENANCE DATA

A. Provide four (4) complete sets of a compilation of catalog data of each manufactured item of fixtures and equipment used in the Plumbing Work. In addition to the catalog data, installation, operating and maintenance data and bill of materials for all operating equipment shall be submitted. Each of the four sets of data shall be bound in loose leaf binders and submitted to the Architect before final payment is made. A complete double index shall be provided as follows:

1. Listing the products alphabetically by name.
2. Listing the names of manufacturers alphabetically by name together with their acesses and the names and addresses of local sales representatives.

B. It is the intent of this catalog, operation and maintenance data to provide the Own with complete instructions on the proper operation and use, lubrication and periodic maintenance, together with the source of replacement parts and service, for the items of equipment covered.

1.10 CONTRACTOR COORDINATION

A. The Electrical Contractor shall furnish, set and wire all controls, disconnect devices, and starters as required for all equipment except for those items furnished with integral controls, disconnect devices, and/or starters.

B. Furnish detailed information to the Electrical Contractor on power wiring requirement for all plumbing equipment actually purchased as soon as practical. This shall include all diagrams and instructions necessary for the Electric Contractor to make connections properly. If equipment actually purchased requires larger electrical service than equipment scheduled, arrange and pay for required electrical service change.

C. Coordinate location of equipment and piping with Electrical and HVAC Contractors to maintain clearance for equipment maintenance, avoid interference with duct and HVAC piping runs, and to prevent piping from being instead over electrical panels. If interference develops, the Architect will decide which equipment, conduit, duct, piping, etc., must be relocated regardless of installation order. Take responsibility for relocating Plumbing work, if so ordered, including all associated costs.

D. Within 30 days following award of the contract, report to the Architect in writing, areas of potential errors, ambiguities and/or conflicts on the Plumbing Work or between the trades and obtain an agreement with the Architect on a solution. Those reported after 30 days, except as a result of unforeseen circumstances, shall be resolved at the discretion of the Arcitect. Report conflicts resulting from the progress of Work to the Architect immediately or accept the expense for corrective work caused by failure to report such a conflict. Do not make any changes in design without the written approval of the Architect. Changes in design means any change which will affect the capacity, reliability, operation or safety of the systems or any parts thereof, including changes which may be required to conform to local regulations or codes.

1.11 CONTRACTOR'S WARRANTY

A. Provide written warranties as specified in the General Requirements, Division 1, and repair any defects becoming apparent within the warranty period as directed by the Architect.

1.12 PROTECTION

A. Protect all materials and equipment against damage and vandalism during construction. Replace any damaged material or equipment and replace the systems in perfect working condition.

PART 2 – PRODUCTS

2.1 FIXTURES

A. Fixtures including faucets, valves, drains, and trim, shall be as scheduled on drawings. Approved manufacturers are Acorn, American Standard, Bradley, Chicago, Crane, Delta, Eljer, Elkay, Just, Kohler, Plumbingware, Speakman, T & S.

B. Flush valves shall be Delaney, Sloan or Zurn.

2.2 WATER HEATERS AND DRAIN PANS

A. Water heaters shall be as scheduled on drawings. Approved manufacturers are A.O. Smith, State, Lochinvar, Rheem, Bradford White.

B. Drain pans for electric water heaters shall be minimum 2" deep with molded and sealed corners and shall be fabricated from 24 gauge (0.0278") galvanized steel or high impact plastic with minimum thickness 0.0625".

2.3 PIPE

A. Soil, waste and vent piping above and below grade shall be solid wall DWV polyvinyl chloride (PVC), schedule 40, solvent weld joints. Exposed sanitary piping under lavatories shall be chrome plated copper/brass. (Note: Piping located in supply or return air plenums shall be insulated. Coordinate with Mechanical Contractor for locations of air plenums. See insulation section of this Specification for thickness and type.

B. Cold water supply piping below grade shall be chlorinated polyvinyl chloride (CPVC), solvent weld joints, suitable for use at minimum working pressure of 160 PSI at 73 deg. F. and 100 PSI at 180 deg. F. Pipes 1/2" thru 2" shall be CPVC-CT (copper pipe size) meeting test requirements of SDR 11. Pipes larger than 2" shall be CPVC Schedule 80 with Schedule 80 fittings.

C. Hot and cold water supply piping above grade shall be type "L" hard copper, with cast or wrought solder joint fittings. Exposed hot and cold water piping under lavatories, and connections to urinals and water closets shall be chrome plated copper/brass.

D. Roof and storm drainage piping below grade shall be solid wall DWV polyvinyl chloride (PVC), schedule 40, solvent weld joints.

