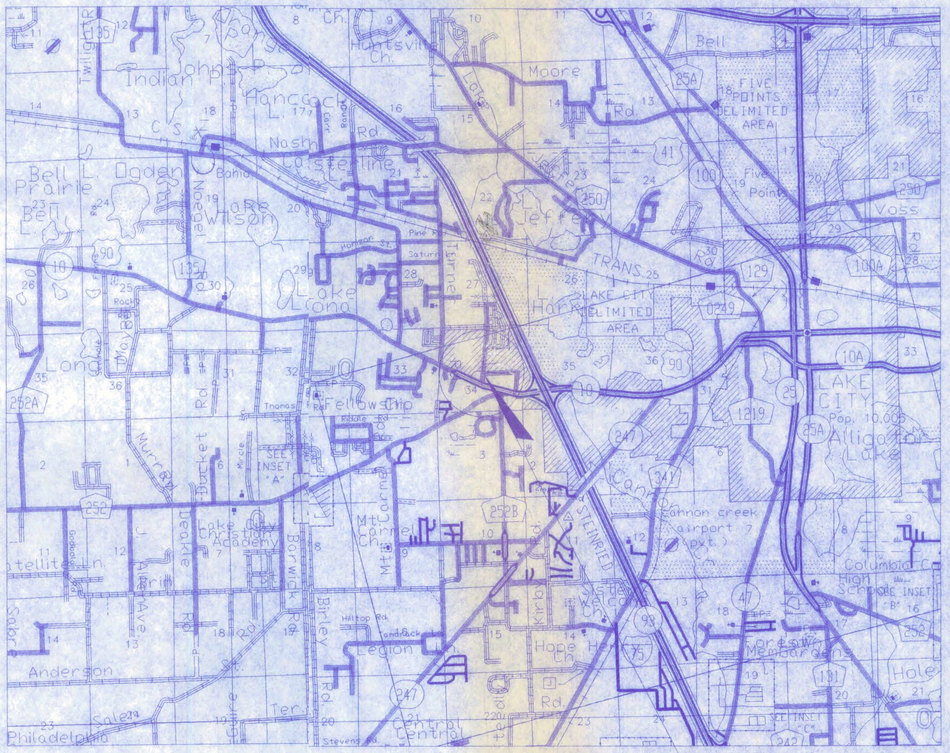
COLUMBIA COUNTY
EMERGENCY OPERATIONS CENTER

263 NW LAKE CITY AVE., LAKE CITY
COLUMBIA COUNTY, FLORIDA

Development Information:

COLUMBIA COUNTY
EMEGENCY OPERATIONS CETER
NEW CONSTRUCTION/RENOVATION
2.08± ACRES
PROJECT LOCATION:
LAKE CITY, FLORIDA
PARCEL IDs: # 02464-005
ZONING: COMMERCIAL GENEAL (CG)
EXISTING USE: EMERGENCY OPERATIONS CENTER
FUTURE LAND USE PLAN MAP CATEGORY: CG

INDEX OF DRAWINGS



PLANS PREPARED FOR:

COLUMBIA COUNTY E.O.C.
LOCAL CONTACT:
RONNIE McCARDEL
P.O. BOX 1787
LAKE CITY, FLORIDA 32056
(386) 758-1125

ENGINEER AND PLANNER:

Freeman Design Group inc
128 SW NASSAU STREET
LAKE CITY, FL. 32025
(386) 758-4209
CERTIFICATE OF AUTHORIZATION #00008701

NOTE:
THE SCALE OF THESE PLANS MAY HAVE BEEN CHANGED DUE TO REPRODUCTION

COLUMBIA COUNTY BUILDING DEPARTMENT
Received for FILE COPY
Code Compliance
PLANS EXAMINER

William H. Freeman
11/24/09
P.E. NO: 56001

TOPOGRAPHY & BOUNDARY SURVEY

IN SECTION 34, TOWNSHIP 3 SOUTH, RANGE 16 EAST COLUMBIA COUNTY, FLORIDA

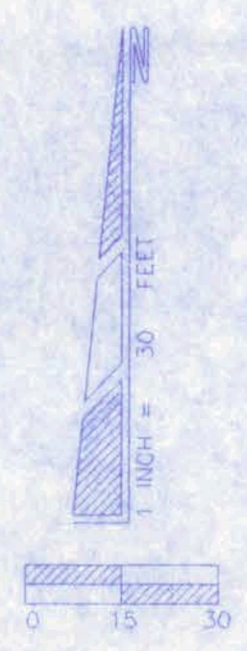
DESCRIPTION: O.R. Book 703, Page 791

A part of Section 34, Township 3 South, Range 16 East and more particularly described as follows:

BEGIN at a point on the Easterly Right-of-Way line of Lake City Avenue, said point being the Soutwest corner of Lot No. 19, Block A of GATORWOOD a subdivision as recorded in Plat Book 5, page 14 of the public records of Columbia County, Florida and run S 89°14'13" E along the South line of said Lot No. 19 a distance of 219.95 feet to the Southeast corner of said Lot No. 19, thence N 07°19'27" E along the East line of said Lots No. 19, 18 & 17 of said Block A a distance of 332.11 feet to the Northeast corner of said Lot No. 17; thence S 89°13'29" W along the South line of Lots 14 & 13 a distance of 106.23 feet; thence S. 06°39'52" W. 515.59 feet to a point on the Northerly Right-of-Way line of Charles Road; thence N. 83°20'08" W. along said Northerly Right-of-Way line 330.00 feet to its intersection with the Easterly Right-of-Way line of Lake City Avenue; thence N 07°19'27" E. along said Easterly Right-of-Way line 150.00 feet to the POINT OF BEGINNING. Containing 2.08 acres, more or less.

SURVEYOR'S NOTE:

The underlined bearing in the Moore description should read "S 89°13'29" E". There is a typographical error in the Deed.



NOTES:

1.) Monumentation is as shown and designated on the face of the plat.

2.) Boundary based on monumentation found in place, description furnished by client, and prior survey by this Company.

3.) Bearings projected from East property line and based on above referenced prior survey by this Company.

4.) Interior improvements were located by field ties.

5.) Underground encroachments, if present, were not located with this survey.

6.) This survey was made without benefit of a title search. There may be additional easements, restrictions, etc. not shown hereon but found in the Public Records. Issues regarding title, land use & zoning, easements & other encumberances are not a part of the scope of a Boundary Survey and can only be revealed with a title search.

7.) Date of field survey completion: June 19, 2009.

8.) Elevations based on prior work in area by this Company.

9.) Examination of the Flood Insurance Rate Maps (FIRM) for Columbia County shows that, per said maps, the described parcel lies within Flood Zone "X", which according to said maps is outside of the 0.2% chance flood plain (ref: Map No. 12023C0290C).

LEGEND	
CMF=CONCRETE MONUMENT FOUND	OHE=OVERHEAD ELECTRIC LINE
PLS=PROFESSIONAL LAND SURVEYOR	OHT=OVERHEAD TELEPHONE LINE
P.S.M.=PROFESSIONAL SURVEYOR & MAPPER	SEC.=SECTION
R/W=RIGHT-OF-WAY	RGE.=RANGE
℄=CENTER LINE	TWP.=TOWNSHIP
PP=POWER POLE	COR.=CORNER
SP=SERVICE POLE	NE=NORTHEAST
TPD=TELEPHONE PEDESTAL	NW=NORTHWEST
NO ID=NO IDENTIFICATION	SW=SOUTHWEST
INV=INVERT	SE=SOUTHEAST
EL=ELEVATION	LB=LICENSED BUSINESS
BFP=BACK FLOW PREVENTOR	P.O.B.=POINT OF BEGINNING
CMP=CORRUGGATED METAL PIPE	(F)=FIELD MEASUREMENTS
MW=METER, WATER	(D)=DEED MEASUREMENTS
ANT.=ANTENNA	FD.=FOUND
SATD=SATELLITE DISH	ME=METER, ELECTRIC
SSS=SINGLE SUPPORT SIGN	MHS=MANHOLE, SEWER
MBX=MAILBOX	VCW=VALVE COVER, WATER
LP=LIGHT POLE	MES=MITERED END SECTION

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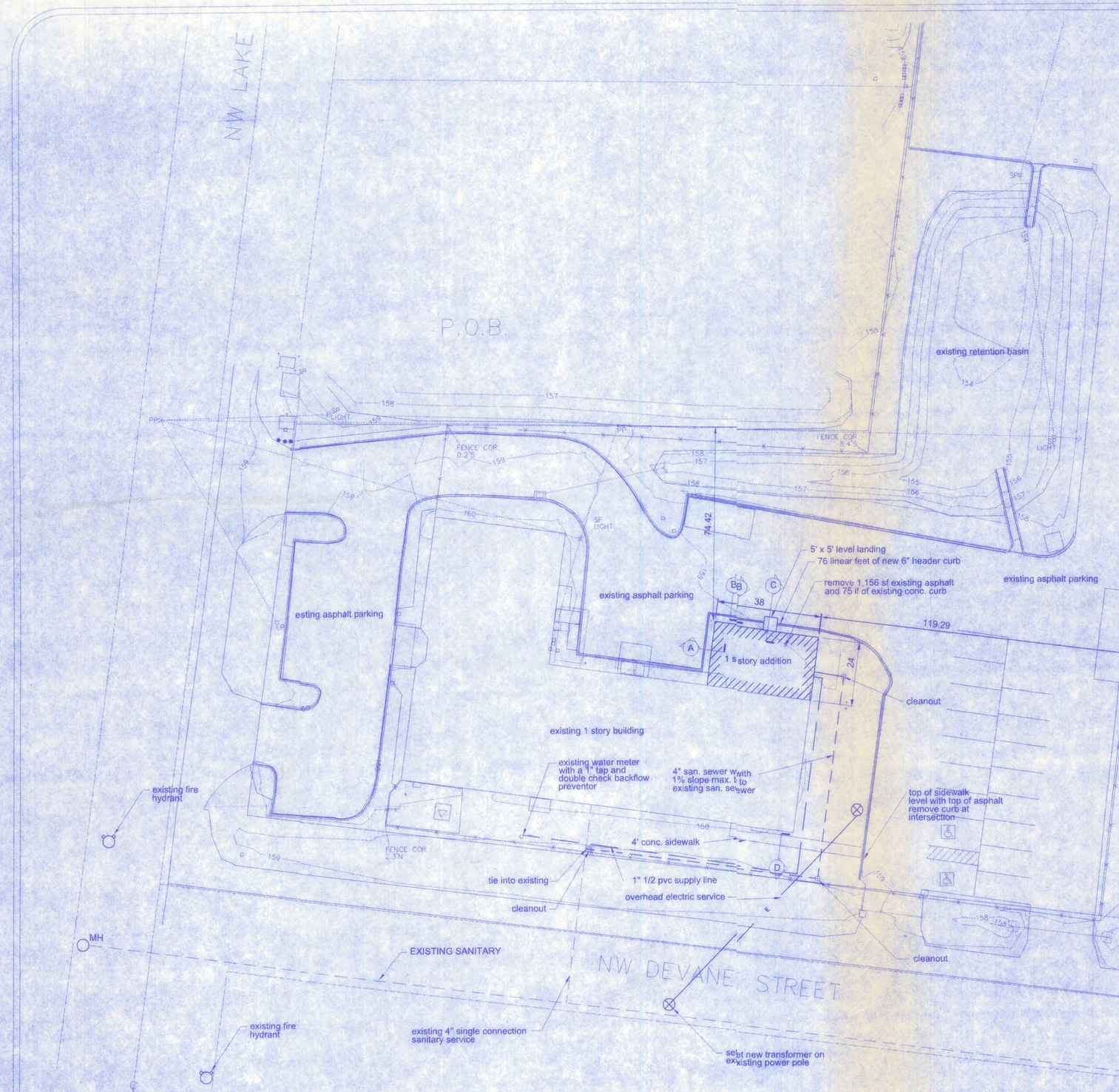
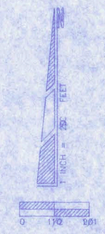
DATE	DRAWN BY
9/18/09	W.H.F.

REVISIONS

SHEET SP-1 OF 4

PROJECT NO. 09.C016





SITE DATA

PROJECT:	COLUMBIA COUNTY E.O.C. BUILDING
LEGAL DESCRIPTION:	REFER TO ATTACHED SURVEY
ZONING:	COMMERCIAL GENERAL
AREA COMPUTATIONS:	SQUARE FEET
REMOVED ASPHALT	(1,156.00 sf)
NEW BUILDING	912.00 sf
NET PERVIOUS	(244.00 sf)

NOTE:
The project shall result in a net gain of 244 sqaure feet of pervious area.

ADDITIONAL ESTIMATED SEWAGE FLOW	
OFFICE	15 GAL. PER 100 SF 2,785 SF/1000*15 = 42 GPD
TOTAL	42 GPD

NOTE:
PROVIDE CLEANOUTS AT EACH TURN AND MAX. SPACING OF 100' ALONG SANITARY SEWER.

GENERAL UTILITY NOTES

1. WATER, SEWER, AND GAS UTILITIES ARE TO BE PROVIDED BY THE GREATER LAKE CITY REGIONAL UTILITIES. ELECTRICAL TO BE PROVIDED BY FLORIDA POWER AND LIGHT (FPL). CONTRACTOR SHALL COORDINATE WITH APPROPRIATE UTILITY COMPANIES TO VERIFY ALL SITE UTILITY CONNECTION LOCATIONS, INVERTS, DETAILS ETC.
2. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE SITE TELEPHONE & CABLE TV CONNECTIONS WITH THE APPLICABLE UTILITY PROVIDER. THE LOCATION OF THE CONNECTION TO THE BUILDING SHALL BE VERIFIED WITH THE PROVIDER.
3. EXISTING UTILITIES TO BE FIELD VERIFIED PRIOR TO BEGINNING CONSTRUCTION. COORDINATE WITH APPLICABLE UTILITY COMPANIES FOR CONNECTIONS.

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DATE 9/18/09	DRAWN BY W.H.F.
REVISIONS	
SHEET	SP- 2
OF	4
PROJECT NO.	09.C016

GENERAL PROJECT DATA

FOR IDENTIFICATION OF CONTRACTUAL AGREEMENT: THIS SET OF DRAWINGS IS DATED AS SHOWN. ANY REVISIONS THEREAFTER WILL BE NOTED AND DATED ON THE AFFECTED DRAWINGS(S).

THE LOCATIONS OF ALL EXISTING UTILITIES SHOWN ON THE PLANS HAVE BEEN DETERMINED FROM THE BEST INFORMATION AVAILABLE AND ARE GIVEN FOR THE CONVENIENCE OF THE CONTRACTOR. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THEIR ACCURACY. PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITY, IT SHAL BE THE CONTRACTORS RESPONSIBILITY TO NOTIFY THE VARIOUS UTILITIES AND TO MAKE THE NECESSARY ARRANGEMENTS FOR ANY RELOCATIONS TO THESE UTILITIES WITH THE OWNER OF THE UTILITY. THE CONTRACTOR SHALL EXERCISE CAUTION WHEN CROSSING AN UNDERGROND UTILITY, WHETHER SHOWN ON THE PLANS OR LOCATED BY THE UTILITY COMPANY. ALL UTILITIES THAT INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE RELOCATED BY THE RESPECTIVE UTILITY COMPANY AND THE CONTRACTOR SHALL COOPERATE WITH THEM DRING RELOCATION OPERATIONS. ANY DELAY OR INCONVENIENCE CAUSED TO THE CONTRATOR BY THE RELOCATION OF VARIOUS UTILITIES SHALL BE INCIDENTAL TO THE CONTRACT, AND NO EXTRA COMPENSATION WILL BE ALLOWED.

EROSION CONTROL

EROSION AND SILTATION CONTROL MEASURES ARE TO BE PROVIDED AND INSTALLED PRIOR TO COMMENCEMENT OF CONSTRUCTION. THESE MEASURES ARE TO BE INSPECTED BY THE CONTRACTOR ON A REGULAR BASIS AND ARE TO BE MAINTAINED OR REPAIRED ON AN IMMEDIATE BASIS, AS REQUIRED. REFER TO WATER MANAGEMENT DISTRICT PERMIT FOR ADDITIONAL REQUIREMENTS FOR EROSION CONTROL AND SURFACE DRAINAGE.

LIMITS OF DISTURBANCE

AT NO TIME SHALL THE CONTRACTOR DISTURB SURROUNDING PROPERTIES OR TRAVEL ON SURROUNDING PROPERTIES WITHOUT WRITTEN CONSENT FROM THE PROPERTY OWNER. REPAIR OR RECONSTRUCTION OF DAMAGED AREAS ON SURROUNDING PROPERTIES SHALL BE PERFORMED BY THE CONTRACTOR ON AN IMMEDIATE BASIS. ALL COSTS FOR REPAIRS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND NO EXTRA COMPENSATION SHALL BE PROVIDED.

CURBING

CURBING SHALL BE CONSTRUCTED WHERE NOTED ON THE CONSTRUCTION PLANS. CONCRETE FOR CURBS SHALL BE DEPARTMENT OF TRANSPORTATION CLASS "1" CONCRETE WITH A 28-DAY COMPRESSION STRENGTH OF 2500 PSI. ALL CURBS SHALL HAVE SAW CUT CONTRACTION JOINTS AND SHALL BE CONSTRUCTED AT INTERVALS NOT TO EXCEED 10'-0" ON CENTER. CONSTRUCTION OF CURBS SHALL BE IN CONFORMANCE WITH FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (1991) SECTION 520 AND DETILS PROVIDED ON THE CONSTRUCTION PLANS.

SIDEWALKS

SIDEWALKS ARE TO BE CONSTRUCTED IN THE AREAS AS SHOWN ON THE CONSTRUCTION PLANS. THE 4' SIDEWALK SHALL BE CONSTRUCTED OF 4" OF CONCRETE WITH A 28-DAY COMPRESSION STRENGTH OF 2500 PSI. JOINTS SHALL BE EITHER TOOLED OR SAWCUT AT A DISTANCE OF 5' LENGTHS, HANDICAPPED RAMPS SHALL BE PROVIDED AT ALL INTERSECTIONS AND BE IN ACCORDANCE WITH STATE REGULATIONS FOR HANDICAP ACCESSIBILITY.

CONSTRUCTION NOTES:

THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS AT THE JOB SITE TO INSURE THAT ALL NEW WORK WILL FIT IN THE MANNER INTENDED ON THE PLANS. SHOULD ANY CONDITIONS EXIST THAT ARE CONTRARY TO THOSE SHOWN ON THE PLANS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF SUCH DIFFERENCES IMMEDIATELY AND PRIOR TO PROCEEDING WITH THE WORK.

THE CONTRACTOR SHALL MAINTAIN THE CONSTRUCTION SITE IN A SECURE MANNER. ALL OPEN TRENCHES AND EXCAVATED AREAS SHALL BE PROTECTED FROM ACCESS BY THE GENERAL PUBLIC.

ALL EROSION CONTROL MEASURES SHALL BE IMPLEMENTED PRIOR TO CONSTRUCTION.

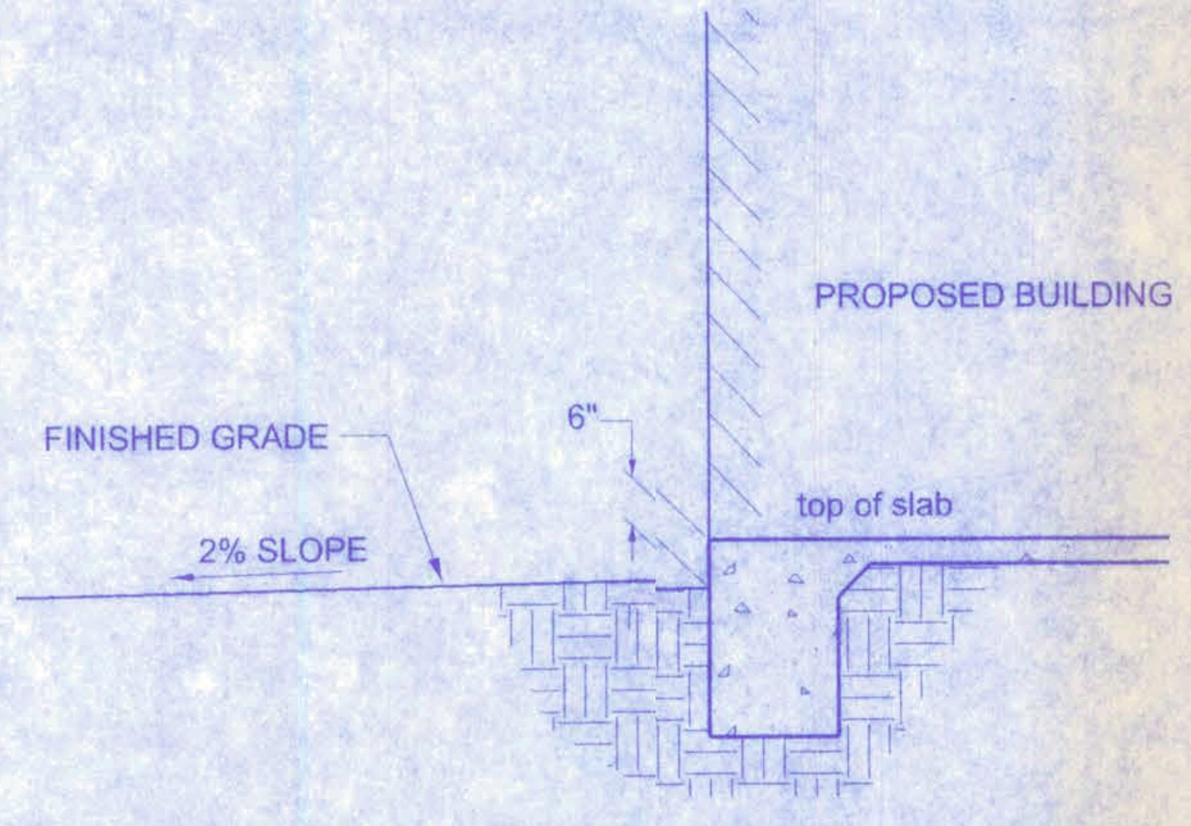
ALL SLOPES OF THE STORMWATER BASIN AND OUTFAL DITCHES SHALL BE SEEDED & MULCHED. ALL SLOPES STEEPER THAN 3:1 SHALL BE STAPLED SOD.

ALL DISTURBED AREAS NOT SODDED SHALL BE SEEDED WITH A MIXTURE OF LONG TERM VEGETATION AND QUICK GROWING SHORT TERM VEGTATION FOR THE FOLLOWING CONDITIONS. FOR THE MONTHS FROM SEPTEMBER TROUGH MARCH, THE MIX SHALL CONSIST OF 70 POUNDS PER ACRE OF LONG TERM SEED AND 20 POUNDS PER ACRE OF WINTER RYE. FOR THE MONTHS OF APRIL THROUGH AUGUST, THE MIX SHALL CONSIST OF 70 POUNDS PER ACRE OF LONG TERM SEED AND 20 POUNDS PER ACRE OF MILLET.

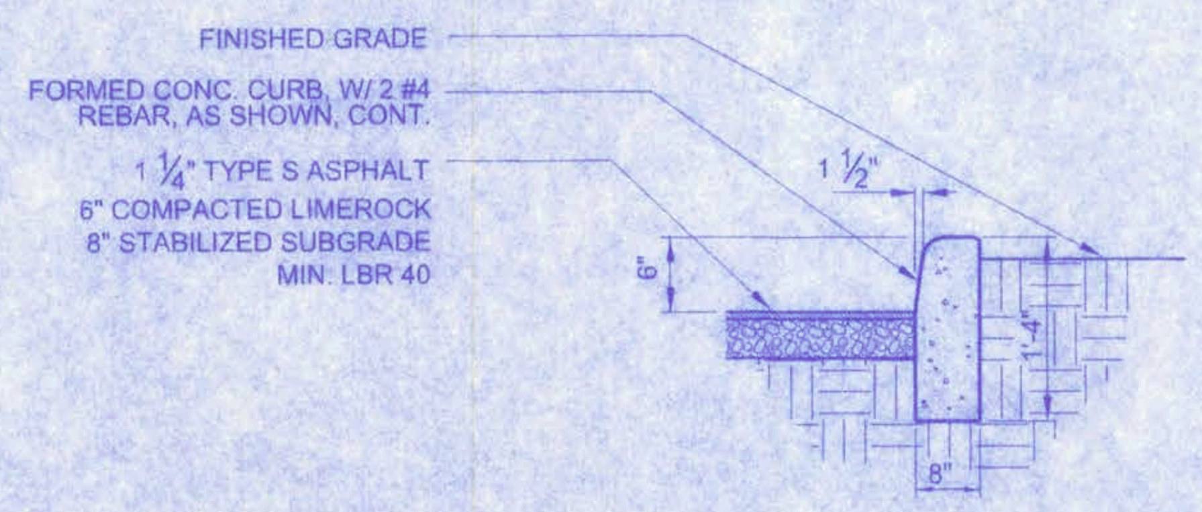
A PAD OF RUBBLE RIP RAP SHALL BE PLACED AT THE BOTTOM OF ALL COLLECTION FLUMES, OUTFALL DITCHES AND COLLECTION PIPE OUTLETS.

EXISTING DRAINAGE STRUCTURES WITHIN THE CONSTRUCTION LIMITS SHALL BE REMOVED.

THE CONTRACTOR SHALL WASTE ALL EXCESS EARTH ON SITE AS DIRECTED BY THE ENGINEER



A SECTION
NTS



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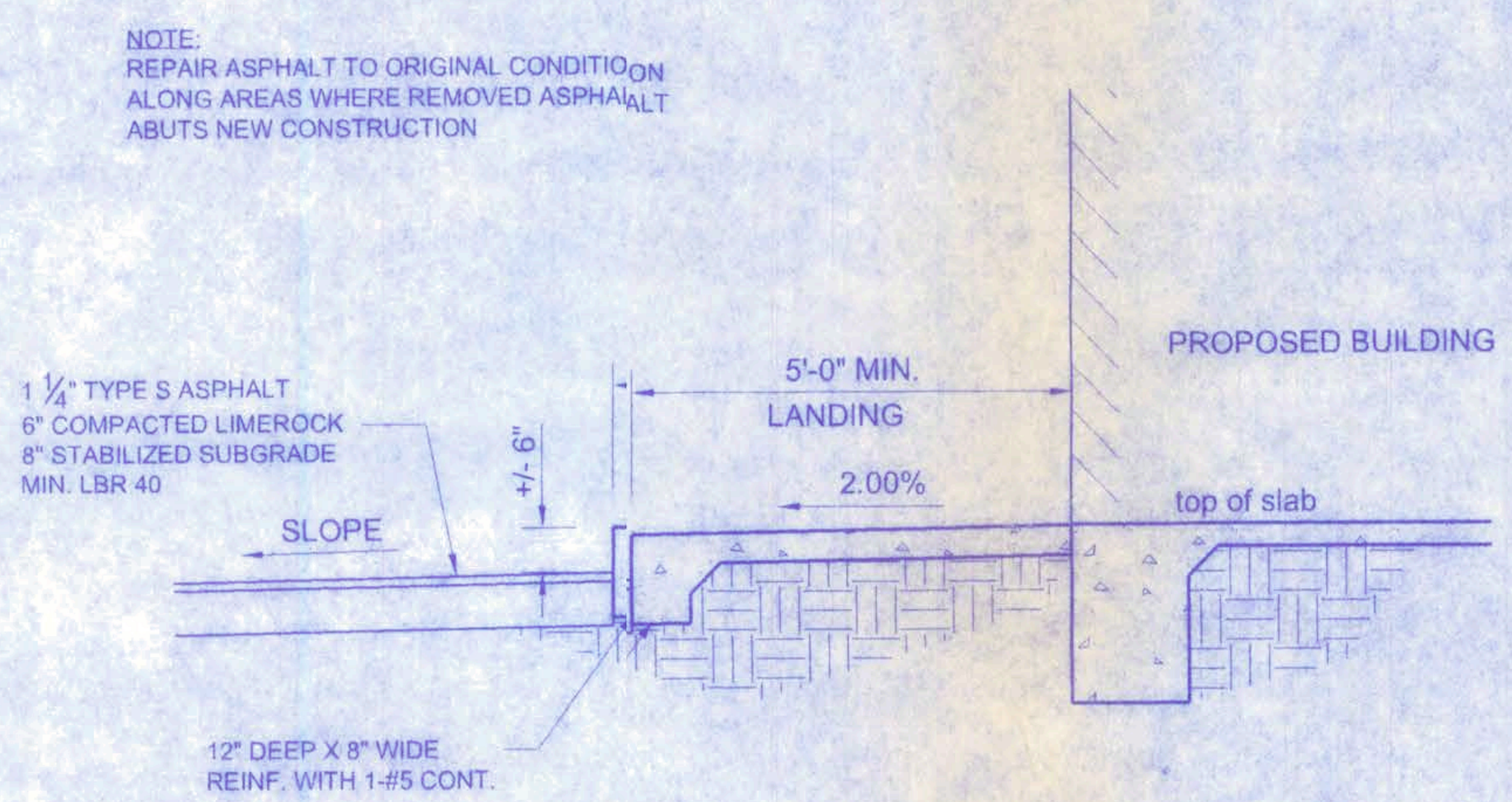

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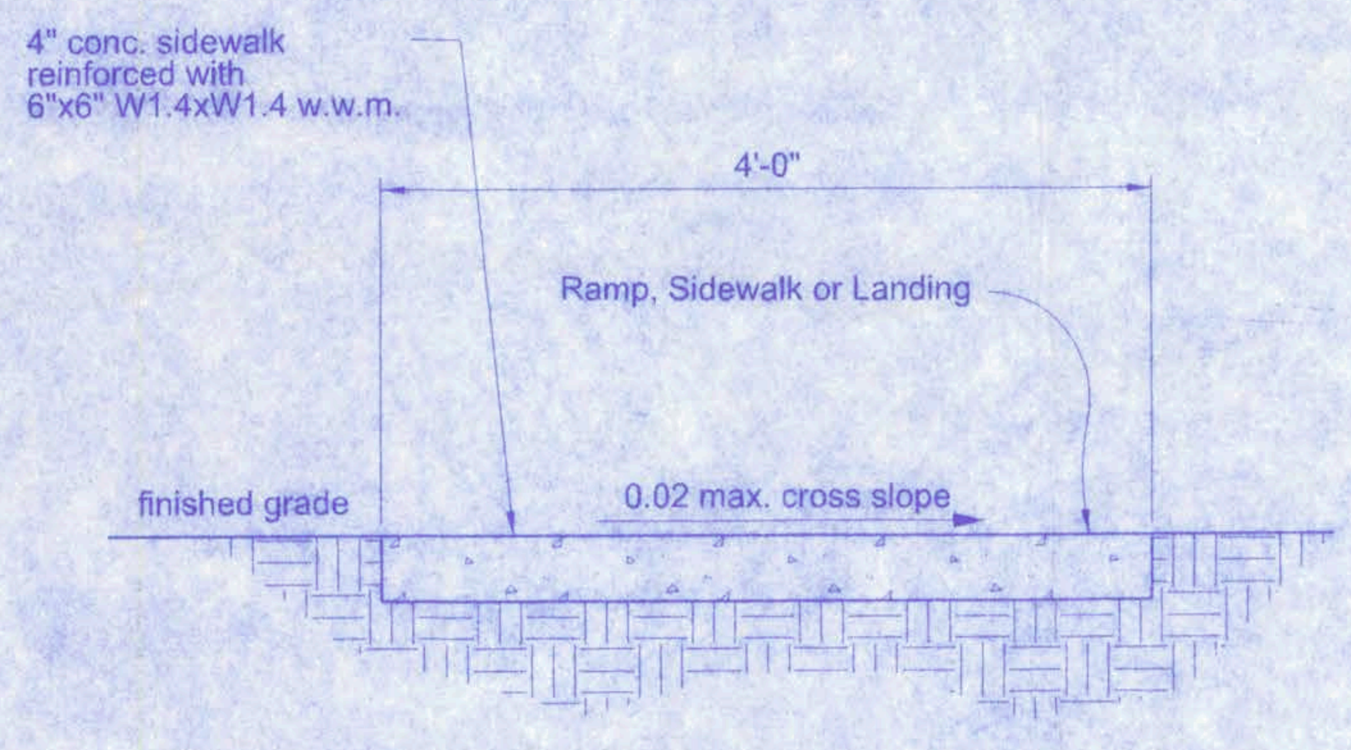
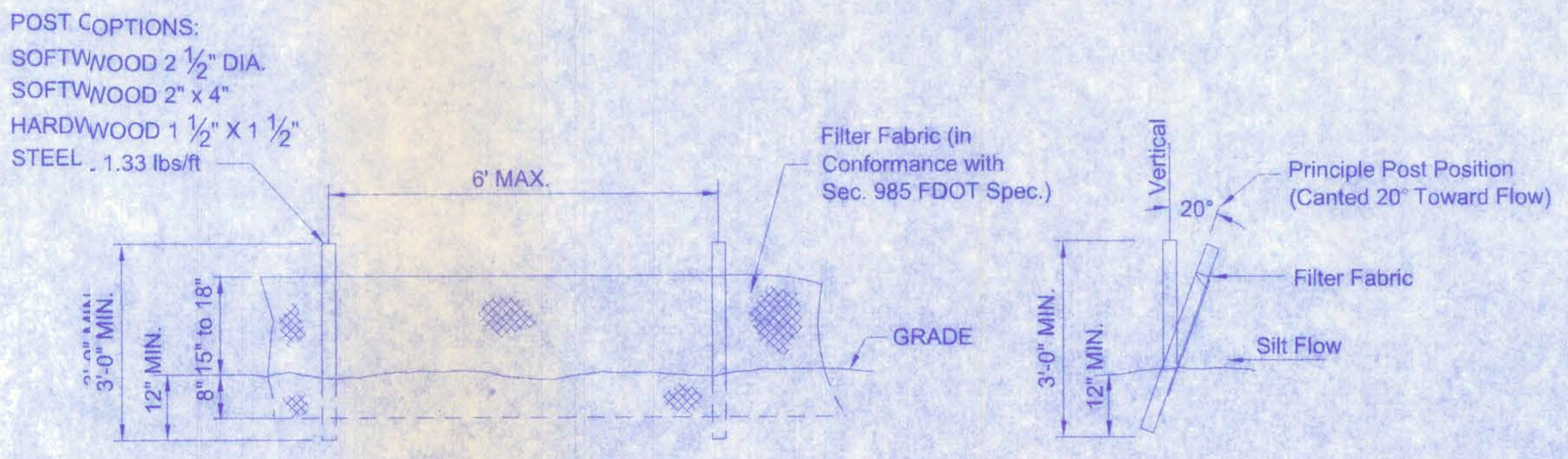


D SIDEWALK SECTION
NTS



TEMPORARY SILT FENCE DETAIL
SCALE: N.T.S.

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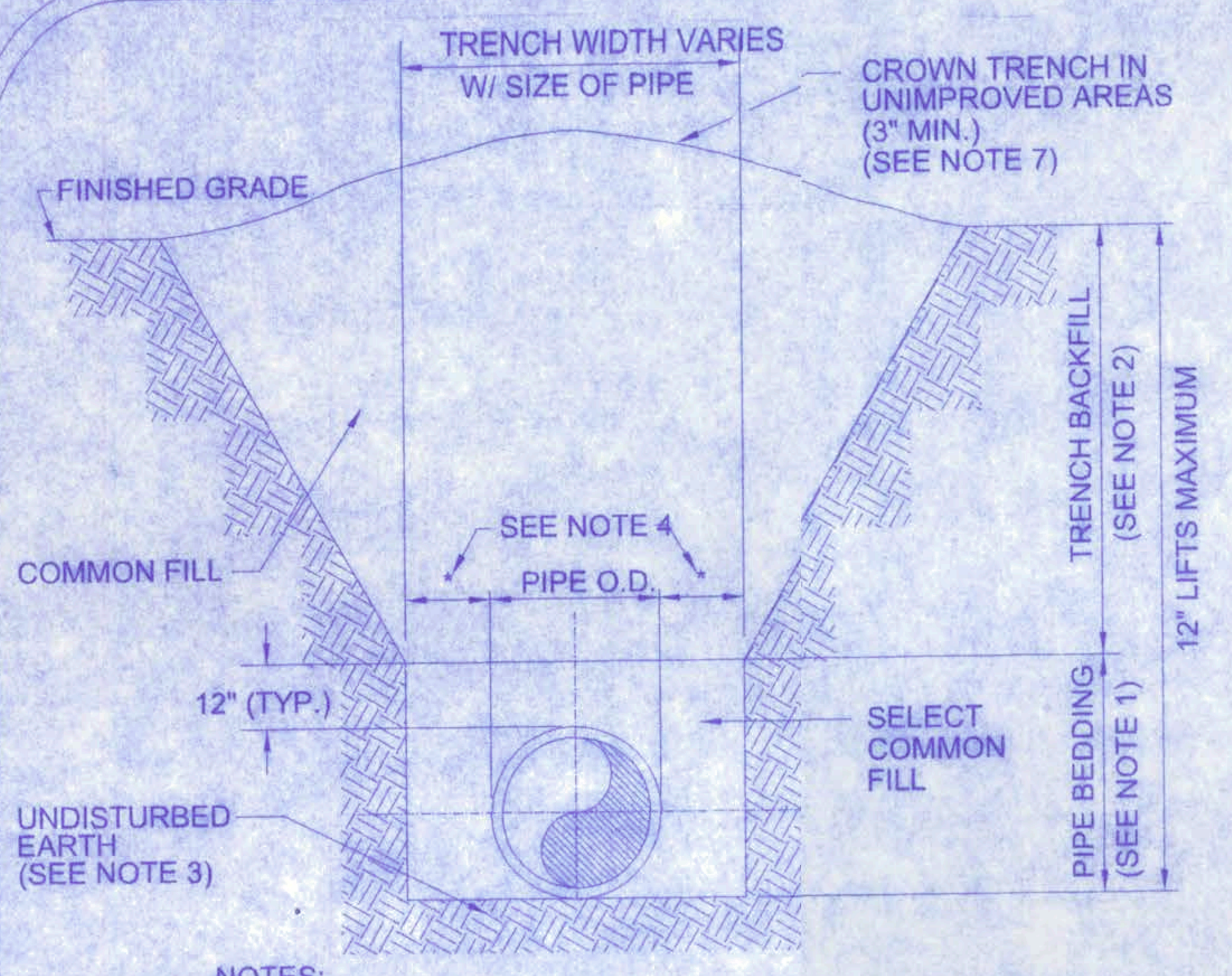


NOTES:
1. PIPE BEDDING: SELECT COMMON FILL CMPACTED TO 95% OF THE MAXIMUM DENSITY AS PER AASHTO T-18.
2. TRENCH BACKFILL: COMMON FILL COMRCTED TO 95% OF THE MAXIMUM DENSITY AS PER AASHTO T-18.
3. PIPE BEDDING UTILIZING SELECT COMMN FILL OR BEDDING ROCK IN ACCORDANCE WITH TYPE A BEDDING AD TRENCHING DETAIL MAY BE REQUIRED AS DIRECTED BY THE CITY O LAKE CITY.
4. (*): 15" MAX. FOR PIPE DIAMETER LESS TIAN 24", AND 24" MAX. FOR PIPE DIAMETER 24" AND LARGER.
5. WATER SHALL NOT BE PERMITTED IN TE TRENCH DURING CONSTRUCTION.
6. ALL PIPE TO BE INSTALLED WITH BELL FCING UPSTREAM TO THE DIRECTION OF THE FLOW.
7. FINAL RESTORATION IN IMPROVED ARES SHALL BE IN COMPLIANCE WITH ALL APPLICABLE REGULATIONS OF GOVRNING AGENCIES. SURFACE RESTORATION WITHIN CITY OR COUNTYRIGHT-OF-WAY SHALL COMPLY WITH THE APPLICABLE REGULATIONS.

TYPE B BEDDING AND TRENCHING DETAIL

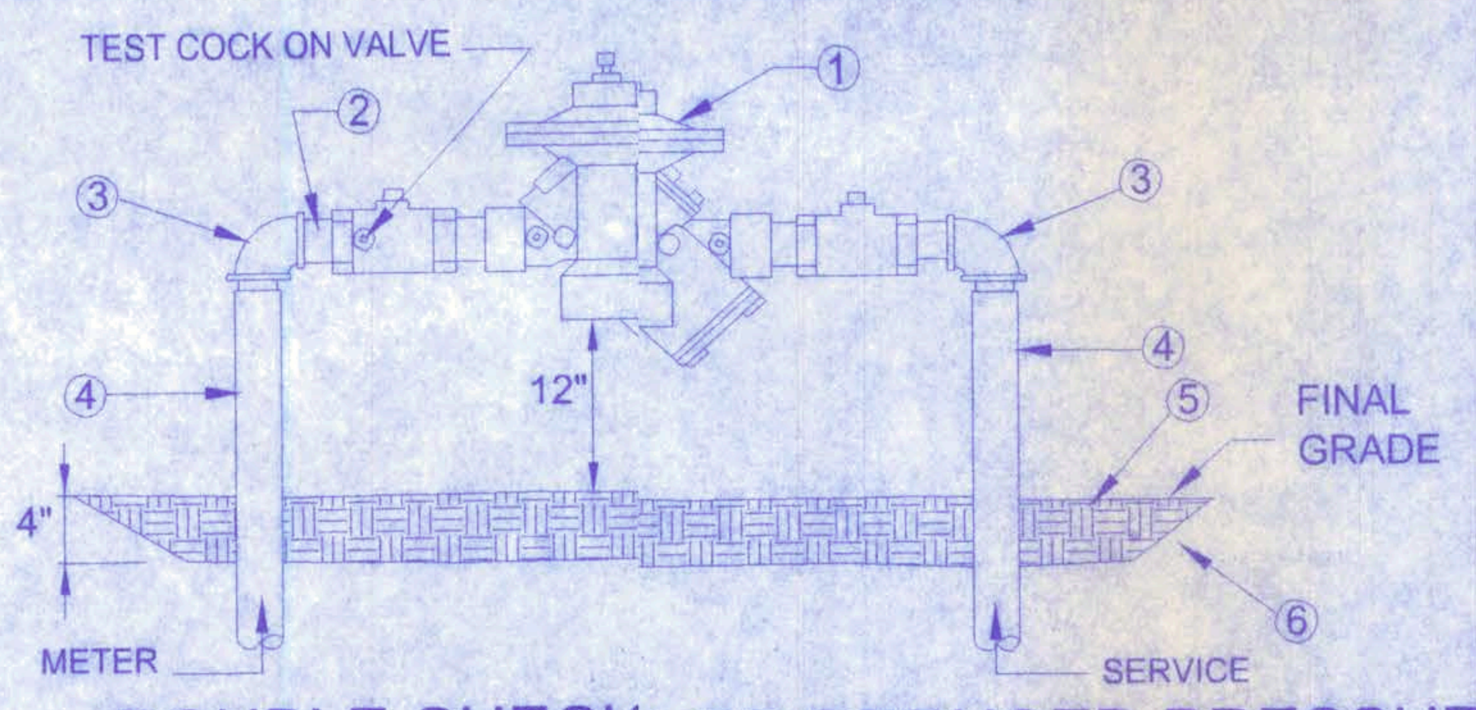
SCALE: N.T.S. CITY OF LAKE CITY

PIPE RESTRAINT NOTES:

1. DUCTILE IRON FITTINGS TO BE RESTRAINED TO PV (C900) PIPE WITH SERIES 2000 PV MECHANICAL RESTRAINT GLANDS AS MANFACTURED BY EBAA IRON. INC. OR EQUAL.
2. PVC (C900) PIPE TO BE RESTRAINED EACH SIDE OIFITTINGS FOR LENGTHS AS NOTED IN TABLE BELOW. RESTRAINT WILL BE ACOMPLISHED WITH DUCTILE IRON RESTRAINT HARNESS CONFORMING TO ASTM A-53. RESTRAINT HARNESS TO BE SERIES 1600 AS MANUFACTURED BY EBAA IRON, IC. OR EQUAL.
3. THE TABLE BELOW SHOWS TYPICAL NUBERS OF 2 LENGTH SECTIONS OF PIPE TO BE MECHANICALLY RESTRAINED FOR THE FOLLOVNG ASSUMPTIONS:
(1) DEPTH OF COVER = 36 INCHES
(2) TEST PRESSURE = 150 PSI
(3) SAFETY FACTOR = 1.5
(4) LAYING CONDITIONS = PIPE EMBEDDED IN LOGE CLEAN SAND AND COMPACTED TO TOP OF PIPE (APPROXIMATELY 90% STANDAD PROCTOR)

MINIMUM NUMBER OF RESTAIND JOINTS IN 20' STAIGHT PIPE EACH SIDE OF RSTRAINED FITTING

FITTING	PE SIZE					
	6"	8"	0"	12"	16"	20"
90^ENDS	1	1	[illegible]	2	2	2
45^ENDS	0	1	1	1	1	1
22 1/2 ^ENDS	0	0	[illegible]	0	1	1
11 1/4 ^ENDS	0	0	[illegible]	0	0	0
TEES (BRANCH	1	1	[illegible]	2	3	4
DEAD END	2	3	[illegible]	4	5	6

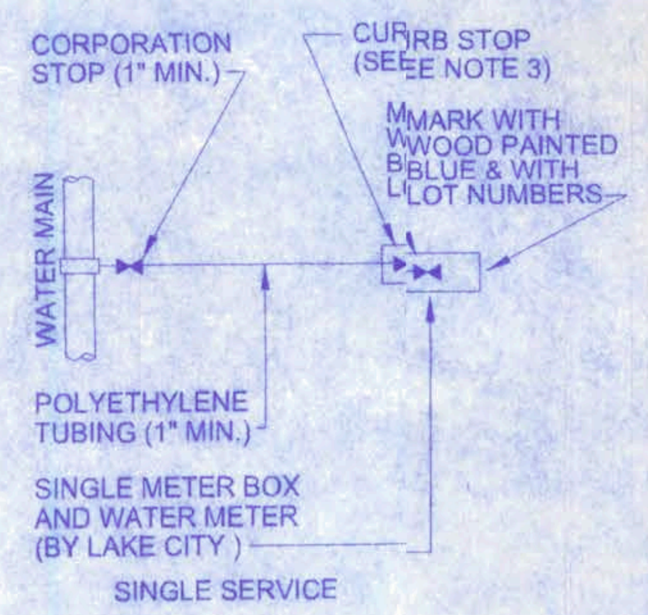


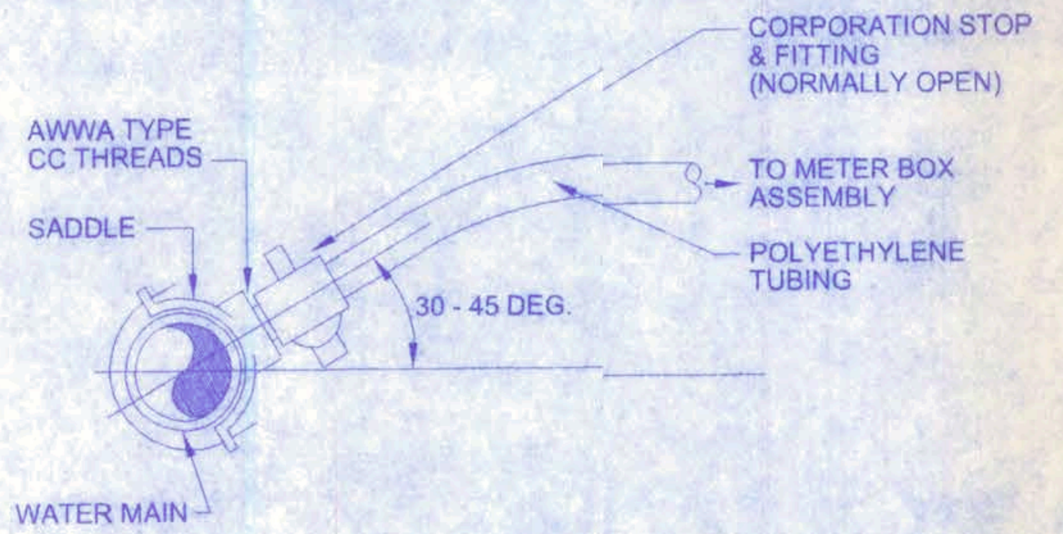
DOUBLE CHECK OR REDUCED PRESSURE BACKFLOW PREVENTER SINGLE SERVICE - 3/4", 1-1/2", 2"

SCALE: N.T.S.

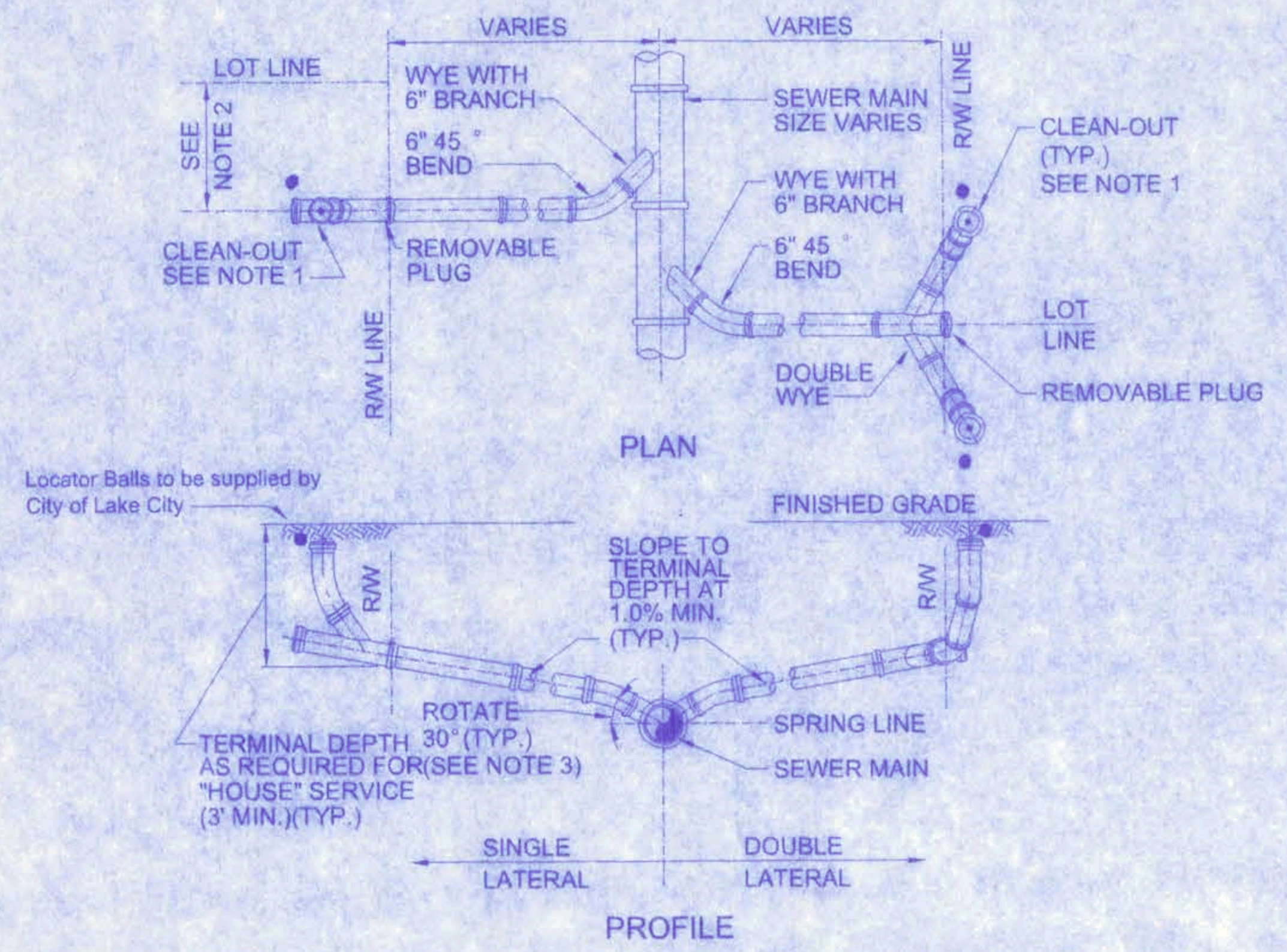
MATERIALS		
ITEM	QUANTITY	DESCRIPTION
1	1	2", BACKFLOW PREVENTER ASSEMBLY
2	2	2" x NOM., NIPPLES - BRASS or PVC
3	2	2" x 900, ELBOWS - GALVANIZED or PVC
4	2	2" x VARIES, RISER - GALVANIZED or PVC
5	*	PEA GRAVEL
6	*	PLASTIC LINER

NOTE: Installation shown above is for a 2" service. Change piping materials accordingly for service size.





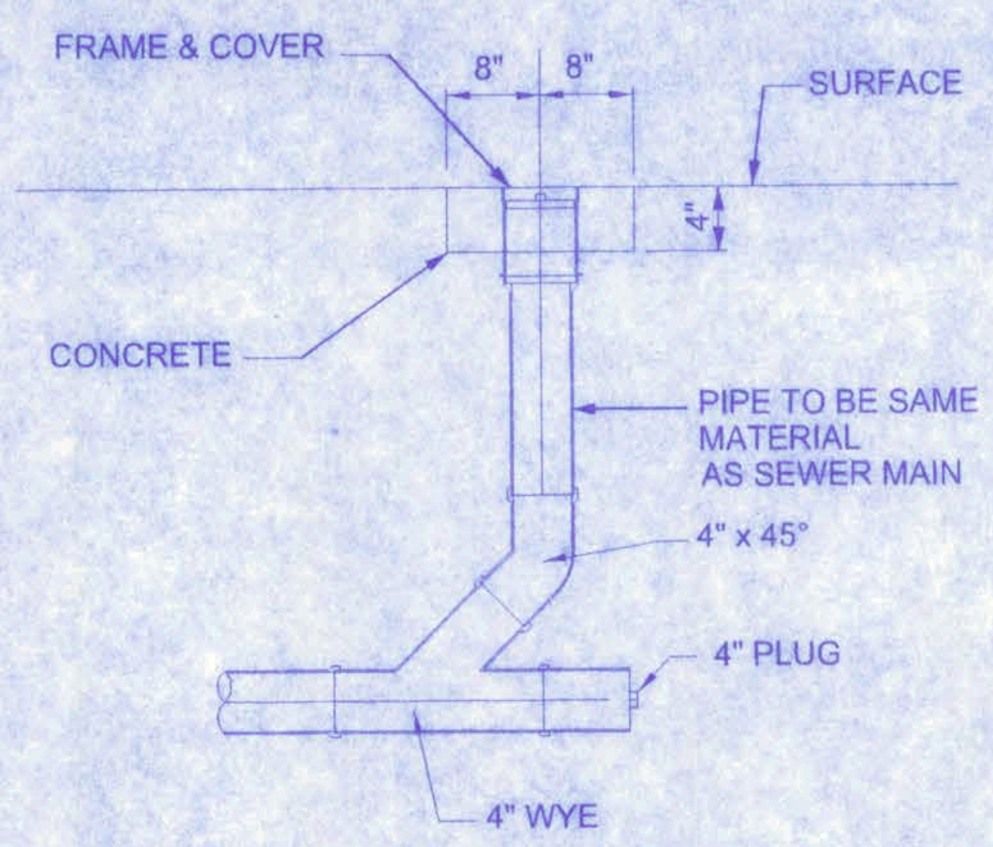
NOTES:
1. ALL FITTINGS SHALL BE BRASS WITH COMPRESSION/PACK JOINT TYPE CONNECTIONS.
2. NO SERVICE LINE SHALL TERMINATE UNDER A DRIVEWAY.
3. EACH SERVICE SHALL TERMINATE AT A CURB STOP(S) WHICH SHALL BE BURIED APPROXIMATELY 3" BELOW FINAL GRADE AND SHALL BE CLEARLY MARKED WITH A 2" X 2" X 18" STAKE WITH THE TOP PAINTED BLUE AND MARKED WITH THE NUMBER OF THE LOT(S) TO BE SERVED.
4. INDENT CURB WITH "W" AT EACH WATER SERVICE LOCATION



NOTES:
1. CLEAN-OUT (SHOWN SHADED) SHALL BE INSTALLED BY THE BUILDER IN ACCORDANCE WITH STANDARD PLUMBING CODE.
2. LOCATE SINGLE LATERAL AS CLOSE TO LOT LINE AS POSSIBLE, 25' MAXIMUM.
3. INVERT OF SERVICE LATERAL SHALL NOT ENTER SEWER MAIN BELOW SPRING LINE.
4. SERVICE LATERALS SHALL HAVE A MINIMUM 18" OF COVER BETWEEN R/W TIE-IN AND BUILDING.
5. INDENT CURB WITH 'S' AT EACH SEWER SERVICE LOCATION.

SANITARY SERVICE DETAIL

SCALE: N.T.S. CITY OF LAKE CITY



CLEANOUT STRUCTURE

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ABBREVIATIONS

A.B.	Anchor Bolt	F.B.C.	Florida Bldg Code	Opn'g.	Opening
Abv.	Above	Fin. Flr.	Finished Flr.	Opt.	Optional
A/C	Air-Conditioner	F.G.	Fixed Glass	Pc.	Piece
Adj.	Adjustable	Flr.	Floor	Ped.	Pedestal
A.F.F.	Above Finished Floor	Fdn.	Foundation	P.L.	Parallam
A.H.U.	Air Handler Unit	Flr. Sys.	Floor System	PLF	Pounds per linear foot
ALT.	Alternate	F.Pl.	Fireplace	Plt. Ht.	Plate Height
B.C.	Base Cabinet	Ft.	Foot / Feet	Plt Sh.	Plant Shelf
B.F.	Bifold Door	Ftg.	Footing	PSF	Pounds per square foot
Bk Sh	Book Shelf	FX	Fixed	P.T.	Pressure Treated
Bm.	Beam	Galv.	Galvanized	Pwd.	Powder Room
BOT.	Bottom	G.C.	General Corractor	Rad.	Radius
B.P.	Bypass door	G.F.I.	Ground Faulterrupter	Ref.	Refrigerator
Brg.	Bearing	G.T.	Girder Truss	Reqd.	Required
Cir.	Circle	Hdr.	Header	Rm.	Room
Clg.	Ceiling	Hgt.	Height	Rnd.	Round
Col.	Column	HB	Hose Bibb	R/SH	Rod and Shelf
Comp.	A/C Compressor	Int.	Interior	SD.	Smoke Detector
C.T.	Ceramic Tile	K/Wall	Kneewall	S.F.	Square Ft
D	Dryer	K.S.	Knee Space	Sh.	Shelves
Dec.	Decorative	Laun.	Laundry	SHT	Sheet
Ded.	Dedicated Outlet	Lav.	Lavatory	S.L.	Side Lights
Dbl.	Double	L.F.	Linear Ft	S.P.F.	Spruce Pine Fir
Dia.	Diameter	L.T.	Laundry Tut	Sq.	Square
Disp.	Disposal	Mas.	Masonry	S.Y.P.	Southern Yellow Pine
Dist.	Distance	Max.	Maximum	Temp.	Tempered
D.S.	Drawer Stack	M.C.	Medicine Canet	Thk'n.	Thicken
D.V.	Dryer Vent	MDP	Master Distrution Panel	T.O.B.	Top of Block
D.W.	Dishwasher	Mfgr.	Manufacture	T.O.M.	Top of Masonry
Ea.	Each	Micro.	Microwave	T.O.P.	Top of Plate
E.W.	Each Way	Min	Minimum	Trans.	Transom Window
Elec.	Electrical	M.L.	Microlam	Typ.	Typical
Elev.	Elevation	Mir.	Mirror	UCL	Under Cabinet Lighting
Ext.	Exterior	Mono	Monolithic	U.N.O.	Unless Noted Otherwise
Exp.	Expansion	N.T.S.	Not to Scale	VB	Vanity Base
				Vert.	Vertical
				V.L.	Versalam
				VTR	Vent through Roof
				W	Washer
				W/	With
				W/C	Water Closet
				W.A.	Wedge Anchor
				Wd	Wood
				WP	Water Proof

SYMBOLS LEGEND

1 / A-1 — section number / sheet number	SECTION MARK
A / A-1 — detail number / sheet number	DETAIL MARK
1 / A-1 — elevation number / sheet number	INTERIOR ELEVATION MARK
101 / A — room number / door identification	DOOR MARK
101	ROOM NUMBER

LOCATION MAP

STRUCTURAL DESIGN CRITERIA

CODES: FLORIDA BUILDING CODE, 2007 EDITION
BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318-05)
SPECIFICATIONS FOR STRUCTURAL CONCRETE BUILDINGS (ACI 301-05)
BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES (ACI 530-05)
NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION, 2001 EDITION
APA PLYWOOD DESIGN SPECIFICATION

LIVE LOADS:

ROOF	20 PSF (REDUCIBLE)
OFFICE FLOOR	50 PSF
1ST FLOOR CORRIDOR	80 PSF

CONCRETE STRENGTH @ 28 DAYS

ALL CONCRETE UNLESS OTHERWISE INDICATED	2500 PSI
PEA GRAVEL CONCRETE FOR MASONRY CELLS ONLY	3000 PSI
(DO NOT USE FOR CONCRETE COLUMNS OR TIE BEAMS)	

REINFORCING:

WELDED WIRE FABRIC SHALL CONFORM TO	ASTM A185
ALL REINFORCING BARS	ASTM A615-40 40,000 PSI
ALL STIRRUPS AND TIES	ASTM A615-40 40,000 PSI

CONCRETE MASONRY UNITS: ASTM C90-99b, STANDARD WEIGHT UNITS, f'm=1500 PSI
MORTAR TYPE "S" 1800 PSI
CONCRETE GROUT 3000 PSI
CONTINUOUS MASONRY INSPECTION IS REQUIRED DURING CONSTRUCTION

STRUCTURAL STEEL: ALL STRUCTURAL AND MISCELLANEOUS STEEL A36 36,000 PSI. U.N.O
SHOP AND FIELD WELDS: E70XX ELECTRODES
ALL BOLTS CAST IN CONCRETE: ASTM A36 OR ASTM A-307

WOOD FRAMING: BEAMS, RAFTERS, JOIST, PLATES, ETC. U.N.O.
NO. 2 SOUTHERN YELLOW PINE (19% M.C.)
ROOF DECK: PLYWOOD C-C/C-D, EXTERIOR, or OSB
FLOOR SHEATHING: T&G A-C GROUP 1, APA RATED (48/24)
WALL SHEATHING: PLYWOOD C-C/C-D, EXTERIOR OR OSB
VERSA LAM BEAM Fb = 2900 PSI (2.0E)
WOOD COLS. PARALLAM 2.0E U.N.O.

WOOD ROOF TRUSSES: DESIGN LOADS:

TOP CHORD LIVE AND DEAD LOAD:	30 PSF
BOTTOM CHORD DEAD LOAD:	10 PSF
TOTAL:	40 PSF

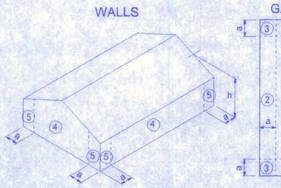
SEE DRAWINGS FOR SPECIAL CONCENTRATED LOADS. DESIGN FOR NEW WIND UPLIFT AS PER SPECIFIED CODES, DEDUCTING A MAXIMUM OF 5 P.S.F. DEAD LOAD, BUT NOT EXCEEDING ACTUAL DEAD LOAD.

SOIL BEARING VALUE: ASSUMED ALLOWABLE SOIL BEARING PRESSURE AFTER COMPACTION: 1500 PSF
SEE SOILS REPORT AND SPECIFICATIONS FOR COMPACTION REQUIREMENTS
IF SOIL CONDITIONS IN THE PROJECT DO NOT MEET OR EXCEED THE CAPACITY
THE GENERAL CONTRACTOR SHALL CONTACT THE ENGINEER PRIOR TO
FOUNDATION POUR FOR VERIFICATION OF FOUNDATION DESIGN.

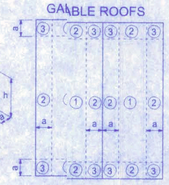
ALL WIND LOADS ARE IN ACCORDANCE WITH SECTION 1609, FLORIDA BUILDING CODE, 2007

BASIC WIND SPEED	110 MPH			
IMPORTANCE FACTOR	1.15			
BUILDING CATEGORY	IV			
EXPOSURE	B			
INTERNAL PRESSURE COEFFICIENT	+/- 0.18			
TYPE OF STRUCTURE	ENCLOSED			
MWFRS PER ASCE 7 DESIGN WIND PRESSURES WORST CASE	Zone 1 - Windward Wall			18.2 psf
	Zone 2 and 3 - Windward and Leeward Roof			-27.3 psf
	Zone 2 - Sloped Windward Roof			+4.9 psf; -11.7 psf
	Zone 3 - Leeward Roof			-14.6 psf
	4 - Leeward Wall			-12.8 psf
	5 & 6 Sidewalls			-16.4 psf
	Zone 7 - Overhang			14.4 psf
COMPONENTS AND CLADDING PER ASCE 7 DESIGN WIND PRESSURES WORST CASE	Wall	Zone 4	windward 25.0 psf	leeward -27.2 psf
		Zone 5	25.0 psf	-33.5 psf
			positive	negative
	Roof	Zone 1	14.4 psf	-22.9 psf
		Zone 2	14.4 psf	-48.4 psf
		Zone 3	14.4 psf	-48.4 psf

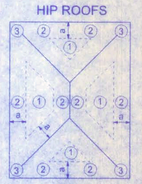
WALLS



GABLE ROOFS



HIP ROOFS



a: 10% of least horizontal dim. or 0.4h, whichever is smaller, but not less than either 4% of least horizontal dimension or 3 ft.
h: mean roof height, in feet.

COMPONENTS AND CLADDING

BUILDING USE, CLASSIFACATION & OCCUPANCY AS PER TABLES 503 & 1004.1.1, FLORIDA BUILDING CODE, 2007 ED.

BUILDING GROUP OCCUPANCY	GROUP B
TABLE 503 TYPE OF CONSTRUCTION	TYPE V-B
TABLE 503 AREA/HEIGHT LIMITATIONS	15.75 KSF/2 STORY
OCCUPANCY	
LOAD CAPACITY:	14,180 SF/ 100 =
OFFICE: 100 SF/PERSON GROSS	142 PERSONS
	142 OCCUPANTS

MEANS OF EGRESS
FBC CHAPTER 10

OCCUPANCY CLASSIFICATION	UNSPRINKLERED & UNPROTECTED	
GROUP B - Civic Administration	REQUIRED	PROVIDED
MAX. TRAVEL DIST. (TABLE 1016.1)	200 FT	115 FT
MAX. DEAD-END CORRIDOR (FBC 1017.3)	20 FT	20 FT
TOTAL # OF EXITS (TABLE 1019.1)	2	5
EGRESS WIDTH PER PERSON (LEVEL) (TABLE 1005.1)	0.2 142 X 0.2 = 28.4"	34"/142 = 0.23
MINIMUM CORRIDOR AISLE WIDTH (FBC 1017.2)	44"	59"
MIN. CLEAR OPENING OF EXIT DOORS (FBC 1008.1.1)	32"	34"

MINIMUM NUMBER OF PLUMBING FACILITIES:
TABLES 403.1 FLORIDA PLUMBING CODE, 2007 ED.

142 OCCUPANTS = 71 MEN & 71 WOMEN

OCCUPANCY	WATER CLOSETS		LAVS		DRINKING FOUNTAIN	SERVICE SINKS
	M	F	M	F		
B	1 per 25 = 3	1 per 25 = 3	1 per 40 = 4		1 per 100 = 2	1 service sink
PROVIDED	7	8	5	6	2	1

REQUIRED OUTDOOR VENTILATION AIR (NEW CONSTRUCTION ONLY)
TABLES 403.3, FLORIDA MECHANICAL CODE, 2007 ED.

BUILDING GROUP OCCUPANCY	OCCUPANT LOAD	OUTDOOR AIR (CFM)
Business Offices		
Office Space	7/1,000 sf	20 cfm/person
kitchen exhaust/domestic	-	100 cfm
restroom	-	50 cfm per water closet or urinal
restroom	-	50 cfm per shower

2,785 sf/1000 * 7 * 20 + 100 cfm + 11*50 cfm + 1*50 cfm = 1,100 cfm
1,100 cfm outside air required for each unit

AREA MODIFICATIONS

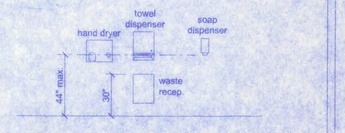
$A_t = A_1 + A_1 \cdot I_1$

$I_1 = \left[\frac{F}{P} - 0.25\right]\frac{W}{30}$

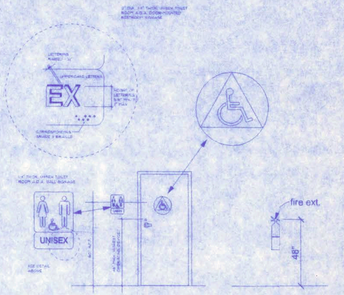
F = building perimeter on public way = 546'
P = building perimeter = 546'
W = Width of public way or open space = 30'

$I_1 = \left[\frac{546}{546} - 0.25\right]\frac{30}{30} = 0.75$

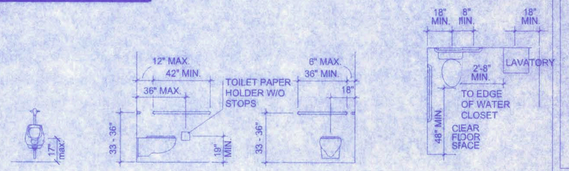
$A_t = 9{,}000 + 9{,}000(0.75) = 15{,}750$ sq. ft.



TOILET AND BATH ACCESSORES



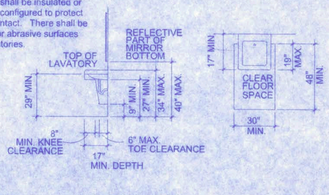
RESTROOM SIGNAGE



ELEVATIONS

WATER CLOSETS CLEARANCES

NOTE:
Hot water and drain pipes under lavatories shall be insulated or otherwise configured to protect against contact. There shall be no sharp or abrasive surfaces under lavatories.



LAVATORY CLEARANCES

WATER COOLER CLEARANCES

COLUMBIA COUNTY
EMERGENCY OPERATIONS CENTER

Freeman Design Group inc.
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LAKE CITY, FL 32025
(386)758-4209

CERTIFICATE OF AUTHORIZATION # 00008791

DATE 11/23/09	DRAWN BY W.H.F.
	APPROVED W.H.F.
REVISIONS	
SHEET	A-1
OF	15
PROJECT NO.	09.C016

AREA SUMMARY

EXISTING AREA	8,062 SF
UNFINISHED AREA	1,873 SF
TOTAL EXISTING	9,935 SF
+ 912 ±	
10,847 ±	

GIS TECHNICIAN 101
MAP EQUIPMENT STORAGE 102
IS DEPARTMENT 104
TOURIST DEVELOPMENT 106
MAP EQUIPMENT STORAGE 103
CORRIDOR
911 ADDRESSING/EMS BILLING RECEPTION AREA 108
EMS BILLING MANAGER 108
EMS BILLING STORAGE 109
MECHANICAL 113
RESTROOM 112
RESTROOM 114
KITCHEN 115
LOBBY 107
911 DIRECTOR 110
STORAGE 111
MANAGER 116
MECHANICAL 120
ARES 121
CIC 122
EM DIRECTOR OFFICE 123
EM OFFICE 124
CORRIDOR
911 COMMUNICATIONS EQUIPMENT ROOM 117
911 COMMUNICATIONS/DISPATCH 118
RESTROOM
EMERGENCY OPERATIONS CENTER (EOC) 119
CONFERENCE ROOM 125
STORAGE 126
UNFINISHED STORAGE 127
CONTRACTOR'S ENTRANCE
construction entrance
conc. walk
standby generator
existing meter can
existing 10 gal water heater with under cabinet
existing service panels, phone panel, and network panels on wall
removable cover
wall mounted television
metal wireway in slab
existing floor duplex and data
overhead projector
projector screen
Typical "hardened" partition: 1/2" gypsum board with level 4 finish over 5/8" plywood on both sides of wall 2x6 spf studs @ 16" o.c.
Typical Hardened Exterior Wall: common brick over foil faced rigid insulation board sheathing on 2x6 #2 spf studs @ 16" o.c.
Typical partition: 1/2" gypsum board on both sides of wall level 4 finish 2x4 spf studs @ 16" o.c.
Typical Exterior Wall: common brick over foil faced rigid insulation board sheathing on 2x6 #2 spf studs @ 16" o.c.
Existing Zone Separation Wall: 1/2" gypsum board for side with level 4 finish 1/2" gypsum board near side with no finish 2x4 spf studs @ 16" o.c. R-13 batt insulation
unfinished wall
NOTE: the contractor shall provide temporary dust and sound control devices along the perimeter of all work areas throughout the duration of construction.

EXISTING FLOOR PLAN
SCALE: 3/16" = 1'-0"

COLUMBIA COUNTY
EMERGENCY OPERATIONS CENTER

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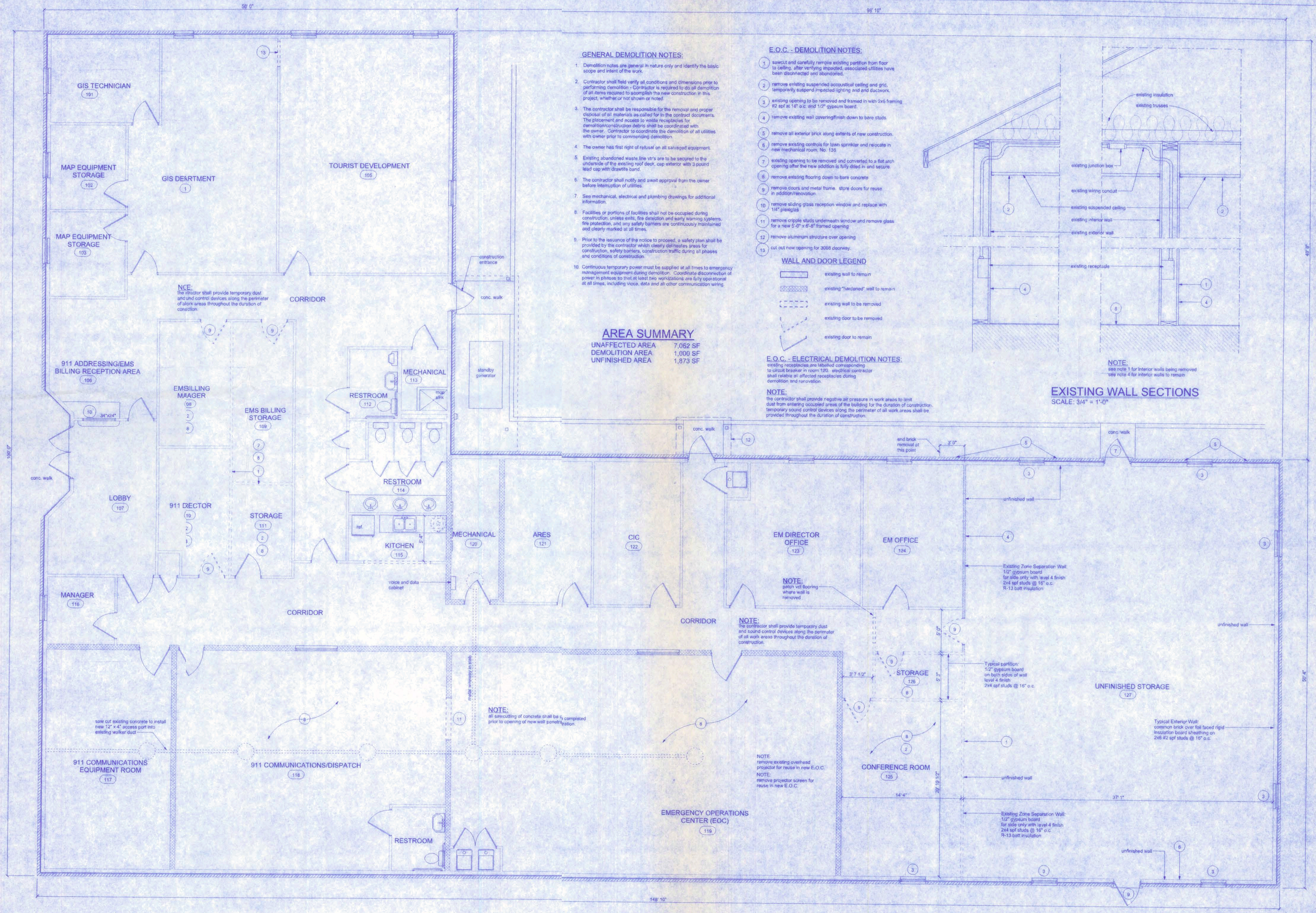
OF 15
PROJECT NO. 09.C016



GENERAL DEMOLITION NOTES:

1. Demolition notes are general in nature only and identify the basic scope and intent of the work.
2. Contractor shall field verify all conditions and dimensions prior to performing demolition - Contractor is required to do all demolition of all items required to acomplish the new construction in this project, whether or not shown or noted.
3. The contractor shall be responsible for the removal and proper disposal of all materials as called for in the contract documents. The placement and access to waste receptacles for demolition/construction debris shall be coordinated with the owner. Contractor to coordinate the demolition of all utilities with owner prior to commencing demolition.
4. The owner has first right of refusal on all salvaged equipment.
5. Existing abandoned waste line vtr's are to be secured to the underside of the existing roof deck, cap exterior with 3 pound lead cap with drawtite band.
6. The contractor shall notify and await approval from the owner before interruption of utilities.
7. See mechanical, electrical and plumbing drawings for additional information.
8. Facilities or portions of facilities shall not be occupied during construction, unless exits, fire detection and early warning systems, fire protection, and any safety barriers are continuously maintained and clearly marked at all times.
9. Prior to the issuance of the notice to proceed, a safety plan shall be provided by the contractor which clearly delineates areas for construction, safety barriers, construction traffic during all phases and conditions of construction.
10. Continuous temporary power must be supplied at all times to emergency management equipment during demolition. Coordinate disconnection of power in phases so that at least two workstations are fully operational at all times, including vioce, data and all other communication wiring.

AREA SUMMARY

UNAFFECTED AREA	7,062 SF
DEMOLITION AREA	1,000 SF
UNFINISHED AREA	1,873 SF

E.O.C. - DEMOLITION NOTES:

1. sawcut and carefully remove existing partition from floor to ceiling, after verifying impacted, associated utilities have been disconnected and abondoned.
2. remove existing suspended accoustical ceiling and grid, temporarily suspend impacted lighting and and ductwork.
3. existing opening to be removed and framed in with 2x6 framing #2 spf at 16" o.c. and 1/2" gypsum board.
4. remove existing wall covering/finish down to bare studs.
5. remove all exterior brick along extents of new construction.
6. remove existing controls for lawn sprinkler and relocate in new mechanical room, No. 136
7. existing opening to be removed and converted to a flat arch opening after the new addition is fully dried in and secure.
8. remove existing flooring down to bare concrete
9. remove doors and metal frame. store doors for reuse in addition/renovation.
10. remove sliding glass reception window and replace with 1/4" plexiglas
11. remove cripple studs underneath window and remove glass for a new 5'-0" x 6'-8" framed opening
12. remove aluminum structure over opening
13. cut out new opening for 3068 doorway.

WALL AND DOOR LEGEND

- existing wall to remain
- existing "hardened" wall to remain
- existing wall to be removed
- existing door to be removed
- existing door to remain

E.O.C. - ELECTRICAL DEMOLITION NOTES:

existing receptacles are labelled corresponding to circuit breaker in room 120. electrical contractor shall relable all affected receptacles during demolition and renovation.

NOTE:

the contractor shall provide negative air pressure in work areas to limit dust from entering occupied areas of the building for the duration of construction. temporary sound control devices along the perimeter of all work areas shall be provided throughout the duration of construction.

EXISTING WALL SECTIONS

SCALE: 3/4" = 1'-0"

DEMOLITION PLAN

SCALE: 3/16" = 1'-0"

COLUMBIA COUNTY EMERGENCY OPERATIONS CENTER

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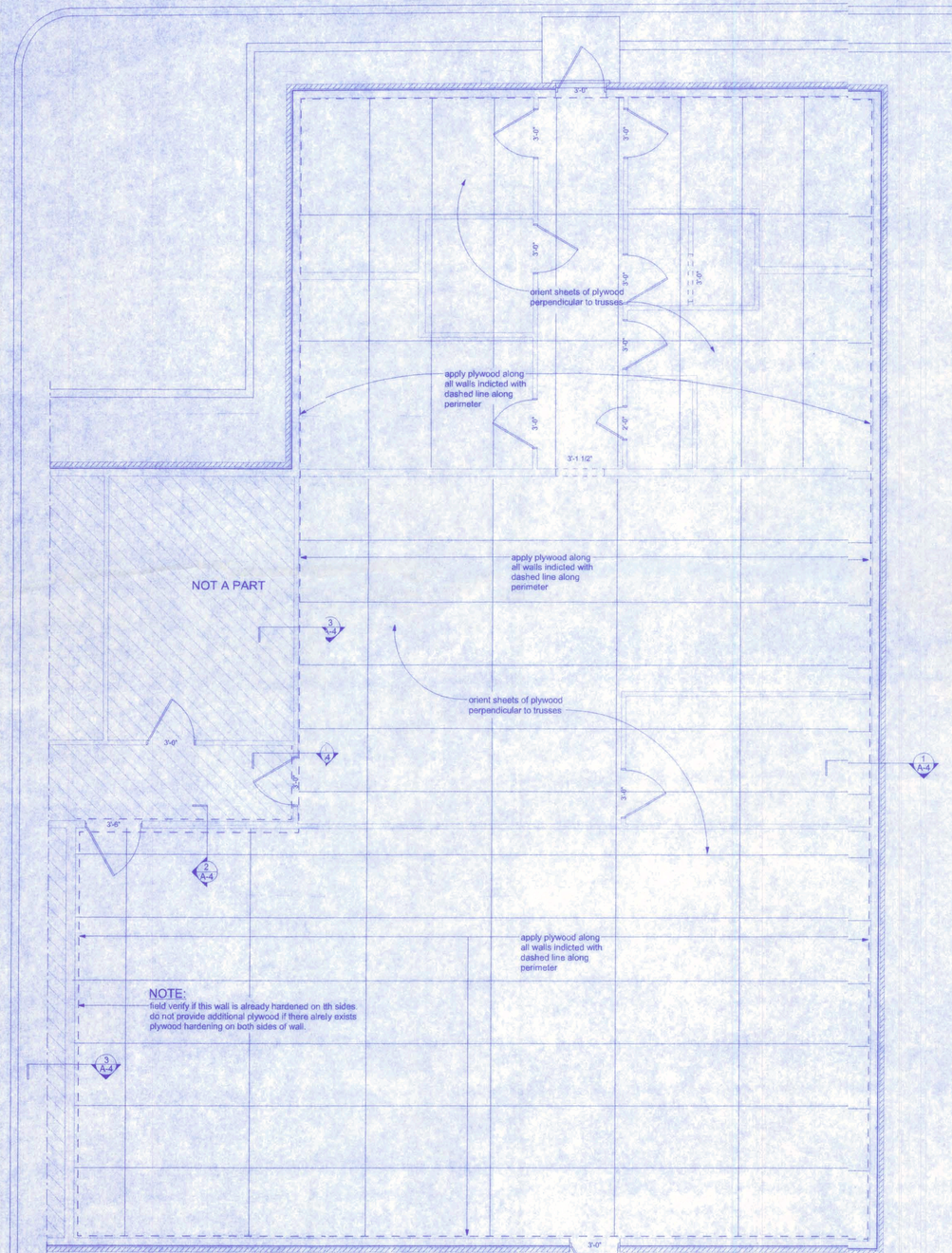
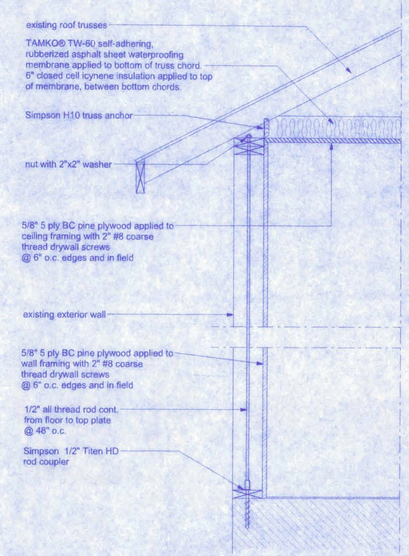
SHEET A-3	OF 15
PROJECT NO. 09.C016	



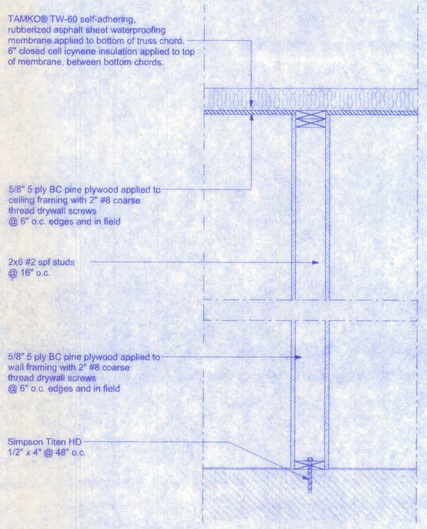
CEILING/WALL HARDENING PLAN
SCALE: 1/4" = 1'-0"

HARDENING AREA = 3,253 SF
PERIMETER = 254 LF

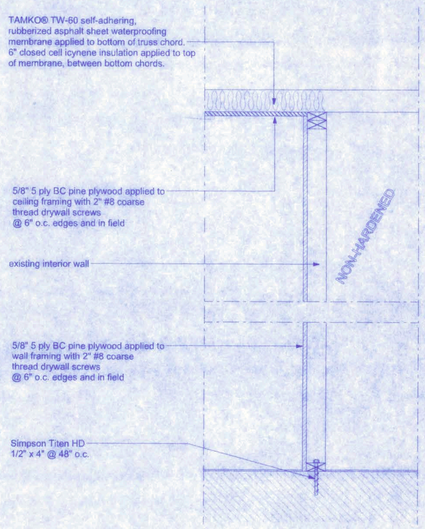
NOTE:
remove all existing doors and frames within the hardening area indicated on the plans and install new frames per plans.



1 EXTERIOR WALL
SCALE: 1" = 1'-0"



2 DOUBLE SIDED INTERIOR WALL
SCALE: 1" = 1'-0"



3 SINGLE SIDED INTERIOR WALL
SCALE: 1" = 1'-0"

COLUMBIA COUNTY EMERGENCY OPERATIONS CENTER

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DATE 11/23/09	DRAWN BY W.H.F.
	APPROVED W.H.F.
REVISIONS	
SHEET	A-4
OF	15
PROJECT NO.	09.C016

AREA SUMMARY

EXISTING AREA	9,925 SF
NEW ADDITION	912 SF
COVERED ENTRY	204 SF
TOTAL AREA	11,041 SF

existing wall to remain

existing "hardened" wall to remain

new construction

GIS COORDINATOR 101 — NO WORK THIS AREA

GIS STORAGE 102 — NO WORK THIS AREA

GI DEPARTMENT 104 — NO WORK THIS AREA

GIS TECH 103 — NO WORK THIS AREA

RECORDS AND STORAGE 105

CONFERENCE ROOM 106

RECEPTION 107

RADIO REPAIR ROOM 108

Typical partition: 1/2" gypsum board on both sides of wall 2x4 spf studs @ 16" o.c.

magnetic lock with remote switch in 911 dispatch. provide voice intercom and video surveillance linked to 911 dispatch

provide service bell

7'-4" extended wall

LOBBY 110 — NO WORK THIS AREA

OFFICE 109

MANAGER 116 — NO WORK THIS AREA

CORRIDOR 114 — NO WORK THIS AREA

911 COMMUNICATIONS/DISPATCH 119 — NO WORK THIS AREA

911 COMMUNICATIONS EQUIPMENT ROOM 117 — NO WORK THIS AREA

install new 4" x 12" access port for walker duct

NOTE: verify location of surveillance screens and remote door lock switch with owners

CORRIDOR 114 — NO WORK THIS AREA

KITCHEN 115

install new wall cabinets over existing cabinets to match

ELECTRICAL 120

UPS's ROOM 121 — NO WORK THIS AREA

CIC 122 — NO WORK THIS AREA

EM. DIRECTOR OFFICE 123 — NO WORK THIS AREA

EM. OFFICE 124 — NO WORK THIS AREA

CORRIDOR 114

voice and data rack

case opening with 16 gauge hollow metal framing. see typical door frame details.

Typical partition: 1/2" gypsum board on both sides of wall 2x4 spf studs @ 16" o.c. fasten top plate to plywood clg. decking full height gypsum board to be cut around existing mechanical and electrical

STORAGE 138

repaint existing wall surface within limits of demolition or reconstruction, otherwise, leave as is.