E. Roof and storm drainage piping above and below grade shall be solid wall DWV polyvinyl chloride (PVC), Schedule 40, solvent weld joints. (Note: Piping located in supply or return air plenums shall be insulated if PVC is used. Coordinate with Mechanical Contractor for locations of air plenums. See insulation section of this Specification for thickness and type.

2.4 DIELECTRIC UNIONS

A. Use dielectric unions when joining dissimilar metals.

2.5 FLOOR DRAINS AND TRAP PRIMERS

A. Floor drains shall be as scheduled on drawings and shall have perforated or slotted strainers, outlets same size as waste pipe to which connected, cast-iron body with inside caulk connection, and deep seal trap. Strainers shall be minimum size required for sanitary pipe size indicated. Provide ductile iron grates for heavy traffic areas. Approved manufacturers are Ancon, Josam, Smith, Wade, Zurn.

B. Trap primers shall be as scheduled on drawings. Pressure drop activated trap primers shall be Mifab model MR-500 with model MI-DU distribution unit (where required).

2.6 INTERIOR HOSE BIBS AND FREEZELESS EXTERIOR WALL HYDRANTS

A. Interior hose bibs shall be angle type, all brass 3/4" inlet, with flange for wall mounting and vacuum breaker, and box with locking cover for recessed installation in wall or floor.

B. Freezeless wall hydrant shall have 3/4" hose nozzle, loose operating key, compression type valve seat, vacuum breaker, and box for recessed installation in wall or floor.

2.7 SHOCK ABSORBERS

A. Shock absorbers shall be bellows or piston type water hammer arrestors. Closed end, vertical standpipe air chambers will not be accepted. Water hammer arrestors shall be sized and installed in accordance with PDI standards and the manufacturers specifications. Access shall be provided to water hammer arrestors.

2.8 CLEANOUTS

A. Floor cleanouts shall be cast-iron with adjustable housing, ferrule with plug, with round secured nickel brass scoriated top for finished concrete floors (including those covered by carpeting) and round secured nickel brass recessed top for vinyl tile floors and carpeted floors. Ductile iron tops for heavy traffic areas.

B. Wall cleanouts shall be screw type with chromium plated bronze or stainless steel access cover plates designed to be installed outside wall finish material.

2.9 VALVES

A. Valves offered under these specifications shall be limited to the products of a type regularly produced for the service and capacities specified. Ratings shall be in accordance with the manufacturer's latest literature available. Valves shall be line size unless specifically shown otherwise. All equipment service valves and all shut-off valves 2" and smaller shall be bronze body full port ball valves with stainless steel ball and nylon seat.

B. Check valves shall be vertical lift check with bronze disc for vertically mounted valves and swing check, horizontal swing bronze disc with screw cap for horizontally mounted valves.

C. Throttling valves shall generally be globe pattern, unless otherwise shown on drawings.

D. Drain valves for all lines shall be 1/2" size, 200 pound, bronze globe valves with threaded ends and hose thread adapter nipple.

E. Approved manufacturers are Apollo, Brass Craft, Capital, Chicago Faucet, Crane, Delany, Delta, Dunham Bush, Jamesbury, Milwaukee, Nibco, Sloan, Speakman, Stockham, T & S, Walworth, Watts, Zurn.

2.10 PIPE HANGERS

A. Hangers and supports specified by "Type" herein shall be designed and manufactured in accordance with the Manufacturers Standardization Society of Valve and Fittings Industry (MSS) Publication SP-58 and shall be selected and applied in accordance with the Manufacturers Standardization Society of Valve and Fittings Industry (MSS) Publication SP-69.

B. Pipe hangers shall be galvanized steel hangers selected within the manufacturer's published load ratings and shall be Auto-Grip, Fee and Mason, or Grinnel. Pipe 2-1/2 inches and smaller shall be MSS Type 7, 10. Pipe 3 inches and larger shall be MSS Type 1, 260.

C. Hanger rods shall be galvanized steel threaded both ends or continuous thread, sized with safety factor of five (5). Approved: Grinnell Fig. 140 or 146. Rods for trapeze hangers supporting several pipes shall be sized for the total piping load.

D. Hangers for copper pipe shall be either copper-plated type or pipe contact area shall be plastic coated to prevent direct contact between the pipe and hanger.