EMERGENCY OPERATIONS CENTER 137

Typical partition: 1/2" gypsum board on both sides of wall 2x4 spf studs @ 16" o.c.

pull down projector screen supplied by owner

ceiling mounted overhead projector supplied by owner

match slab elevation

existing standby generator

MAIN ENTRY

18" sq. conc. pedestal p.t. 4x4 post

see sheet A-7 for porch details

magnetic lock with remote switch in 911 dispatch. provide voice intercom and video surveillance linked to 911 dispatch

provide service bell

ENTRY

see sheet A-7 for porch details p.t. 4x4 post

4" thick river rock over earth

5'X5' conc. landing

MEN 126

WOMEN 131

H.C. RESTROOM 128

ELECTRICAL 130

ADA dressing bench 48" x 24"

50 gallon water heater F.D.

seat

Mills Brudley Sentinel overhead braced restroom partitions Series 400 plastic laminate color by owner

mop sink 133

ice machine by owner

case opening with 16 gauge hollow metal framing. see typical door frame details.

30" domestic range with exhaust hood to roof

MULTIPURPOSE AREA 134

KITCHEN 135

20 cu. ft refrigerator without ice maker

MECHANICAL 136

ahp-1

ahp-2

ENTRY

see sheet A-7 for porch details

6'X5' level landing p.t. 4x4 post

4'6" conc. walkway

Typical Bearing partition: 1/2" gypsum board on both sides of wall 2x6 spf studs @ 16" o.c. R-13 batt insulation

1/4" plexiglas

top of existing counter

existing wall

1x4 trim with 1/4" reveal

1x trim wrap

1x2 trim

1/4" plexiglas

1 RECEPTION WINDOW
SCALE: 3/4" = 1'-0"

2 JAMB DETAIL
NTS

1 PROPOSED FLOOR PLAN
SCALE: 3/16" = 1'-0"

COLUMBIA COUNTY
EMERGENCY OPERATIONS CENTER

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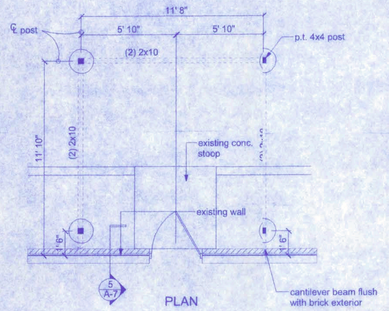
	APPROVED W.H.F.

REVISIONS

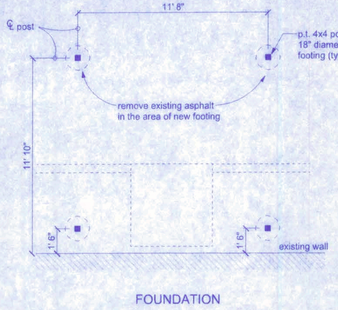
SHEET A-5

OF 15

PROJECT NO. 09.C016



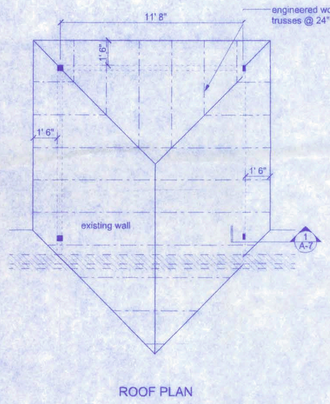
PLAN



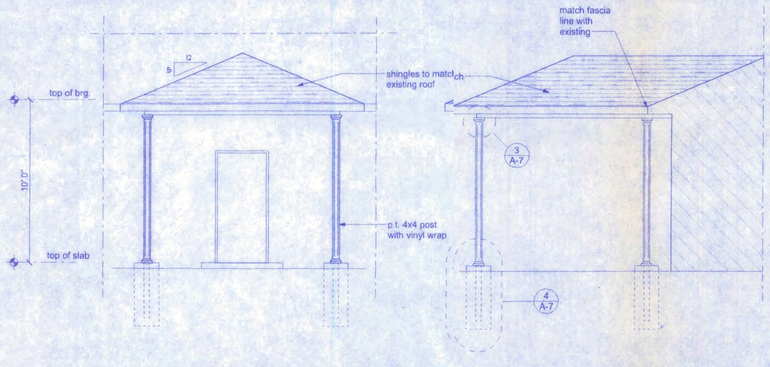
FOUNDATION

NOTE:
all wood framing members for posts and beams shall be #2 syp or better.

NOTE:
patch all asphalt, broken of removed, around column foundation.



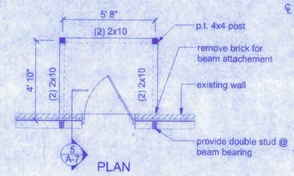
ROOF PLAN



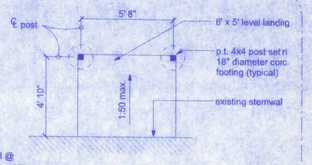
FRONT SIDE

MAIN ENTRANCE PORCH

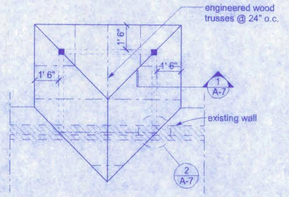
SCALE: 1/4" = 1'-0"



PLAN

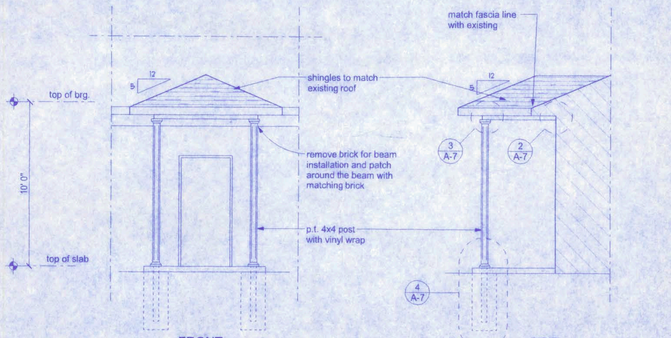


FOUNDATION



ROOF PLAN

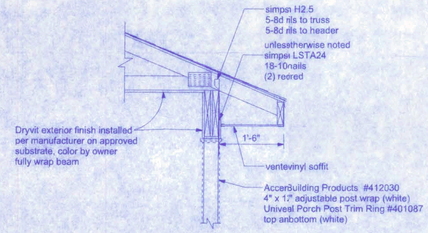
NOTE:
all wood framing members for posts and beams shall be #2 syp or better.



FRONT SIDE

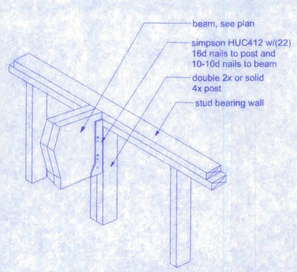
SECONDARY ENTRANCE PORCH

SCALE: 1/4" = 1'-0" (2 REQUIRED)



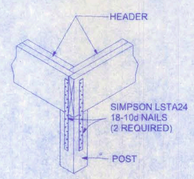
1 PORCH SECTION

SCALE: 3/4" = 1'-0"



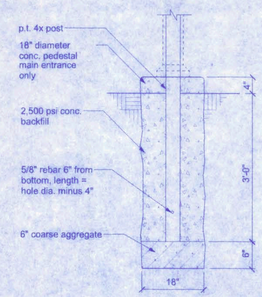
2 BEAM/WALL CONNECTION

MAX. CAPACITY - 3640# DOWN; 1810# UPLIFT NOT TO SCALE



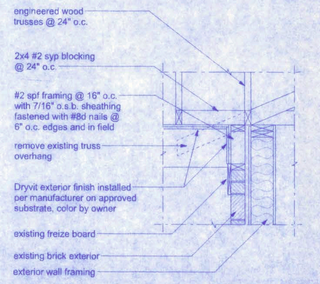
3 CORNER POST DETAIL

NTS



4 TYP FTG. SECTION

SCALE: 3/4" = 1'-0"



5 NEW PORCH TO EAVE

NTS

COLUMBIA COUNTY
EMERGENCY OPERATIONS CENTER

P.E. # 58701

Freeman Design Group inc
128 SW NASSAU STREET
LAKE CITY, FL. 32025
(386)758-4209
CERTIFICATE OF AUTHORIZATION # 00008701

DATE 11/23/09	DRAWN BY W.H.F.
	APPROVED W.H.F.

REVISIONS

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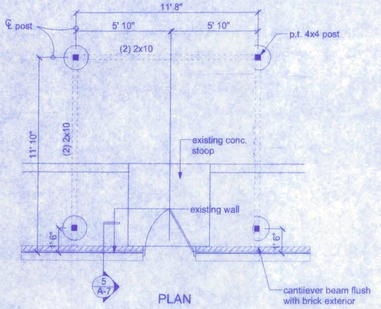
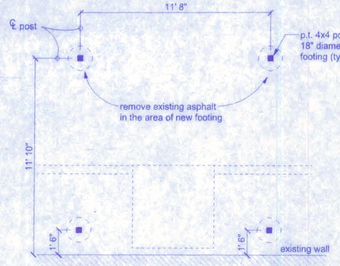
PROJECT NO. 09:C016



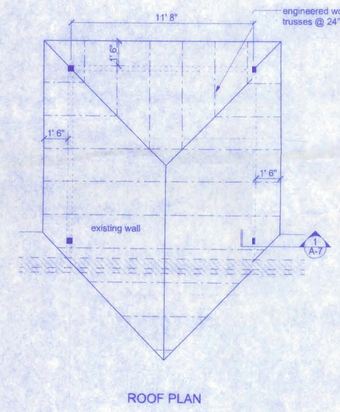
PLAN



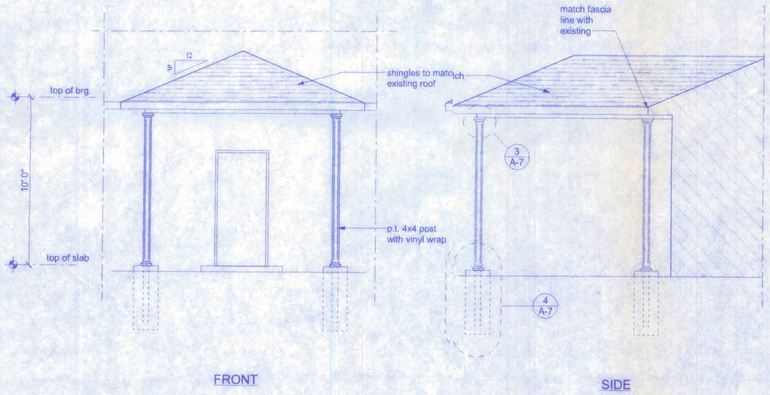
FOUNDATION

NOTE:
all wood framing members for posts and beams shall be #2 syp or better.

NOTE:
patch all asphalt, broken of removed, around column foundation.

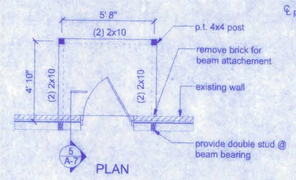


ROOF PLAN

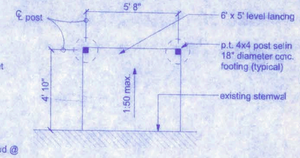


FRONT SIDE

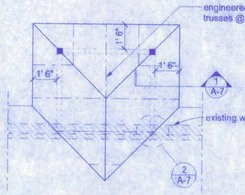
MAIN ENTRANCE PORCH
SCALE: 1/4" = 1'-0"



PLAN

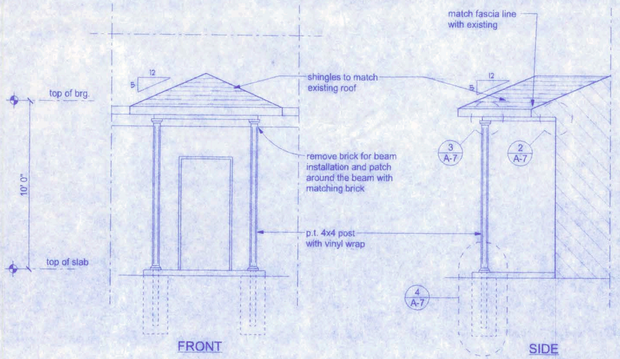


FOUNDATION



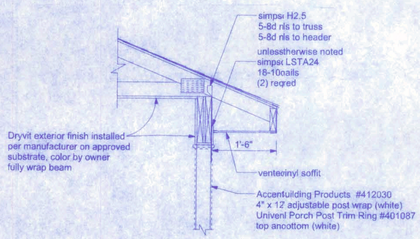
ROOF PLAN

NOTE:
all wood framing members for posts and beams shall be #2 syp or better.

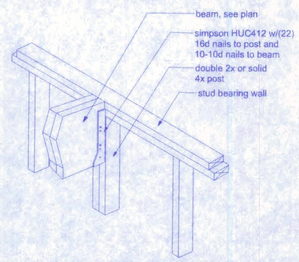


FRONT SIDE

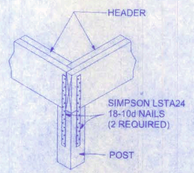
SECONDARY ENTRANCE PORCH
SCALE: 1/4" = 1'-0" (2 REQUIRED)



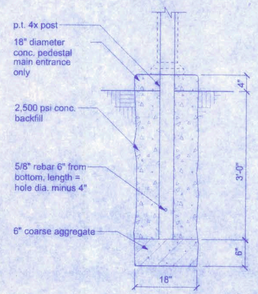
1 PORCH SECTIOI
SCALE: 3/4" = 1'-0"



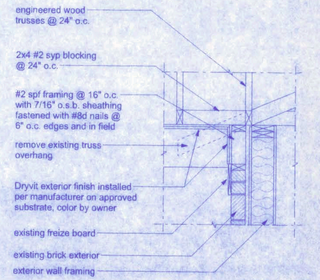
2 BEAM/WALL CONNECTION
MAX. CAPACITY - 3640# DOWN; 1810# UPLIFT NOT TO SCALE



3 CORNER POST DETAIL
NTS



4 TYP FTG. SECTION
SCALE: 3/4" = 1'-0"



5 NEW PORCH TO EAVE
NTS

Freeman Design Group inc
128 SW NASSAU STREET
LAKE CITY, FL. 32025
(386)758-4209

CERTIFICATE OF AUTHORIZATION # G0008701

COLUMBIA COUNTY EMERGENCY OPERATIONS CENTER

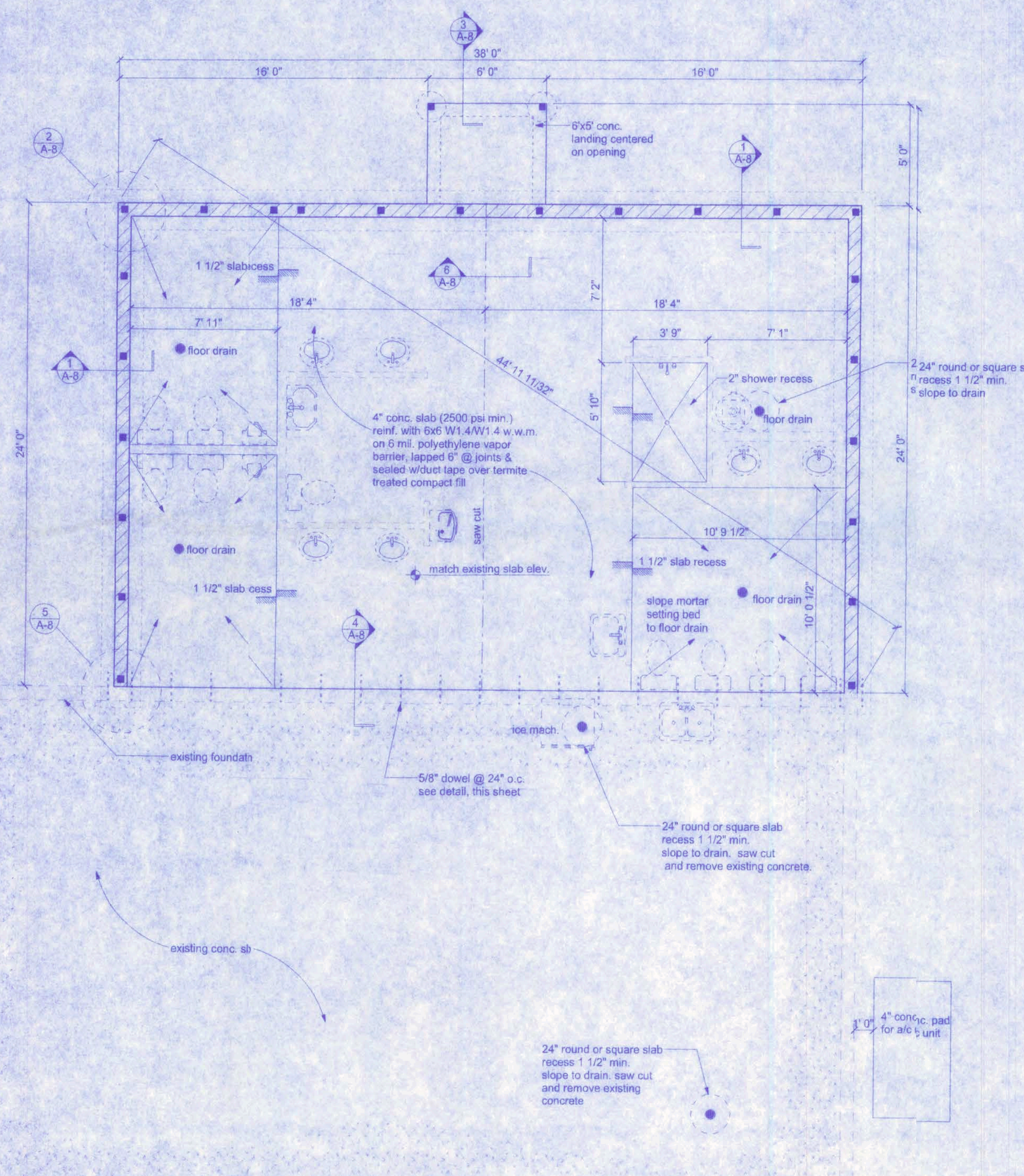
P.E. # 55001

DATE 11/23/09	DRAWN BY W.H.F
	APPROVED W.H.F

REVISIONS

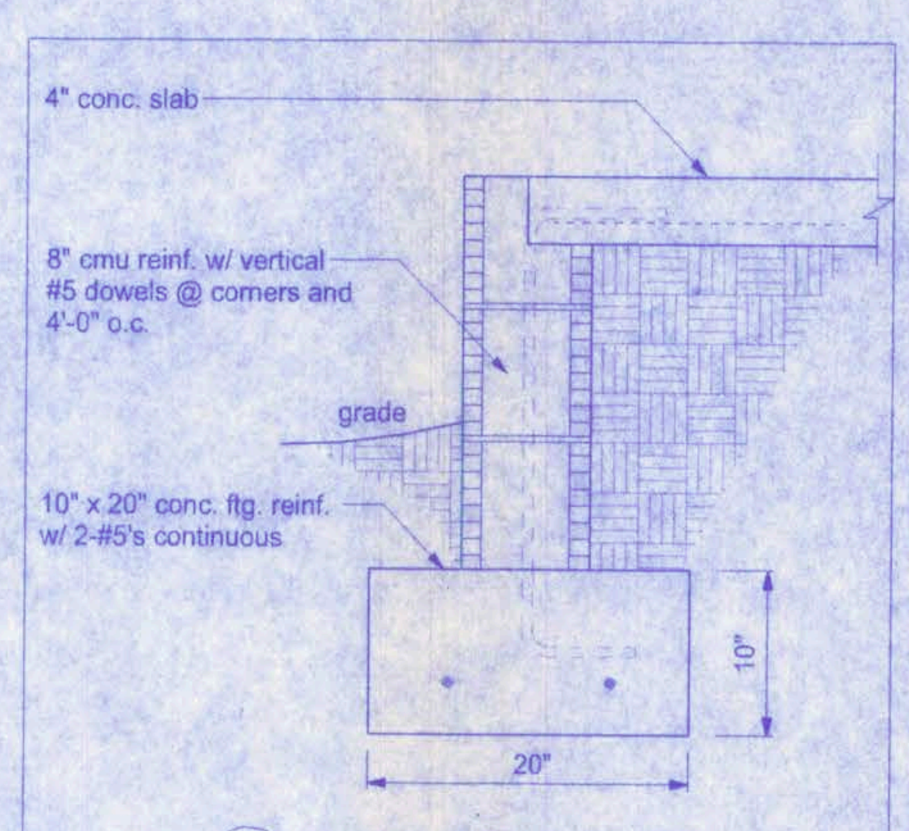
SHEET A-7
OF 15

PROJECT NO. 09.C016

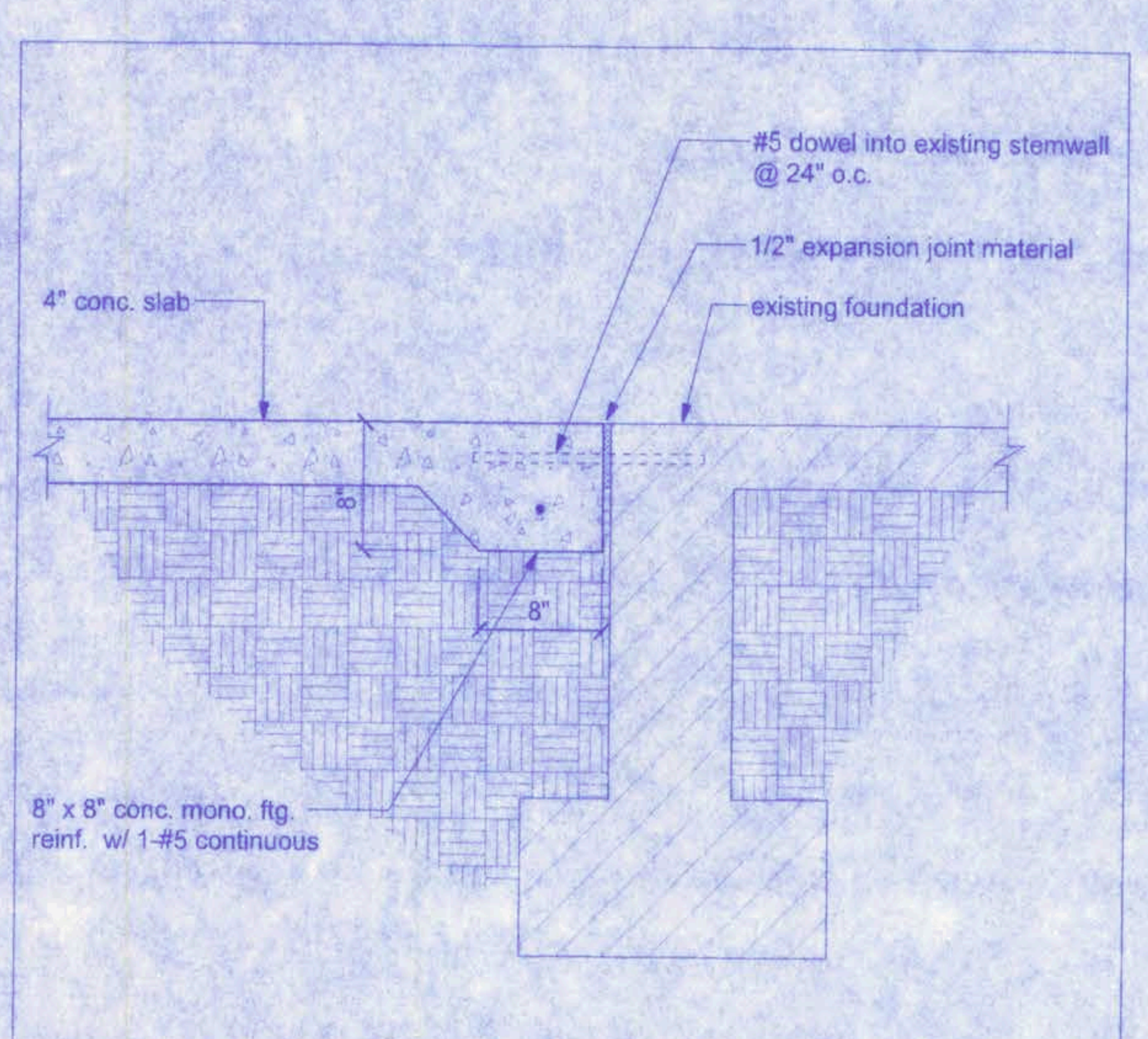


FOUNDATION PLAN

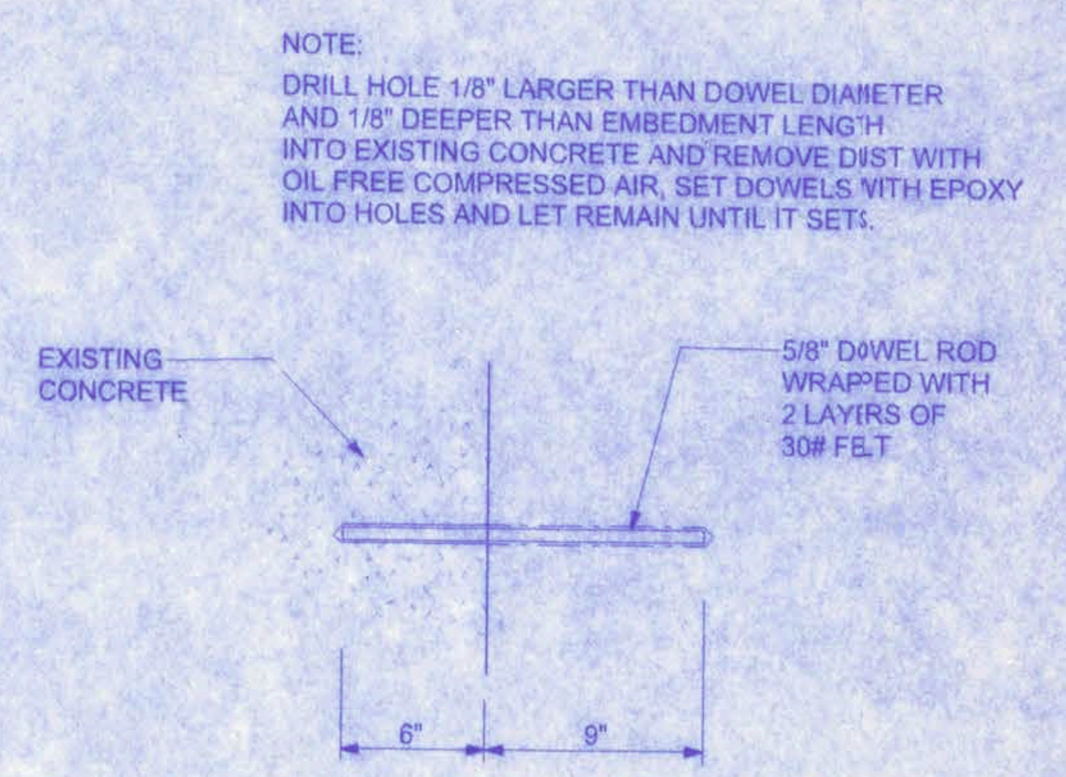
SCALE: 1/4" = 1'-0"



1 STEMWALL SECTION

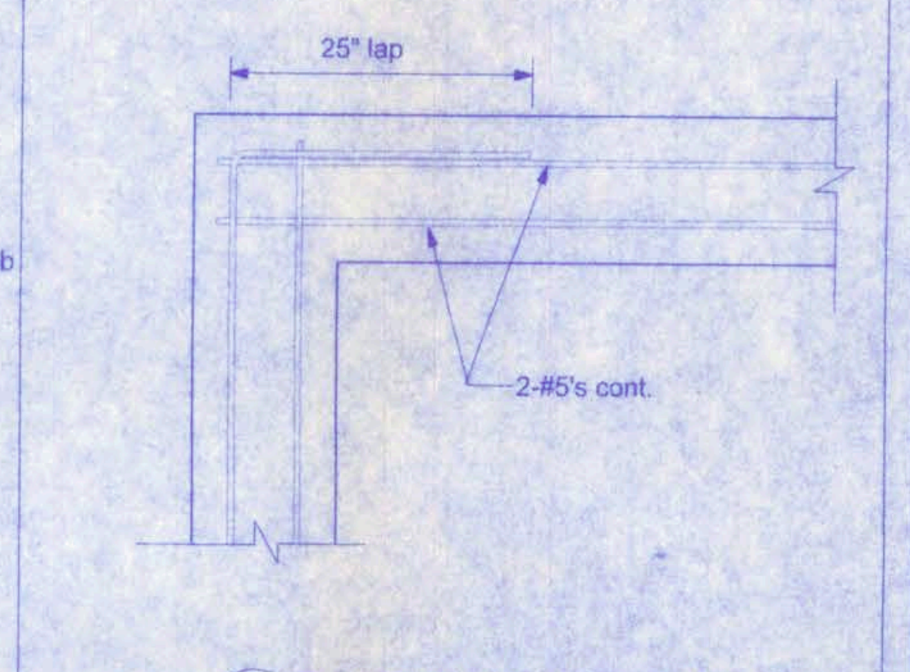


4 STEMWALL SECTION

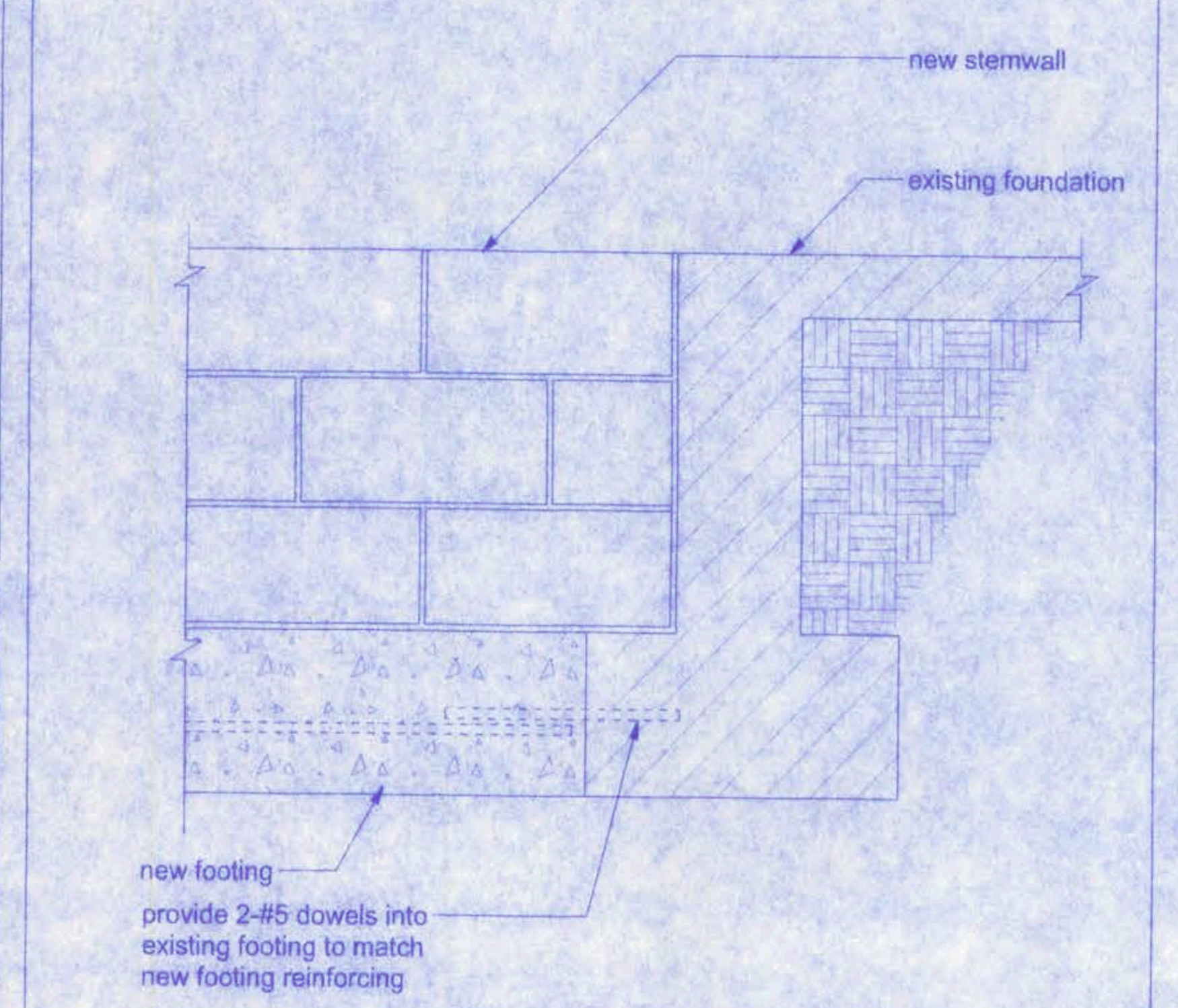


DOWEL DETAIL

SCALE: 1 1/2" = 1'-0"



2 FOOTING REINFORCING AT CORNER



5 STEMWALL SECTION NEW TO EXISTING

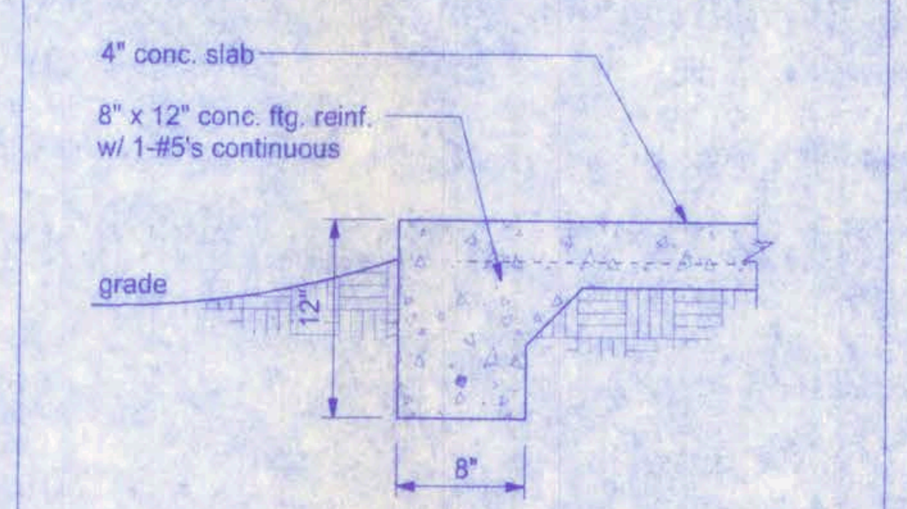
CONCRETE:
CONCRETE SHALL HAVE A MINIMUM SPECIFIED COMPRESSIVESTRENGTH OF 2500 PSI AT 28 DAYS.

REINFORCING STEEL:
THE REINFORCING STEEL SHALL BE MINIMUM GRADE 40.

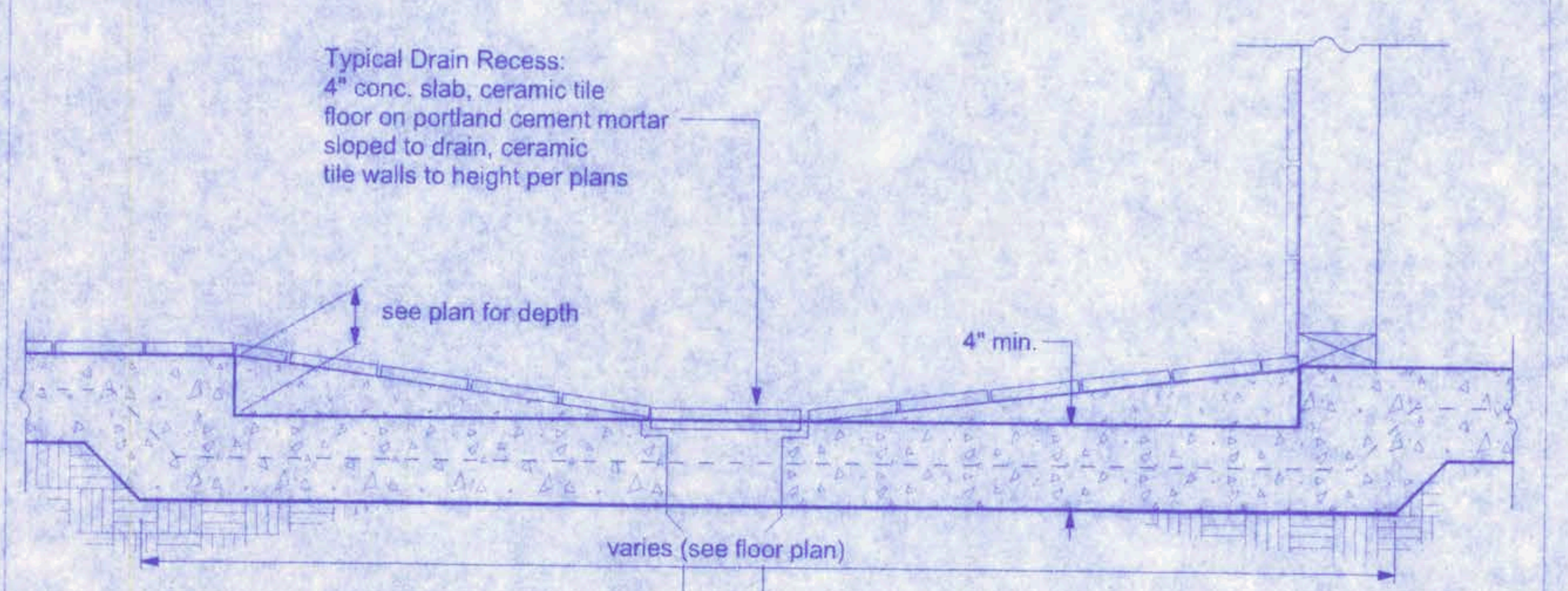
COVER OVER REINFORCING STEEL
FOR FOUNDATIONS, MINIMUM CONCRETE COVER OVER REINFROCING BARS SHALL BE:
3 INCHES IN FOUNDATIONS WHERE THE CONCRETE IS CAST AGAINST AND PERMANENTLY IN CONTACT WITH THE EARTH OR EXPOSED TO THE EARTH OR WEATHER AND 1 1/2 INCHES ELSEWHERE. REINFORCING BARS EMBEDDED IN GROUTED CELLS SHALL HAVE A MINIMUM CLEAR DISTANCE OF 1/4 INCH FOR FINE GROUT OR 1/2 INCH FOR COARSE GROUT BETWEEN REINFORCING BARS AND ANY FACE OF A CELL. REINFORCING BARS USED IN MASONRY WALLS SHALL HAVE A MASONRY COVER (INCLUDING GROUT) OF NOT LESS THAN 2 INCHES FOR MASONRY UNITS WITH FACE EXPOSED TO EARTH OR WEATHER 1 1/2 INCHES FOR MASONRY UNITS NOT EXPOSED TO EARTH OR WEATHER

GALVANIZATION:
METAL ACCESSORIES FOR USE IN EXTERIOR WALL CONSTRUCTION AND NOT DIRECTLY EXPOSED TO THE WEATHER SHALL BE GALVANIZEDIN ACCORDANCE WITH ASTM A 153, CLASS B-2. METAL PLATE CONNECTORS, SCREWS, BOLTS AND NAILS EXPOSED DIRECTLY TO THE WEATHER SHALL BE STAINLESS STEEL OR HOT DIPPED GALVANIZED.

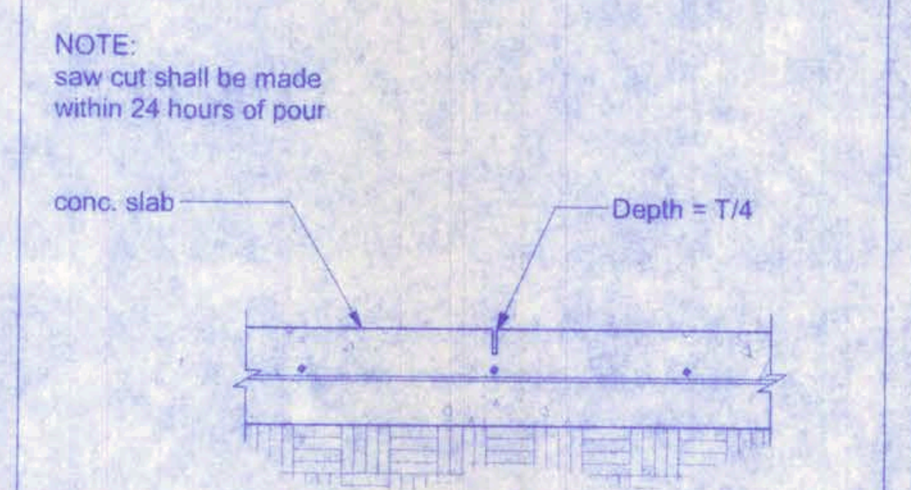
REINFORCEMENT MAY BE BENT IN THE SHOP OR THE FIELD PROVIDED:
1. ALL REINFORCEMENT IS BENT COLD,
2. THE DIAMETER OF THE BEND, MEASURED ON THE INSIDE OF THE BAR, IS NOT LESS THAN SIX-BAR DIAMETERS AND
3. REINFORCEMENT PARTIALLY EMBEDDED IN CONCRETE SHALL NOT BE FIELD BENT.
   EXCEPTION: WHERE BENDING IS NECESSARY TO ALIGN DOWEL BARS WITH A VERTICAL CELL, BARS PARTIALLY EMBEDDED IN CONRETE SHALL BE PERMITTED TO BE BENT AT A SLOPE OF NOT MORE THAN 1 INCH OF HORIZONTAL DISPLACEMENT TO 6 INCHES OF VERTICAL BARLENGTH.



3 MONOLITHIC FOOTING AT EDGE OF LANDING



7 TYPICAL SLAB RECESS



6 SAWCUT DETAIL

COLUMBIA COUNTY EMERGENCY OPERATIONS CENTER

P.E. # 56001

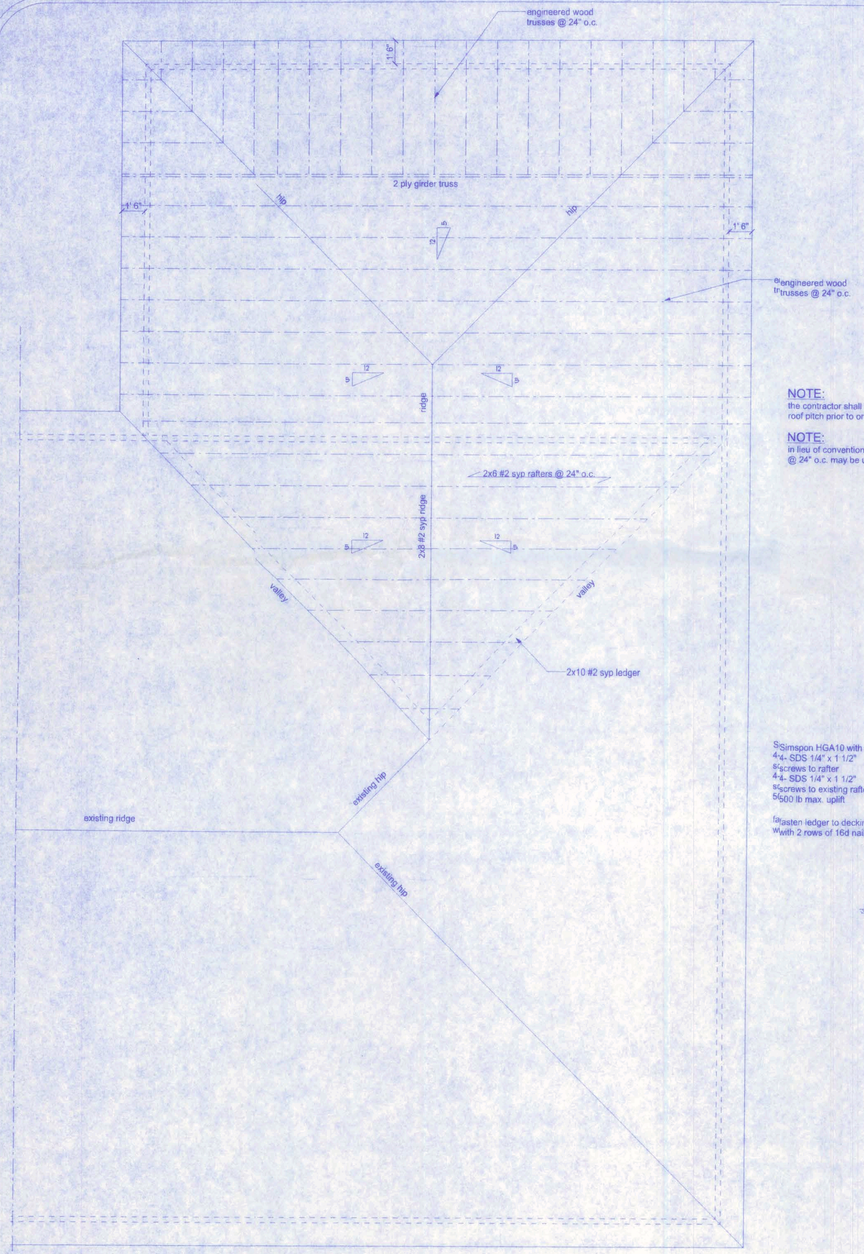
Freeman Design Group inc
128 SW NASSAU STREET
LAKE CITY, FL. 32025
(386)758-4209
CERTIFICATE OF AUTHORIZATION # 00008191

DATE	DRAWN BY
11/23/09	W.H.F.
	APPROVED W.H.F.

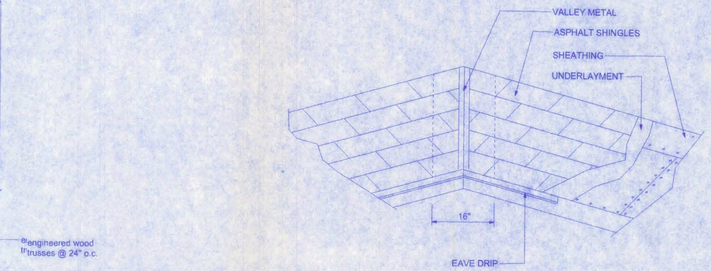
REVISIONS

SHEET A-8
OF 15

PROJECT NO. 09.C016

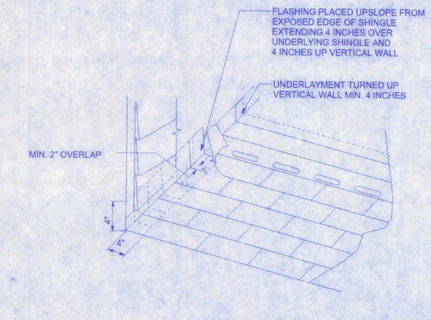


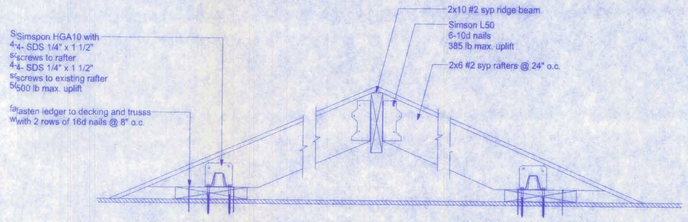
ROOF PLAN
SCALE: 1/4" = 1'-0"



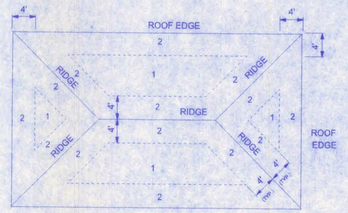
NOTE:
the contractor shall verify exsting roof pitch prior to ordering trusses

NOTE:
in lieu of conventional framing, engineered trusses @ 24" o.c. may be used for the valley roof transition.





1 TYPICAL RIDGE
SCALE: 1 1/2" = 1'-0"



ROOF SHEATHING NAILING ZONES (HIP ROOF)

DECK REQUIREMENTS:
ASPHALT SHINGLES SHALL BE FASTENED TO SOLIDLY SHEATHED DECKS.

SLOPE:
ASPHALT SHINGLES SHALL BE USED ONLY ON ROOF SLOPES OF 2:12 OR GREATER. FOR ROOF SLOPES FROM 2:12 TO 4:12, DOUBLE UNDERLAYMENT IS REQUIRED.

UNDERLAYMENT:
UNLESS OTHERWISE NOTED, UNDERLAYMENT SHALL CONFORM WITH ASTM D 226, TYPE 1, OR ASTM D 4869, TYPE 1.

SELF-ADHERING POLYMER MODIFIED BITUMEN SHEET:
SELF ADHERING POLYMER MODIFIED BITUMEN SHALL COMPLY WITH ASTM D 1970.

ASPHALT SHINGLES:
ASPHALT SHINGLES SHALL HAVE SELF SEAL STRIPS OR BE INTERLOCKING, AND COMPLY WITH ASTM D 225 OR ASTM D 3462.

FASTENERS:
FASTENERS FOR ASPHALT SHINGLES SHALL BE GALVANIZED, STAINLESS STEE, ALUMINIUM OR COPPER ROOFING NAILS, MINIMUM 12 GAUGE SHANK WITH A MINIMUM 3/8 INCH DIAMETER HEAD, OF A LENGTH TO PENETRATE THROUGH THE ROOFING MATERIAL AND A MINIMUM 3/4" INTO THE ROOF SHEATHING. WHERE ROOF SHEATHING IS LESS THAN 3/4" THICK, THE NAILS SHALL PENETRATE THROUGH THE SHEATHING.

ATTACHMENT:
ASPHALT SHINGLES SHALL BE SECURED TO THE ROOF WITH NOT LESS THAN FOUR FASTENERS PER STRIP SHINGLE OR TWO FASTENERS PER INDIVIDUAL SHINGLE. WHERE ROOFS LOCATED IN BASIC WIND SPEED OF 110 MPH OR GREATER, SPECIAL METHODS OF FASTENING ARE REQUIRED. UNLESS OTHERWISE NOTED, ATTACHMENT OF ASPHALT SHINGLES SHALL CONFORM WITH ASTM D 3161 OR M-DC PA 107-99.

UNDERLAYMENT APPLICATION:
FOR ROOF SLOPES FORM 2:12 TO 4:12, UNDERLAYMENT SHALL BE A MINIMUM OF TWO LAYERS APPLIED AS FOLLOWS:
1. STARTING AT THE EAVE, A 19 INCH STRIP OF UNDERLAYMENT SHALL BE APPLIED PARALLEL WITH THE EAVE AND FASTENED SUFFICIENTLY TO STAY IN PLACE.
2. STARTING AT THE EAVE, 36 INCH WIDE STRIPS OF UNDERLAYMENT FELT SHALL BE APPLIED OVERLAPPING SUCCESSIVE SHEETS 19 INCHES AND FASTENED SUFFICIENTLY TO STAY IN PLACE.

FOR ROOF SLOPED 4:12 AND GREATER, UNDERLAYMENT SHALL BE A MINIMUM OF ONE LAYER OF UNDERLAYMENT FELT APPLIED AS FOLLOWS:
STARTING AT THE EAVE, UNDERLAYMENT SHALL BE APPLIED SHINGLE FASHION PARALLEL TO THE EAVE, LAPPED 2 INCHES, AND FASTENED SUFFICIENTLY TO STAY IN PLACE.

BASE AND CAP FLASHINGS:
BASE AND CAP FLASHING SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS. BASE FLASHING SHALL BE OF EITHER CORROSION RESISTANT METAL OF MINIMUM NOMINAL THICKNESS 0.019 INCH OR MINERAL SURFACE ROLL ROOFING WEIGHING A MINIMUM OF 77 LBS PER 100 SQUARE FEET. CAP FLASHING SHALL BE CORROSION RESISTANT METAL OF MINIMUM NOMINAL THICKNESS OF 0.019 INCH.

VALLEYS:
VALLEY LININGS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS BEFORE APPLYING ASPHALT SHINGLES. VALLEY LININGS OF THE FOLLOWING TYPES SHALL BE PERMITTED:
1. FOR OPEN VALLEYS LINED WITH METAL, THE VALLEY LINING SHALL BE AT LEAST 16 INCHES WIDE AND OF ANY OF THE CORROSION RESISTANT METALS IN TABLE 1507.3.92.
2. FOR OPEN VALLEYS, VALLEY LINING OF TWO PLIES OF MINERAL SURFACE ROLL ROOFING SHALL BE PERMITTED. THE BOTTOM LAYER SHALL BE 18 INCHES AND THE TOP LAYER A MINIMUM OF 36 INCHES WIDE.
3. FOR CLOSED VALLEYS VALLEY LINING SHALL BE ONE OF THE FOLLOWING:
   1. BOTH TYPES 1 AND 2 ABOVE, COMBINED.
   2. ONE PLY OF SMOOTH ROLL ROOFING AT LEAST 36 INCHES WIDE AND COMPLYING WITH ASTM D 224.
   3. SPECIALTY UNDERLAYMENT AT LEAST 36 INCHES WIDE AND COMPLYING WITH ASTM D 1970.

MATERIAL	MINIMUM THICKNESS (in)	GAGE	WEIGHT (LB)
COPPER			1
ALUMINUM	0.024		
STAINLESS STEEL		28	
GALVANIZED STEEL	0.0179	26 (zinc coated G90)	
ZINC ALLOY			2 1/2
LEAD			20
PAINTED TERNE	0.027		

ROOF SHEATHING FASTENINGS

NAILING ZONE	SHEATHING TYPE	FASTENER	SPACING
1	5/8" CDX	8d COMMON OR 8d HOT DIPPED GALVANIZED BOX NAILS	6 in. o.c. EDGE 12 in. o.c. FIELD
2			6 in. o.c. EDGE 6 in. o.c. FIELD
3			4 in. o.c. @ GABLE ENDWALL OR GABLE TRUSS 6 in. o.c. EDGE 6 in. o.c. FIELD

CONNECTOR SCHEDULE FOR TRUSS ANCHORAGE

CONNECTOR	TRUSS	TOP PLATE	UPLIFT PROVIDED	MANUFACTURER
H2.5	5-8d NAILS	5-8d NAILS	365 LBS	SIMPSON
H10	8-8d NAILS	8-8d NAILS	850 LBS	SIMPSON
MTS12	7-10d NAILS	7-10d NAILS	1,000 LBS	SIMPSON
H16	2-10d NAILS	10-10d NAILS	1,300 LBS	SIMPSON
(2)HTS20	10-10d NAILS	10-10d NAILS	2 x 1,450 = 2,900 LBS	SIMPSON

COLUMBIA COUNTY
EMERGENCY OPERATIONS CENTER

Freeman Design Group inc
128 SW NASSAU STREET
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CERTIFICATE OF AUTHORIZATION # 00008701

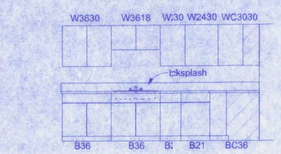
P.E. # 59001

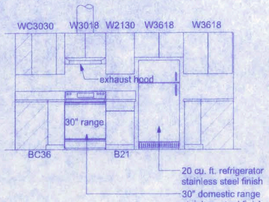
DATE	DRAWN BY
11/23/09	W.H.F.
	APPROVED W.H.F.

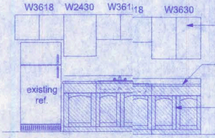
REVISIONS

SHEET A-9
OF 15

PROJECT NO.
09.C016

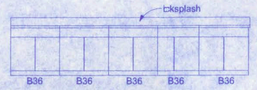


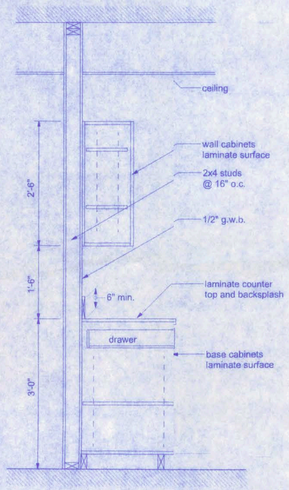




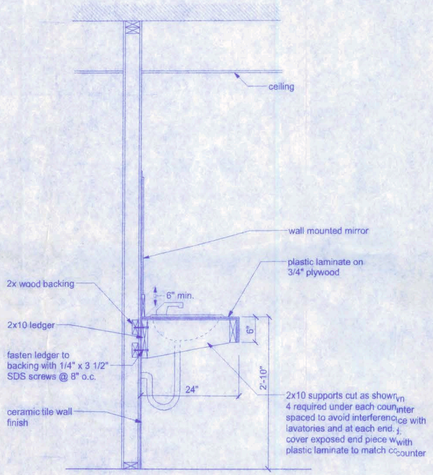
NOTE:
all kitchen appliances shall be purchased by the owner and installed by the contractor.

NOTE:
the contractor shall verify existing base cabinet dimensions and arrangement prior to ordering new wall cabinets

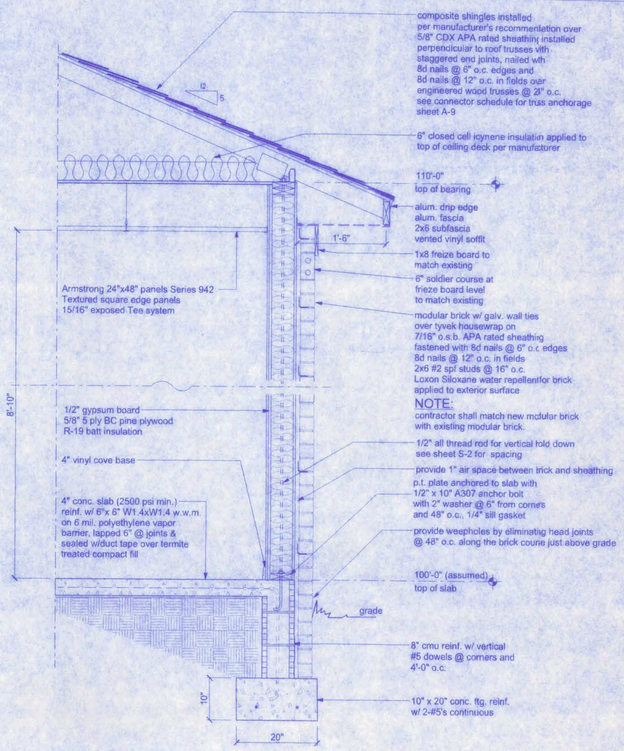




A CABINET SECTION
SCALE: 3/4" = 1'-0"



B VANITY SECTION
SCALE: 3/4" = 1'-0"



NOTE:
contractor shall match new modular brick with existing modular brick.

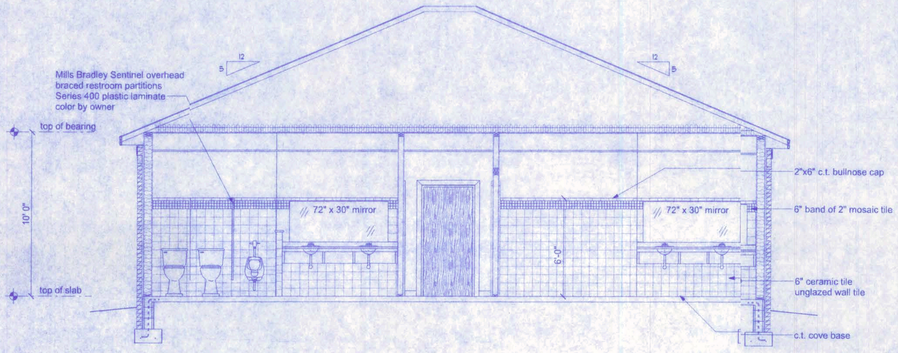
1/2" all thread rod for vertical fold down see sheet S-2 for spacing

provide 1" air space between brick and sheathing

p.t. plate anchored to slab with 1/2" x 10" A307 anchor bolt with 2" washer @ 6" from corners and 48" o.c., 1/4" sill gasket

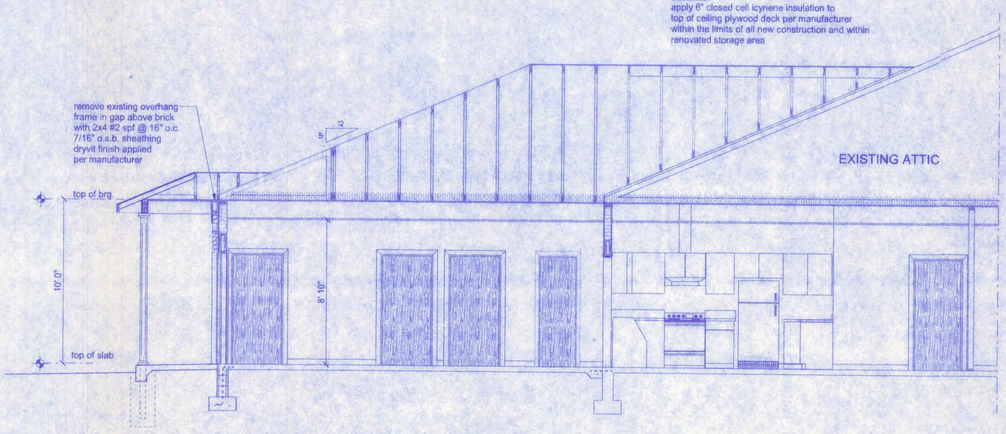
provide weepholes by eliminating head joints @ 48" o.c. along the brick course just above grade

TYPICAL WALL SECTION
SCALE: 3/4" = 1'-0"



A SECTION
SCALE: 1/4" = 1'-0"

NOTE:
apply 6" closed cell icynene insulation to top of ceiling plywood deck per manufacturer within the limits of all new construction and within renovated storage area



B SECTION
SCALE: 1/4" = 1'-0"

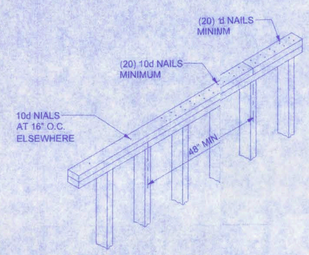
COLUMBIA COUNTY
EMERGENCY OPERATIONS CENTER

Freeman Design Group inc
128 SW NASSAU STREET
LAKE CITY, FL 32025
(386)758-4209
CERTIFICATE OF AUTHORIZATION # 60008797

P.E.: 53581

DATE 11/23/09
DRAWN BY W.H.F.
APPROVED W.H.F.
REVISIONS

SHEET A-10
OF 15
PROJECT NO. 09.C016

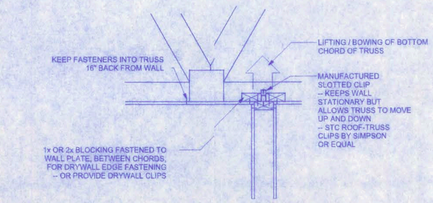


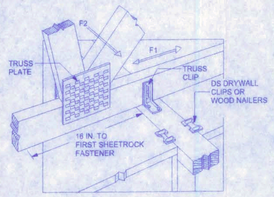
TOP PLATE SPLICE DETAILS

SCALE: 1/2" = 1'-0"

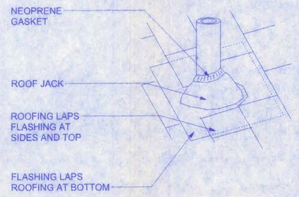
ALLOWABLE DEFLECTION OF STRUCTURAL MEMBERS

STRUCTURAL MEMBER	ALLOWABLE DEFLECTION
rafters having slopes greater than 2/12 with no finished ceiling attached to rafters	L/180
interior walls and partitions	H/180
floors and plastered ceilings	L/360
all other structural members	L/240
exterior walls with plaster or stucco finish	H/360
exterior walls - wind loads with brittle finishes	L/240
exterior walls - wind loads with flexible finishes	L/120

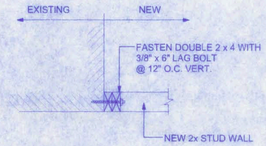




NON-BEARING INT. WALL ATTACHMENT TO TRUSSES

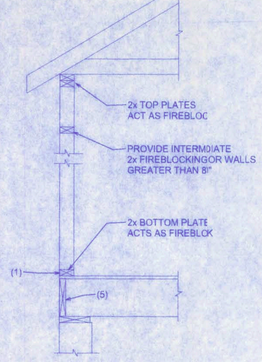


ROOF JACKS AND VENTS

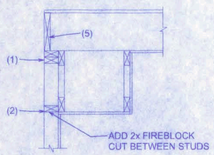


NEW TO EXISTING

SCALE: 1" = 1'-0"



PLATFORM FRAMING

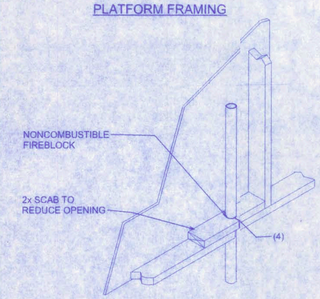


SOFFIT/DROPPED CLG.

FIREBLOCKING NOTES:

FIREBLOCKING SHALL BE INSTALLED IN WOOD FRAME CONSTRUCTION IN THE FOLLOWING LOCATIONS:

1. IN CONCEALED SPACES OF STUD WALLS AND PARTITIONS INCLUDING FURRED SPACES AT CEILING AND FLOOR LEVELS.
2. AT ALL INTERCONNECTIONS BETWEEN CONCEALED VERTICAL AND HORIZONTAL SPACES SUCH AS OCCUR AT SOFFITS, DROP CEILINGS, COVE CEILINGS, ETC.
3. IN CONCEALED SPACES BETWEEN STAIR STRINGERS AT THE TOP AND BOTTOM OF THE RUN.
4. AT OPENINGS AROUND VENTS, PIPES, DUCTS, CHIMNEYS AND FIREPLACES AT CEILING AND FLOOR LEVELS WITH PYROPANEL MULTIFLEX SEALANT
5. AT ALL INTERCONNECTIONS BETWEEN CONCEALED VERTICAL STUD WALL OR PARTITION SPACES AND CONCEALED SPACES CREATED BY AN ASSEMBLY OF FLOOR JOISTS. FIREBLOCKING SHALL BE PROVIDED FOR THE FULL DEPTH OF THE JOISTS AT THE ENDS AND OVER THE SUPPORTS.



PENETRATIOS

STEEL COATING RECOMMENDATIONS IN PRESSURE TREATED WOOD:

- Thicker galvanizing generally extends service life of a product. The treated wood industry recommends use of Stainless Steel and hot-dip galvanized connectors and fasteners with treated wood.
- Due to the uncertainties, which are out of the specifiers control, in regard to the chemicals used in pressure treated wood, Simpson recommends the use of stainless steel fasteners, anchors and connectors with treated wood when possible. At a minimum, customers should use ZMAX (G185 HDG per ASTM A653), Batch/Post Hot-Dip Galvanized (per ASTM A123 for connectors and ASTM A153 for fasteners), or mechanically galvanized fasteners (per ASTM B695, Class 55 or greater), product with the newer alternative treated woods.
- G60 galvanized products should not be used with treated woods.
- G90 galvanized connectors can be used with Sodium Borate (DOT - Disodium Octaborate Tetrahydrate) treated woods. Sodium Borate Treated woods are not suitable for applications where moisture exposure is likely. They are suitable for mudsill applications when transported, stored, and installed appropriately.
- When using stainless steel or hot-dip galvanized connectors, the connectors and fasteners should be made of the same material.

Simpson Strong-Tie Product Finishes	Untreated Wood	Chromated Copper Arsenate (CCA-C)	DOT Sodium Borate (SBX)	Alkaline Copper Quat ACQ-C and ACQ-D (Carbonate)	Copper Azole (CBA-A and CA-B)	SBX (DOT) with NASiO2	Ammoniacal Copper Zinc Arsenate (ACZA)	Other Pressure Treated Woods
Standard (G90)	X	X	X					
ZMAX (G185)	X	X	X	X	X	X		
Post Hot-Dip Galvanized (HDG)	X	X	X	X	X	X	X	X
SST300 (Stainless Steel)	X	X	X	X	X	X	X	X

COLUMBIA COUNTY
EMERGENCY OPERATIONS CENTER

William H. Freeman 11/23/09 P.E. # 56083

Freeman Design Group inc
128 SW NASSAU STREET
LAKE CITY, FL. 32025
(386)758-4209
CERTIFICATE OF AUTHORIZATION # 6808/701

DATE 11/23/09 | DRAWN BY W.H.F. | APPROVED W.H.F.

REVISIONS

SHEET A-11
OF 15

PROJECT NO. 09.C016

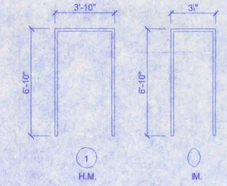
1	2	3	4				5	6	7	8	9	10	11			12	13	14	
OPENING NUMBER	DOR TYPE	MATL	NOMINAL SIZE NO	WIDTH	HEIGHT	THKS	SILL DETAIL	LOUVER W	LOUVER H	GLASS	SPEC'L DETAIL	FRAME TYPE	FRAME MAT'L	FRAME SECTIONS JAMB	FRAME SECTIONS HEAD	FRAME SECTIONS SILL	FIRE RATING	HARDWARE SET	REMARKS	
105 - a	F	WD	2	3'-0"	6'-8"	1 3/4	4			-		2	HM	3				storeroom lock	ANSI A156.2, NO. F86	
107 - a	F	WD	2	3'-0"	6'-8"	1 3/4	4			-		2	HM	3				office lock	ANSI A156.2, NO. F82	
108 - a	F	WD	2	3'-0"	6'-8"	1 3/4	4			-		2	HM	3				office lock	ANSI A156.2, NO. F82	
126 - a	F	WD	2	3'-0"	6'-8"	1 3/4	4			-		2	HM	3				passage	ANSI A156.2, NO. F75	self closing
127 - a	F	WD	2	3'-0"	6'-8"	1 3/4	4			-		2	HM	3				passage	ANSI A156.2, NO. F75	self closing
128 - a	F	WD	2	3'-0"	6'-8"	1 3/4	4			-		2	HM	3				public toilet lock	ANSI A156.2, NO. F88	self closing
129 - a	F	HM	2	3'-0"	6'-8"	1 3/4	5			-		2	HM	3				entrance	ANSI A156.2, NO. F81/82	self closing
130 - a	F	WD	2	3'-0"	6'-8"	1 3/4	4			-		2	HM	3				passage	ANSI A156.2, NO. F75	
131 - a	F	WD	2	3'-0"	6'-8"	1 3/4	4			-		2	HM	3				passage	ANSI A156.2, NO. F75	self closing
132 - a	F	WD	2	3'-0"	6'-8"	1 3/4	4			-		2	HM	3				public toilet lock	ANSI A156.2, NO. F88	self closing
133 - a	F	WD	2	3'-0"	6'-8"	1 3/4	4			-		2	HM	3				passage	ANSI A156.2, NO. F75	
134 - a	F	WD	2	3'-0"	6'-8"	1 3/4	4			-		2	HM	3				passage	ANSI A156.2, NO. F75	
136 - a	F	WD	2	3'-0"	6'-8"	1 3/4	4			-		2	HM	3				storeroom lock	ANSI A156.2, NO. F86	
137 - a	F	WD	1	3'-6"	6'-8"	1 3/4	4			-		1	HM	3				office lock	ANSI A156.2, NO. F82	
138 - a	F	WD	2	3'-0"	6'-8"	1 3/4	4			-		2	HM	3				storeroom lock	ANSI A156.2, NO. F86	

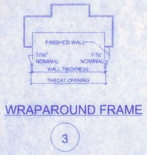
1. NUMBER ALL OPENINGS INDIVIDUALLY, WITH THE NUMBERING SYSTEM REFLECTING FLOOR NUMBER IF PRACTICABLE.
2. DOOR TYPE
   USE ALPHABETICAL DESIGNATION FOR TYPES, AS SHOWN ON ELEVATION VIEWS ON FACING PAGE. ELEVATIONS SHOULD SHOW DOOR CONFIGURATIONS AND ALL FEATURES SUCH AS LOUVERS, VISION LIGHTS, ETC., DO NOT USE ON ELEVATION WITH DASH LINES TO INDICATE VARIATIONS.
3. DOOR MATERIAL
   DESIGNATE MATERIAL FROM WHICH DOOR IS MADE. HM = HOLLOW METAL, AL = ALUMINUM, WD = WOOD, FG = FIBERGLASS. INDICATE SPECIAL FACING AS NOTED IN REMARKS COLUMN. TYPE OF CORE CONSTRUCTION SHOULD BE STATED IN THE SPECIFICATIONS.
4. NOMINAL SIZE
   LIST NUMBER OF DOORS PER FRAMED OPENING, PLUS WIDTH, HEIGHT AND THICKNESS OF DOOR. STATE HEAD AND JAMB CLEARANCES IN SPECIFICATIONS. USING HOLLOW METAL MANUFACTURER'S ASSOCIATION RECOMMENDED STANDARDS UNLESS SPECIAL CONDITIONS REQUIRE OTHERWISE.
5. SILL DETAIL
   REFERENCE SILL DETAIL, WHICH SHOWS SILL CLEARANCE, THRESHOLD, IF ANY, AND ANY SPECIAL CONDITIONS. REFERENCE NUMBER SHOWS DETAIL NUMBER FIRST, FOLLOWED BY SHEET NUMBER.
6. LOUVER
   NOTE WIDTH AND HEIGHT, IN INCHES, OF LOUVER PANEL. LOUVER TYPES (LOUVER TYPES MAY BE SPECIFIED OR SHOWN IN DETAIL DRAWINGS.
7. GLASS
   NOTE THICKNESS AND TYPE OF GLASS TO BE USED IN GLAZED OPENING.
8. SPECIAL DETAIL
   REFERENCE DETAILS SHOWING SPECIAL FEATURES SUCH AS ASTRAGAL (ON PAIR), DUTCH DOOR SHELF, FLUSH DOOR PANEL OR OTHER.
9. FRAME TYPE
   USE NUMERICAL DESIGNATION FOR TYPE, AS SHOWN ON ELEVATION VIEWS ON FACING PAGE.
10. FRAME MATERIAL
    DESIGNATE MATERIAL FROM WHICH FRAME IS MADE, USING SAME SYMBOLS AS FOR DOOR MATERIALS.
11. FRAME SECTIONS
    REFERENCE DETAILS, SHOWING FRAME SECTIONS AT HEAD AND JAMB, AND DETAILS OF SUCH MEMBERS AS TRANSOM BARS, MULLIONS AND OTHER SPECIAL FEATURES.
12. FIRE RATING
    STATE FIRE RATING, IF ANY, REQUIRED FOR OPENING.
13. HARDWARE SET
    STATE APPLICABLE HARDWARE SET NUMBERS AS DESCRIBED IN SPECIFICATIONS.
14. REMARKS
    NOTE HERE ANY SPECIAL CHARACTERISTICS OR REQUIRED FEATURES OF THE OPENING TO ENSURE THAT THE CONTRACTOR OR SUPPLIER WILL BE PROPERLY INFORMED.

F
F Flush

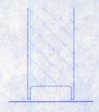
GENERAL NOTES - DOORS

1. ALL INTERIOR DOORS SHALL BE ROTARY CUT BIRCH VENEER SOLID CORE 6/8 x 1 3/4"
2. ALL EXTERIOR DOORS SHALL BE FLUSH FOAM CORE STEEL DOORS 6/8" x 1 3/4" WEATHERSTRIPPING, AND THRESHOLD FACTORY INSTALLED UNLESS NOTED OTHERWISE.
3. IF REQUIRED, UNDERCUT DOORS FOR RETURN AIR. COORDINATE WITH MECHANICAL SUB-CONTRACTOR AS PER FINAL DESIGN.
4. CONFIRM DEPTHS OF ALL JAMBS. COORDINATE WITH CORRESPONDING WALL SECTIONS, PARITION TYPES, AND WALL MODIFICATION DETAILS.
5. PAINT ALL EXTERIOR SURFACES OF EXTERIOR METAL DOORS AND THE STEEL DOOR JAMB WITH SHERWIN WILLIAMS DTM ACRYLIC GLOSS SW 1013.
6. PAINT ALL INTERIOR SURFACES OF EXTERNAL METAL DOORS AND THE METAL DOOR FRAME WITH SHERWIN WILLIAMS DTM ACRYLIC GLOSS SW 1013.
7. PAINT ALL INTERIOR STEEL JAMBS WITH SW DTM ACRYLIC GLOSS SW 1013.
8. ALL INTERIOR DOORS SHALL BE PREFINISHED "HONEY" COLOR TO MATCH EXISTING.
9. DOOR HARDWARE SHALL BE LEVER TYPE BY CORBIN RUSSWIN, FINISH TO MATCH EXISTING.
10. ALL DOOR CLOSERS SHALL BE LCN OVERHEAD SURFACE MOUNTED SERIES 4010.
11. PANIC H/W SHALL BE CORBIN RUSSWIN ED 8200 W/ FINISH TO MATCH EXISTING.

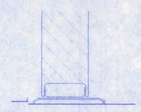




WRAPAROUND FRAME
3



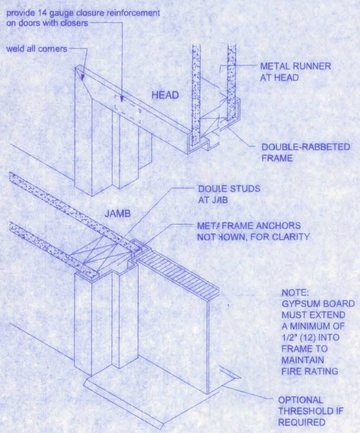
SILL
4



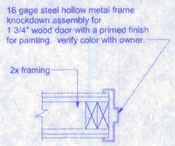
SILL
5

ACCEPTABLE DOOR HARDWARE

NOTE:
all jambs shall be knockdown hollow metal frame, 16 gauge by F series by steelcraft.



STEEL JAMB/FRAME WALL



WALL JAMB DETAIL
SCALE: 1 1/2" = 1'-0"

DOOR JAMB THICKNESS				
wall type	wall covering	wall thickness	throat opening	jamb depth
2x4	1/2" gypsum both sides	4 1/2"	4 5/8"	5 5/8"
	5/8" plywood and 1/2" gypsum both sides	5 3/4"	5 7/8"	6 7/8"
	5/8" plywood one side only and 1/2" gypsum both sides	5 1/8"	5 1/4"	6 1/4"
2x6	1/2" gypsum both sides	6 1/2"	6 5/8"	7 5/8"
	5/8" plywood and 1/2" gypsum both sides	7 3/4"	7 7/8"	8 7/8"
	5/8" plywood one side only and 1/2" gypsum both sides	7 1/8"	7 1/4"	8 1/4"

contractor shall verify wall type prior to ordering door frames.

COLUMBIA COUNTY
EMERGENCY OPERATIONS CENTER

P.E. # 56091

Freeman Design Group Inc
128 SW NASSAU STREET
LAKE CITY, FL. 32025
(386)758-4209
CERTIFICATE OF AUTHORIZATION # 00008701

DATE 11/23/09
DRAWN BY W.H.F.
APPROVED W.H.F.
REVISIONS

SHEET A-12
OF 15
PROJECT NO. 09.C016

ROOM FINISH SCHEDULE

ROOM NO.	ROOM NAME	FLOOR: CARPET TILE	FLOOR: CT	FLOOR: VCT	FLOOR: SEALED CONC.	SOUTH: MATERIAL: G.W.B.	SOUTH: MATERIAL: DENSE SHIELD	SOUTH: MATERIAL: STUCCO	SOUTH: FINISH: PAINT	SOUTH: FINISH: WALL PAPER	SOUTH: FINISH: CT	SOUTH: FINISH: MIRROR	WEST: MATERIAL: G.W.B.	WEST: MATERIAL: DENSE SHIELD	WEST: MATERIAL: STUCCO	WEST: FINISH: PAINT	WEST: FINISH: WALLPAPER	WEST: FINISH: CT	WEST: FINISH: MIRROR	NORTH: MATERIAL: G.W.B.	NORTH: MATERIAL: DENSE SHIELD	NORTH: MATERIAL: STUCCO	NORTH: FINISH: PAINT	NORTH: FINISH: WALLPAPER	NORTH: FINISH: CT	NORTH: FINISH: MIRROR	EAST: MATERIAL: G.W.B.	EAST: MATERIAL: DENSE SHIELD	EAST: MATERIAL: STUCCO	EAST: FINISH: PAINT	EAST: FINISH: WALLPAPER	EAST: FINISH: CT	EAST: FINISH: MIRROR	CEILING: MATERIAL: G.W.B.	CEILING: MATERIAL: SUSPENDED A.T.	CEILING: MATERIAL: STUCCO	CEILING: MATERIAL: EXPOSED	CEILING: FINISH: PAINT	HEIGHT: +8'-10" U.N.O.	REMARKS
105	RECORDS & STORAGE					●			●				●			●				●			●				●			●				●					*	field verify which walls require new finish
106	CONFERENCE ROOM					●			●				●			●				●			●				●			●				●					*	field verify which walls require new finish
107	RECEPTION AREA					●			●				●			●				●			●				●			●				●					*	field verify which walls require new finish
108	RADIO REPAIR ROOM	●				●			●				●			●				●			●				●			●				●					*	field verify which walls require new finish
109	OFFICE	●				●			●				●			●				●			●				●			●				●					*	
118	911 COMMUNICATIONS	●				●			●				●			●				●			●				●			●				●					*	
126	MEN'S RESTROOM		●				●				●			●				●			●				●			●				●					*	texture and paint walls above ceramic tile
127	MEN'S RESTROOM		●				●				●			●				●			●				●			●				●					*	texture and paint walls above ceramic tile
128	HANDICAP RESTROOM		●				●				●			●				●			●				●			●				●					*	texture and paint walls above ceramic tile
129	CORRIDOR			●		●			●				●			●				●			●				●			●				●					*	
130	MECHANICAL			●		●			●				●			●				●			●				●			●				●					*	
131	WOMEN'S RESTROOM		●				●				●			●				●			●				●			●				●				●	10'-0"	smooth finish on clg. & walls above tile
132	SHOWER ROOM		●			●				●			●				●			●				●			●				●					*	
133	UTILITY			●		●			●				●			●				●			●				●			●				●					*	
134	MULTI-PURPOSE ROOM			●		●			●				●			●				●			●				●			●				●					*	
135	KITCHEN			●		●			●				●			●				●			●				●			●				●					*	
136	STORAGE			●		●			●				●			●				●			●				●			●				●					*	
137	EMERGENCY OPS.	●				●			●				●			●				●			●				●			●				●					*	
137	STORAGE				●	●			●				●			●				●			●				●			●				●					*	

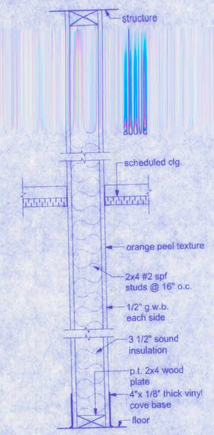
NOTES

NOTE:
ALL WOOD TRIM SHALL BE PAINT GRADE FINGERJOINTED

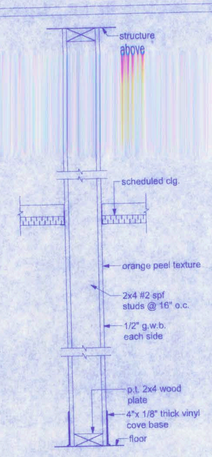
NOTE:
ALL WALLS SHALL RECEIVE A LEVEL 4 FINISH.
ALL WALLS SHALL RECEIVE ONE PRIMER COAT AD 2 FINISH COATS OF LATEX PAINT, COLOR BY OWNER.
WALL PAINT SHALL BE SATIN FINISH.
TRIM AND DOORS SHALL BE SEMI-GLOSS FINISH.

NOTE:
PROVIDE TRANSITION STRIPS BETWEEN DIFFERNT TYPES OF FLOORING.

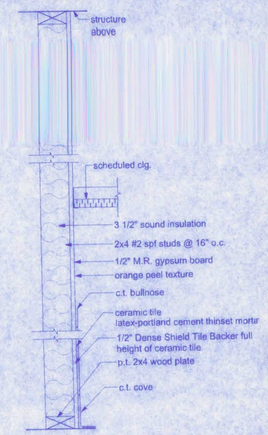
MATERIAL	MANFACTURER	SPECIFICATION	COMMENTS
ACCOUSTICAL CEILING	/mstrong	2' x 4' panels #942 Textured square edged panels	
CARPET TILES	Julindustries, Inc.	Static Smart ESD Carpet Tile Presidential series	color by owner
V.C.T.	/mstrong	Imperial Texture 51908 1/8" thick	Pewter
CERAMIC WALL TILE	aufen	6" x 6" ceramic tile	color by owner
DECORATIVE MOSAIC STRIP	Arrican Olean	Lyndhurst Mosaics 2"x2"	color by owner
CERAMIC FLOOR TILE	aufen	13" x 13" ceramic tile	color by owner
PAINT	Shwin Williams	DTM Acrylic Gloss SW1013 - Trim, Door Jambs,Metal Exterior Doors Pro Mar 200 Eggshell SW1018 - Walls	
CORNER GUARD	W Protex	4200 HWF Clear, corner guard with holes and fasteners, 2" x 48"	locate at each outside corner
4" x 0.125" VINYL BASE	Jinsonite	4" x 0.125" standard toe	color to match existing



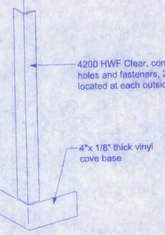
FULL HEIGHT SOUND PARTITION



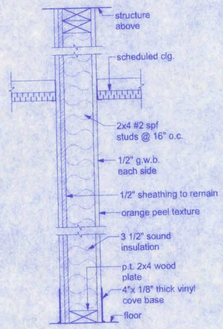
FULL HEIGHT PARTITION



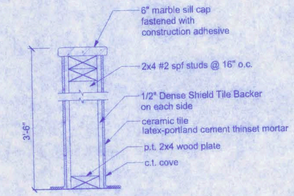
FULL HEIGHT BATHROOM PARTITION
CERAMIC WALL TILE TO 6'-0" A.F.F.