E. Supports for insulated pipes shall have insulation shields as MSS Type 40.

F. Beam clamps shall be MSS Type 29.

G. Inserts:

1. Preset Type: Malleable iron with removable interchangeable nuts having lateral adjustment of not less than one and five-eighths inch. Continuous inserts shall have a capacity of 2000 lb. per foot and shall be hooked over reinforcing. Approved: C-B Universal Fig. 282; Unistrut Products Co., P-300; Brinkley B32-1.
2. After Set Type: Self-drilling style expansion shells shall be used in concrete and brick. Toggle bolts shall be used on block walls and partitions. Approved: Phillips Drill Co. "Red Head"; Ramset "Saber Tooth" and "Spring Wings".
3. Power Actuated After Set Features: Pin and stud anchors shall have a withdrawal resistance four times the indicated load. Approved: Hilti Fastening Systems, Hilti, Inc.; Ramset Fastening Systems, Olin Corp.

H. Use vibration isolators in hanger rods to isolate vibration in piping subject to vibration, or where shown on drawings.

2.11 SECONDARY PIPE POSITIONING AND SUPPORTS:

1. Makeshift, field devised methods of plumbing pipe support, such as with the use of scrap framing materials, are not allowed. Support and positioning of piping shall be by means of engineered and methods that comply with IAPMO PS 42-96. These shall be Hubbard Enterprises/HOLDRITE support systems or Owner-approved equivalent.
2. For plenum applications use pipe supports that meet ASTM E-84 25/50 standards, such as the Hubbard Enterprises/HOLDRITE Flame Fighter TM or Owner-approved equivalent.
3. For vertical mid-span supports of piping 4" and under, use Hubbard Enterprises/HOLDRITE Stout Brackets™ with Hubbard Enterprises/HOLDRITE Stout Clamps or two-hole pipe clamps (MSS Type 26).

2.12 SLEEVES AND ESCUTCHEONS

A. Sleeves shall be 18 gauge galvanized steel or pre-formed plastic. Sleeves shall be sized to allow approximately 1/8" gap around the pipe or its insulation.

B. Sleeves through floor slabs or fire walls shall be galvanized steel pipe of proper size. Sleeves through floor slabs shall extend 1/2" above the finished floor.

C. Sleeves penetrating fire-rated walls, floors or ceilings shall be filled with fire-rated material capable of maintaining the fire-resistance rating of the wall, floor or ceiling.

D. Escutcheon plates for finished spaces shall be nickel-plated.

2.13 EQUIPMENT, VALVE AND PIPE IDENTIFICATION

A. All identification legends, arrows and color bands shall be stenciled on pressure-sensitive labeling material approved by the Architect. Labeling material colors for use on piping shall be as specified in ANSI A 13.1 latest revision.

B. Valve tags shall be plastic, aluminum or brass at least 1" in diameter and stamped with contrasting colored figures as large as possible.

C. Pipe markers shall be Seton style RPM or approved equal.

2.14 INSULATION

A. Piping insulation shall be pre-formed, flame-retardant, elastomeric, polyethylene, pipe insulation similar to AP Armaflex, AP Armaflex SS, IMCOA Imalock or NOMACO Nomalock, and installed in accordance with manufacturer's instructions. Pre-formed Owens-Corning 3.5 pound density fiberglass pipe insulation with all service jacket and self-sealing lap will be approved for pipe installed in dry locations. Insulation thicknesses shall be as follows:

1. Cold water: 3/4" thick.
2. Hot water: 1" thick.
3. All PVC piping located in supply or return air plenums: 1/2" thick. Insulation shall meet all state and local code requirements for plenum use.
4. Underside of roof drains and horizontal piping up to down-stream end of last elbow: 1" thick.

B. At all exposed piping under handicapped lavatories in rest rooms, provide pre molded vinyl insulation. Insulation shall be "Handi Lav-guard" insulation kits as manufactured by Truebro Inc. or approved equal. Truebro Inc. phone no. is (203) 875-2868.

C. All insulation materials and coatings shall meet flame spread and smoke developed ratings per NFPA Bulletin 90-A when tested in accordance with ASTM Standard E 84 and shall meet local requirements for use in return air plenums. Smoke developed less than or equal to 50, and flame spread less than or equal to 25. All coatings and mastics shall be nonflammable in wet state.

2.15 LEAD FLASHING

A. Lead flashing shall be sheet lead weighing 4 pounds per square foot for all pipe flashing through roof.

2.16 EQUIPMENT SUPPORTS

A. Equipment supports shall be sized and designed to support the equipment and shall be hot-dip galvanized steel.

2.17 GREASE INTERCEPTOR

A. Grease interceptors shall be as scheduled and detailed on drawings.

2.18 ROOF DRAINS

A. Roof drains shall be cast-iron with large sump, flashing clamp, removable cast-iron or aluminum dome, deck clamp and sump receiver.