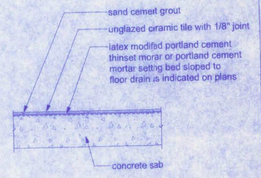
CORNER GUARD



EXISTING NORTH WALL
SHOWN WITH BRICK REMOVED

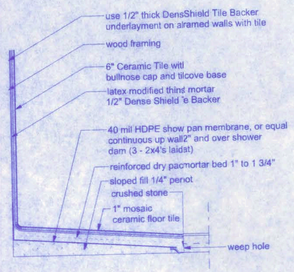


PARTIAL HEIGHT BATHROOM PARTITION

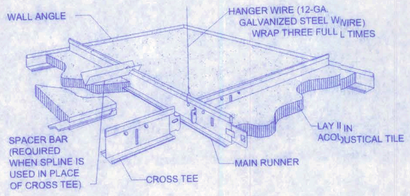


CERAMIC TILE FINISH

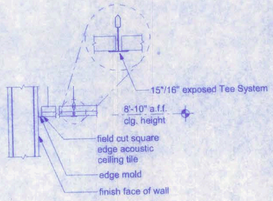
NOTE:
all wall tile shall be installed to a minimm height of 72" above top of shower dam



TILE SHOWER



CEILING DETAIL
NTS



COLUMBIA COUNTY
EMERGENCY OPERATIONS CENTER

Freeman Design Group Inc.
128 SW NASSAU STREET
LAKE CITY, FL 32025
(386)758-4209
CERTIFICATE OF AUTHORIZATION # 00008701

DATE 11/23/09
DRAWN BY W.H.F
APPROVED W.H.F
REVISIONS

SHEET A-13
OF 15
PROJECT NO. 09:C016

ROOM FINISH SCHEDULE

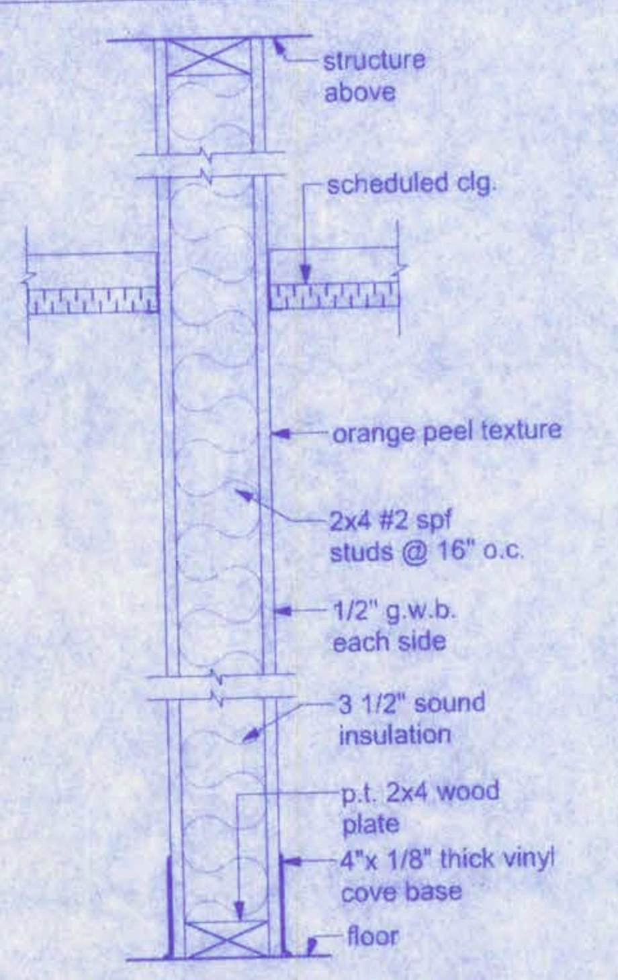
ROOM NO.	ROOM NAME	FLOOR: CARPET TILE	FLOOR: CT	FLOOR: VCT / TEXTURE FINISH	FLOOR: SEALED CONC.	SOUTH MATERIAL: G.W.B.	SOUTH MATERIAL: DENSE SHIELD	SOUTH MATERIAL: STUCCO	SOUTH FINISH: PAINT	SOUTH FINISH: WALLPAPER	SOUTH FINISH: CT	SOUTH FINISH: MIRROR	WEST MATERIAL: G.W.B.	WEST MATERIAL: DENSE SHIELD	WEST MATERIAL: STUCCO	WEST FINISH: PAINT	WEST FINISH: WALLPAPER	WEST FINISH: CT	WEST FINISH: MIRROR	NORTH MATERIAL: G.W.B.	NORTH MATERIAL: DENSE SHIELD	NORTH MATERIAL: STUCCO	NORTH FINISH: PAINT	NORTH FINISH: WALLPAPER	NORTH FINISH: CT	NORTH FINISH: MIRROR	EAST MATERIAL: G.W.B.	EAST MATERIAL: DENSE SHIELD	EAST MATERIAL: STUCCO	EAST FINISH: PAINT	EAST FINISH: WALLPAPER	EAST FINISH: CT	EAST FINISH: MIRROR	CEILING MATERIAL: G.W.B.	CEILING MATERIAL: SUSPENDED A.T.	CEILING MATERIAL: STUCCO	CEILING MATERIAL: EXPOSED	CEILING FINISH: PAINT	HEIGHT *8'-10" U.N.O.	NOTES / REMARKS
105	RECORDS & STORAGE					●			●				●			●				●			●				●			●					●				*	field verify which walls require new finish
106	CONFERENCE ROOM					●			●				●			●				●			●				●			●					●				*	field verify which walls require new finish
107	RECEPTION AREA					●			●				●			●				●			●				●			●					●				*	field verify which walls require new finish
108	RADIO REPAIR ROOM	●				●			●				●			●				●			●				●			●					●				*	field verify which walls require new finish
109	OFFICE	●				●			●				●			●				●			●				●			●					●				*	field verify which walls require new finish
118	911 COMMUNICATIONS	●				●			●				●			●				●			●				●			●					●				*	
126	MEN'S RESTROOM		●				●				●			●				●			●				●			●				●			●				*	texture and paint walls above ceramic tile
127	MEN'S RESTROOM		●				●				●			●				●			●				●			●				●			●				*	texture and paint walls above ceramic tile
128	HANDICAP RESTROOM		●				●				●			●				●			●				●			●				●			●				*	texture and paint walls above ceramic tile
129	CORRIDOR			●		●			●				●			●				●			●				●			●					●				*	
130	MECHANICAL			●		●			●				●			●				●			●				●			●					●				*	
131	WOMEN'S RESTROOM		●				●				●			●				●			●				●			●				●			●				*	texture and paint walls above ceramic tile
132	SHOWER ROOM		●			●					●		●					●		●					●		●					●		●				●	10'-0"	smooth finish on clg. & walls above tile
133	UTILITY			●		●			●				●			●				●			●				●			●					●				*	
134	MULTI-PURPOSE ROOM			●		●			●				●			●				●			●				●			●					●				*	
135	KITCHEN			●		●			●				●			●				●			●				●			●					●				*	
136	STORAGE			●		●			●				●			●				●			●				●			●					●				*	
137	EMERGENCY OPS.	●				●			●				●			●				●			●				●			●					●				*	
137	STORAGE			●		●			●				●			●				●			●				●			●					●				*	

NOTE:
ALL WOOD TRIM SHALL BE PAINT GRADE FINGEROINTED

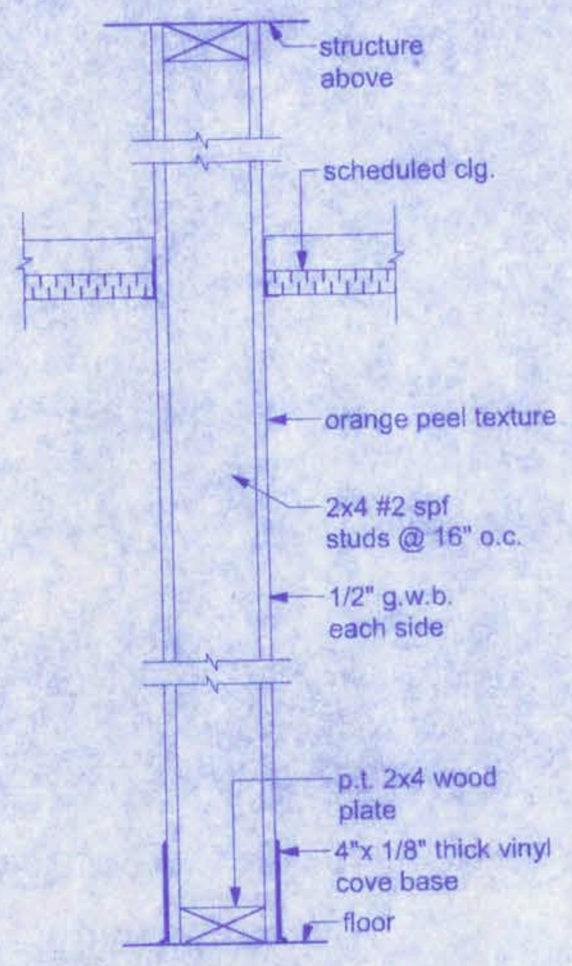
NOTE:
ALL WALLS SHALL RECEIVE A LEVEL 4 FINISH.
ALL WALLS SHALL RECEIVE ONE PRIMER COAT AD 2 FINISH COATS OF LATEX PAINT, COLOR BY OWNER.
WALL PAINT SHALL BE SATIN FINISH.
TRIM AND DOORS SHALL BE SEMI-GLOSS FINISH.

NOTE:
PROVIDE TRANSITION STRIPS BETWEEN DIFFERNT TYPES OF FLOORING.

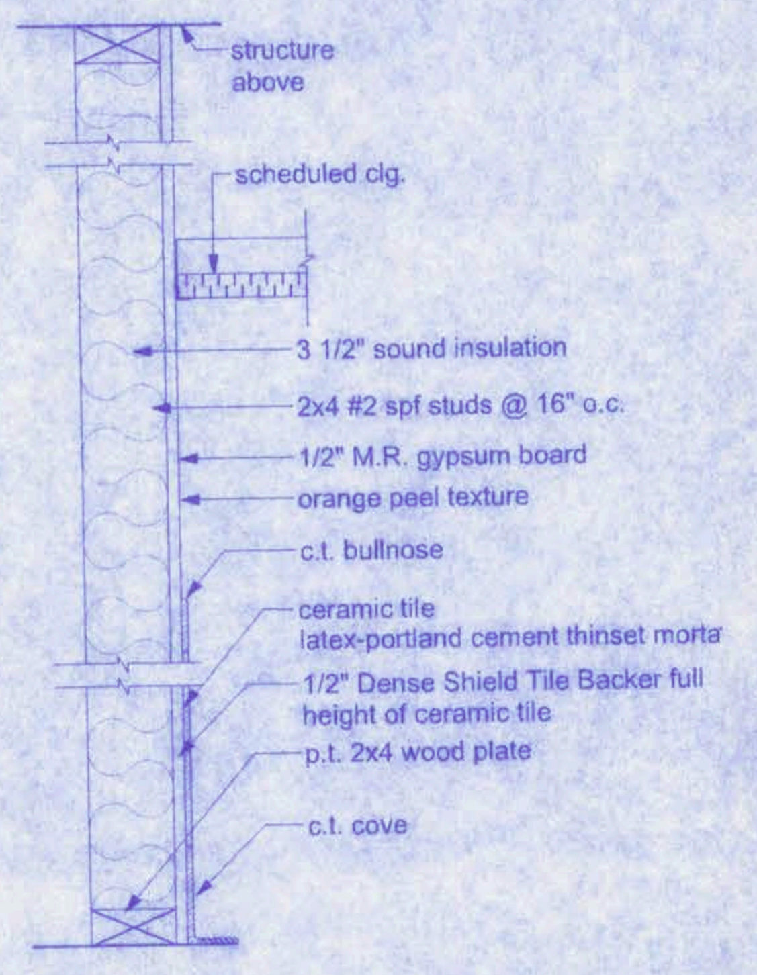
MATERIAL	MANFACTURER	SPECIFICATION	COMMENTS
ACCOUSTICAL CEILING	mstrong	2' x 4' panels #942 Textured square edged panels	
CARPET TILES	Juliendustries, Inc.	Static Smart ESD Carpet Tile Presidential series	color by owner
V.C.T.	mstrong	Imperial Texture 51908 1/8" thick	Pewter
CERAMIC WALL TILE	aufen	6" x 6" ceramic tile	color by owner
DECORATIVE MOSAIC STRIP	Anrican Olean	Lyndhurst Mosaics 2"x2"	color by owner
CERAMIC FLOOR TILE	aufen	13" x 13" ceramic tile	color by owner
PAINT	Shwin Williams	DTM Acrylic Gloss SW1013 - Trim, Door Jambs,Metal Exterior Doors Pro Mar 200 Eggshell SW1018 - Walls	
CORNER GUARD	Wl Protex	4200 HWF Clear, corner guard with holes and fasteners, 2" x 48"	locate at each outside corner
4" x 0.125" VINYL BASE	Jnsonite	4" x 0.125" standard toe	color to match existing



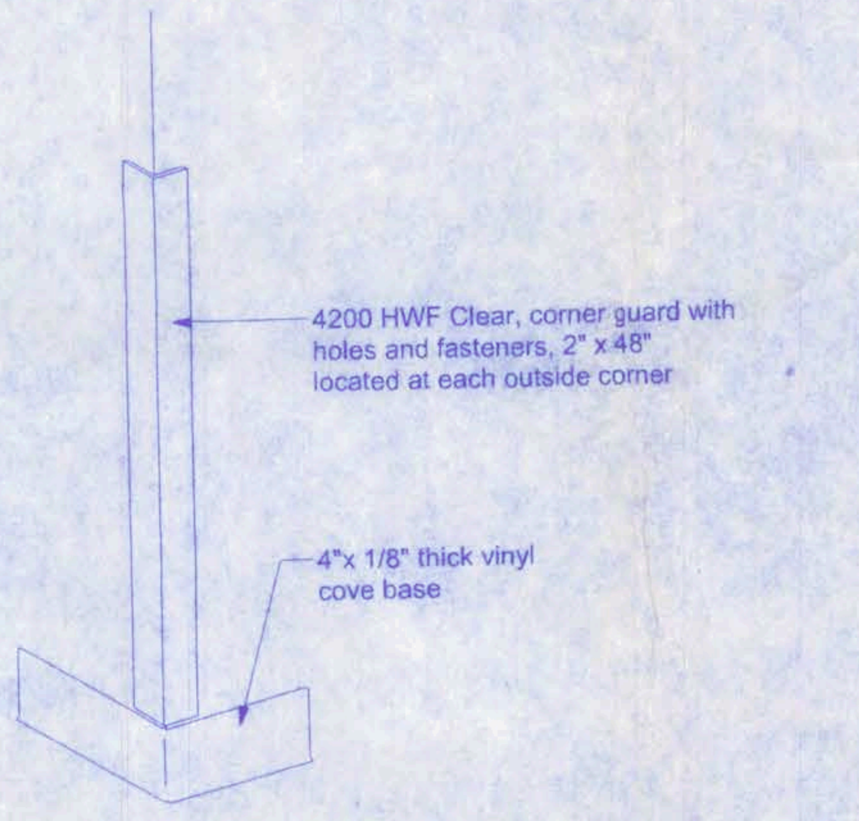
FULL HEIGHT SOUND PARTITION



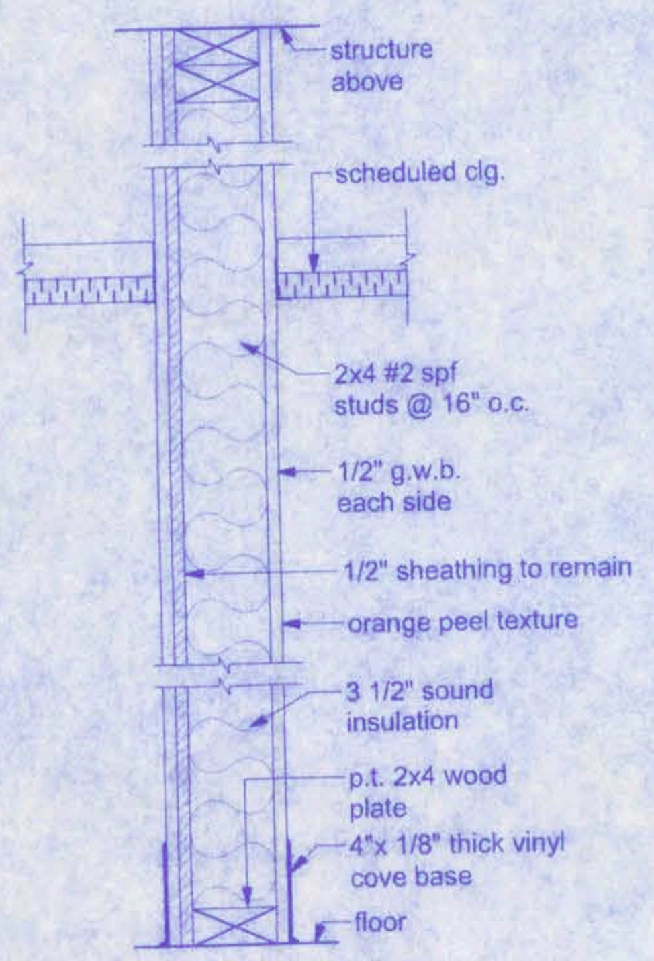
FULL HEIGHT PARTITION



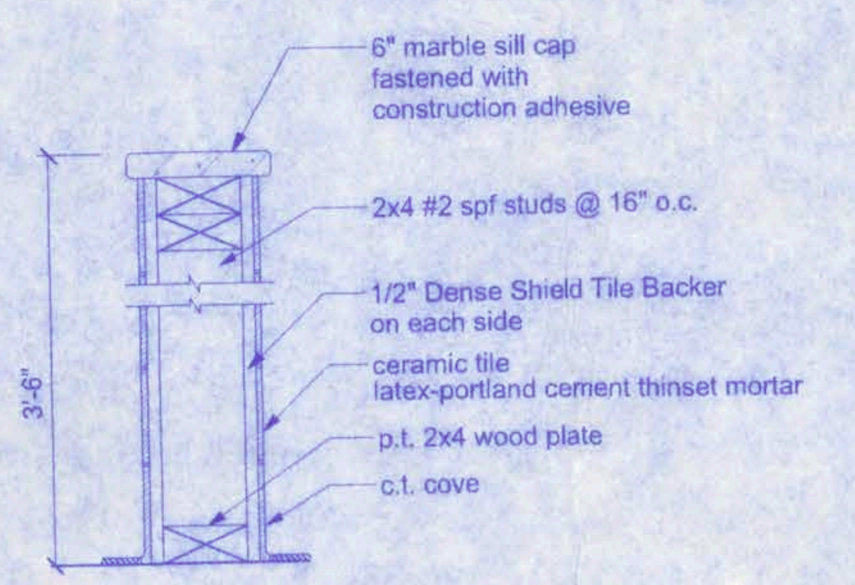
FULL HEIGHT BATHROOM PARTITION
CERAMIC WALL TILE TO 6'-0" A.F.F.



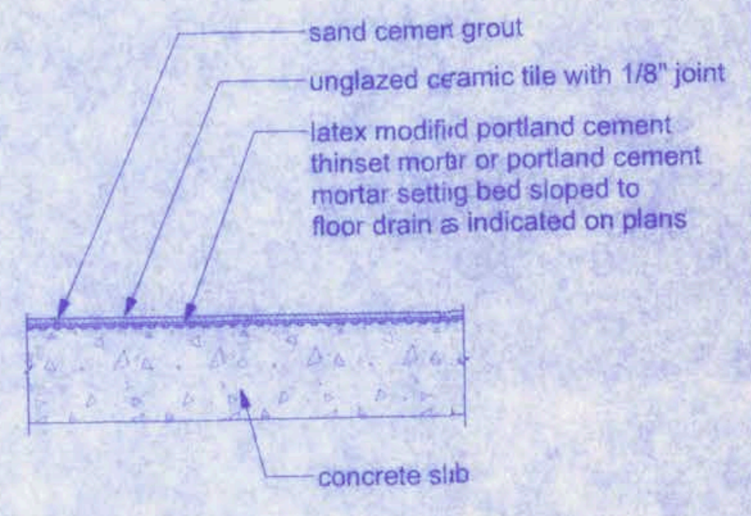
CORNER GUARD



EXISTING NORTH WALL
SHOWN WITH BRICK REMOVED

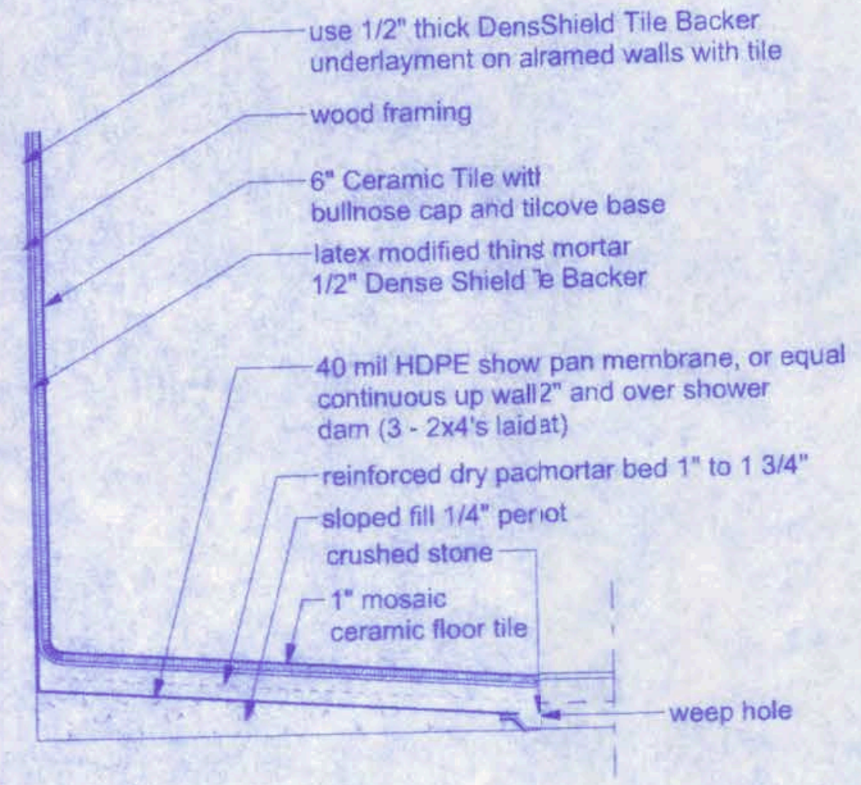


PARTIAL HEIGHT BATHROOM PARTITION

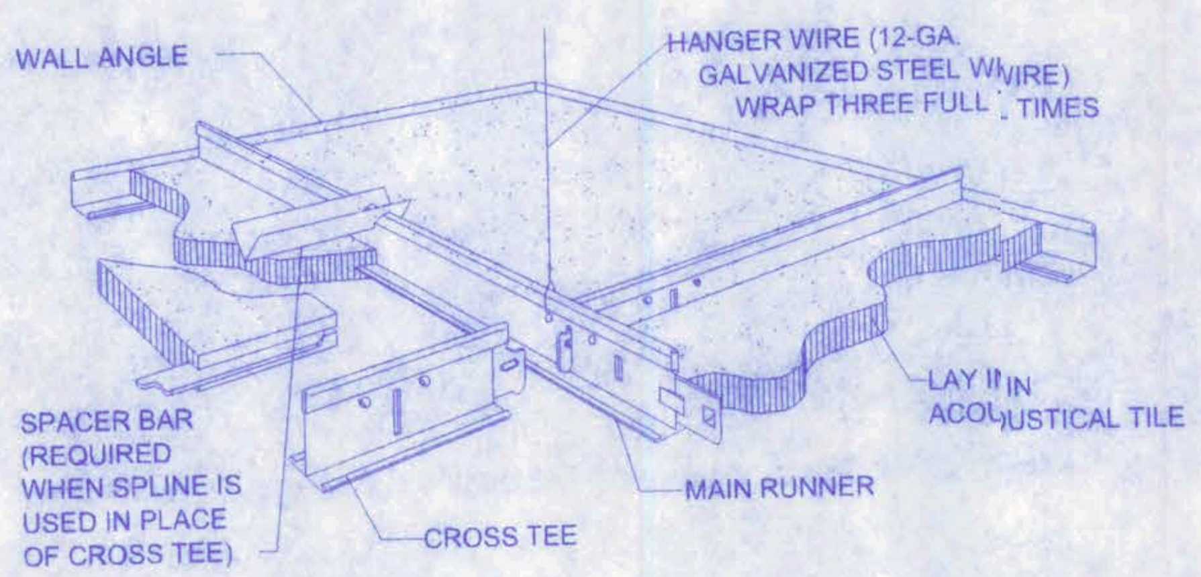


CERAMIC TILE FINISH

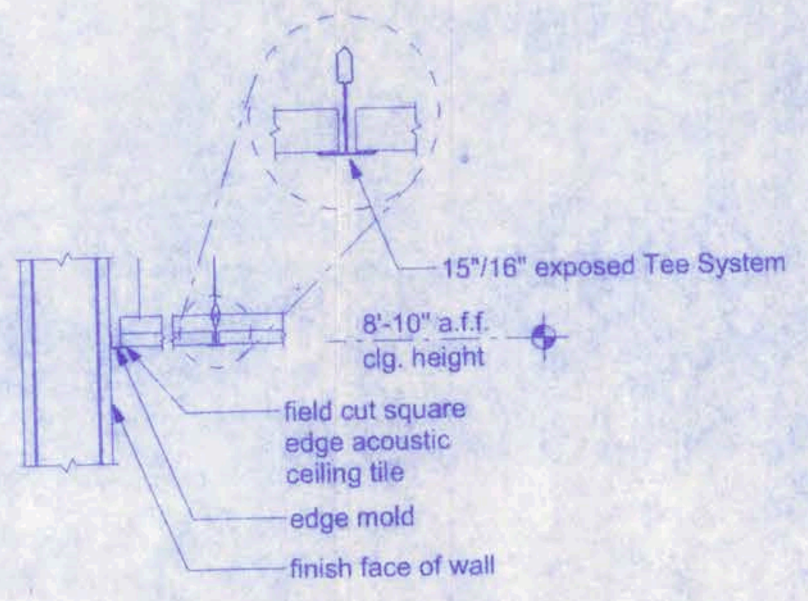
NOTE:
all wall tile shall be installed to a minimm height of 72" above top of shower dam



TILE SHOWER



CEILING DETAIL
NTS



COLUMBIA COUNTY
EMERGENCY OPERATIONS CENTER

P.E. # 56801
11/24/09

Freeman Design Group inc
128 SW NASSAU STREET
LAKE CITY, FL. 32025
(386)758-4209
CERTIFICATE OF AUTHORIZATION # 00008701

DATE 11/23/09	DRAWN BY W.H.F.
	APPROVED W.H.F.
REVISIONS	
SHEET	A-13
OF	15
PROJECT NO.	09.C016

GIS COORDINATOR

101

102

103

104

105

106

107

110

115

116

120

121

122

123

124

rework existing grid where new wall penetrates ceiling

20' 3"

14' 2 1/2"

NOTE:
only 3 lights exist in this area, one must be added

NTE:
reate existing lights and sulty registers as shown

KITCHEN

NOTE:
hatched areas shall hav ave existing lighting and supply registers rel elocated after new wall is constructed d.

MAIN ENTRY

5/8" g.w.b.

TOTAL AREA OF NEW SUSPENDED D CEILING = 3,991 SF

NOTE:
remove 5 existing speakers with 2'x2' cover and replace with ceiling panel

speaker

NOTE:
install 5 existing speakers with 2'x2' cover from existing E.O.C into the new F.O.C. room

R
A

REFLECTED CEILING PLAN

SCALE: 3/16" = 1'-0"

William H. Freeman 11/23/09
P.E. # 56011

COLUMBIA COUNTY
EMERGENCY OPERATIONS CENTER

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SHEET A-14
OF 15

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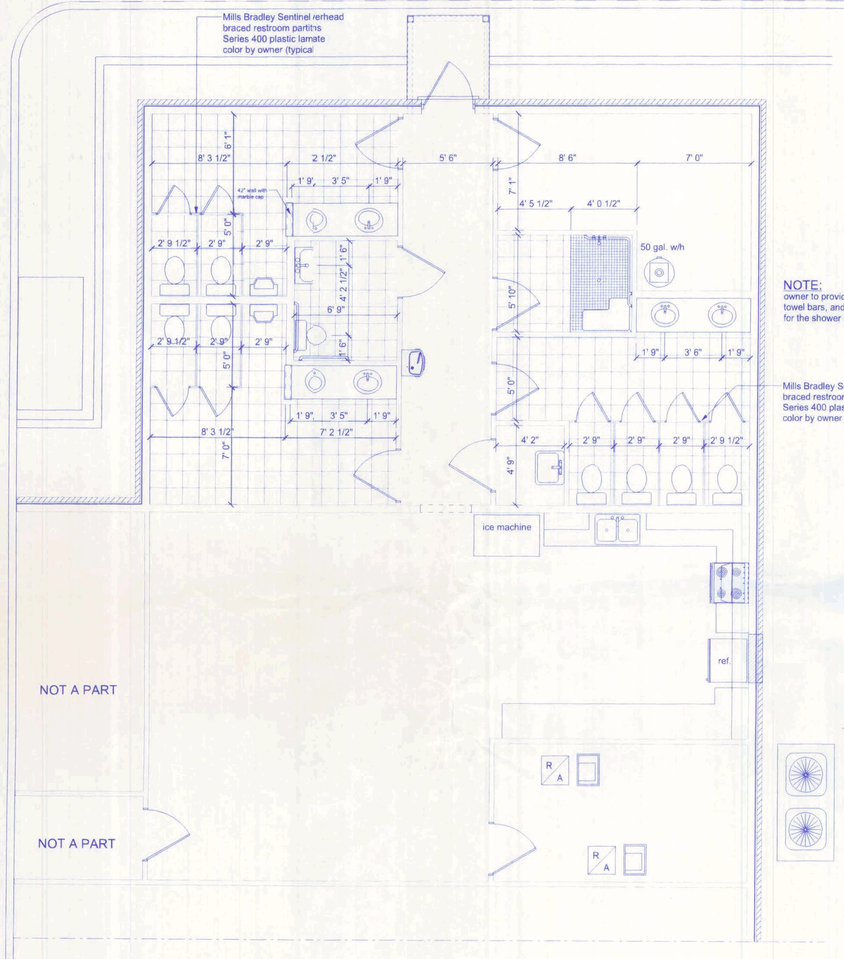
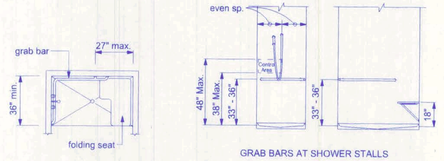


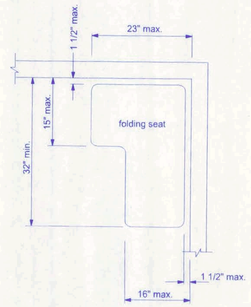
NOTE:
owner to provide shower curtain bar, towel bars, and changing bench for the shower room

Mills Bradley Sentinel overhead braced restroom partitions Series 400 plastic laminate color by owner (typical)

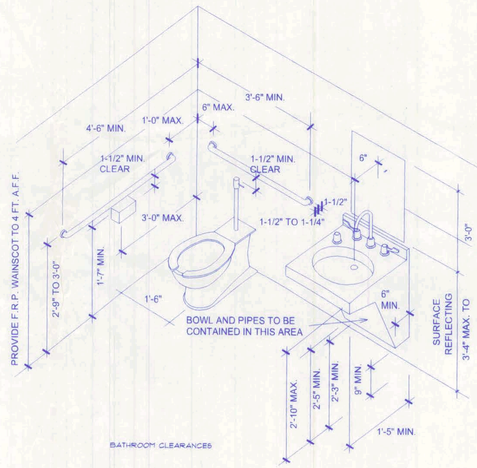
BATHROOM DIMENSIONS
SCALE: 1/4" = 1'-0"



GRAB BARS AT SHOWER STALLS



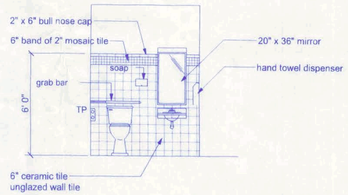
HANDICAPPED ACCESSIBLE CONSTRUCTION DETAILS
N.T.S.



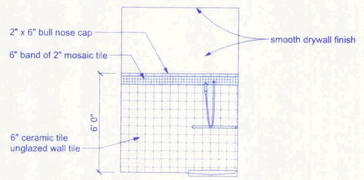
BATHROOM CLEARANCES

NOTE:
Contractor shall provide all toilet accessories such as mirror, toilet paper dispensor, hand tower dispensor and soap dispensor.

Hot water and drain pipes exposed under sinks shall be insulated or otherwise configured so as to protect against contact. There shall be no sharp or abrasive surfaces under sinks.



HC RESTROOM DETAILS
N.T.S.



SHOWER ROOM DETAILS
N.T.S.

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SHEET A-15
OF 15

PROJECT NO.
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MEANS OF EGRESS FBC CHAPTER 10		
OCCUPANCY CLASSIFICATION:	UNSPRINKLERED & UNPROTECTED	
GROUP B - Civic Administration	REQUIRED	PROVIDED
MAX. TRAVEL DIST. (TABLE 1016.1)	200 FT	115 FT
MAX. DEAD-END CORRIDOR (FBC 1017.3)	20 FT	20 FT
TOTAL # OF EXITS (TABLE 1019.1)	2	5
EGRESS WIDTH PER PERSON (LEVEL) (TABLE 1005.1)	0.2 142 x 0.2 = 28.4"	34"/142 = 0.23
MINIMUM CORRIDOR AISLE WIDTH (FBC 1017.2)	44"	59"
MIN. CLEAR OPENING OF EXIT DOORS (FBC 1008.1.1)	32"	34"

LIFE SAFETY NOTES

ALL EXIT AND EMERGENCY LIGHTING SHALL BE INSTALLED PER NEC 700-12, 2008 EDITION.

ACCESS TO EXITS SHALL BE MARKED BY APPROVED READILY VISIBLE SIGNS IN ALL CASES WHERE THE EXIT OR WAY TO REACH THE EXIT IS NOT READILY APPARENT TO THE OCCUPANTS. SIGN PLACEMENT SHALL BE SUCH THAT NO POINT IN THE EXIT ACCESS CORRIDOR IS MORE THAN 100 FT FROM THE NEAREST EXTERNALLY ILLUMINATED SIGN AND IS NOT IN EXCESS OT THE MARKED RATING FOR INTERNALLY ILLUMINATED SIGNS.

ALL FIRE EXTINGUISHERS SHALL BE TYPE 2A-10BC AND SHALL BE LOCATED SO THAT NO POINT IN THE DIRECTION OF TRAVEL FROM ANY POINT IS MORE THAN 75 FT TO THE FIRE EXTINGUISHER.

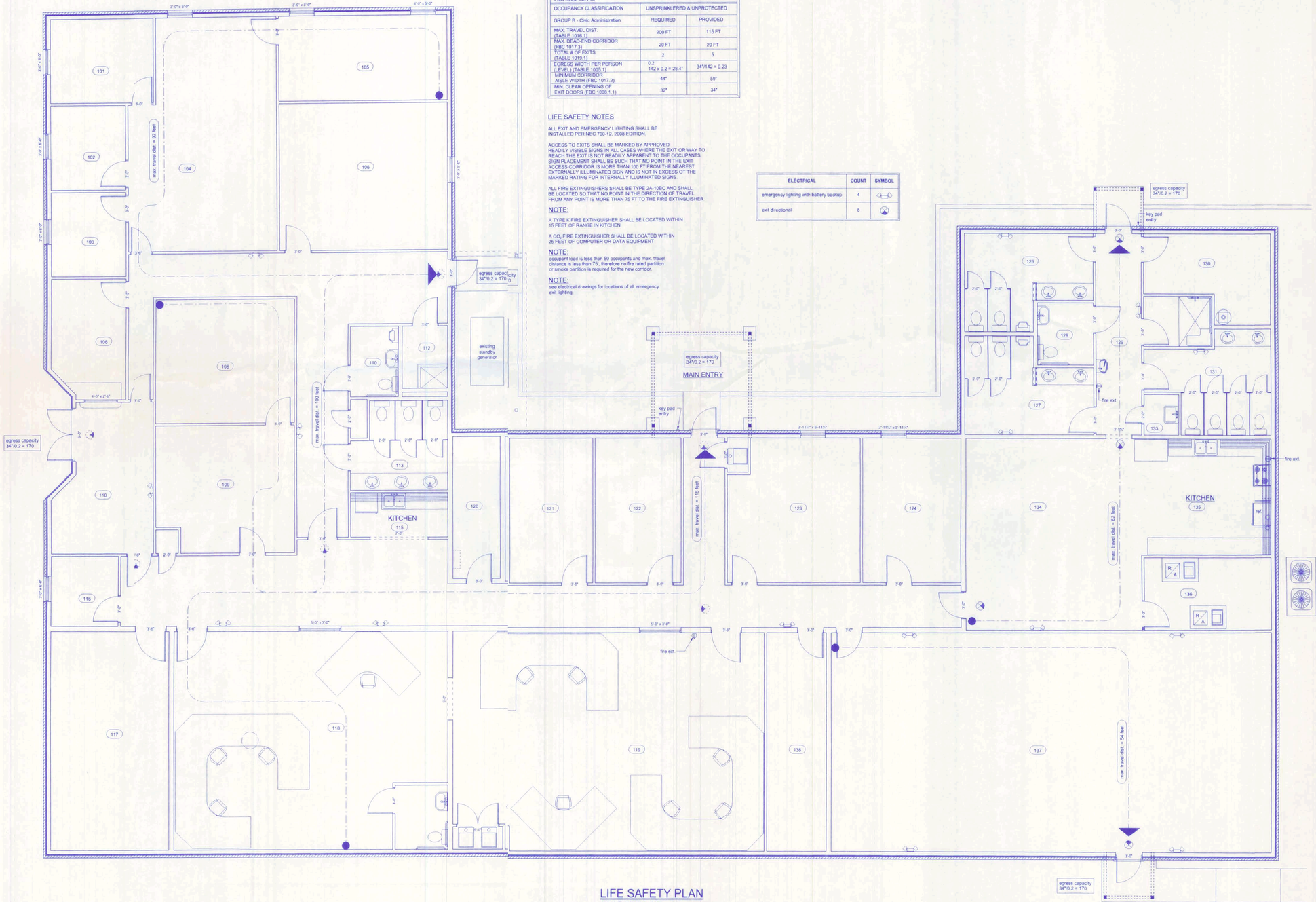
NOTE:
A TYPE K FIRE EXTINGUISHER SHALL BE LOCATED WITHIN 15 FEET OF RANGE IN KITCHEN.

A CO2 FIRE EXTINGUISHER SHALL BE LOCATED WITHIN 25 FEET OF COMPUTER OR DATA EQUIPMENT.

NOTE:
occupant load is less than 50 occupants and max. travel distance is less than 75', therefore no fire rated partition or smoke partition is required for the new corridor.

NOTE:
see electrical drawings for locations of all emergency exit lighting.

ELECTRICAL	COUNT	SYMBOL
emergency lighting with battery backup	4	
exit directional	8	



LIFE SAFETY PLAN
SCALE: 3/16" = 1'-0"

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11/23/09	W.H.F.
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REVISIONS

SHEET LS-1
OF 1

PROJECT NO.
09.C016

GENERAL STRUCTURAL NOTES

GENERAL:

1. THE DRAWINGS ARE INTEDED TO SHOW THE GENERAL ARRANGEMENT, DESIGN AND EXTENT OF THEWORK AND ARE PARTIALLY DIAGRAMMATIC. THEY ARE NOT INTENDED TOBE SCALED FOR ROUGH-IN MEASUREMENTS, OR TO SERVE AS SHOP DRAWINS OR PORTIONS THEREOF.

2. ALL DETAILS AND SECTIOS SHOWN ON THE DRAWINGS ARE INTENDED TO BE TYPICAL AND SHALL BCONSTRUED TO APPLY TO ANY SIMILAR SITUATION ELSEWHERE ON TE PROJECT, EXCEPT WHERE A DIFFERENT DETAIL OR SECTION IS SHOWN.

3. PRIOR TO START OF CONFRUCTION, THE CONTRACTOR AND ALL THE SUBCONTRACTORS SHALL VRIFY ALL GRADES, LINES, LEVELS, DIMENSIONS AND COORDINATE EXISTING ONDITIONS AT THE JOB SITE WITH THE PLANS AND SPECIFICATIONS. THEYHALL REPORT ANY INCONSISTENCIES OR ERRORS IN THE ABOVE TO THE ARCHECT/ENGINEER BEFORE COMMENCING WORK. THE CONTRACTOR AND HIS SBCONTRACTORS SHALL LAY OUT THEIR WORK FROM ESTABLISHED REFERBCE POINTS AND BE RESPONSIBLE FOR ALL LINES, ELEVATIONS AND MEASUREENTS IN CONNECTION WITH THEIR WORK.

4. IF ANY ERRORS OR OMISONS APPEAR IN THE DRAWINGS, GENERAL NOTES OR OTHER DOCUMERS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING OF SUH OMISSION OR ERROR PRIOR TO PROCEEDING WITH ANY WORK WHICH APPARS IN QUESTION. IN THE EVENT OF THE CONTRACTOR'S FAILING TO VE SUCH AN ADVANCED NOTICE, HE SHALL BE HELD RESPONSIBLE FOR THRESULTS OF ANY SUCH ERRORS OR OMISSIONS AND THE COST OF RECTIFYIS THE SAME.

5. THE CONTRACTOR SHALUSE THE STRUCTURAL DRAWINGS AND SPECIFICATIONS TOGETHERWITH THE ARCHITECTURAL, MECHANICAL ELECTRICAL AND OTHER TRJE DRAWINGS AND SHOP DRAWINGS, TO LOCATE DEPRESSED SLABS, SLOPESDRAINS, OUTLETS, RECESSES, OPENINGS, BOLT SETTING, SLEEVES, DIMENSINS, ETC. NOTIFY ARCHITECT/ENGINEER, IN WRITING, OF ANY POTENTIACONFLICTS BEFORE PROCEEDING WITH THE WORK.

SHOP DRAWINGS AD DELEGATED ENGINEERING:

1. ALL SHOP DRAWINGS SHLL BE SUBMITTED FOR ENGINEER'S REVIEW ONLY AFTER THEY HAVE BEN THOROUGHLY REVIEWED BY THE CONTRACTOR FOR CONSTRUCTION METHOS, DIMENSIONS AND OTHER TRADE REQUIREMENTS, AND STAMED WITH THE CONTRACTOR'S APPROVAL STAMP. THE ENGINEER ASSUMES NORESPONSIBILITY FOR DIMENSIONS, QUANTITIES, ENGINEERING DESIGN BY DEGATED ENGINEERS, ERRORS OR OMISSIONS AS A RESULT OF REVIEWING ANYHOP DRAWINGS. ANY ERRORS OR OMISSIONS MUST BE MADE GOOD BY TH CONTRACTOR, IRRESPECTIVE OF RECEIPT, CHECKING OR REVIEW OF DAWINGS BY THE ENGINEER AND EVEN THOUGH WORK IS DONE IN ACCORDACE WITH SUCH DRAWINGS.

2. BEFORE STRUCTURAL INPECTIONS CAN BE MADE ON A PORTION OF THE STRUCTURE, ALL RBATED SHOP DRAWINGS, DELEGATED ENGINEERING, PRODUCT APPROVAL MANUACTURER'S DATA AND OTHER RELATED INFORMATION, MUST BE REVWED AND ACCEPTED BY THE ENGINEER-OF-RECORD AND APPROVEBY THE BUILDING DEPARTMENT.

3. SHOP DRAWINGS SHALL ONTAIN ALL INFORMATION SHOWN ON THE STRUCTURAL PLANS (RELATD TO THE DELEGATED DESIGN) INCLUDING ALL DESIGN LOADS, IN ADDITIONO THE INFORMATION REQUIRED BY THE DELEGATED ENGINEER'S DEGN.

4. A/E WILL REVIEW ALL SUMITTED SHOP DRAWINGS, PREPARED AND SIGNED AND SEALED BY THECONTRACTOR'S DELEGATED ENGINEER, ONLY FOR GENERAL COMPLIANCEWITH THE DESIGN INTENT, REQUIRED LOADING AND COORDINATION WITH TE STRUCTURAL DESIGN.

5. CONTRACTOR SHALL SUMIT TO THE A/E ONLY ONE SET OF SEPIA AND TWO SETS OF BLUE PRINTS OF TE STRUCTURAL SHOP DRAWINGS FOR A/E REVIEW, BEFORE STARTING FABRICAON. THE A/E WILL RETURN THE MARKED-UP AND STAMPED SEPIA TO THE CONTRACTOR. THESE SEPIA COPIES SHALL BE USED TO MAKE THE PRINTS REQUIED FOR SHOP DRAWING DISTRIBUTION. SETS OF BLUE PRINTS (WITHOUT SER) WILL NOT BE ACCEPTED.

CONSTRUCTION MENS AND METHODS:

1. THE CONSTRUCTION MEAS, METHODS, TECHNIQUES, SEQUENCE OR PROCEDURES, SAFETY RECAUTIONS, SHORES, RESHORES, LATERAL BRACING AND PROGRAMS IICONNECTION WITH THE PROJECT, ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. OUR SERVICES DO NOT GUARANTEE NOR ASSURE LIABILITY FORHE JOB SAFETY, TEMPORARY SHORING AND BRACING AND THE PERFORNNCE OF THE CONTRACTOR.

2. THE CONTRACTOR IS REPONSIBLE AND SHALL COMPLY WITH THE SAFETY REQUIREMENTS OFHE STANDARD BUILDING CODE AND APPLICABLE LOCAL, STATE AND FEDERALAWS.

3. PROVIDE ALL SHORING, RACING AND SHEETING AS REQUIRED FOR SAFETY, STRUCTURAL STABITY AND FOR THE PROPER EXECUTION OF THE WORK. REMOVE WHEN WOK IS COMPLETED.

4. PROVIDE AND MAINTAIN UARD LIGHTS AT ALL BARRICADES, RAILINGS, OBSTRUCTIONS IITHE STREETS, ROADS OR SIDEWALKS AND ALL TRENCHES OR PITS ADJACET TO PUBLIC WALKS OR ROADS.

5. AT ALL TIMES, PROVIDE ROTECTION AGAINST WEATHER (RAIN, WIND, STORMS OR THE SUNSO AS TO MAINTAIN ALL WORK, MATERIALS, APPARATUS AND FIXTURES FREE FROM INJURY OR DAMAGE.

6. AT THE END OF THE DAYWORK, COVER ALL WORK LIKELY TO BE DAMAGED. ANY WORK DAMSED BY FAILURE TO PROVIDE PROTECTION SHALL BE REMOVED AND REPLACE WITH NEW WORK AT THE CONTRACTOR'S EXPENSE.

7. THE CONTRACTOR SHALPAY FOR ALL DAMAGES TO ADJACENT STRUCTURES, SIDEWALKS AD TO STREETS OR OTHER PUBLIC PROPERTY OR PUBLIC UTILITIES.

STRUCTURAL DESIGN CRITERIA:

1. THE DESIGN COMPLIES WITH THE REQUIREMENTS OF THE 2007 FLORIDA BUILDING CODE - WITH ALL UPDATES AND SUPPLEMENTS. ALL OTHER REFERENCED CODES AND SPECIFICATIONS. ALL CODES AND SPECIFICATIONS SHALL BE LATEST EDITION AT TIME OF PERMIT.

FOUNDATIONS: (SPREAD FOOTINGS)

1. FOUNDATIONS ARE DESIGNED TO BEARON ON WELL COMPACTED GRADE OR CLEAN FILL OF AN ALLOWABLE BEARING CAPACITY OF 1,500 PSF MINIMUM. A CERTIFIED TESTING LABORATORY SHALL BE ENGAGED BY THE OWNER TO VERIFY THAT THE REQUIRED BEARING CAPACITY WAS OBTAINED. SAID SOIL CAPACITY SHALL BE CERTIFIED AND TESTED BY A FLORIDA REGISTERED FOUNDATION ENGINEER, PRIOR TO CASTING OF CONCRETE IN THE FOOTINGS.

2. NATURAL GRADE (OR FILL) BELOW FOOTINGS SHALL BE COMPACTED TO 98 % MODIFIED PROCTOR (ASTM D-1557).

3. TOP OF WALL FOOTINGS TO BE AT THE SAME ELEVATION AS TOP OF COLUMN PAD FOOTINGS. STEP WALL FOOTING FROM HIGHER COLUMN FOOTING TO THE LOWER ONE (AS DETAILED ON THE PLANS).

4. TOP OF ALL FOOTINGS TO BE A MINIMUM 1'-4" BELOW THE TOP OF CONCRETE SLAB ON GRADE (UNLESS OTHERWISE NOTED) OR MINIMUM 1'-0" BELOW FINISHED GRADE, WHICHEVER IS LOWER. IN THE EVENT THAT THE SLAB STEPS ON EACH SIDE OF THE FOOTING, THE FOOTING SHALL BE 1'-4" BELOW TOP OF THE LOWER SLAB.

5. REINFORCING IN THE CONTINUOUS WALL FOOTINGS (MONOLITHIC AND NON-MONOLITHIC) SHALL BE SPLICED 36 BAR DIAMETERS MINIMUM AND SHALL EXTEND CONTINUOUSLY THRU ALL FOOTING PADS.

6. ALL LONGITUDINAL REBARS IN THE CONTINUOUS WALL FOOTINGS, SHALL BE CONTINUED AT BENTS AND CORNERS BY BENDING THE REBARS 48 BAR DIAMETERS AROUND THE CORNERS OR ADDING MATCHING CORNER BARS, EXTENDING 48 BAR-DIAMETERS INTO FOOTING EACH SIDE OF CORNER OR BENT.

7. ALL FOOTINGS SHALL BE 12" MINIMUM THICKNESS.

CONCRETE SLABS ON GRADE::

1. ALL INTERIOR AND EXTERIOR SLABS AND WALKWAYS AS SHOWN ON THE STRUCTURAL OR ARCHITECTURAL PLANS, SHALL BE FOUR INCHES THICK MINIMUM REINFORCED WITH 6 X 6 - W1.4 X W1.4 WELDED WIRE FABRIC (UNLESS OTHERWISE NOTED).

2. ALL SLABS ON GRADE TO BE CONSTRUCTED IN ACCORDANCE WITH LATEST A.C.I - "GUIDE FOR CONCRETE FLOOR AND SLAB CONSTRUCTION" (A.C.I. - 302.1R)

3. JOINTS SHALL BE PROVIDED IN ALL INTERIOR SLABS ON GRADE AT COLUMN CENTER-LINES DIVIDING THE SLAB INTO SQUARE PANELS NOT TO EXCEED 20 X 20 FT. IN SIZE. CAST SLAB IN LONG ALTERNATE STRIPS. PROVIDE A CONTRACTION JOINT BETWEEN EACH STRIP. SEE PLAN FOR SAW-CUT, CONTRACTION AND ISOLATION JOINT DETAILS.

4. PROVIDE SAW-CUT JOINTS AT ALL SIDEWALKS AT A MAXIMUM SPACING OF FIVE FEET ON CENTERS AND ISOLATION JOINTS AT 20 FEET O.C. (U.O.N.).

5. FILL MATERIAL SHALL BE PLACED IN LIFTS NOT EXCEEDING 12" AND COMPACTED TO 98 % MODIFIED PROCTOR (ASTM D-1557) WITHIN A DISTANCE OF 3 FEET BEYOND ALL FOOTING EDGES. TAKE AT LEAST ONE DENSITY TEST FOR EACH 1,600 SQ.FT. OF AREA AND 12" BELOW SURFACE. SEND RESULTS OF THE TEST TO OWNER, ARCHITECT AND ENGINEER.

CONCRETE AND REINFORCING:

1. CONCRETE DESIGN AND REINFORCEMENT IN ACCORDANCE WITH "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (A.C.I. 318 - LATEST EDITION) AND WITH "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT" - (A.C.I. 315 - LATEST EDITION).

2. ALL CONCRETE WORK IN ACCORDANCE WITH "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDING" (A.C.I. 301 - LATEST EDITION). PRODUCTION OF CONCRETE, DELIVERY, PLACING AND CURING TO BE IN ACCORDANCE WITH "HOT WEATHER CONCRETING" (A.C.I. 305R - LATEST EDITION).

3. ALL CONCRETE TO BE REGULAR WEIGHT WITH A DESIGN STRENGTH OF 2,500 P.S.I. AT 28 DAYS. MAXIMUM SLUMP 5".

4. ALL REINFORCING TO BE NEW BILLET STEEL CONFORMING TO THE LATEST A.S.T.M. A-615 GRADE 40, FABRICATED IN ACCORDANCE WITH C.R.S.I. MANUAL OF STANDARD PRACTICE AND PLACED IN ACCORDANCE WITH A.C.I. 315 AND C.R.S.I. MANUAL OF STANDARD PRACTICE.

5. CONCRETE COVER UNLESS OTHERWISE DETAILED ON DRAWINGS:

FOOTINGS:	(BOTTOM)	3"
	(TOP & SIDES)	2"
SLABS ON GRADE:	CENTERED W/SLAB	
COLUMNS AND BEAMS:	(TO THE TIES)	1-1/2"

6. COLUMN REINFORCEMENT: DOWELS TO BE SAME SIZE AND NUMBER AS VERTICAL REBARS ABOVE. LAP 36 BAR DIAMETER OR MINIMUM OF 18 INCHES, U.O.N. PROVIDE RIGID TEMPLATES FOR DOWEL LOCATION. PROVIDE STANDARD HOOKS AT TOP OF ALL VERTICAL REINFORCEMENT AT NONCONTINUOUS COLUMNS (U.O.N.).

7. ALL DOWELS FOR COLUMNS SHALL BE SECURED IN POSITION PRIOR TO CONCRETING. PUSHING THE DOWELS INTO POSITION IN WET CONCRETE IS NOT PERMITTED.

8. BEAM REINFORCEMENT: LAPPED 36 BAR DIAMETER OR MINIMUM 18 INCHES. BOTTOM BARS SPLICED ONLY AT SUPPORTS, TOP BARS SPLICED ONLY AT MID-SPAN. ALL TOP BARS HOOKED AT NONCONTINUOUS EDGES (U.O.N.). ALL HOOKS TO BE STANDARD 90 DEGREE HOOKS AS REQUIRED (U.O.N.).

9. ADDED REINFORCEMENT: PROVIDE ADDITIONAL CORNER BARS, BENT 36 INCHES MINIMUM EACH WAY AT "L" AND "T" CORNERS IN OUTER FACES OF ALL BEAMS TO MATCH ALL HORIZONTAL BAR (TOP, BOTTOM AND INTERMEDIATE REBARS).

10. SEE PLAN FOR MINIMUM SIZE CONCRETE TIE BEAM REQUIREMENTS.

REINFORCED MASONRY WALLS:

1. HOLLOW LOAD-BEARING MASONRY UNITS SHALL CONFORM TO ASTM C-90, TYPE I, GRADE N, SQUARE END, WITH A MINIMUM AVERAGE COMPRESSIVE STRENGTH ON NET AREA OF f'm=2,000 (PSI). CONSTRUCTION SHALL BE IN ACCORDANCE WITH ACI 530.1 SPECIFICATIONS.

2. SPECIAL INSPECTOR SERVICES ARE REQUIRED FOR ALL REINFORCED MASONRY CONSTRUCTION. THE SPECIAL INSPECTOR SHALL INSPECT THE PLACING OF THE REBARS IN THE CELLS, VERIFY CLEANLINESS OF THE CELLS TO BE GROUTED, AND OBSERVE THE PLACING OF THE GROUT OR CONCRETE INTO THE CELLS.

3. MORTAR SHALL CONFORM TO ASTM C-270, TYPE "M" OR "S".

4. LAY ALL MASONRY WITH FULL FACE HEAD JOINTS AND WITH FACE SHELL MORTAR BEDDING.

5. MASONRY ANCHORAGE TO SUPERSTRUCTURE SHALL BE PROVIDED IN ACCORDANCE WITH STRUCTURAL DRAWINGS AND DETAILS.

6. THE USE OF ADMIXTURES SHALL NOT BE PERMITTED WITHOUT PRIOR REVIEW OF THE ENGINEER.

7. VERTICAL REINFORCING:

(A) ASTM A-615 PER REINFORCING SECTION.

(B) WHEN A FOUNDATION DOWEL DOES NOT LINE UP WITH A VERTICAL CORE IT SHALL NOT BE SLOPED MORE THAN ONE HORIZONTAL INCH TO SIX INCHES VERTICAL FOR ALIGNMENT, EVEN THOUGH IT IS IN A CELL ADJACENT TO THE VERTICAL WALL REINFORCING.

(C) VERTICAL REINFORCING STEEL SHALL BE PLACED CENTERED IN THE CELL. LAP 48 BAR-DIAMETERS. PROVIDE BAR SPACERS AS REQUIRED TO MAINTAIN REINFORCING SECURED IN POSITION.

(D) VERTICAL REINFORCEMENT SHALL BE PROVIDED AT EACH SIDE OF OPENINGS IN WALL, AT WALL INTERSECTIONS, CORNERS AND ENDS. THIS REINFORCING SHALL BE THE SAME SIZE AS THE SCHEDULED WALL REINFORCING FOR THE PARTICULAR WALL BUT NEVER LESS THAN A #5 REBAR. SPECIAL CARE SHALL BE TAKEN TO INSURE THAT CELLS TO BE GROUTED LINE UP PROPERLY AND ARE CLEAN OF EXCESS MORTAR.

(E) ALL VERTICAL REINFORCING SHALL BE HOOKED INTO THE BOND BEAMS AT THE NON-CONTINUOUS END OF THE REBARS.

(F) PROVIDE INSPECTION HOLES AT THE BOTTOM OF EACH REINFORCED MASONRY CELL, AS REQUIRED FOR LIFTS HIGHER THAN 5 FT.

8. HORIZONTAL REINFORCING:

PROVIDE GALVANIZED #9 GAGE, LADDER TYPE HORIZONTAL JOINT REINFORCING EVERY SECOND BLOCK COURSE (1'-4" O.C. VERTICALLY) LAPPED 7-1/2". PROVIDE SPECIAL HORIZONTAL REINFORCING AT "T" AND "L" INTERSECTION. ANCHOR TO COLUMNS WITH MINIMUM 4" EXTENSION INTO AREA OF POUR.

9. PROVIDE "DOVE-TAIL" ANCHORS AT 16" O.C. VERTICALLY FOR ALL MASONRY PLACED ADJACENT TO ALREADY IN PLACE COLUMNS.

10. CELL FILLING CONCRETE SHALL BE "PEA DOCK" CONCRETE MIX (8" TO 9" SLUMP) OR GROUT WITH f'c=3,500 PSI MIN. AT 28 DAYS.

11. LINTELS:

A. THE CONTRACTOR SHALL PROVIDE PRECAST CONCRETE OR CAST-IN-SITE LINTELS AT THE HEADS OF ALL OPENINGS IN MASONRY WALLS NOT EXCEEDING SIX (6) FEET IN WIDTH WHERE BAMS HAVE NOT BEEN SPECIFIED. FOR OPENING ADJACENT TO CONCRETE COLUMNS - THE LINTEL SHALL BE CAST-IN-PLACE WITH THE COLUMN.

B. LINTEL MAY BE INTEGRAL WITH THE STRUCTURAL OR TIE BEAM WHEN HEAD OF THE OPENING IS 16 INCHES OR LESS BELOW. CONTINUE BEAM'S TYPICAL BOTTOM REBARS THROUGH AND ADD 2-#5 BOTTOM TRUSS BARS AT DROPS AND 2-#3 STIRRUPS AT 6 INCHES O.C. EACH END AT DROP.

C. MINIMUM BEARING FOR ALL LINTELS 8 INCHES EACH SIDE OR PROVIDE DOWELS AND POCKETS IN ADJACENT CONCRETE COLUMNS.

D. LINTEL TO BE MINIMUM OF 8 INCHES DEEP WITH 2-#4 TOP AND BOTTOM FOR CLEAR SPANS LESS THAN 6 FEET, 12 INCHES DEEP WITH 2-#5 TOP AND BOTTOM AND 2-#3 STIRRUPS AT 6 INCHES O.C. EACH END, FOR SPANS GREATER THAN 6 FEET (UP TO 8 FEET). CALL ENGINEER FOR SPANS LARGER THAN 8 FEET WITH NO SPECIFIED BEAMS OR LINTELS OVER.

STRUCTURAL STEEL: (SHOP DRAWINGS REQUIRED)

1. ALL STRUCTURAL STEEL TO BE DOMESTIC A.S.T.M. A-36 (Fy=36 K.S.I.) AND DESIGNED IN ACCORDANCE WITH THE LATEST A.I.S.C. "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS" AND THE A.I.S.C. CODE OF STANDARD PRACTICE.

2. STEEL TUBES TO BE DOMESTIC STEEL CONFORMING TO A.S.T.M. A-500 GRADE B (Fy=46 K.S.I.).

TUBE AND PIPE COLUMNS TO BE CONCRETE FILLED WITH VENT HOLES TOP, MIDDLE AND BOTTOM.

3. ALL COLUMN BASE AND CAP PLATES SHALL BE 3/4" THICK (UNLESS OTHERWISE NOTED). WIDTH AND LENGTH AS REQUIRED FOR PROPER BOLTING AND AS INDICATED ON THE PLANS AND DETAILS.

4. ALL WELDING TO BE IN ACCORDANCE WITH A.W.S. LATEST "STRUCTURAL WELDING CODE - STEEL". CLEAN AND RUSTPROOF ALL FIELD WELDS WITH HEAVY DUTY RUSTPROOFING PAINT.

5. ALL CONNECTIONS TO BE FIELD AND SHOP WELDED AND TO DEVELOP MEMBER IN SHEAR.

6. SPLICE LOCATIONS TO BE REVIEWED BY ARCHITECT/ENGINEER.

7. STEEL BEARING ON STEEL TO BE WELDED THERETO.

STRUCTURAL WOOD:

1. TO CONFORM TO RULES OF THE MANUFACTURER'S ASSOCIATION UNDER WHOSE RULES THE LUMBER IS PRODUCED. (SEE SUPPLIER'S SPECIFICATIONS).

2. TO BE AIR DRIED, WELL SEASONED AND GRADE MARKED AT MILL.

3. TO BE NO. 2 SOUTHERN PINE, UTILITY GRADE DOUGLAS FIR OR WEST COAST HEMLOCK.

4. ALL STRUCTURAL WOOD TO BE SURFACED FOUR (4) SIDES (S-4-S) WITH A MINIMUM FIBER STRESS IN BENDING OF 1,200 P.S.I. AND A MAXIMUM MOISTURE CONTENT OF 19 PERCENT.

5. ALL LUMBER AND PLYWOOD IN CONTACT WITH CONCRETE, STUCCO, MASONRY OR OTHER CEMENTITIOUS MATERIALS SHALL BE TREATED TO COMPLY WITH AWPA STANDARD LP-2.

6. STORE ALL LUMBER ABOVE GRADE OR FLOOR. STACK TO ALLOW PROPER AIR CIRCULATION AND PROTECT FROM WETTING WITH SUITABLE COVER.

COLD FORMED METAL FRAMING: (SHOP DRAWINGS REQUIRED)

1. ALL COLD FORMED METAL FRAMING SHALL BE DOMESTIC A.S.T.M. A 653 (Fy = 33 K.S.I.) STEEL, AND DESIGNED IN ACCORDANCE WITH THE LATEST S.S.M.A. SPECIFACATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF COLD FORMED METAL FRAMING AND THE S.S.M.A. CODE OF STANDARD PRACTICE.

2. ALL CFMF COMPONENTS SHALL BE MANUFACTURED AS PER ASTMC 955 AND BE GALVANIZED WITH A MINIMUM G-60 COATING PER ASTM C 955

ALL PRODUCTS SHALL BE FREE OF RUST, DENTS, BENDS & TWISTS AND STORED ON A FLAT PLANE PRIOR TO INCLUSION IN THE WORK.

3. ALL WELDING TO BE IN ACCORDANCE WITH A.W.S. LATEST, E1.3 &D1.3 "STRUCTURAL WELDING CODE - STEEL". CLEAN AND RUSTPROOF ALL FIELD WELDS WITH ZINK RICH RUSTPROOFING PAINT.

4. BOTTOM TRACK SHALL BE SECURED TO THE CONCRETE FOUNDATION W/ ANCHOR BOLTS AS PER THE FOUNDATION PLAN AND SHALL BE FURTHER FASTENED AT EA. FULL STUD W/ .177"~ X 1½" PAF, SHOT THROUGH A 1¾" X 16 GA HOLELESS WASHER.

5. ALL CONNECTIONS TO BE FIELD AND SHOP WELDED AND TO FULLY DEVELOP MEMBER IN SHEAR.

6. SPLICE LOCATIONS TO BE REVIEWED BY ARCHITECT/ENGINEER.

7. STEEL BEARING ON STEEL TO BE WELDED THERETO.

TERMITE PROTECTION NOTES:

SOIL CHEMICAL BARRIER METHOD:

1. A PERMANENT SIGN WHICH IDENTIFIES THE TERMITE TREATMENT PROVIDER AND NEED FOR REINSPECTION AND TREATMENT CONTRACT RENEWAL SHALL BE PROVIDED. THE SIGN SHALL BE POSTED NEAR THE WATER HEATER OR ELECTRIC PANEL. FBC 104.2.6

2. CONDENSATE AND ROOF DOWNSPOUTS SHALL DISCHARGE AT LEAST 1'-0" AWAY FROM BUILDING SIDE WALLS. FBC 1503.4.4

3. IRRIGATION/SPRINKLER SYSTEMS INCLUDING ALL RISERS AND SPRAY HEADS SHALL NOT BE INSTALLED WITHIN 1'-0" FROM BUILDING SIDE WALLS. FBC 1503.4.4

4. TO PROVIDE FOR INSPECTION FOR TERMITE INFESTATION, BETWEEN WALL COVERINGS AND FINAL EARTH GRADE SHALL NOT BE LESS THAN 6". EXCEPTION: PAINT AND DECORATIVE CEMENTIOUS FINISH LESS THAN 5/8" THICK ADHERED DIRECTLY TO THE FOUNDATION WALL. FBC 1403.1.6

5. INITIAL TREATMENT SHALL BE DONE AFTER ALL EXCAVATION AND BACKFILL IS COMPLETE. FBC 1816.1.1

6. SOIL DISTURBED AFTER THE INITIAL TREATMENT SHALL BE RETREATED INCLUDING SPACES BOXED OR FORMED. FBC 1816.1.2

7. BOXED AREAS IN CONCRETE FLOOR FOR SUBSEQUENT INSTALLATION OF TRAPS, ETC., SHALL BE MADE WITH PERMANENT METAL OR PLASTIC FORMS. PERMANENT FORMS MUST BE OF A SIZE AND DEPTH THAT WILL ELIMINATE THE DISTURBANCE OF SOIL AFTER THE INITIAL TREATMENT. FBC 1816.1.3

8. MINIMUM 6 MIL VAPOR RETARDER MUST BE INSTALLED TO PROTECT AGAINST RAINFALL DILUTION. IF RAINFALL OCCURS BEFORE VAPOR RETARDER PLACEMENT, RETREATMENT IS REQUIRED. FBC 1816.1.4

9. CONCRETE OVERPOUR AND MORTAR ALONG THE FOUNDATION PERIMETER MUST BE REMOVED BEFORE EXTERIOR SOIL TREATMENT. FBC 1816.1.5

10. SOIL TREATMENT MUST BE APPLIED UNDER ALL EXTERIOR CONCRETE OR GRADE WITHIN 1'-0" OF THE STRUCTURE SIDEWALLS. FBC 1816.1.3

11. AN EXTERIOR VERTICAL CHEMICAL BARRIER MUST BE INSTALLED AFTER CONSTRUCTION IS COMPLETE INCLUDING LANDSCAPING AND IRRIGATION. ANY SOIL DISTURBED AFTER THE VERTICAL BARRIER IS APPLIED, SHALL BE RETREATED. FBC 1816.1.6

12. ALL BUILDINGS ARE REQUIRED TO HAVE PER-CONSTRUCTION TREATMENT. FBC 1816.1.7

13. A CERTIFICATE OF COMPLIANCE MUST BE ISSUED TO THE BUILDING DEPARTMENT BY A LICENSED PEST CONTROL COMPANY BEFORE A CERTIFICATE OF OCCUPANCY WILL BE ISSUED. THE CERTIFICATE OF COMPLIANCE SHALL STATE: "THE BUILDING HAS RECEIVED A COMPLETE TREATMENT FOR THE PREVENTION OF SUBTERRANEAN TERMITES. THE TREATMENT IS IN ACCORDANCE WITH THE RULES AND LAWS OF THE FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES". FBC 1816.1.7

14. AFTER ALL WORK IS COMPLETED, LOOSE WOOD AND FILL MUST BE REMOVED FROM BELOW AND WITHIN 1'-0" OF THE BUILDING. THIS INCLUDES ALL GRADE STAKES, TUB TRAP BOXES, FORMS, SHORING OR OTHER CELLULOSE CONTAINING MATERIAL. FBC 2303.1.3

15. NO WOOD, VEGETATION, STUMPS, CARDBOARD, TRASH, ETC., SHALL BE BURIED WITHIN 15'-0" OF ANY BUILDING OR PROPOSED BUILDING. FBC 2303.14

William H. Freeman 11/24/09 P.E. # 56001

COLUMBIA COUNTY
EMERGENCY OPERATIONS CENTER

Freeman Design Group Inc
128 SW NASSAU STREET
LAKE CITY, FL. 32025
(386)758-4209

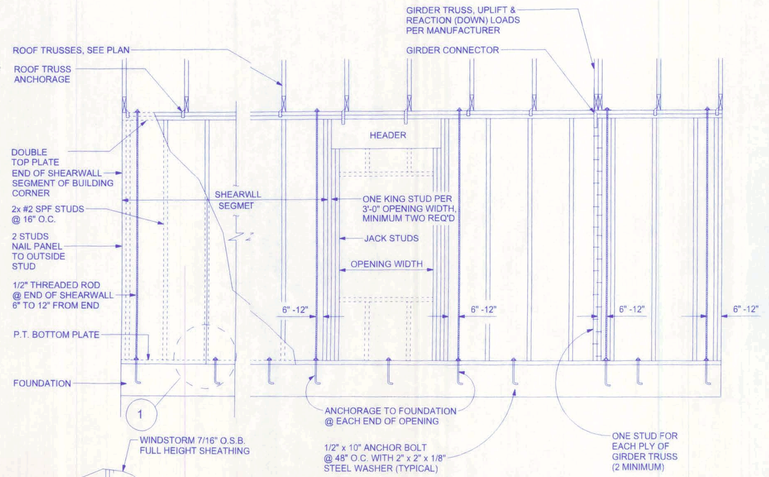
CERTIFICATE OF AUTHORIZATION # 00008701

DATE 11/23/09	DRAWN BY W.H.F.
	APPROVED W.H.F.

REVISIONS

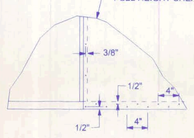
SHEET S-1
OF 2

PROJECT NO. 09.C016



SHEARWALL DETAILS

SCALE: 1/2" = 1'-0"



1 DOUBLE NAIL EDGE SPACING TOP AND BOTTOM PLATE

UPLIFT CAPACITY = 474 plf
(TABLE 305S1 SSTD10-99)

RULES:
1. One all-thread rod at each corner.
2. One all-thread rod at 48" o.c.
3. One all-thread rod at each end of opening headers
4. Check sub-sheathing to top plate connection for horizontal trafer capability.
5. If necessary, add all-thread rods to girders individually to excite the from average uplift plf.
6. Check sole plate to slab connection, additional anchors may I required for lateral and shear load transfer.

ALLOWABLE VALUES	
Connection Type	Allowable Vue
Foundation / S.Y.P. Top Plate	3840 lb
Foundation / Spruce-Pine-Fir Top Plate	3840 lb
Lintel or Bond Beam / S.Y.P. Top Plate	3840 lb
Lintel or Bond Beam / Spruce-Pine-Fir Top Plate	3840 lb

Placement at slab level:

Corners
When presetting the all-thread rod at a building corner, the ro should be placed 8 to 12 inches away from the corner so it do not set under the corner framing members. When a all-thread rod ispecified at a building corner, it may be placed on either side of the corner

Header ends
When presetting the all-thread rod at a header end, the rod should be placed 8 to 12 inches away from the header end sit does not fall under the stud pack framing members.

Top Connections
Top connections made at corners and header ends shall be mte within 2 inches of the framing pack. A nut and 3X3 washer shall be allied to the top plates and tightened securely.

Intermediate Coupler Connections
When using the rod coupler, care should be taken to ensure fi and equal thread engagement. This is easily achieved by threadinthe coupler all the way onto the rod, then standing the two rods ento end, then threading the coupler back over the rod joint so each rod halfway into the coupler.

Retro-fits
In the case of an all thread rod misplacement, the rod may be xoxied into the concrete.

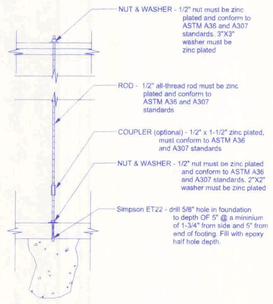
Sole plate to slab connection:
The slab level sole plate shall be connected to the slab with th connectors specified and at the spacing specified within the degn documents. All-thread rods shall be placed as per the design ecifications. All-thread rods with a nut and washer at the sole plate will quay as a sole plate connection but may require other anchors intermediate ohe all-thread rod locations to qualify the specified spacing requirements.

System Tightening:
On multiple story applications, the all-thread rod system shall I rechecked for proper tension just before the walls are veneered. This will low the all-thread rod system to compensate for the buildings dead loacompression.

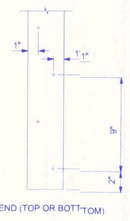
SHEARWALL NOTES:

1. ALL SHEARWALLS SHALL BE TYPE 2 SHEARWALLS AS DEFINED BY STD 10-99 305.4.3.
2. THE WALL SHALL BE ENTIRELY SHEATHED WITH 7/16" O.S.B. INCLUDING AREAS ABOVE AND BELOW OPENINGS.
3. ALL SHEATHING SHALL BE ATTACHED TO FRAMING ALONG ALL FOUR EDGES WITH JOINTS FOR ADJACENT PANELS OCCURING OVER COMMON FRAMING MEMBERS OR ALONG BLOCKING.
4. NAIL SPACING SHALL BE 6" O.C. EDGES AND 12" O.C. IN THE FIELD.
5. TYPE 2 SHEARWALLS ARE DESIGNED FOR THE OPENING IT CONTAINS. MAXIMUM HEIGHT OF OPENING SHALL BE 5/6 TIMES THE WALL HEIGHT. THE MINIMUM DISTANCE BETWEEN OPENINGS SHALL BE THE WALL HEIGHT/3.5 ie. FOR 8'-0" WALLS - (2'-3").

OPENING WIDTH	SILL PLATES	16d TOE NAILS EACH END
UP TO 6'-0"	(1) 2x4 OR (1) 2x6	1
> 6' TO 9'-0"	(3) 2x4 OR (1) 2x6	2
> 9' TO 12'-0"	(5) 2x4 OR (2) 2x6	3



NOTE:
A SOLID MEMBER OF EQUAL OR GREATER SIZE THAN A MULTIPLE MEMBERS MAY BE USED.
IF RATED SHEATHING IS APPLIED TO NARROW EDGES, IT NAILED TO EACH STUD AT 12" O.C. MAXIMUM. THE LAMINATION NAILING SHOWN HERE IS NOT REQUIRED.



END (TOP OR BOTTOM)

GIRDER COLUMN DETAIL

SCALE: 1/2" = 1'-0"

OPENING CONNECTION REQUIREMENTS

CLEAR OPENING WIDTH	HEADER SIZE #2 GRADE OR BETTER	END BEARING	CONNECTOR AT EACH END OF OPENING	ANCHORAGE TO FOUNDATION @ EACH END OF OPENING
0' - 3'	(2) 2x8	1.5"	N/A	N/A
>3' - 6'	(2) 2x10	3"	1/2" ALL THREAD ROD	1/2" ALL THREAD ROD
>6' - 9'	(2) 2x12	3"	1/2" ALL THREAD ROD	1/2" ALL THREAD ROD
>9' - 12'	(2) 1 3/4" x 11 1/4" LVL - 2.0E	3"	1/2" ALL THREAD ROD	1/2" ALL THREAD ROD
>12' - 15'	(2) 1 3/4" x 11 1/4" LVL - 2.0E	3"	1/2" ALL THREAD ROD	1/2" ALL THREAD ROD
>15' - 18'	(2) 1 3/4" x 11 1/4" LVL - 2.0E	4.5"	1/2" ALL THREAD ROD	1/2" ALL THREAD ROD

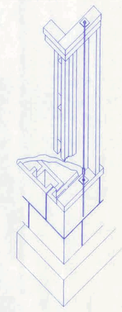
ALLOWABLE DEFLECTION OF STRUCTURAL MEMBERS

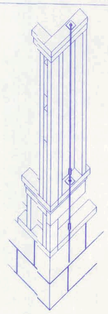
STRUCTURAL MEMBER	ALLOWABLE DEFLECTION
rafters having slopes greater than 2/12 with no finished ceiling attached to rafters	L/180
interior walls and partitions	H/180
floors and plastered ceilings	L/360
all other structural members	L/240
exterior walls with plaster or stucco finish	H/360
exterior walls - wind loads with brittle finishes	L/240
exterior walls - wind loads with flexible finishes	L/120

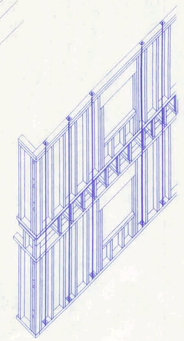
NOTE:
ALL WALL SHEATHING SHALL BE WINDSTORM 10' -1 1/8" FULL HEIGHT SHEATHING-
SEE DETAIL 1 FOR NAILING

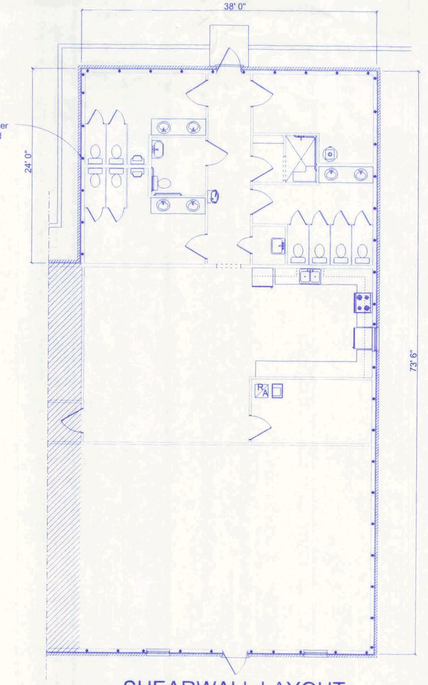
● ALL THREAD LOCATION

NOTE:
VERIFY GIRDER TRUSS LOCATION ON TRUSS LAYOUT FOR REQ'D ALL THREAD AT GIRDER LOCATION









SHEARWALL LAYOUT

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

William H. Freeman
11/23/09
P.E. # 56001

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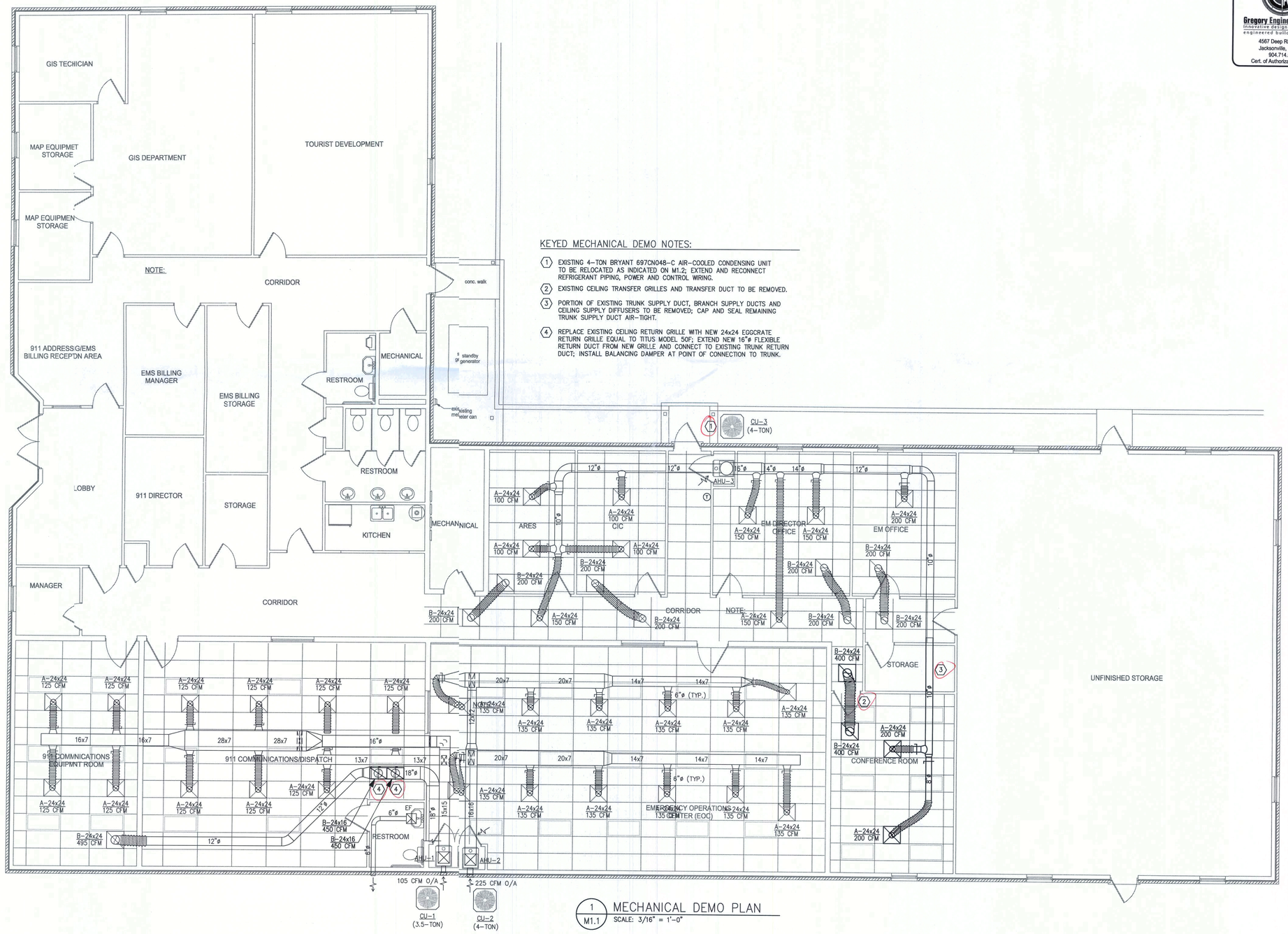
Freeman Design Group inc

DATE	DRAWN BY
11/23/09	W.H.F.
	APPROVED W.H.F.

REVISIONS

SHEET S-2
OF 2

PROJECT NO.
09.C016



KEYED MECHANICAL DEMO NOTES:

1. EXISTING 4-TON BRYANT 697CN048-C AIR-COOLED CONDENSING UNIT TO BE RELOCATED AS INDICATED ON M1.2; EXTEND AND RECONNECT REFRIGERANT PIPING, POWER AND CONTROL WIRING.
2. EXISTING CEILING TRANSFER GRILLES AND TRANSFER DUCT TO BE REMOVED.
3. PORTION OF EXISTING TRUNK SUPPLY DUCT, BRANCH SUPPLY DUCTS AND CEILING SUPPLY DIFFUSERS TO BE REMOVED; CAP AND SEAL REMAINING TRUNK SUPPLY DUCT AIR-TIGHT.
4. REPLACE EXISTING CEILING RETURN GRILLE WITH NEW 24x24 EGGCRATE RETURN GRILLE EQUAL TO TITUS MODEL 50F; EXTEND NEW 16"ø FLEXIBLE RETURN DUCT FROM NEW GRILLE AND CONNECT TO EXISTING TRUNK RETURN DUCT; INSTALL BALANCING DAMPER AT POINT OF CONNECTION TO TRUNK.

1 / M1.1 MECHANICAL DEMO PLAN
SCALE: 3/16" = 1'-0"

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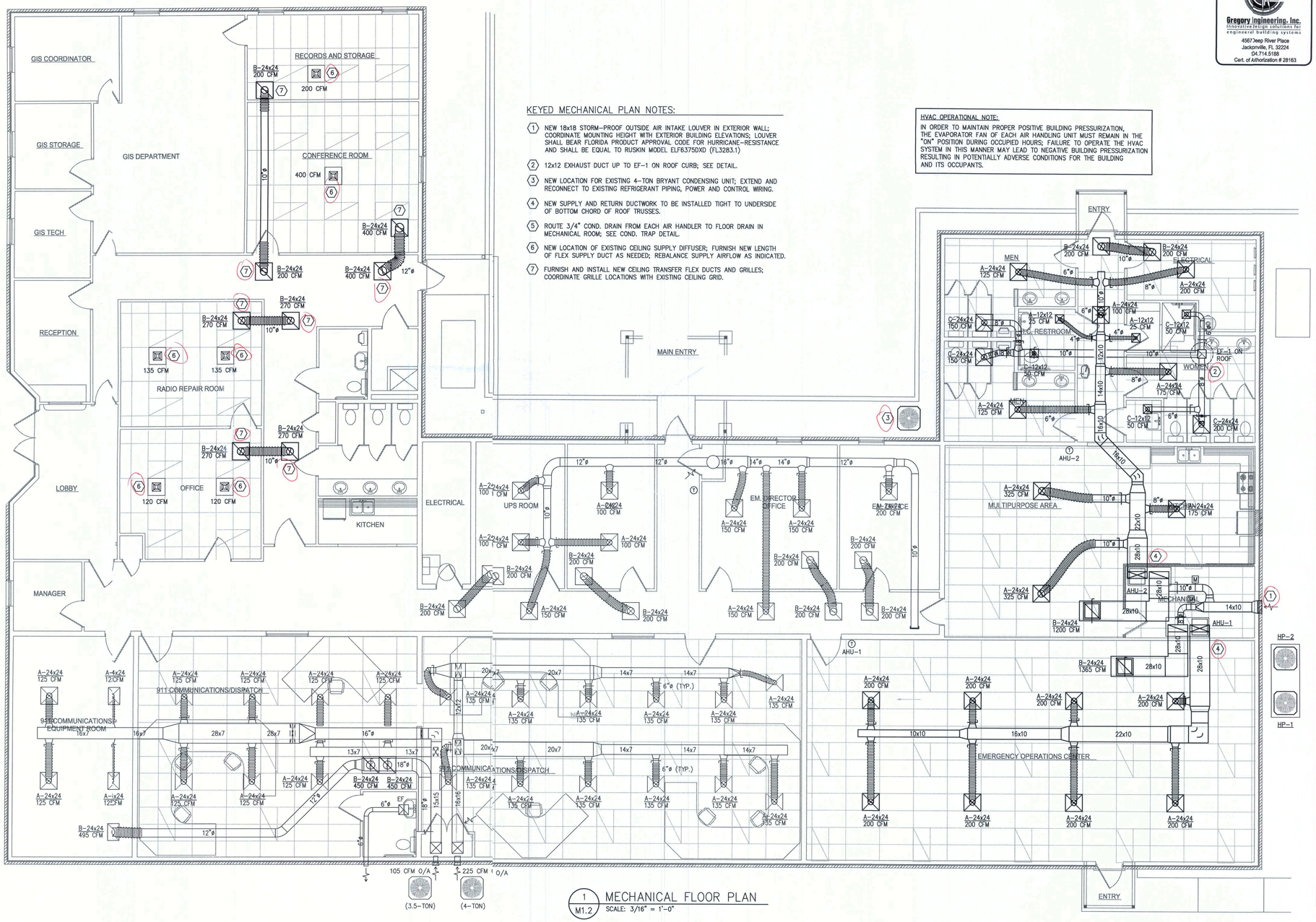
PROJECT NO. 09.C016



KEYED MECHANICAL PLAN NOTES:

1. NEW 18x18 STORM-PROOF OUTSIDE AIR INTAKE LOUVER IN EXTERIOR WALL; COORDINATE MOUNTING HEIGHT WITH EXTERIOR BUILDING ELEVATIONS; LOUVER SHALL BEAR FLORIDA PRODUCT APPROVAL CODE FOR HURRICANE-RESISTANCE AND SHALL BE EQUAL TO RUSKIN MODEL ELF6375DXD (FL3283.1)
2. 12x12 EXHAUST DUCT UP TO EF-1 ON ROOF CURB; SEE DETAIL.
3. NEW LOCATION FOR EXISTING 4-TON BRYANT CONDENSING UNIT; EXTEND AND RECONNECT TO EXISTING REFRIGERANT PIPING, POWER AND CONTROL WIRING.
4. NEW SUPPLY AND RETURN DUCTWORK TO BE INSTALLED TIGHT TO UNDERSIDE OF BOTTOM CHORD OF ROOF TRUSSES.
5. ROUTE 3/4" COND. DRAIN FROM EACH AIR HANDLER TO FLOOR DRAIN IN MECHANICAL ROOM; SEE COND. TRAP DETAIL.
6. NEW LOCATION OF EXISTING CEILING SUPPLY DIFFUSER; FURNISH NEW LENGTH OF FLEX SUPPLY DUCT AS NEEDED; REBALANCE SUPPLY AIRFLOW AS INDICATED.
7. FURNISH AND INSTALL NEW CEILING TRANSFER FLEX DUCTS AND GRILLES; COORDINATE GRILLE LOCATIONS WITH EXISTING CEILING GRID.

HVAC OPERATIONAL NOTE:

IN ORDER TO MAINTAIN PROPER POSITIVE BUILDING PRESSURIZATION, THE EVAPORATOR FAN OF EACH AIR HANDLING UNIT MUST REMAIN IN THE "ON" POSITION DURING OCCUPIED HOURS; FAILURE TO OPERATE THE HVAC SYSTEM IN THIS MANNER MAY LEAD TO NEGATIVE BUILDING PRESSURIZATION RESULTING IN POTENTIALLY ADVERSE CONDITIONS FOR THE BUILDING AND ITS OCCUPANTS.