2.19 PUMPS

A. Pump type, capacity and electrical characteristics shall be as indicated on drawings. Approved manufacturers are Bell & Gossett, Grundfos, Taco, Delta P Systems.

B. Provide line sized bypass with associated valves for domestic water booster pumps as indicated on plumbing drawings.

2.20 STRAINERS

A. Strainers shall be self-cleaning and of same size as pipe lines in which they are installed and shall be Webster, Sarco, Dunham, Hoffman, Illinois, or approved equal, Y type with 125 pound iron body, screwed connections to 2" in size and flanged ends for larger sizes.

B. Screens for water strainers shall be perforated Monel cylinders with 3/64" perforations.

C. Water strainer 2" and larger shall have a 3/4" valved blow-down connection extended full size to discharge over the nearest accessible floor drain.

2.21 MOTORS

A. Full Load Motor Efficiencies: All motors installed in equipment specified in these specifications shall be classified under the National Electric Manufacturers Association's Standard as "energy efficient" or shall otherwise meet the requirements of the Florida Energy Code.

B. Except where otherwise specified, all motors shall be designed for continuous service and for regular starting on full-line voltage with normal starting current. The limits on service factor and temperature rise above 40 deg. C. ambient at rated load shall be as follows:

Motor Enclosure	Service Factor	Temperature Rise
Drip-Proof	115%	40 deg. C.
Totally Enclosed	None	55 deg. C.

C. The insulation portion of the motor leads between the lug and motor frame shall be at least 5" in length when four or less motor leads are used and at least 8" in length when more than four motor leads are used. When terminal type lugs are supplied, they shall be solderless, Burndy "Hy-Dent" type or approved equal.

D. Motors shall be furnished for operation as specified or as noted on drawings. All motors shall conform to IEEE, NEMA and ANSI standards and shall be General Electric, Westinghouse, Louis Allis.

E. Motors furnished for indoor installation shall be of the open, drip-proof design. Motors furnished for installation in wet locations or outdoors shall be of the totally-enclosed design. Motors furnished for installation in hazardous locations shall be of the explosion-proof design.

2.22 ACCESS DOORS

A. Access doors shall be as similar to those manufactured by Milcor Division of Inland-Ryerson of type as follows:

Door Location	Door Type
Drywall	Style "DW"
Masonry or Tile	Style "M-Stainless"
Acoustical Tile	Style "AT"
Plaster	Style "K"
Fire Rated Walls/Ceilings	Style "Fire Rated"

B. Each door shall be equipped with two flush, screwdriver operated, cam latches and, other than Style "M", shall be finished to match adjacent surface. Door sizes shall be applicable to access required for normal service.

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RENOVATIONS & ADDITIONS TO
S & S FOOD STORE NO. 38
US 441 & I-75 ELLISVILLE, FLORIDA

9/16/09
1654P501

DATE	09/21/09
DRAWN	CJF
APPROVED	LRH

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PS-1

OF 39 SHEETS

CONSTRUCTION DOCUMENTS

POWELL & HINKLE ENGINEERING, P.A.
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PART 3 – EXECUTION

3.1 CUTTING AND PATCHING

A. Cut and patch existing construction as required for the proper installation of this Wk. Cut openings carefully without undue weakening of the structure or damage to the building. Do not cut structural members without permiion of the Architect. Provide required bracing, shoring, weather protection, etc. for openings and water stop in concrete floor patches.

B. Patching shall replace the Work to a condition at least equal to its condition beforehe cutting was done. Use materials and methods approved by the Architect.

C. Repainting will not be required under this contract for normal cutting and patching. This does not reduce the responsibility for redecorating of existing Work that is damaged unnecessarily by carelessness.

D. Cutting and patching includes necessary relocation of existing pipes, conduits, etc, bt pass through openings and the proper closing of openings in walls, floors, ceilings, etc. where abandoned mechanical facilities are rerved.

3.2 DEMOLITION

A. Remove all existing fixtures and above ground piping and insulation related to plumtg work where shown on Architectural drawings. Cap all underground piping located under concrete floor slabs designated to be abandoned. Remove all underground piping in excavated areas.

3.3 SALVAGE MATERIALS

A. Materials and items of equipment that is to be removed and not reused shall be bright to the attention of the Owner for inspection and determination of disposition.

B. Materials and items of equipment designated as "unsalvageable" by the Owner shall s promptly removed from the premises, disposed of in a completely legal manner, and shall not be re-used in the new Work unless specifica authorized by the Architect.

C. Materials and items of equipment designated as "salvageable" by the Owner to keepor their future use shall be carefully removed and stored in an Owner designated area on the Job site.

D. Fixtures scheduled on drawings to be reused shall be carefully removed, cleaned, mcfied as required by drawings, and installed where shown.

3.4 INSTALLATION OF THE WORK

A. Examine the site and all drawings before proceeding with the layout and installation f the Work. Locate all vertical piping within walls in finished spaces unless specifically noted otherwise. Such piping cannot always be sn within walls on drawings due to their small scale.

B. Arrange the Work essentially as shown, exact layout to be made on the job to suitctual conditions. Confer and cooperate with other trades on the job so all Work will be installed in proper relationship and coordinate precisecation of parts with the Work of others.

C. Arrange for required chases, slots and openings with the General Contractor includin locations of required pipe sleeves through walls and foundations. Assume liability for cutting or patching made necessary by failure to ake proper arrangements in this respect.

D. Indicated equipment connections are necessarily based on equipment of a given marfacture. Assume responsibility for proper arrangement of piping, ducts, etc. to connect approved equipment in a proper and approved manner Follow equipment manufacturer's detailed instructions and recommendations in the installation and connection of all equipment. In case conflict between manufacturer's instructions and the contract documents, notify the Architect before proceeding. No equipment installati or connections shall be made in a manner that voids the manufacturer's warranty.

E. Install all Work in a neat and workmanlike manner, using only workmen thoroughly qlified in the trade or duties they are to perform. Rough Work will be rejected.

3.5 EXCAVATION, BACKFILLING AND PUMPING

A. Excavate, back-fill and compact all trenches required for underground plumbing worl Maintain trenches free of water until installation is complete and provide all necessary shoring.

B. Contractor shall field verify all existing underground utilities and avoid damage to sce. Where existing utilities are damaged, the contractor shall be responsible for all repairs or replacement.

C. Excavate trenches suitable in width to provide a minimum of 6" clear space betweethe barrel of the pipe and the trench wall on both sides of the pipe. Accurately grade the trench bottom to provide uniform bearing and suort for each section of the pipe on undisturbed soil at every point along its entire length. Take care not to excavate below the depth necasary and excavate bell holes to ensure proper bedding. Backfill over-depths with loose, granular, moist material and thoroughly compact to he depth required.

D. Place and compact backfill material in 6" layers until the pipe has a minimum coveof 12". Place and compact the remaining material in 12" layers. Grade the surface to a reasonable uniformity and leave the mounding in ne condition as approved by the Architect.

E. Backfill all trenches passing under foundations with concrete to the underside of thfoundation and at a 2:1 slope away from each side of the foundation. Backfill all trenches that are parallel and deeper than foundations th concrete to a point that will place the top of the concrete on a 2:1 slope away from the foundation bottom. Do not backfill trencheuntil all required tests and inspections are completed.

3.6 PIPE INSTALLATION – GENERAL

A. Install all piping in a workmanlike manner, according to the best practice of the tra, properly pitched and vented to eliminate air pockets or traps, and to ensure rapid and noiseless circulation throughout the entire system. In all piping parallel with or at right angles to building walls and partitions. Run all vertical piping within walls in finished spaces unless nod otherwise.

B. Install all piping so as not to interfere with any electric lighting outlets, ductwork, oer piping, or equipment. Do not install piping in front of any door or window and avoid interference with any such openings. Do not install y piping over any motors, transformers, electrical panels, or other electrical equipment.

C. Cut pipes accurately to measurements established at the building and install withouspringing or forcing. Cut piping square and remove all burrs and fins before assembling. Use standard fittings for all reductions in size a changes in direction. Mitering of pipe to form elbows or reducers will not be permitted. Thoroughly clean all piping before installation and ake sure the piping is free of all foreign material after installation.

D. Because of the small scale of the drawings, it is not possible to indicate all offsetsfittings and valves. Carefully investigate all conditions affecting the Work to avoid interferences between pipes, ducts, valves, conduits, elecical fixtures and equipment and install as conditions may dictate as part of this contract.

E. Install all piping in cabinets and vanities as tight to the rear of the cabinet or vani as possible to provide full utilization of the cabinet or vanity for storage.

3.7 PIPE INSTALLATION

A. Install #12 stainless steel locator wire on top of all underground piping extending bend the building regardless of pipe material. Terminate and secure locator wire at all ends where piping rises above grade and secure phenic nameplates with name of piping service beside terminations.