1 M1.2 MECHANICAL FLOOR PLAN
SCALE: 3/16" = 1'-0"

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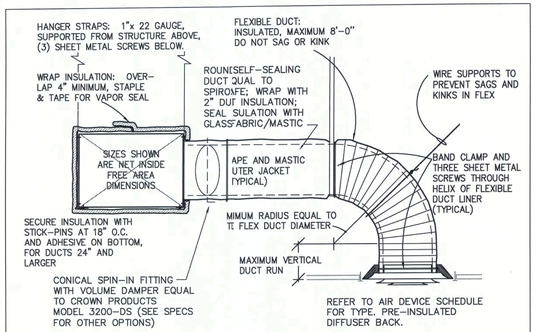
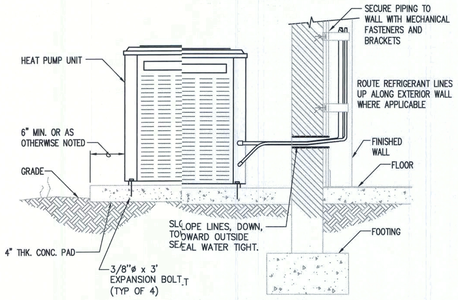


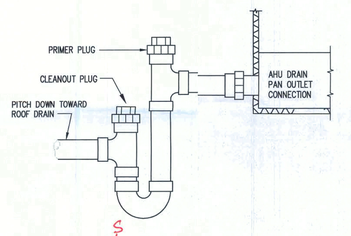
DUCT FABRICATION NOTES:

1. SHEET METAL DUCTS SHALL BE FABRICAED & INSTALLED PER THE LATEST EDITION OF SMACNA DUCT CONSTRUCTION STANDARDS.
2. ALTERNATE INTERPRETATIONS OF SMACN DUCT MATERIAL, HANGERS AND REINFORCEMENTS ARE SUBJECT TO ENGINEER APPROVAL, AND EQUIRE SEPARATE SUBMITTAL OF THE ALTERNATES.
3. FLEXIBLE DUCT CONNECTORS SHALL BE ROVIDED WHERE SHOWN ON THE PLAN.
4. SUPPLY AIR DROPS FROM ROOFTOP UNI SHALL TRANSITION FROM THE UNIT OPENING SIZE TO SQUARE NECK ELBOWS, WITH SIZES AS KOWN ON THE PLAN. IF TWO SUPPLY AIR DUCT RUNS ARE AT THE UNIT, THEN TWO SEPERATDROPS & ELBOWS SHALL BE PROVIDED.
5. RETURN AIR DROPS FROM THE ROOFTORUNITS SHALL BE FULL SIZE OF THE UNIT OPENING.
6. ELBOWS SHALL BE SQUARE NECK (SAMEN OUT DIMENSION) WITH 2" DOUBLE THICKNESS TURNING VANES.
7. OFFSETS SHALL NOT REDUCE THE FREE REA, AND SHALL NOT EXCEED 30°. A RADIUS HEEL HEEL SHALL BE PROVIDED ON 30° OFFSIS. SMALLER OFFSETS SHALL BE MITERED AT BOTH THE HEEL & THROAT.
8. TRANSITIONS SHALL NOT EXCEED 1:3 RAO (4" TRANSITION PER FOOT SINGLE SIDED TRANSITION, AND 8" PER FOOT DOUBLE IDED TRANSITION).
9. INSULATION SHALL BE NFPA 90 APPROVD, WITH MINIMUM 4.2 R VALUE. WRAP INSULATION SHALL BE 2" THICK WITH ALUMINUM FOIL FACIN. LINER SHALL BE 1" THICK, 1-1/2 PCF DENSITY.
10. RECTANGULAR BRANCH CONNECTIONS SALL BE 45° ENTRY TYPE PER SMACNA FIGURE 2-6.
11. ROUND DUCT CONNECTIONS SHALL BE WH "CROWN PRODUCTS COMPANY" 3200-DS FITTINGS, DAMPER AND HANDLE. SPRAY AINT LOCATIONS OF HANDLES.
12. FLEXIBLE DUCT SHALL INCLUDE AN INNE POLYETHYLENE LINER, A SPRING HELIX, 1-1/4" BLANKET INSULATION (R-6.0), A FOIL OTER VAPOR BARRIER, AND BE UL-181 APPROVED.
13. SEAL ALL SUPPLY, RETURN & OUTSIDE R DUCT JOINTS WITH DUCT SEALER; SEAL ALL INSULATION JOINTS WITH GLASS FABRIC ND MASTIC.

4 / M2.1 CONCEALED DUCTWORK DETAIL
NOT TO SCALE

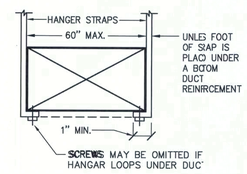


1 / M2.1 AIR-COOLED HEAT PUMP DETAIL
NOT TO SCALE

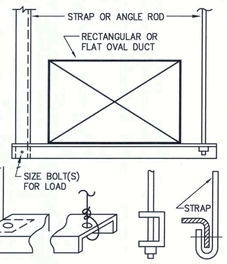


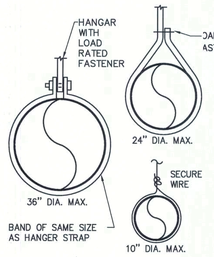
2 / M2.1 CONDENDATE TRAP DETAIL
NOT TO SCALE

STRAP HANGARS

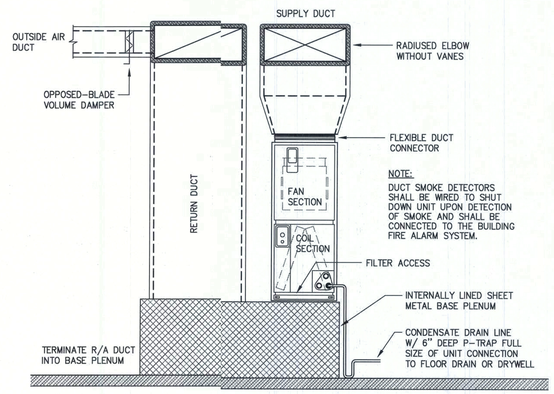


TRAPEZE HANGARS





5 / M2.1 DUCTWORk SUPPORT DETAIL
NOT TO SCALE



3 / M2.1 VERTICAL AIR HANDLING UNIT DETAIL
NOT TO SCALE

ASHRAE 62.1-2007 VENTILATION & AIR BALANCE CALCULATION
Columbia County Emergency Operations Center

SYSTEM	TRACE ROOM NO.	AREA (SF)	DEFAULT OCCUPANCY (QTY/1000 SF)	CALCULATED OCCUPANCY (PEOPLE)	PEOPLE COUNT (LOAD)	PEOPLE COUNT (VENT.)	Rp VENT. RATE (CFM / P)	Vbzp (CFM)	Ra VENT. RATE (CFM / SF)	Vbza (CFM)	VENTILATION REQUIREMENT Vbz=Vbzp+Vbza (CFM)	Ez ZONE AIR DISTRIBUTION EFFECTIVENESS	**Vbz CORRECTED VENTILATION REQUIREMENT (CIM)**	EXHAUST RATE (CFM)
AHU-1		1,385	20	27			5	135	0.06	83.1	218.1	1	218	
AHU-2		1,716	7	12			5	35	0.06	103.0	138.0	1	138	650
												1		
TOTAL		3101						170		186.1	356.1		356	650
	TOTAL OCCUPANT VENTILATION REQUIREMENT					=	356							
	TOTAL EXH. RATE **PLUS 5%** FOR PRESSURIZATION					=	683							
	FINAL VENT. AIR REQUIREMENT (Greater of Above					=	**683**							
	TOTAL VENTILATION PROVIDED (CFM)					=	**700**							

Date: 4-Sep-09

EXHAUST FAN SCHEDULE

DESIGNATION	EF-1
FAN TYPE	ROOF CENTRIFUGAL
AIRFLOW (CFM)	650
DRIVE TYPE	DIRECT
EXT. STATIC (in. wg.)	1/4"
FAN SPEED (RPM)	840
INPUT (HP)	1/6
VOLTAGE/PHASE	120/1
ACCESSORIES	A,B,C,D,E
CONTROL TYPE	SEE NOTE 1.
MANUFACTURER	LOREN COOK
MODEL NO.	120C10D

NOTES:
CONTROL TYPE:
1. INTERLOCK EF-1 WITH AHU-2 EVAP FAN MOTOR.

ACCESSORIES:
A. BACKDRAFT DAMPER.
B. BIRD SCREEN.
C. SOLID STATE SPEED CONTROLLER.
D. FACTORY PRE-WIRED DISCONNECT.
E. FACTORY ROOF CURB.

AIR-COOLED SPLIT SYSTEM HEAT PUMP SCHEDULE

SYSTEM NUMBER	AHU/HP-1	AHU/HP-2
MANUFACTURER	TRANE	TRANE
HEAT PUMP/COOLING ONLY	HEAT PUMP	HEAT PUMP
MIN. SYSTEM S.E.E.R	13.0	13.0
MIN. SYSTEM H.S.P.F	8.8	8.8
INDOOR UNIT No.	AHU-1	AHU-2
AHU ORIENTATION	Verfical	Verfical
SUPPLY AIRFLOW (cfm)	1600	1600
OUTSIDE AIRFLOW (cfm)	285	400
EXT. STATIC (in. w.g.)	0.5"	0.5"
EVAP. FAN HP	1/2	1/2
AUX ELEC. HEAT AT 240 V (Kw)	9.6	9.6
UNIT VOLTS/PHASE	230/1	230/1
ENT. AIR TEMP. DB/WB (DEG F)	75/63	75/63
NET TOTAL COOLING (BTU/H)	46000	46000
NET TOTAL SENSIBLE COOLING (BTU/H)	33200	33200
REV. CYCLE HEATING (BTU/H)	42500	42500
MCA/MCOP	53/60	53/60
MODEL No.	4TEC3F48A	4TEC3F48A
OUTDOOR UNIT No.	HP-1	HP-2
AMBIENT TEMP. (DEG. F)	95	95
UNIT VOLTAGE/PHASE	230/1	230/1
MCA/MCOP	30/50	30/50
MODEL No.	4TWB3048A1	4TWB3048A1
Remarks	-----	-----

Notes:
1. PROVIDE AHU WITH SINGLE POINT POWER CONNECTION; COORDINATE WITH ELECTRICAL CONTRACTOR.
2. E.C TO PROVIDE AND INSTALL DISCONNECT SWITCH.
3. ELECTRONIC PROGRAMMABLE THERMOSTAT
4. TIME DELAY RELAY & TX VALVE
5. FILTER RACK W 1" MERV-6 FILTERS
6. FILTER DRIER
7. COMPRESSOR START ASSIST
8. HIGH & LOW PRESSURE SWITCHES
9. CRANKCASE HEATER
10. INSTALL MOTORIZED DAMPER IN O/A AIR DUCT OF EACH AHU; INTERLOCK DAMPER WITH FAN.
11. SIZE RERIGERANT LINES PER MANUFACTURER'S RECOMMENDATIONS FOR MINIMUM CAPACITY LOSS

AIR DISTRIBUTION DEVICE SCHEDULE

TYPE		DESCRIPTION	NECK	FACE SIZE	MANUF.	NOMINAL CFM RANGE
SUPPLY	A	ALUMINUM, CONCENTRIC-CONE CEILING DIFFUSER MODEL TMS-AA	6"ø	12x12	TITUS	0-150
			8"ø	12x12	TITUS	151-275
			6"ø	24x24	TITUS	0-150
			8"ø	24x24	TITUS	151-275
			10"ø	24x24	TITUS	276-425
			12"ø	24x24	TITUS	426-625
			14"ø	24x24	TITUS	326-850
RETURN	B	ALUMINUM EGGCRATE CEILING RETURN GRILLE, MODEL 50F	12x12	12x12	TITUS	0-450
			24x24	24x24	TITUS	0-1875
EXHAUST	C	ALUMINUM EGGCRATE CEILING RETURN GRILLE, MODEL 50F	12x12	12x12	TITUS	0-450
			16x16	16x16	TITUS	151-800
			20x20	20x20	TITUS	801-1300
			24x24	24x24	TITUS	1801-1875

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6/30/09
W. Michael Gregory
PE #46607

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9/18/09	WMG

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SHEET M2.1 OF

PROJECT NO. 09.C016

MECHANICAL SPECIFICATIONS

PART 1 – GENERAL

1.01 INSTRUCTIONS

A. SCOPE OF WORK SHALL INCLUDE ALL MATERIALS, EQUIPMENT AND LABOR NECESSARY FOR A COMPLETE AND OPERABLE SYSTEM IN ACCORDANCE WITH LOCAL AND STATE CODES, AND CONTRACT DRAWINGS AND SPECIFICATIONS.

1.02 LOCAL CONDITIONS

A. CONTRACTOR SHALL VISIT THE SITE AND OBSERVE ALL EXISTING LOCAL CONDITIONS WHICH WOULD AFFECT WORK UNDER THIS CONTRACT. CONTRACTOR SHALL EXAMINE ALL PLANS AND SPECIFICATIONS FOR THIS PROJECT AND CONSULT THEM FOR INSTRUCTIONS PERTAINING TO WORK OF THIS SECTION.

1.03 PERMITS AND FEES

A. CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND INSPECTIONS REQUIRED FOR PERTAINING TO WORK UNDER THIS CONTRACT AND PAY ALL CHARGES INCIDENTAL THERETO. DELIVER TO ARCHITECT ALL CERTIFICATES OF INSPECTION ISSUED BY AUTHORITIES HAVING JURISDICTION.

1.04 CODES AND STANDARDS

A. FURNISH AND INSTALL MECHANICAL SYSTEMS TO MEET ALL CURRENT REQUIREMENTS OF NATIONAL, STATE AND MUNICIPAL CODES, RULES REGULATIONS, LAWS, AND STANDARDS AS THEY ARE ADOPTED BY THE GOVERNING AGENCY AND AS THEY MAY APPLY.
   1. FLORIDA BUILDING CODE 2004, BUILDING (2006 ADDENDUMS)
   2. FLORIDA BUILDING CODE 2004, MECHANICAL (2006 ADDENDUMS)
   3. FLORIDA BUILDING CODE 2004, PLUMBING (2006 ADDENDUMS)
   4. FLORIDA FIRE PREVENTION CODE (2001 EDITION)
   5. STANDARD FOR THE INSTALLATION OF A/C AND VENT SYSTEMS, NFPA 90A (1999 ED.) UNDERWRITERS LABORATORIES

1.05 SUBMITTALS

A. MATERIAL LIST: WITHIN TWENTY (20) DAYS OF AWARD OF CONTRACT, CONTRACTOR SHALL SUBMIT TO ARCHITECT A COMPLETE LIST OF MATERIALS TO BE PROVIDED FOR THE HVAC WORK. THE LIST SHALL INCLUDE SUPPLIERS' NAMES AND MANUFACTURERS' NAMES AND NUMBER OR SERIES FOR EACH ITEM ON LIST.

B. SHOP DRAWINGS: SUBMIT TO THE ARCHITECT FOR APPROVAL, BEFORE COMMENCING WORK, SHOP DRAWINGS FOR ALL MATERIALS AND EQUIPMENT TO BE PROVIDED UNDER THIS CONTRACT. THE FOLLOWING APPLIES TO THE SHOP DRAWINGS:
   1. CONTRACTOR SHALL SUBMIT WITHIN 30-DAYS AFTER AWARD OF CONTRACT, DRAWINGS AND/OR CUT SHEETS OF ALL MATERIALS AND EQUIPMENT, AND 1/4" SCALE EQUIPMENT ROOM DRAWINGS FOR APPROVAL BY ARCHITECT-ENGINEER. SUCH SUBMITTALS MUST CONTAIN OUTLINE DIMENSIONS, OPERATING CLEARANCES, INSTALLATION, OPERATING AND MAINTENANCE INFORMATION AND SUFFICIENT ENGINEERING DATA TO INDICATE SUBSTANTIAL COMPLIANCE WITH SPECIFICATIONS. ALL SHOP DRAWINGS FOR ONE SECTION OF WORK OR ONE MECHANICAL SYSTEM SHALL BE SUBMITTED AT ONE TIME IN LOOSE-LEAF 3-RING BINDERS; NO APPROVAL WILL BE GIVEN IF SUBMITTED PIECEMEAL.
   2. WHERE CONTRACTOR CONSIDERS ADDITIONAL DETAIL OR SHOP DRAWINGS ESSENTIAL TO PROPER FABRICATION OR INSTALLATION OF EQUIPMENT, DUCTWORK, AND PIPING HE SHALL PREPARE SUCH CONSISTENT WITH CURRENT INDUSTRY METHODS AND STANDARDS. ENGINEER RESERVES THE RIGHT TO DIRECT REMOVAL AND REPLACEMENT OF ANY ITEMS WHICH, IN HIS OPINION, DO NOT PRESENT AN ORDERLY AND REASONABLY NEAT AND WORKMANLIKE APPEARANCE, PROVIDED SUCH AN ORDERLY INSTALLATION CAN BE MADE USING CUSTOMARY TRADE METHODS. REMOVAL AND REPLACEMENT SHALL BE DONE WHEN DIRECTED IN WRITING BY ENGINEER AT THE CONTRACTOR'S EXPENSE AND WITHOUT ADDITIONAL EXPENSE TO OWNER.
   3. APPROVAL GRANTED ON SHOP DRAWINGS IS RENDERED AS A SERVICE ONLY AND SHALL NOT BE CONSIDERED AS GUARANTEE OF MEASUREMENTS OF BUILDING CONDITIONS; NOR SHALL IT BE CONSTRUED AS RELIEVING THE MECHANICAL CONTRACTOR OF BASIC RESPONSIBILITIES UNDER THIS CONTRACT.
   4. CHANGES IN FOUNDATIONS, BASES, CONNECTIONS, PIPING, CONTROLS, STARTERS, ELECTRICAL EQUIPMENT, WIRING AND CONDUIT, SPACE OPENINGS, WALLS AND CEILINGS, AND VIBRATION ISOLATION IN ORDER TO ACCOMMODATE SUBSTITUTE EQUIPMENT SHALL BE MADE AT NO ADDITIONAL COST TO THE OWNER.
   5. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND RECEIVE ENGINEER'S APPROVAL BEFORE INSTALLING MATERIALS OR EQUIPMENT. ANY EQUIPMENT OR MATERIALS INSTALLED PRIOR TO RECEIPT OF APPROVED SHOP DRAWINGS FROM ENGINEER SHALL BE SUBJECT TO REMOVAL AND/OR ALTERATION AT THE DISCRETION OF THE MECHANICAL ENGINEER AT NO ADDITIONAL COST.
   6. APPROVAL OF ANY SUBMITTED DATA OR SHOP DRAWINGS FOR MATERIALS, EQUIPMENT, APPARATUS DEVICES, ARRANGEMENT AND/OR LAYOUTS WILL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY OF FURNISHING SAME OF PROPER DIMENSIONS, CAPACITIES, SIZES, QUANTITIES AND INSTALLATION DETAILS TO EFFICIENTLY PERFORM REQUIREMENTS AND INTENT OF CONTRACT. SUCH APPROVAL SHALL NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS OF ANY SORT.

C. ANY ELECTRICAL DEVIATIONS BETWEEN THE CONTRACT DOCUMENTS AND THE FURNISHED EQUIPMENT MUST BE SEPARATELY ACKNOWLEDGED BY A SUBSTITUTION REQUEST AND ADDITIONALLY NOTED ON THE SUBMITTAL.

D. PROVIDE MECHANICAL SHOP DRAWINGS FOR: AIR HANDLING UNITS, CONDENSING UNITS, VENTILATORS, AIR INLETS AND OUTLETS, DUCT ACCESSORIES, DUCT INSULATION, PIPE INSULATION, TEMPERATURE CONTROLS, DUCT MATERIAL, REFRIGERANT PIPING, CONDENSATE PIPING.

1.06 CONNECTING TO WORK OF OTHERS

A. BEFORE STARTING HIS WORK, AND FROM TIME TO TIME AS WORK PROGRESSES, MECHANICAL CONTRACTOR SHALL EXAMINE WORK AND MATERIALS INSTALLED BY OTHERS INSOFAR AS THEY APPLY TO HIS WORK AND SHALL NOTIFY ENGINEER IMMEDIATELY IN WRITING IF CONDITIONS EXIST WHICH [illegible].

B. SHOULD CONTRACTOR START HIS WORK WITHOUT SUCH NOTIFICATION, IT SHALL BE CONSTRUED AS AN ACCEPTANCE BY HIM OF ALL CLAIMS OR QUESTIONS AS TO SUITABILITY OR WORK OF OTHERS TO RECEIVE HIS WORK. HE SHALL REMOVE AND REPLACE, AT HIS OWN EXPENSE, ALL WORK UNDER THIS CONTRACT WHICH MAY HAVE TO BE REMOVED ON ACCOUNT OF SUCH DEFECT

1.07 CONTRACT DRAWINGS

A. IT IS THE INTENT OF DRAWINGS AND SPECIFICATIONS TO OBTAIN A COMPLETE AND FULLY OPERATIONAL, AND SATISFACTORY INSTALLATION. AN ATTEMPT HAS BEEN MADE TO SEPARATE AND COMPLETELY DEFINE WORK UNDER THIS CONTRACT. HOWEVER, SUCH SEPARATE DIVISIONAL DRAWINGS AND SPECIFICATIONS SHALL NOT RELIEVE CONTRACTOR FROM FULL RESPONSIBILITY OF COMPLIANCE WITH WORK OF HIS TRADE WHICH MAY BE INDICATED ON ANY DRAWING OR IN ANY SECTION OF THE SPECIFICATIONS.

B. CONTRACTOR SHALL CAREFULLY EXAMINE ARCHITECTURAL, STRUCTURAL, ELECTRICAL, AND MECHANICAL DRAWINGS PRIOR TO SUBMITTING BID. CONTRACTOR WILL BE REQUIRED TO FURNISH, INSTALL AND CONNECT WITH APPROPRIATE SERVICES ALL ITEMS SHOWN ON ANY DRAWINGS WITHOUT ADDITIONAL EXPENSE TO OWNER. ARCHITECT SHALL BE NOTIFIED PRIOR TO BID DATE OF ANY DISCREPANCIES, OMISSIONS, CONFLICTS OR INTERFERENCES WHICH OCCUR BETWEEN DRAWINGS OR BETWEEN DRAWINGS AND SPECIFICATIONS. IF SUCH NOTIFICATION IS RECEIVED IN ADEQUATE TIME, ADDITIONAL DATA OR CHANGES WILL BE ISSUED BY ADDENDUM TO ALL BIDDERS. SUBMITTAL OF BID BY CONTRACTOR SHALL INDICATE THE CONTRACTOR'S ACKNOWLEDGEMENT AND ACCEPTANCE TO PROVIDE ALL NECESSARY EQUIPMENT, MATERIALS AND LABOR TO MEET THE INTENT OF THE DRAWINGS AND SPECIFICATIONS IN ACCORDANCE WITH ALL CODE REQUIREMENTS.

C. ARCHITECTURAL DRAWINGS SHALL TAKE PRECEDENCE OVER MECHANICAL DRAWINGS WITH REFERENCE TO BUILDING CONSTRUCTION. MECHANICAL DRAWINGS ARE DIAGRAMMATIC BUT SHALL BE FOLLOWED AS CLOSELY AS ACTUAL CONSTRUCTION OF BUILDING AND WORK OF OTHER TRADES WILL PERMIT. WHERE LOCATIONS OF EQUIPMENT, DEVICES OR FIXTURES ARE CONTROLLED BY ARCHITECTURAL FEATURES, ESTABLISH SUCH LOCATIONS BY REFERRING TO DIMENSIONS ON ARCHITECTURAL DRAWINGS AND NOT BY SCALING DRAWINGS. CHANGES FROM DRAWINGS NECESSARY TO MAKE WORK OF CONTRACTOR CONFORM WITH BUILDING AS CONSTRUCTED AND TO FIT WORK OF OTHER TRADES OR RULES OF BODIES HAVING JURISDICTION SHALL BE MADE BY CONTRACTOR AT HIS OWN EXPENSE. SOME DRAWINGS MAY HAVE BEEN PREPARED FROM EXISTING DRAWINGS WITH INTENT OF PROVIDING THE CONTRACTOR WITH INFORMATION CONCERNING THE EXISTING CONDITIONS. DATA SHOWN HAS NOT BEEN COMPLETELY VERIFIED BY ARCHITECT/ ENGINEER AND NO GUARANTEE OF ACCURACY OF THIS INFORMATION IS GIVEN OR INTENDED. IT SHALL BE THE RESPONSIBILITY OF CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS. DATA WHICH IS SHOWN BUT PROVES TO BE INCORRECT SHALL IN NO WAY RELIEVE THE CONTRACTOR FROM INSTALLING HIS WORK WITHIN THE INTENT OF PLANS AND SPECIFICATIONS, NOR SHALL IT CONSTITUTE BASIS FOR A CHANGE ORDER UNLESS, IN THE OPINION OF THE ARCHITECT/ENGINEER IT IS DETERMINED TO BE AN EXTRA COST OVER AND ABOVE THE BASIC INTENT OF THESE PLANS AND SPECIFICATIONS.

1.08 DAMAGE TO OTHER WORK

A. CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER PROTECTIVE MEASURES WHEN WORKING OVERHEAD OR IN FINISHED AREAS. HE/SHE SHALL REPAIR, REPLACE OR TOUCH-UP ALL FINISHED SURFACES WHICH MAY BE DAMAGED AS A RESULT OF HIS OPERATIONS.

1.09 STORAGE AND WORK AREAS

A. ALL EQUIPMENT AND MATERIALS SHALL BE PROTECTED FROM THE WEATHER, DAMAGE, MOISTURE, DIRT, DEBRIS, ETC. USE OF CARDBOARD, VISQUEEN, OR OTHER SIMILAR MATERIALS WHILE STORED OUTSIDE IS NOT ACCEPTABLE. DO NOT INSTALL DAMAGED EQUIPMENT.

1.10 APPROVAL OF MATERIAL

A. EQUIPMENT OTHER THAN SPECIFIED IN THE CONTRACT DOCUMENTS REQUIRES APPROVAL FROM ENGINEER 10 DAYS PRIOR TO BID DATE.

B. WRITTEN REQUEST FOR PRIOR APPROVAL MUST BE RECEIVED IN ENGINEER'S OFFICE BY CLOSE OF BUSINESS NO LATER THAN 10 DAYS PRIOR TO SCHEDULED BID DATE. REQUEST SHALL CONTAIN DETAILED INFORMATION ON THE PROPOSED ITEM. THIS SHALL INCLUDE:
1. CATALOG CUTS SHEETS
2. DETAILED SPECIFICATIONS
3. DESCRIPTION OF DEVIATION FROM SPECIFIED ITEM.

C. AN ADDENDA SHALL BE ISSUED LISTING ALL PROSPECTIVE CONTRACTORS LISTING ALL PRIOR APPROVED MANUFACTURERS AND PRODUCTS.

2.01 SPLIT SYSTEM HEAT PUMPS

A. GENERAL: FURNISH AND INSTALL SPLIT SYSTEM HEAT PUMPS OF THE CAPACITY, OPERATING CHARACTERISTICS, AND ELECTRICAL CHARACTERISTICS INDICATED ON THE DRAWINGS AND SPECIFIED HEREIN.

B. MANUFACTURER: TRANE, CARRIER, OR LENNOX MAY BE SUBMITTED FOR APPROVAL PROVIDED THEY CONFORM TO ALL REQUIREMENTS OF THESE SPECIFICATIONS.

C. WARRANTY: CONTRACTOR SHALL INCLUDE IN HIS PRICE THE COST OF ONE YEAR'S WARRANTY ON ENTIRE SYSTEM PLUS AN ADDITIONAL FOUR YEARS WARRANTY ON COMPRESSOR. THE CONTRACTOR SHALL WARRANT EACH SYSTEM IN ITS ENTIRETY FOR ONE (1) FULL YEAR FROM THE DATE OF ACCEPTANCE BY THE OWNER. CONTRACTOR SHALL ALSO PROVIDE AN ADDITIONAL FOUR-YEAR WARRANTY ON EACH COMPRESSOR TO INCLUDE PARTS, REFRIGERANT AND OIL, EXCLUSIVE OF LABOR.

D. INDOOR UNITS:
   1. FAN SECTION: SHALL BE INSULATED AND CONSTRUCTED OF GALVANIZED STEEL, BONDERIZED AND FINISHED WITH BAKED ENAMEL. THE VARIABLE-SPEED FAN MOTOR SHALL BE FACTORY LUBRICATED, HAVE INTERNAL OVERLOAD PROTECTION AND BE RESILIENTLY MOUNTED. FAN-MOTOR ASSEMBLY SHALL SLIDE OUT FOR SERVICE. REVERSIBLE FILTER RACK SHALL BE EQUIPPED WITH PERMANENT TYPE FILTER THAT SLIDES OUT FOR SERVICE.
   2. COOLING COIL: SHALL BE CONSTRUCTED WITH ALUMINUM PLATE FINS MECHANICALLY BONDED TO NONFERROUS TUBING (FOR UNITS 5 TONS AND SMALLER) OR SEAMLESS COPPER TUBING (FOR UNITS LARGER THAN 5 TONS) WITH ALL JOINTS BRAZED. COILS SHALL HAVE A FACTORY-INSTALLED REFRIGERANT METERING DEVICE AND BE EQUIPPED WITH REFRIGERANT LINE FITTINGS WHICH PERMIT MECHANICAL CONNECTIONS. COIL CASING SHALL BE INSULATED AND CONSTRUCTED OF GALVANIZED STEEL, BONDERIZED AND FINISHED WITH BAKED ENAMEL.
   3. ELECTRIC HEATER: ENCLOSURE SHALL BE INSULATED AND HAVE LARGE FRONT SERVICE ACCESS DOOR. HEATING ELEMENTS SHALL BE STAGED AS INDICATED IN THE EQUIPMENT SCHEDULE ON THE MECHANICAL PLANS. HEATER SHALL BE EQUIPPED WITH BOTH THERMAL AND CURRENT OVERLOAD DEVICES, AND THE REQUIRED HEATING AND COOLING SYSTEM CONTROLS, INCLUDING CONTROL CIRCUIT 24-V TRANSFORMER.

E. OUTDOOR UNIT:
   1. GENERAL: HOUSING SHALL BE CONSTRUCTED OF GALVANIZED STEEL, BONDERIZED AND FINISHED WITH BAKED ENAMEL. THE UNIT SHALL BE DESIGNED AND TESTED FOR USE WITH R-410A AND CONTAIN A SUFFICIENT CHARGE FOR THE ENTIRE SYSTEM. BRASS SERVICE VALVES WITH REFRIGERANT LINE FITTINGS AND SERVICE PARTS SHALL BE LOCATED IN EXTERIOR OF UNIT.
   2. COIL: SHALL CONSIST OF ALUMINUM FINS MECHANICALLY BONDED TO COPPER TUBING (FOR UNITS LARGER THAN 5 TONS) OR ALUMINUM TUBING (FOR UNITS 5 TONS AND SMALLER) WITH ALL JOINTS BRAZED. FACTORY INSTALLED COIL REFRIGERANT METERING DEVICE SHALL BE MOUNTED ON UNIT LIQUID SERVICE VALVE. LIQUID LINE SHALL INCLUDE A BI-FLOW FILTER DRIER.
   3. FAN: SHALL BE PROPELLER TYPE, DIRECT DRIVEN, AND ARRANGED FOR VERTICAL DISCHARGE. PROVIDE GRILLE OVER DISCHARGE. FAN MOTOR SHALL BE FACTORY LUBRICATED, INHERENTLY PROTECTED AND RESILIENTLY MOUNTED. TWO-SPEED FAN MOTOR SHALL AUTOMATICALLY SWITCH TO HIGH SPEED ABOVE 95 DEGREES F AND BELOW 55 DEGREES F OUTDOOR TEMPERATURE.
   4. COMPRESSOR: SHALL BE OF THE WELDED-HERMETIC TYPE WITH INTERNAL VIBRATION ISOLATION AND BE COVERED WITH A SHIELD TO MUFFLE OPERATING SOUND. COMPRESSOR MOTOR SHALL HAVE BOTH THERMAL AND CURRENT SENSITIVE OVERLOAD DEVICE, AND START CAPACITOR AND RELAY. COMPRESSOR SHALL BE EQUIPPED WITH A CRANKCASE HEATER AND HAVE INTERNAL HIGH PRESSURE PROTECTION.
   5. CONTROLS: SHALL BE FACTORY WIRED AND LOCATED IN A READILY ACCESSIBLE LOCATION ON UNIT SWING-OUT SERVICE DOOR. CONTROLS AND PROTECTIVE DEVICE SHALL INCLUDE A LIQUID LINE LOW-PRESSURE SWITCH, SUCTION LINE ACCUMULATOR AND PRESSURE RELIEF DEVICE. AN AUTOMATIC DEFROST CONTROL SHALL BE INCLUDED TO ACCOMPLISH DEFROSTING (ONLY IF COIL TEMPERATURES) EVERY 90 MINUTES SATURATED SUCTION TEMPERATURE INDICATES FREEZING FOR A PERIOD OF NOT MORE THAN 10 MINUTES. CONTROL WIRING TERMINAL BOARD SHALL BE DESIGNED TO MATCH INDOOR UNIT TERMINAL BOARD FOR STANDARDIZED POINT-TO-POINT CONNECTION. A TIME-DELAY RELAY SHALL PREVENT THE COMPRESSOR FROM SHORT-CYCLING AT LESS THAN 5-MINUTE INTERVALS.

F. SPACE TEMPERATURE CONTROLS: THE INDOOR THERMOSTAT SHALL BE A FULLY-PROGRAMMABLE, 7-DAY, 4-EVENT PER DAY.

2.02 AIR DISTRIBUTION SYSTEMS

A. LOW PRESSURE SHEET METAL DUCTWORK: LOW PRESSURE SHEET METAL DUCTWORK SHALL BE CONSTRUCTED OF GALVANIZED SHEET STEEL. CONSTRUCTION OF JOINT CONNECTIONS, CROSS-BREAKING, AND BRACING SHALL CONFORM TO THE LATEST EDITION OF THE SMACNA "LOW PRESSURE DUCT CONSTRUCTION STANDARDS".

1. INSULATED SHEET METAL DUCTWORK:

A. SHEET METAL MATERIALS SHALL BE GALVANIZED SHEET STELL, LOCKFORMING QUALITY, ASTM A 527, AND COATING DESIGNATION G 90.

B. JOINT AN SEAM SEALANT SHALL BE ONE-PART, NONSAG, SOVENT-RELEASE CURING, POLYMERIZED BUTYL SEALANT COMPLYING WITH FS TT-S-001657, TYPE I; FORMULATED WITH A MINIMUM OF 75 PERCENT SOLIDS.

C. DUCTS ATTACHMENTS SHALL BE SHEET METAL SCREWS, BLIND RIVETS, OR SELF TAPPING METAL SCREWS; COMPATIBLE WITH DUCT MATERIALS.

D. DUCT FABRICATION: CONSTRUCT IN ACCORDANCE WITH SMACNA REQUIREMENTS.

2. SOUND-LINED INSULATION:

A. SOUND LINING SHALL BE ARMACELL FIBER FREE LINER MIN. 1.5 LB. DENSISTY, 1" THICKNESS, MAX 0.25 K FACTOR AT 75 DEGREES F. MEAN TEMPERATURE AND MUST HAVE A MAXIMUM WATER VAPOR TRANSIMISSION RATIO OF 0.0 PERM-IN (FLAME SPREAD LESS THAN 25, SMOKE DEVELOPED LESS THAN 50.)

B. APPLYING LINING WITH ADHESIVE OVER ENTIRE SURFACE AND SECURE WITH WELD PINS SPACED 16" ON CENTERS. COAST EDGES WITH SEALER AND PROVIDES SHEET METAL EDGE PROTECTORS. SEALER SHALL BE IN COMFORMANCE WITH NFPA 90A AND NFPA 90B. PROVIDE 2" SOUND LINING FOR MIXED AIR AND RELIEF AIR PLENUMS AND SUPPLY AIR PLENUMS AT SLOT DIFFUSER.

C. DIMENSIONS SHOWN ARE CLEAR INSIDED DIMENSIONS.

3. ACCEPTABLE: OWENS-CORNING ENDURAGOLD FIBERGLASS TYPE 475 OR 800, CERTAIN TEED ULTRA DUCT BOARD SD (475EI) OR SD (800EI), KNAUF AIR DUCT TYPE EI-475 OR EI-800, OR MANVILLE EQUIVALENT OR PRIOR APPROVED EQUAL.

C. LOW PRESSURE FLEXIBLE DUCTS: FLEXIBLE DUCT SHALL CONSIST OF A ZINC COATED SPRING STEEL HELIX PERMANENTLY BONDED TO A FULL INTERIOR LINER TO FORM THE DUCT CORE WITH POSITIVE INTERIOR AIR SEAL. CORE SHALL BE COVERED WITH FACTORY APPLIED ONE INCH, ONE POUND PER CUBIC FOOT FIBERGLASS INSULATION OF 0.25 THERMAL CONDUCTANCE SHEATHED IN A SEAMLESS EXTERIOR CLASS 1 VAPOR BARRIER JACKET WITH A VAPOR CUFF ON BOTH ENDS. DUCT SHALL BE MADE FOR USE WITH QUADRANT DAMPERED TWIST IN TYPE FITTINGS WITH EXTRACTOR SCOOPS SUITABLE FOR SHEET METAL OR FIBROUS GLASS DUCTWORK. DUCT SHALL BE NFPA 90A, CLASS 1 (UL-181). PROVIDE IN FACTORY FINISHED LENGTHS NOT IN EXCESS OF LENGTHS REQUIRED TO MAKE SUITABLE CONNECTIONS WITH MINIMUM PRESSURE DROP. ACCEPTABLE: GENFLEX TYPE SLR WITH STAINLESS STEEL HOSE COUPLINGS AND WITH FACTORY INSTALLED CROWN 3200-DS SPIN IN FITTING (FOR GLASS FIBER DUCTWORK), EACH TYPE WITH INTEGRAL VOLUME DAMPER AT CONNECTION TO RECTANGULAR MAIN DUCT BRANCH OR EQUIVALENT PRODUCTS OF ATCO.

D. DUCT SYSTEM ACCESSORIES:

1. GENERAL: PROVIDE ALL NECESSARY DUCT SYSTEM ACCESSORIES TO ASSURE PROPER BALANCE, QUIET AND DRAFTLESS DISTRIBUTION AND CONVEYANCE, AND MINIMIZATION OF TURBULENCE, NOISE AND PRESSURE DROP FOR ALL SUPPLY, RETURN, EXHAUST AND VENTILATION AIR QUANTITIES INDICATED. ACCESSORIES SHALL BE RECOMMENDED BY THEIR MANUFACTURER FOR EACH SPECIFIC APPLICATION.

2. FLEXIBLE DUCT CONNECTIONS: PROVIDE WHERE AIR HANDLERS, FANS AND BLOWERS CONNECT TO THEIR DUCTWORK. SHALL BE AT LEAST 4-INCHES LONG CONNECTED ON EACH SIDE TO METAL (EITHER METAL DUCTWORK, AIR HANDLING APPARATUS, OR HEAVY GAUGE STEEL SLEEVES), AND BE SUITABLE FOR USE IN MEDIUM AND/OR LOW PRESSURE DUCT SYSTEMS. PROVIDE BRAIDED COPPER BRIDGE STRAP EQUAL TO THOMPSON LIGHTNING PROTECTION, INC. NO. 588 ACROSS EACH CONNECTION. ACCEPTABLE: VENTFABRICS, INC. "VENTGLAS METAL- EDGE" OR PRIOR APPROVED EQUAL.

3. LOW PRESSURE METAL TURNING VANES: PROVIDE IN ALL ELBOWS, BENDS AND TEES OF ALL LOW VELOCITY SUPPLY AIR DUCTS WHETHER OR NOT SHOWN IN DETAIL; PROVIDE IN ALL ELBOWS, BENDS AND TEES OF ALL OTHER LOW VELOCITY DUCTS WHERE PORTIONS OF SUCH DUCTS CONVEY AIR AT GREATER THAN 700 FPM AVERAGE VELOCITY. UNIT TO BE OF THE PERMANENT FIXED TYPE, HAVING ADEQUATE RIGIDITY AND STRENGTH TO BE COMPLETELY FLUTTER-PROOF. ALUMINUM, OR STEEL WITH CORROSION RESISTANT COATING, OR GALVANIZED STEEL. AIRFOIL TYPE IN ALL MITERED ELBOWS, MITERED BENDS AND MITERED TEES. AIR FOIL TYPE MUST BE MANUFACTURED BY TUTTLE & BAILEY, ANEMOSTAT, METALAIRE, BARBER-COLMAN OR OTHER APPROVED MANUFACTURER AND MUST BE EQUAL TO BARBER-COLMAN "AIRTURNS", TUTTLE & BAILEY "DUCTURNS", OR DURA-DYNE "VR" WITH 24-GAUGE RAILS AND HOLLOW VANES.

4. MANUAL VOLUME DAMPERS (OTHER THAN THOSE SPECIFIED AS BEING INTEGRAL WITH EACH REGISTER, DIFFUSER AND OTHER AIR OUTLET OR INLET): PROVIDED IN THE COMPLETE AIR DISTRIBUTION SYSTEM(S) (INCLUDING DUCTWORK, RETURN AIR PLENUMS, ETC.) TO ALLOW COMPLETE BALANCING OF THE AIR SUPPLY, RETURN, VENTILATION AND EXHAUST SYSTEM(S). DAMPERS SHALL BE OPPOSED BLADE TYPE WITH 8-INCH MAXIMUM BLADE WIDTH. DAMPERS SHALL BE MADE OF GALVANIZED STEEL, OR STEEL WITH A SPRAYED OR DIPPED ALUMINUM RUST RESISTANT FINISH AND BE FLUTTER-PROOF. USE IN LOW PRESSURE DUCT SYSTEMS ONLY. BASED UPON LOCATION OF THE DUCT IN WHICH THE DAMPER IS TO BE INSTALLED, PROVIDE THE FOLLOWING TYPES OF OPERATORS: DAMPERS IN DUCTS WHICH ARE EXPOSED OR LOCATED ABOVE "LAY-IN" OR "ACCESSIBLE CEILINGS": YOUNG REGULATOR COMPANY MODEL 817. DAMPERS IN DUCTS CONCEALED ABOVE PLASTER CEILINGS OR BEHIND DRY WALL CONSTRUCTION; YOUNG REGULATOR COMPANY MODEL 817A. ACCEPTABLE: PRODUCTS OF TUTTLE & BAILEY, ANEMOSTAT, METALAIRE, KRUEGER, OR BARBER-COLMAN.

5. FIRE DAMPERS: PROVIDE FIRE DAMPERS WHERE INDICATED ON DRAWINGS AND/OR WHERE OTHERWISE NECESSARY. FIRE DAMPERS SHALL BE UL LABELED CLUSTERED BLADE TYPE, SPRING ACTUATED, FOR HORIZONTAL OR VERTICAL MOUNTING AS REQUIRED. DAMPER BLADES SHALL BE HELD IN POSITION BY A 165 DEGREE F FUSIBLE LINK. DAMPER SLEEVES SHALL BE 14-GAUGE MINIMUM AND ALL OTHER DETAILS OF INSTALLATION SHALL COMPLY WITH THE UL INSTALLATION DATA SHEETS FURNISHED WITH THE DAMPERS. OPENINGS BETWEEN THE FIRE DAMPER SLEEVES AND THE WALL OR FLOOR OPENINGS SHALL BE FILLED WITH FIBERGLASS BATTING TO PREVENT SOUND FLANKING. CLUSTER BLADES SHALL COMPLETELY OUTSIDE AIR STREAM FOR ALL DUCT SYSTEMS (TYPE B). ACCEPTABLE: RUSKIN, AIR BALANCE; AMERICAN WARMING AND VENTILATING; TUTTLE & BAILEY; UNITED SHEET METAL; OR APPROVED EQUAL.

6. LOW PRESSURE DUCT ACCESS DOORS: PROVIDED FOR EACH MANUAL AND MOTORIZED DAMPER; FIRE DAMPER; ELECTRIC DUCT HEATER; AND WHERE ACCESS IS OTHERWISE NECESSARY. FACTORY PREFABRICATED DOUBLE WALL INSULATED TYPE OF 24-GAUGE GALVANIZED STEEL (OF SAME OR THICKER GAUGE THAN DUCTWORK PANEL IN WHICH INSTALLED, WHICHEVER IS GREATER. MINIMUM SIZE SHALL BE AS LARGE AS IS COMPATIBLE WITH DUCT SIZE BUT IN NO CASE LESS THAN THE FOLLOWING (PROVIDE LARGER SIZES IF NECESSARY TO PERMIT PROPER ACCESS OPERATION):

MAXIMUM DUCT DIMENSIONS	ACCESS DOOR SIZE
11" AND LESS	MAXIMUM DUCT DIMENSIONS X 12"
12" THROUGH 16"	12 X 16"
17" AND OVER	6 X 24"

DOORS SHALL BE PROVIDED WITH HAND OPERATED ADJUSTABLE TENSION CATCHES AND SHALL BE COMPLETELY GASKETED AROUND THEIR PERIMETERS. DOORS SHALL BE VENTLOK "ACCESS DOORS". INSTALL IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS USING VENTLOK #360 SEALANT.

E. AIR DISTRIBUTION DEVICES:

1. SCOPE: PROVIDE ALL AIR DISTRIBUTION DEVICES AS INDICATED ON THE DRAWINGS AND AS SPECIFIED HEREIN FOR A COMPLETE AND OPERABLE SYSTEM FREE FROM DRAFTS AND EXCESSIVE NOISE.