B. Sanitary Piping: Locate and size sanitary piping within the building where not shown n the drawings in accordance with applicable plumbing code. Flash all vents passing through roof with sheet lead flashing extending a mimum of 6" out around base and a minimum of 6" up the stack into a cast-iron flashing collar. Support all soil and vent stacks at the basey means of piers or heavy hangers close to the bottom of the riser and at each floor by means of heavy iron clamps. Pitch all 2 1/2" an smaller drain piping at least 1/4" per foot and 3" and larger drain piping at least 1/8" per foot unless otherwise noted.

C. Fixtures, Floor Drains and Cleanouts: Provide all fixtures and floor drains with traps comply with local regulations and as hereinafter specified. Provide exposed traps with brass cleanout plugs. Provide floor drains wi trap primers connected as shown on drawings. Provide cleanouts in soil and waste lines as shown on the plans and as required by the govning codes. Extend cleanouts for piping concealed in floor or ceiling construction through the floor above and provide with adjustable flocievel cleanout set flush with the finished floor. Use wall cleanouts for piping concealed in wall construction.

D. Water Supply Piping:

1. Provide a complete system of hot and cold water piping extending from water suly to each fixture and item of equipment requiring water as indicated on drawings.
2. Coat exterior surface of underground copper pipe with bituminous coating for proction from corrosion by soils.
3. Install all water piping systems in such a manner that systems can be drained ovented completely by providing vents and drain valves at all high and low points.
4. Install valves at take-off from the main and upstream of all equipment connectis and elsewhere as indicated on drawings or as required. Provide shock absorbers in accordance with PDI selection standards. Make final onection to the plumbing fixtures as specified with the plumbing fixture. Provide a union in the connection to each threaded valve, fixtu or piece of apparatus so that it may be readily removed. Install unions downstream of shut-off valves.

E. Roof Drains: Flash all roof drains with sheet lead flashing 30" by 30" extending outrd in all directions from bearing pan or roof drain.

3.8 PIPE ASSEMBLY

A. Sweat Joints in Copper Pipe: Cut pipe squarely to accurate length for full penetratic into fittings. Remove burrs from ends, clean soldering surface thoroughly, flux, assemble and solder before surfaces oxidize. Use approvedon-corrosive flux and 95-5 lead free solder. Use sufficient heat for complete penetration of solder and wipe away excess flux and soar.

B. Sewer Pipe: Start laying pipe so that spigot end is pointed in direction of flow. L all pipe with ends abutting and true to line and slope. Fit and match all pipe sections to form a sewer with a smooth and uniform invert. Clean sockets before joining pipes and form all joints in accordance with the pipe manufacturer's recommendations.

C. Elastomeric Compression Gasket Joints: Install elastomeric compression gasket jointsn accordance with manufacturer's instructions.

D. Solvent Weld Joints in PVC and CPVC Pipe: Cut pipe squarely to accurate length forull penetration into fittings. Remove burrs from ends, solvent clean joining surfaces thoroughly and form all joints in accordance with the pe manufacturer's recommendations.

E. No-Hub Joints: Cut pipe squarely to accurate length for full penetration into fittings Remove burrs from ends, clean joining surfaces thoroughly and form all joints in accordance with the pipe manufacturer's recommeations.

3.9 VALVE INSTALLATION

A. Install all valves with the stems or spindle above the horizontal where possible and ercise utmost care not to install valves over electrical equipment. Provide extended valve stems on insulated pipe.

B. Locate valves at all automatic valves, check valves, at all equipment so they can besolated for repairs, at all branch lines connecting mains, and elsewhere as shown on drawings.

C. Locate check valves on the discharge side of all pumps and elsewhere as shown on rawings.

D. After all water circuits are properly balanced and approved, make a slight hacksaw a across the end of all plug valves to indicate proper operating position of valve.

3.10 PIPE HANGER INSTALLATION

A. Space hangers for horizontal pipe as follows:

Threaded pipe	1/2" to 1-1/4"	6'	3' on center maximum
	1-1/2" to 3"	8'	" " "
	4" and larger	10'	" " "
Plastic pipe	1/2" to 1"	3'	on center maximum
	1-1/4" and larger	4'	" " "
Copper pipe	1-1/4" and smaller	6'	on center maximum
	1-1/2" and larger	10'	" " "

B. Attach hanger rods to sufficiently rigid structural building members. If hangers must be attached to either the top chord or bottom chord of steel bar joist, attach the rods by clamp at the panel points. Do not under any circumstances burn or drill holes in either chord. Do not weld either chord. Provide additional hangers or anchoring devices necessary for proper support of piping at corners, tops of risers, etc. Provide galvanized steel shields over pipe insulation at pipe supports.

C. Support of pipe tubing and equipment shall be accomplished though means of engineered products specific to each application. Makeshift field devised methods shall not be allowed.

3.11 SLEEVE AND ESCUTCHEON INSTALLATION

A. Accurately locate and set required sleeves in walls, foundations, floors, etc. Where more than one pipe is necessarily passed through a single sleeve as to a unit piping enclosure or other conditions resulting in larger than 1/8" gap within the sleeve, tightly pack space with proper material to form a barrier against sound, vermin, fire, etc.

B. Provide escutcheons on all finished surfaces where exposed piping, bare or insulated, pass through floors, walls or ceilings, except in boiler, utility or equipment rooms. Fasten escutcheons securely to pipe or pipe covering.

3.12 FIRE RATED PENETRATIONS

A. Fill all spaces around piping and spaces between piping and sleeves passing through fire-rated walls, floors, or ceilings with material capable of maintaining the fire-resistance rating of the wall, floor or ceiling. Use Metacaulk 950GW-1 or approved equal caulking material for PVC and CPVC piping.

B. Recessed fixture penetrations (ie. washer supply boxes, refrigerator supply boxes, etc.) of 1-hour rated firewalls shall be installed such that the required fire resistance will not be reduced. See architectural dwg's for penetration details.

3.13 ACCESS DOORS

A. Provide access doors at circulation pumps, valves, trap primers, air vents, shock absorbers, and like items requiring adjustment or maintenance accessibility if they cannot be located over lay-in type ceilings or cannot be accessible from attics or mechanical rooms. Obtain approval from Architect for location of access doors. Provide visible markers for access doors in concealed locations.

B. Provide visible markers on finished side of lay-in type ceilings to indicate locations of valves, air vents, and like items. See Architect for marker type.

3.14 INSULATION

A. Use application details in accordance with the insulating material supplier's recommendations except where a higher standard is specified herein.

B. Run covering for piping unbroken through hanger clevises, sleeves, etc. Use details for covering cold surfaces such that continuous covering with unbroken vapor barrier is provided. Use these same covering and hanging details for pipes connecting to vibrating equipment or carrying pulsating pressure to avoid metal-to-metal contact between pipes and hangers.

C. Provide an insert, not less than 6" long, of the same thickness and contour as adjoining insulation, between support shield and piping, but under the finish jacket, on piping 2" or larger, to prevent insulation from sagging at support points. Use heavy density insulating materials suitable for the specified temperature range and strong enough to prevent crushing.

D. Cover surfaces of valves, fittings, strainers, and specialties with built-up insulation around irregular shapes to form smooth cylindrical surfaces. Cover such specialties in "cold" systems with special care to maintain continuous vapor barrier. Cover flanges and ground joint unions in "cold" systems.

E. Insulate all above grade domestic cold and hot water piping including piping run above ceilings, in attics, in crawl space and concealed inside walls.

F. Insulate underside of roof drains and all above-grade roof drainage piping.

G. Replace or repair all existing insulation disturbed by new work and refinish to match adjacent insulation.

3.15 EQUIPMENT SUPPORTS INSTALLATION

A. Furnish, fabricate, and erect all structural supports and platforms as required for all equipment installed in this Work, unless otherwise specified. Make these supports and platforms independent of all other equipment supports and suspend them from the building structural steel, roof purlins, inserts imbedded in concrete slabs, or support them on columns as required by the drawings. Attachments to steel bar joists must be approved by the Architect and must only be at panel points. Do not, under any circumstances, burn, drill or weld either chord of steel bar joist.

B. Prepare and furnish drawing and templates indicating all concrete Work required for equipment furnished under this Work. All concrete required will be provided by the General Contractor. Provide, at the time concrete foundations, bases, or curbs are formed, all necessary anchor bolts as required for the various equipment in this Work. Grout all spaces between the equipment base and concrete supports.

3.16 STRAINERS

A. Locate strainers ahead of each automatic control valve, suction side of each pump and elsewhere as shown on drawings.

3.17 CONTROLS

A. Provide all pressure controls, tempering valves, aquastats, temperature and pressure relief valves and control valves necessary for the operation or adjustment of equipment and not supplied as part of the equipment.

B. Install all high voltage (120 V or above) control wiring in EMT conduit. Install low voltage control wiring in conduit unless concealed in walls or above finished ceilings. Do not run low voltage control wiring in the same conduit as high voltage control or power wiring.

3.18 WATER HEATER DRAIN PAN SYSTEM

A. Install fiber glass drain pan under water heaters where scheduled and/or detailed on drawings. Install 3/4" drain line from drain pan to building exterior or where shown on drawing.

3.19 CONNECTIONS TO EQUIPMENT FURNISHED AND INSTALLED BY OTHERS

A. Complete all rough-in and final connections to the ie kitchen and serving line equipment furnished and installed by others. See Architectural drawings for details of equipment and location.

3.20 INSTALLATION OF AND CONNECTION TO RELOCATED EQUIPMENT

A. Complete all rough-in and final connections to the e equipment shown on the drawings to be relocated.

B. See Architectural drawings for details of equipment t and location.

3.21 EQUIPMENT, VALVE AND PIPE IDENTIFICATION

A. Securely attach manufacturer's nameplate to all equipment giving data as to design and operating characteristics.

B. Securely attach nameplates to all switches, control devices and similar items, giving the name and number of the item of equipment to which it is connected.

C. Provide direction arrows and color bands every 25 feet where piping is located above lay-in type ceilings and in accessible attic and crawl spaces and within 5 feet of both sides of accessible wall penetrations for the following piping:

1. Domestic hot water piping.
2. Domestic cold water piping.
3. Sanitary drain piping.
4. Plumbing vent piping.
5. Roof drain piping.

D. Provide small scale drawing showing valve locations and valve number. Provide valve number on each valve tag. Intent of small scale drawing is to show what equipment each valve serves.

3.22 TESTS

A. Testing requirements are minimum and are not intended to be limiting where additional testing methods are required by the authority having jurisdiction.

B. All drainage, vent and inside conductor piping shall be tested before fixtures are installed by capping or plugging the openings and filling the entire system with water, allowing it to stand thus filled for 24 hours with at least 15 feet of pressure. If required to test system in sections, provide necessary test tees, plugs and stand pipe to test the system with at least 15 feet of pressure. Remake all leaking joints and retest.

C. Test all water supply piping before fixtures, equipment and/or hydrants are connected. Cap or plug the openings, fill the system with water and apply a hydrostatic pressure of 1.5 times the operating pressure or 125 PSIG, which ever is higher. Hold test pressures for at least 24 hours. Remake all leaking joints and retest.

D. Test each fixture for soundness, stability of support and satisfactory operation of all its parts.

3.23 DISINFECTION OF POTABLE WATER PIPING

A. Disinfect any part of potable water system installed or repaired in accordance with one of the following methods before it is placed in service:

1. After tests are completed, fill all water supply systems with a solution containing 50 PPM of available chlorine and allow to stand for a period of at least 6 hours before being flushed with clean water. Deliver a dated letter certifying sterilization to the Architect.
2. After tests are completed, fill all water supply systems with a solution containing 100 PPM of available chlorine and allow to stand for a period of at least 2 hours before being flushed with clean water. Deliver a dated letter certifying sterilization to the Architect.

3.24 INSTRUCTION OF OWNER'S REPRESENTATIVE

A. After final acceptance of all Work and occupancy of building, provide service to make system adjustments to suit conditions created by the occupancy; instruct Owner's operating personnel in operation adjustment and maintenance procedures of system components and acquaint Owner's operating personnel with locations and functions of valves, control devices, etc., in the system.

3.25 CLEANING AND RUBBISH

A. During the Work, keep the premises clear of rubbish created as a result of the Work. Protect and prevent unnecessary induction of dirt into piping, fixtures and equipment. On completion of the Work, remove all rubbish and debris resulting from the Work and dispose of same. Thoroughly clean and leave in a satisfactory condition for use all equipment, pipe, fixtures, etc.

3.26 RECORD DRAWINGS

A. The Architect will furnish one set of blue line prints of the drawings as issued for this contract. Use these prints to indicate accurately and neatly any deviation in the actual installation from the drawings as issued. At the completion of the job, deliver the marked-up drawings to the Architect for a permanent record of the exact location of all equipment, pipe runs, etc. as incorporated in the job.

3.27 COMPLETE SYSTEMS

A. Leave all systems completely operative in all details and in satisfactory working condition, as determined by the Architect. Furnish and install as part of this contract all apparatus and material obviously a part of the systems and necessary for their operation.

END OF SECTION

CRAIG SALLEY AND ASSOCIATES
ARCHITECTS • PLANNERS • INTERIOR DESIGNERS
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RENOVATIONS & ADDITIONS TO
S & S FOOD STORE NO. 38
US 441 & I-75
ELLISVILLE, FLORIDA

9/14/09
1654P502

DATE	09/21/09
DRAWN	CJF
APPROVED	LRH

0920

PS-2

OF 39 SHEETS

CONSTRUCTION DOCUMENTS

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