2. RELATION TO OTHER WORK: COORDINATE WITH WORK OF THE CEILING, DRYWALL AND PLASTERING TRADES AS REQUIRED TO INSURE AN ORDERLY PROGRESSION OF WORK AND FIRST CLASS FINISHED SYSTEM WITH RESPECT TO PLACEMENT, ALIGNMENT, FINISH AND GENERAL FIT.

3. DESIGN CONDITIONS:

A. ACOUSTICAL: COORDINATE AIR DISTRIBUTION DEVICES, SOUND ATTENUATION MEASURES, AND EQUIPMENT ACTUALLY PROVIDED TO INSURE THAT THE DESIGN GOALS ARE NOT EXCEEDED BY THE SYSTEM INSTALLED.

B PRESSURE DROP ACROSS ANY AIR DISTRIBUTION DEVICE SHALL NOT EXCEED 0.15 IN W.G. STATIC PRESSURE UNLESS OTHERWISE INDICATED.

C. GUARANTY: AIR DISTRIBUTION EQUIPMENT SHALL BE GUARANTEED BY THE MANUFACTURER TO OPERATE WITHOUT EXCESSIVE NOISE AND WITH VELOCITIES IN THE FIVE FOOT OCCUPANCY ZONE, WHEN HANDLING AIR WITH TEMPERATURE DIFFERENTIALS AS HIGH AS 25 DEGREES, NOT TO EXCEED 30 FPM AT A 2 DEGREE DIFFERENCE, 50 FPM AT 1-1/2 DEGREE DIFFERENCE, OR 75 FPM AT A 1 DEGREE DIFFERENCE WHEN OPERATING WITH AN AVERAGE 75 DEGREE ROOM TEMPERATURE AND MEASURED NO CLOSER THAN 6 INCHES FROM A WALL SURFACE.

4. MANUFACTURER: TITUS, METAL*AIRE, CARNES, KRUEGER, ANEMOSTAT OR TUTTLE & BAILEY. MANUFACTURERS MODEL NUMBERS INDICATED ARE EXAMPLES OF PRODUCTS TO BE PROVIDED.

5. MANUFACTURERS MUST BE MEMBERS OF THE AIR DISTRIBUTION COUNCIL UNLESS OTHERWISE INDICATED.

6. ALL AIR DISTRIBUTION DEVICES SHALL BE CONSTRUCTED OF EXTRUDED ALUMINUM UNLESS OTHERWISE INDICATED.

7. WHERE CONTINUOUS LINEAR SUPPLY AND RETURN DEVICES ARE SHOWN AS ABUTTING ONE ANOTHER IN A SINGLE DIRECTION, THEN THE TOTAL UNBROKEN VISIBLE LENGTH OF THE LINEAR SUPPLY/RETURN DEVICE SHALL EQUAL THE SUM OF THE NOMINAL LENGTHS OF THE ABUTTING DEVICES.

2.02 AIR DISTRIBUTION SYSTEMS (CONT)

E. AIR DISTRIBUTION DEVICES (CONT)

8. EACH AIR DISTRIBUTION DEVICE WHICH HAS A PORTION THEREOF (FRAME, CORE, ETC.) EXPOSED TO VIEW IN THE FINISHED AREA SHALL HAVE A FACTORY APPLIED FINISH WHICH MATCHES AND IS COMPATIBLE WITH THE COLOR OF THE SURROUNDING SURFACE ON WHICH THE DEVICE IS INSTALLED. COLORS MUST BE APPROVED BY ARCHITECT PRIOR TO DEVICE FABRICATION.

9. ALL DAMPERS, BLANK-OFF BAFFLES AND OTHER COMPANION DEVICES WHICH FORM AN INTEGRAL PART OF AN AIR DISTRIBUTION DEVICE SHALL BE FACTORY MADE ITEMS PRODUCED BY THE MANUFACTURER OF THE AIR DISTRIBUTION DEVICE.

PART 3 – EXECUTION

3.01 METAL DUCTWORK

A. APPLICATION: SELECT METAL DUCT FOR EXHAUST AND OUTSIDE AIR DUCTWORK.

B. SEAM AND JOINT SEALING: SEAL ALL TRANSVERSE JOINTS AND LONGITUDINAL SEAMS.

3.02 AIR DISTRIBTION SYSTEMS

A. GENERAL: CONSTRUCT ALL DUCTWORK AND ACCESSORIES IN ACCORDANCE WITH LATEST EDITIONS OF APPLICABLE SMACNA MANUALS. STREAMLINE ALL DUCTWORK TO THE FULL EXTENT PRACTICAL AND EQUIP WITH PROPER AND ADEQUATE DEVICES TO ASSURE PROPER BALANCE AND QUIET DRAFTLESS DISTRIBUTION OF INDICATED AIR QUANTITIES. PROTECT ALL DUCTWORK AND SYSTEM ACCESSORIES FROM DAMAGE DURING CONSTRUCTION UNTIL ARCHITECT'S FINAL ACCEPTANCE OF PROJECT. PRIOR TO DUCTWORK FABRICATION, VERIFY IF ALL DUCTWORK AS DIMENSIONED AND GENERALLY SHOWN WILL SATISFACTORILY FIT ALLOCATED SPACES. TAKE PRECAUTIONS TO AVOID SPACE INTERFERENCE WITH BEAMS, COLUMNS, JOISTS, PIPES, LIGHTS, CONDUIT, OTHER DUCTS, EQUIPMENT, ETC. NOTIFY ARCHITECT IF ANY SPATIAL CONFLICTS EXIST, AND THEN OBTAIN ARCHITECT'S APPROVAL OF NECESSARY ROUTING. MAKE ANY SUCH NECESSARY REVISIONS WHICH ARE MINOR AT NO ADDITIONAL COST. CAREFULLY CORRELATE ALL DUCT CONNECTIONS TO AIR HANDLING UNITS AND FANS TO PROVIDE PROPER CONNECTIONS, ELBOWS AND BENDS WHICH MINIMIZE NOISE AND PRESSURE DROP. PROVIDE ALL CURVED ELBOWS WITH RADIUS RATIOS OF NOT LESS THAN 1.5 UNLESS OTHERWISE SHOWN OR APPROVED BY ARCHITECT. PROVIDE ALL MITERED ELBOWS WITH TURNING VANES. COORDINATE ANY AND ALL DIMENSIONS AT INTERFACES OF DISSIMILAR TYPE OF DUCTWORK AND AT INTERFACES OF DUCTWORK WITH EQUIPMENT SO THAT PROPER OVERLAPS, INTERFACES, ETC., OF INSULATION AND CONTINUITY OF VAPOR BARRIERS ARE MAINTAINED. IF NECESSARY, WHERE INTERFACING DIFFERENT TYPES OF INSULATION PROVIDE TRANSITIONS SO THAT INTERNAL FREE AREA OF DUCT REMAINS UNCHANGED. INSTALL HORIZONTAL RIGID DUCTWORK AS HIGH AS PRACTICAL ABOVE SUSPENDED CEILINGS SO THAT MOVABLE LIGHT FIXTURES MAY BE RELOCATED WITHOUT INTERFERENCE TO MEET ANY FUTURE PARTITION RELOCATION REQUIREMENTS.

B. HANGERS AND SUPPORTS:

1. HANGERS:

A. SHEET METAL DUCT HANGERS: SUPPORT DUCTS FROM THE BUILDING STRUCTURE WITH GALVANIZED STEEL HANGERS TO EACH SIDE OF THE DUCT. HANGERS FOR DUCT TO 60-IN. SHALL BE 1" X 1/8" GALVANIZED STEEL BAND. SPACE HANGERS APPROXIMATELY 8- FT. (8') ALONG THE LENGTH OF DUCT. HANGERS SHALL EXTEND DOWN THE SIDE OF DUCT AND TURN UNDER. SHALL BE SECURED TO DUCT BY TWO OR MORE #14 SHEET METAL SCREWS. WHERE SPRAYED FIRE-PROOFING OCCURS, INSTALL HANGERS BEFORE APPLICATION OF SUCH TREATMENT AND WITHHOLD INSTALLATION OF DUCTS UNTIL AFTER APPLICATION.

B. SUPPORTS: VERTICAL RISERS AND OTHER DUCT RUNS WHERE THE METHOD OF SUPPORT SPECIFIED ABOVE IS NOT APPLICABLE SHALL BE SUPPORTED BY SUBSTANTIAL ANGLE BRACKETS DESIGNED TO MEET FIELD CONDITIONS AND INSTALLED TO ALLOW FOR DUCT EXPANSION.

2. FASTENERS: SECURE HANGERS TO STEEL BEAMS OR METAL DECK WITH BEAM CLAMPS OR DROP THROUGH CONNECTIONS FROM THE METAL OR CONCRETE DECK.

C. FLEXIBLE DUCT: INSTALL ALL FLEXIBLE ROUND DUCT WITHOUT KINKS OR SIMILAR OBSTRUCTIONS SO THAT PRESSURE DROP IS MINIMIZED. CUT AND REMOVE EXCESS LENGTHS AS NECESSARY.

D. CHANGE IN SHAPE OR DIMENSION: WHERE DUCT SIZE OR SHAPE IS CHANGED TO EFFECT A CHANGE IN AREA, THE FOLLOWING SHALL APPLY:

1. WHERE THE AREA AT THE END OF THE TRANSFORMATION RESULTS IN AN NCREASE IN AREA OVER THAT AT THE BEGINNING, THE SLOPE OF THE TRANSFORMATION SHALL NOT EXCEED ONE INCH IN SEVEN INCHES.

2. WHERE THE AREA AT THE END OF THE TRANSFORMATION RESULTS IN A DECREASE IN AREA FROM THAT AT THE BEGINNING, THE SLOPE OF THE TRANSFORMATION MAY BE ONE INCH IN FOUR INCHES, BUT ONE INCH IN SEVEN INCHES IS PREFERABLE, SPACE PERMITTING.

3. THE ANGLE OF TRANSFORMATION AT CONNECTIONS TO HEATING COILS OR OTHER EQUIPMENT SHALL NOT EXCEED THIRTY DEGREES FROM A LINE PARALLEL TO THE AIR FLOW ON THE ENTERING SIDE OF THE EQUIPMENT, NOR FIFTEEN DEGREES ON THE LEAVING SIDE. THE ANGLE OF APPROACH MAY BE INCREASED TO SUIT LIMITED SPACE CONDITIONS WHEN THE TRANSFORMATION IS PROVIDED WITH VANES APPROVED BY THE ARCHITECT.

4. ALL CHANGES IN SHAPE OR DIMENSION MUST BE APPROVED BY ENGINEER BEFORE INSTALLATION OF DUCT.

E. CHANGES IN DIRECTION: CHANGES IN DIRECTION SHALL BE BASICALLY AS INDICATED ON THE DRAWINGS AND THE FOLLOWING SHALL APPLY:

1. SUPPLY DUCT TURNS OF NINETY DEGREES IN LOW PRESSURE DUCT SHALL BE MADE WITH MITERED ELBOWS FITTED WITH CLOSELY SPACED TURNING VANES DESIGNED FOR MAINTAINING A CONSTANT VELOCITY THROUGH THE ELBOW.

2. RETURN AND EXHAUST DUCT TURNS OF NINETY DEGREES IN LOW PRESSURE DUCT SHALL BE MADE WITH MITERED ELBOWS, AS SPECIFIED HEREINBEFORE, FOR SUPPLY DUCTS, UNLESS RADIUS ELBOWS ARE INDICATED IN WHICH CASE THEY SHALL BE VANED AND CONSTRUCTED WITH A THROAT RADIUS THREE-QUARTERS THE DUCT WIDTH AND A FULL RADIUS HEEL.

3. TEES IN LOW PRESSURE DUCT SHALL CONFORM TO THE DESIGN REQUIREMENTS SPECIFIED HEREINBEFORE FOR ELBOWS.

4. BRANCH TAKE-OFFS IN LOW PRESSURE DUCT SHALL BE MADE WITH SPLITTER DAMPERS, AS INDICATED, IN SQUARE TAKE OFFS.

PART 3 – EXECUTION

3.01 METAL DUCTWORK

A. APPLICATION: SELECT METAL DUCT FOR EXHAUST AND OUTSIDE AIR DUCTWORK.

B. SEAM AND JOINT SEALING: SEAL ALL TRANSVERSE JOINTS AND LONGITUDINAL SEAMS.

3.04 OPENINGS, CUTTING AND PATCHING

A. GENERAL: CONTRACTOR SHALL SET IN POSITION ALL SLEEVES AND INSERTS REQUIRED IN WALLS, PARTITIONS, CEILINGS, OR FLOORS, AND SHALL HAVE A REPRESENTATIVE ON-SITE DURING POURING OF CONCRETE TO MAINTAIN POSITION OF SLEEVES AND INSERTS UNTIL CONCRETE IS SET. CLOSE COORDINATION IS REQUIRED TO INSURE THAT ALL SLEEVES ARE PROPERLY SET. CORRECTNESS OF SIZE AND LOCATION OF OPENINGS SHALL BE VERIFIED BY CONTRACTOR AFTER FRAMING IS IN PLACE. CONTRACTOR SHALL DO ALL CUTTING AND PATCHING OF EXISTING AND/OR NEW BUILDING MATERIALS REQUIRED FOR INSTALLATION OF WORK HEREIN SPECIFIED. NO STRUCTURAL MEMBERS SHALL BE CUT WITHOUT APPROVAL OF STRUCTURAL ENGINEER AND ALL SUCH CUTTING SHALL BE DONE IN A NEAT AND WORKMANLIKE MANNER, MEETING WITH APPROVAL OF STRUCTURAL ENGINEER TO MATCH ADJOINING SURFACES AND FINISHES, BY MECHANICS OF PARTICULAR TRADE INVOLVED. SLEEVES AND OPENINGS NOT USED DURING CONSTRUCTION SHALL BE SEALED WITH GROUT BY CONTRACTOR. OPENINGS BETWEEN PIPES AND SLEEVES THROUGH FIRE AND SMOKE WALLS OR FLOORS SHALL BE SEALED TO PREVENT PASSAGE OF SMOKE OR HEAT USING AN UNDERWRITERS' LABORATORIES APPROVED METHOD RATED AT LEAST EQUAL TO THE BARRIER BEING PENETRATED. METHOD OF SEALING SHALL BE SUBMITTED WITH PROOF OF U.L. APPROVAL WITH OTHER SUBMITTALS. ALL OPENINGS REQUIRED IN CONCRETE WHICH WERE OMITTED WHEN CONCRETE WAS POURED SHALL BE CAREFULLY MADE BY USE OF CORE BORING OPERATION WITH 5-IN. MAXIMUM HOLE SIZE UNLESS LARGER SIZE IS APPROVED BY STRUCTURAL ENGINEER. CUT NO OPENINGS IN PRESTRESSED OR PRECAST MEMBERS WITHOUT APPROVAL OF STRUCTURAL ENGINEER.

A. SLEEVES:

1. WALLS AND PARTITIONS:

A. PIPE SLEEVES 8-INCH DIAMETER AND SMALLER (ABOVE GRADE): SLEEVES SHALL BE MILD STEEL PIPE OR PLASTIC SLEEVES BUILT INTO WALL, PARTITION OR BEAM, SIZED TO PASS PIPE AND COVERING, LEAVING A CLEAR SPACE OF 1/4-INCH MINIMUM BETWEEN COVERING AND SLEEVE. PENETRATIONS OF FIRE RATED BARRIERS SHALL HAVE MILD STEEL SLEEVES.

B. PIPE SLEEVES INSTALLED IN EXTERIOR WALLS BELOW GRADE: SCHEDULE 40 STEEL HOT DIPPED GALVANIZED AFTER FABRICATION OR CAST IRON SLEEVE WITH 1/4-INCH X 3-INCH CENTER FLANGE (WATER STOP) AROUND THE OUTSIDE.

2. PIPE SLEEVES IN FLOORS (ABOVE GRADE): SLEEVES SHALL BE 14 GAUGE GALVANIZED SHEET STEEL OR PLASTIC, SET BEFORE FLOOR IS POURED, SIZED TO PASS PIPE AND COVERING, LEAVING A CLEAR SPACE OF 1/4-INCH BETWEEN COVERING AND SLEEVE, AND SHALL EXTEND 1/2-INCH ABOVE FINISHED FLOOR.

3. DUCT SLEEVES: SLEEVES OR OPENINGS SIZED TO PASS MECHANICAL DUCTS AND COVERING SHALL BE OF FRAMED CONSTRUCTION IN ROOF, WALL, OR PARTITIONS.

C. SEALING OF SLEEVES:

1. SLEEVES BELOW GRADE: CAULK ANNULAR SPACE BETWEEN PIPE AND SLEEVE USING OAKUM AND POURED LEAD BOTH SIDES MINIMUM ONE INCH DEEP TO MAKE WALL PENETRATION WATER TIGHT.

2. SLEEVES ABOVE GRADE: OPENINGS AROUND PIPES, DUCT, ETC., PASSING THROUGH SLEEVES SHALL BE MADE DRAFT FREE AND VERMIN-PROOF BY PACKING SOLIDLY WITH MINERAL WOOL OR FIBERGLASS.

3. SEALING OF SLEEVES THROUGH FIRE RATED BARRIERS: OPENINGS AROUND PIPES, ETC., THROUGH FIRE RATED BARRIERS SHALL BE SEALED USING AN U.L. APPROVED METHOD RATED AT LEAST EQUAL TO THE WALL BEING PENETRATED.

3.05 REMOVAL OF RUBBISH

CONTRACTOR SHALL AT ALL TIMES KEEP PREMISES FREE FROM ACCUMULATIONS OF WASTE MATERIAL OR RUBBISH GENERATED BY WORK UNDER THIS CONTRACT.

3.06 EXCAVATION, BACKFILLING AND COMPACTION

ALL EXCAVATION, BACKFILLING, COMPACTION, TESTING, ETC. REQUIRED FOR THE INSTALLATION OF UNDERGROUND PIPING IN THIS DIVISION OF THE SPECIFICATIONS SHALL BE DONE BY THE MECHANICAL CONTRACTOR. THIS WORK SHALL BE DONE IN STRICT ACCORDANCE WITH EXCAVATION AND BACKFILLING SECTION OF DIVISION 2.

3.07 CLEANING AND ADJUSTMENTS

UPON COMPLETION OF WORK, CONTRACTOR SHALL CLEAN, OIL AND GREASE ALL FANS, MOTORS AND OTHER RUNNING EQUIPMENT AND APPARATUS WHICH HE INSTALLS AND MAKE CERTAIN ALL SUCH APPARATUS AND MECHANISMS ARE IN PROPER WORKING ORDER AND READY FOR TEST. REFER TO SECTION ENTITLED "SYSTEMS COMPLETION".

3.08 AS-BUILT DRAWINGS

UPON COMPLETION OF INSTALLATION, THE CONTRACTOR SHALL FURNISH TO THE ARCHITECT A SET OF DRAWINGS, MARKED TO SCALE, INDICATING THE SIZE AND LOCATION OF PIPING AND DUCTS, AND NOTING ALL MAJOR CHANGES MADE DURING CONSTRUCTION. THE CONTRACTOR SHALL OBTAIN THE DRAWINGS FROM THE ARCHITECT AND SHALL BEAR ALL COSTS IN OBTAINING THE DRAWINGS AND PROVIDING THE AS-BUILT DRAWINGS. THE CONTRACTOR SHALL DELIVER THE DRAWINGS PLUS TWO SETS OF AS-BUILT DRAWINGS TO THE ARCHITECT. EACH SHEET IN EACH SET SHALL BE SIGNED BY A PRINCIPAL REPRESENTATIVE OF THE CONTRACTOR, DATED AND HAVE "AS-BUILT" STAMPED NEAR THE SIGNATURE. DRAWINGS SHALL GIVE ACCURATE DIMENSIONS MEASURED FROM COLUMNS, WALLS, BEAMS AND OTHER FIXED PARTS OF THE BUILDING TO THE CONCEALED MATERIALS. THE CONTRACTOR SHALL MAINTAIN A SET OF DRAWINGS AT THE SITE AND EACH DAY SHALL RECORD INSTALLATION OF PIPE, DUCTS, ETC. TO INSURE ACCURATE "AS-BUILT" DRAWINGS. THE CONTRACTOR SHALL ALSO FURNISH A SET OF DRAWINGS AND TWO SETS OF CONTRACTOR SIGNED AND DATED AS-BUILT DRAWINGS OF THE CONTROLS.

3.09 GUARANTEE AND SERVICE

A. IN ADDITION TO THE GUARANTEE OF EQUIPMENT BY THE MANUFACTURER OF EACH PIECE OF EQUIPMENT SPECIFIED HEREIN, THE MECHANICAL CONTRACTOR SHALL ALSO GUARANTEE SUCH EQUIPMENT AND SHALL BE HELD RESPONSIBLE FOR A PERIOD OF ONE YEAR FROM FINAL ACCEPTANCE FOR NECESSARY ADJUSTMENTS AND/OR REPLACEMENTS OF ALL DEFECTIVE EQUIPMENT, MATERIALS AND WORKMANSHIP WITHOUT EXPENSE TO THE OWNER. PROVIDE A LETTER TO THE OWNER STATING THE CONTRACTOR'S GUARANTEE AND DATES OF GUARANTEE COVERAGE.

B. CLEANING OF PERMANENT TYPE FILTERS; LUBRICATION, AND CLEANING OF STRAINERS SHALL BE TO 30-DAYS AFTER THE FINAL ACCEPTANCE.

C. THE CONTRACTOR SHALL PROVIDE FOR A REPRESENTATIVE OF HIS FIRM, THE CONTROL SYSTEM CONTRACTOR, AND THE OWNER'S REPRESENTATIVE TO RETURN TO THE JOB AT THE CHANGE OF SEASONS, (SUMMER TO WINTER OR WINTER TO SUMMER) FOR THE FIRST YEAR ONLY, TO ADJUST THE AIR CONDITIONING SYSTEMS AND RECHECK OR RECALIBRATE CONTROLS AS MAY BE REQUIRED OF THE SEASON CHANGE FROM COOLING TO HEATING OR VICE VERSA.

3.10 ACCEPTANCE

A. AS A PREREQUISITE TO REQUESTING FINAL INSPECTION, CONTRACTOR SHALL:

1. TEST AND BALANCE EACH SYSTEM TO ASSURE DESIGN PERFORMANCE AND PROVIDE ARCHITECT AND ENGINEER WITH PRELIMINARY TEST RESULTS.

2. FURNISH LETTER FROM AUTHORIZED REPRESENTATIVE OF CONTROL MANUFACTURER THAT ALL CONTROLS HAVE BEEN CHECKED FOR OPERATION AND CALIBRATION AND THAT ALL SYSTEMS ARE OPERATING AS INTENDED.

B. ACCEPTANCE WILL BE MADE BY THE ARCHITECT-ENGINEER OR HIS REPRESENTATIVE ON THE BASIS OF TESTS AND INSPECTION OF THE JOB. CONTRACTOR SHALL FURNISH THE NECESSARY MECHANICS TO OPERATE SYSTEMS, MAKE ANY NECESSARY ADJUSTMENTS AND ASSIST WITH THE FINAL INSPECTION.

3.11 TEST & BALANCE OF MECHANICAL SYSTEMS

A. GENERAL CONTRACTOR SHALL OBTAIN SERVICES OF A TEST AND BALANCE AGENCY THAT SPECIALIZES IN AND WHOSE BUSINESS IS LIMITED TO THE TESTING AND BALANCING OF AIR CONDITIONING SYSTEMS AND IS A TRUE THIRD PARTY OF THE MECHANICAL CONTRACTOR. TEST AND BALANCE AGENCY SHALL NOT BE CONTRACTED BY THE MECHANICAL CONTRACTOR. THE AGENCY SELECTED SHALL BE A FULLY CERTIFIED MEMBER OF THE ASSOCIATED AIR BALANCE COUNCIL (AABC) OR NATIONAL ENVIRONMENTAL BALANCING BUREAU. (NEBB)

B. TESTING AND BALANCING SHALL BE PERFORMED IN COMPLETE ACCORDANCE WITH THE LATEST EDITION OF THE AABC STANDARDS FOR FIELD MEASUREMENT & INSTRUMENTATIONS, AS PUBLISHED BY THE ASSOCIATED AIR BALANCE COUNCIL OR LATEST EDITION OF NEBB PROCEDURAL STANDARDS FOR TESTING, ADJUSTING AND BALANCING OF ENVIRONMENTAL SYSTEMS.

C. INSTRUMENTS USED FOR TESTING AND BALANCING OF SOUND, VIBRATION AND AIR SYSTEMS MUST HAVE BEEN CALIBRATED WITHIN A PERIOD OF SIX MONTHS PRIOR TO BALANCING. ALL FINAL TEST ANALYSIS REPORTS SHALL INCLUDE A LETTER OF CERTIFICATION LISTING INSTRUMENTATION USED AND LAST DATE OF CALIBRATION.

D. ONE (1) COPY OF THE INITIAL DATA SHALL BE SUBMITTED DIRECTLY TO THE ENGINEER FOR HIS EVALUATION AND APPROVAL. WHEN THIS APPROVAL IS GIVEN, THREE (3) COPIES OF THE COMPLETED TEST REPORTS SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO FINAL INSPECTION OF THE PROJECT. THESE THREE (3) COPIES SHALL BE RETURNED TO THE CONTRACTOR FOR PLACING IN THE PORTFOLIOS OUTLINED IN SECTION 15950 – "SYSTEM COMPLETION". THE REPORT FORMAT SHALL FOLLOW THE STANDARD FORMAT AND INFORMATION AS RECOMMENDED BY AABC.

E. NAME OF TEST AND BALANCE AGENCY SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL WITHIN 20_DAYS AFTER RECEIPT OF CONTRACT. CONTRACTOR SHALL FURNISH TO BALANCING AGENCY A COMPLETE SET OF PLANS AND SPECIFICATIONS AND AN APPROVED COPY OF ALL EQUIPMENT SUBMITTAL DATA, AND SHOP DRAWINGS. TEST AND BALANCE AGENCY SHALL NOTIFY ENGINEER OF ANY ADDITIONAL REQUIRED TEST COCK LOCATIONS, BALANCING DAMPER LOCATIONS, ETC. WITHIN 30_DAYS AFTER APPROVAL OF THE AGENCY. ANY ADDITIONAL BALANCING DEVICES REQUIRED BY THE TEST AND BALANCE AGENCY AFTER THIS PERIOD WILL BE INSTALLED AT NO EXPENSE TO THE OWNER BY THE CONTRACTOR.

F. TEST AND BALANCE AGENCY SHALL INCLUDE AN EXTENDED WARRANTY OF 90_DAYS, AFTER COMPLETION OF TEST AND BALANCE WORK, DURING WHICH TIME THE ENGINEER, AT HIS DISCRETION, MAY REQUEST A RECHECK OR RESETTING OF ANY ITEMS INCLUDED IN THE AIR DISTRIBUTION SYSTEMS. THE AGENCY SHALL PROVIDE TECHNICIANS TO ASSIST THE ENGINEER IN MAKING ANY TEST HE MAY REQUIRE DURING THIS PERIOD OF TIME.

G. THE TEST AND BALANCE AGENCY SHALL FURNISH THE ENGINEER AND OWNER A STANDARD "NATIONAL PROJECT CERTIFICATION PERFORMANCE GUARANTY."

H. SUBCONTRACTOR SHALL PROVIDE SUFFICIENT TIME BEFORE THE SUBSTANTIAL COMPLETION DATE SO THAT TESTS AND BALANCING CAN BE ACCOMPLISHED. TEST AND BALANCE AGENCY SHALL ACCOMPANY THE ENGINEERS ON FOUR (4) SITE VISITS TO INSURE THAT BALANCING DEVICES ARE INSTALLED SO THAT EACH SYSTEM CAN BE PROPERLY BALANCED.

1.02 CONTRACTOR COOPERATION

A. THE GENERAL CONTRACTOR AND MECHANICAL CONTRACTOR SHALL COOPERATE WITH THE TEST AND BALANCE AGENCY IN THE FOLLOWING MANNER:
   1. PROVIDE IMMEDIATE LABOR AND TOOLS TO MAKE CORRECTIONS WHEN REQUIRED WITHOUT UNDUE DELAY.
   2. THE CONTRACTOR SHALL PUT ALL HEATING, VENTILATING AND AIR CONDITIONING SYSTEMS AND EQUIPMENT INTO FULL OPERATION AND SHALL CONTINUE THE OPERATION OF SAME DURING EACH WORKING DAY OF TESTING AND BALANCING. ALL DAMPERS SHALL BE LEFT 100% OPEN.
   3. INSTALL FINAL FILTERS IN ACCORDANCE WITH SECTION 15950 – "SYSTEM COMPLETION" AND ASSURE CLEANLINESS.
   4. TEST AND BALANCE AGENCY SHALL BE KEPT INFORMED OF ANY MAJOR CHANGES MADE TO SYSTEM DURING CONSTRUCTION WHICH WILL AFFECT TEST AND BALANCE
   5. CONTRACTOR SHALL INCLUDE THE COSTS OF DAMPERS, PULLEYS AND BELT CHANGES IN HIS CONTRACT.

B. CONTROL SYSTEM CONTRACTOR SHALL CERTIFY IN WRITING THAT ALL CONTROL SYSTEMS HAVE BEEN CALIBRATED. THEY SHALL ALSO FURNISH NECESSARY OPERATING PERSONNEL FOR TESTING AND BALANCING OF CONTROL OPERATION AND SET POINTS TO SATISFY THE ENGINEER'S REQUIREMENT THAT ALL CONTROLS ARE FUNCTIONING PROPERLY.

1.03 FINAL TESTS, INSPECTION, AND ACCEPTANCE

A. CAPACITY AND PERFORMANCE TESTS: MAKE TESTS TO DEMONSTRATE THAT CAPACITIES AND GENERAL PERFORMANCE OF AIR DISTRIBUTION SYSTEMS COMPLY WITH CONTRACT REQUIREMENTS.
   1. FINAL INSPECTION: AT THE TIME OF FINAL INSPECTION, THE CONTRACTOR SHALL RECHECK, IN THE PRESENCE OF THE ENGINEER, RANDOM SELECTIONS OF DATA INCLUDING WATER AND AIR QUANTITIES AND FLOW RATES, AIR MOTION AND SOUND LEVELS AS RECORDED IN THE CERTIFIED REPORT.
   2. MEASUREMENT AND TEST PROCEDURES: AS APPROVED FOR WORK FORMING BASIS OF CERTIFIED REPORT.
   3. SELECTIONS FOR RECHECK (SPECIFIC PLUS RANDOM): IN GENERAL, SELECTIONS FOR RECHECK WILL NOT EXCEED 25 PERCENT OF THE TOTAL NUMBER TABULATED IN THE REPORT, EXCEPT THAT SPECIAL AIR SYSTEMS MAY REQUIRE A COMPLETE RECHECK FOR SAFETY REASONS.

B. RETESTS: IF RANDOM TESTS REVEALS MEASURED FLOW DEVIATION OF TEN PERCENT OR MORE FROM, OR A SOUND LEVEL OF 2 DB OR MORE, GREATER THAN THAT RECORDED IN THE CERTIFIED REPORT LISTINGS, AT TEN PERCENT OR MORE OF THE RECHECKED LOCATIONS, THE REPORT SHALL BE AUTOMATICALLY REJECTED. IN THE EVENT THE REPORT IS REJECTED, ALL SYSTEMS SHALL BE READJUSTED AND TESTED, NEW DATA RECORDED, NEW CERTIFIED REPORTS SUBMITTED, AND NEW INSPECTION TESTS MADE.

C. MARKING OF SETTINGS: FOLLOWING FINAL ACCEPTANCE OF CERTIFIED REPORTS BY THE ENGINEER, THE SETTINGS OF ALL SPLITTERS, DAMPERS AND OTHER ADJUSTMENT DEVICES SHALL BE PERMANENTLY MARKED BY THE CONTRACTOR, SO THAT ADJUSTMENT CAN BE RESTORED IF DISTURBED AT ANY TIME. DO NOT MARK DEVICES UNTIL AFTER FINAL ACCEPTANCE.

D. CONTRACTOR TO PROVIDE ADEQUATE CLOSURE FOR ALL TEST HOLES MADE IN DUCTWORK AND EQUIPMENT TO ACCOMPLISH TEST AND BALANCE.

PART 2 _ EXECUTION

2.01 TEST AND BALANCE PROCEDURE

TEST AND BALANCE ENTIRE HVAC SYSTEM IN ACCORDANCE WITH LATEST AABC OR NEBB STANDARDS. THE REPORT SHALL INDICATE THE LOCATION ON A PLAN OF EACH MEASUREMENT AS DOCUMENTED IN THE REPORT.

A. AIR MOVING EQUIPMENT: DATA SHEETS IN ACCORDANCE WITH AABC SHALL BE SUBMITTED FOR EACH PIECE OF AIR MOVING EQUIPMENT.
   1. TOTAL CFM FOR SUPPLY RETURN AND OUTSIDE AIR DUCTS WHERE APPLICABLE SHALL BE TESTED BY TRAVERSING EACH DUCT AND RECORD THE DATA ON THE AIR MOVING EQUIPMENT DATA SHEET AND DUCT TRAVERSE DATA SHEET.
   2. STATIC PRESSURE PROFILE SHALL BE TAKEN AND RECORDED ON THE STATIC PRESSURE PROFILE SHEET FOR ALL MODULAR AIR MOVING EQUIPMENT.
   3. DIRECT EXPANSION COOLING COIL SHALL BE TESTED AND RECORDED ON THE DIRECT EXPANSION COOLING COIL DATA SHEET.
   4. DIRECT EXPANSION HEATING COIL IN THE HEAT PUMP MODE SHALL BE TESTED AND RECORDED ON THE DIRECT EXPANSION HEATING COIL DATA SHEET.
   5. ELECTRIC UNIT OR DUCT HEATER SHALL BE TESTED AND RECORDED ON THE ELECTRIC HEATER DATA SHEET.
   6. AIR DISTRIBUTION DEVICES SHALL BE TESTED AND RECORDED ON THE AIR DISTRIBUTION DATA SHEET.
      a. CEILING AIR DEVICES SHALL BE TESTED WITH A CALIBRATED CAPTIVE HOOD WHERE POSSIBLE.
      b. AIR DEVICES SUCH AS (SLOT DIFFERS AND BAR GRILLES) MAY BE TESTED WITH A CALIBRATED DEFLECTING VANE ANEMOMETER.
      c. AIR DEVICES SUCH AS SUPPLY / RETURN GRILLES AND HOODS MAY BE TESTED WITH ROTATING VANE ANEMOMETER.
   7. AIR MOVING EQUIPMENT FAN DATA SHALL BE TESTED AND RECORDED ON THE AIR MOVING EQUIPMENT DATA SHEET.
      a. EACH FAN 5HP OR GREATER SHALL INCLUDE A MANUFACTURES FAN CURVE INDICATING THE FIELD TESTED SYSTEM CURVE.
      b. EACH FAN LESS THAN 5HP SHALL INCLUDE, AT THE MINIMUM, THE FIELD TESTED DATA INDICATED ON THE MANUFACTURES FAN TABLE SHEET.

2.04 SOUND TESTING

THE TEST AND BALANCE AGENCY SHALL DOCUMENT THE SOUND POWER LEVELS THROUGHOUT THE FACILITY INCLUDING EQUIPMENT ROOMS AND OCCUPIED SPACES. SOUND POWER MEASUREMENTS SHALL BE TAKEN ACROSS ALL MAJOR OCTAVE BAND CENTER FREQUENCIES AND RECORDED ON NC CHART.

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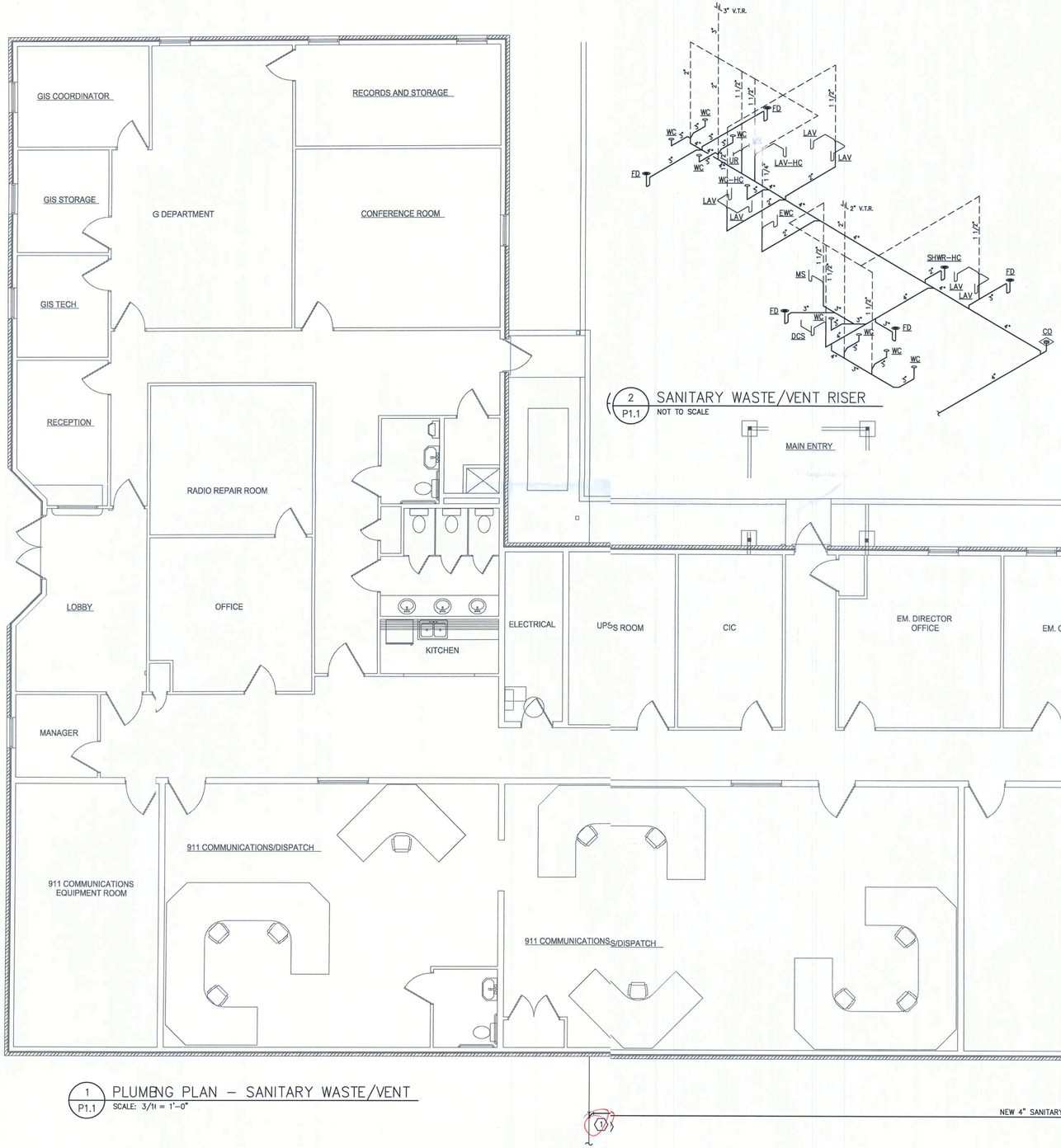
OF

PROJECT NO.
09.C016



2 P1.1 SANITARY WASTE/VENT RISER
NOT TO SCALE

1 P1.1 PLUMBING PLAN – SANITARY WASTE/VENT
SCALE: 3/16" = 1'-0"

KEYED PLUMBING PLAN NOTES:

1. APPROXIMATE LOCATION OF EXISTING 4" BUILDING SANITARY LATERAL; PLUMBER SHALL VERIFY SIZE, LOCATION AND INVERT ELEVATION OF EXISTING SANITARY LATERAL PRIOR TO CONSTRUCTION; CONNECT NEW 4" SANITARY FROM BUILDING ADDITION TO EXISTING SANITARY LATERAL AS INDICATED.
2. 1 1/2" V.T.R.; OFFSET AWAY FROM ROOF EDGE AS REQUIRED TO MAINTAIN MINIMUM CLEARANCE OF 10'-0" FROM NEW OUTSIDE AIR INTAKE LOUVER.

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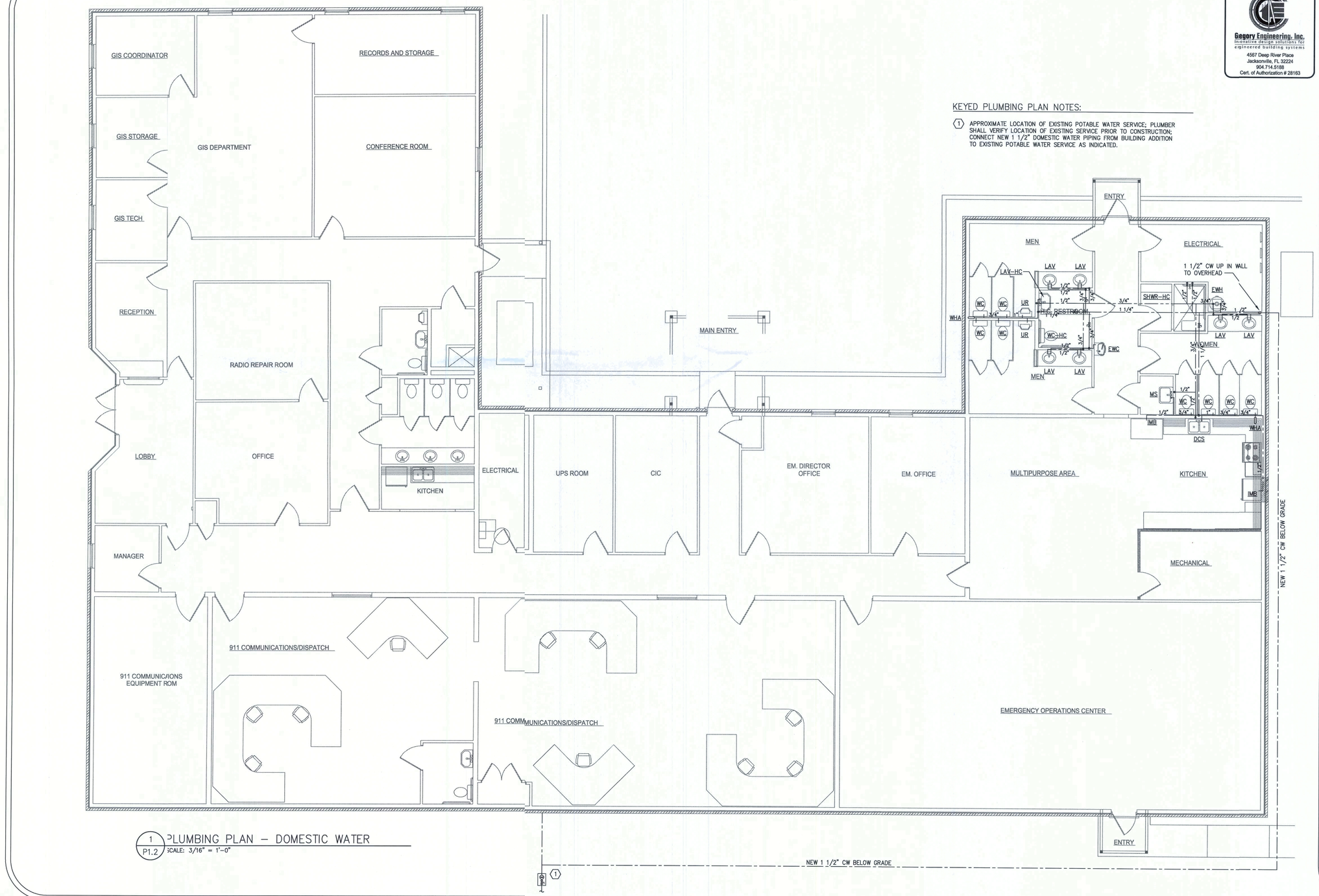

1 P1.2 PLUMBING PLAN – DOMESTIC WATER
SCALE: 3/16" = 1'-0"

KEYED PLUMBING PLAN NOTES:

1. APPROXIMATE LOCATION OF EXISTING POTABLE WATER SERVICE; PLUMBER SHALL VERIFY LOCATION OF EXISTING SERVICE PRIOR TO CONSTRUCTION; CONNECT NEW 1 1/2" DOMESTIC WATER PIPING FROM BUILDING ADDITION TO EXISTING POTABLE WATER SERVICE AS INDICATED.

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PLUMBING FIXTURE DEMAND TABULATION

Project Name: Columbia County Emergency Operations Center - Addition
Project No.: 09047
Date: September 4, 2009

BUILDING TYPE: ADDITION
PREDOMINANTLY: FLUSH TANK

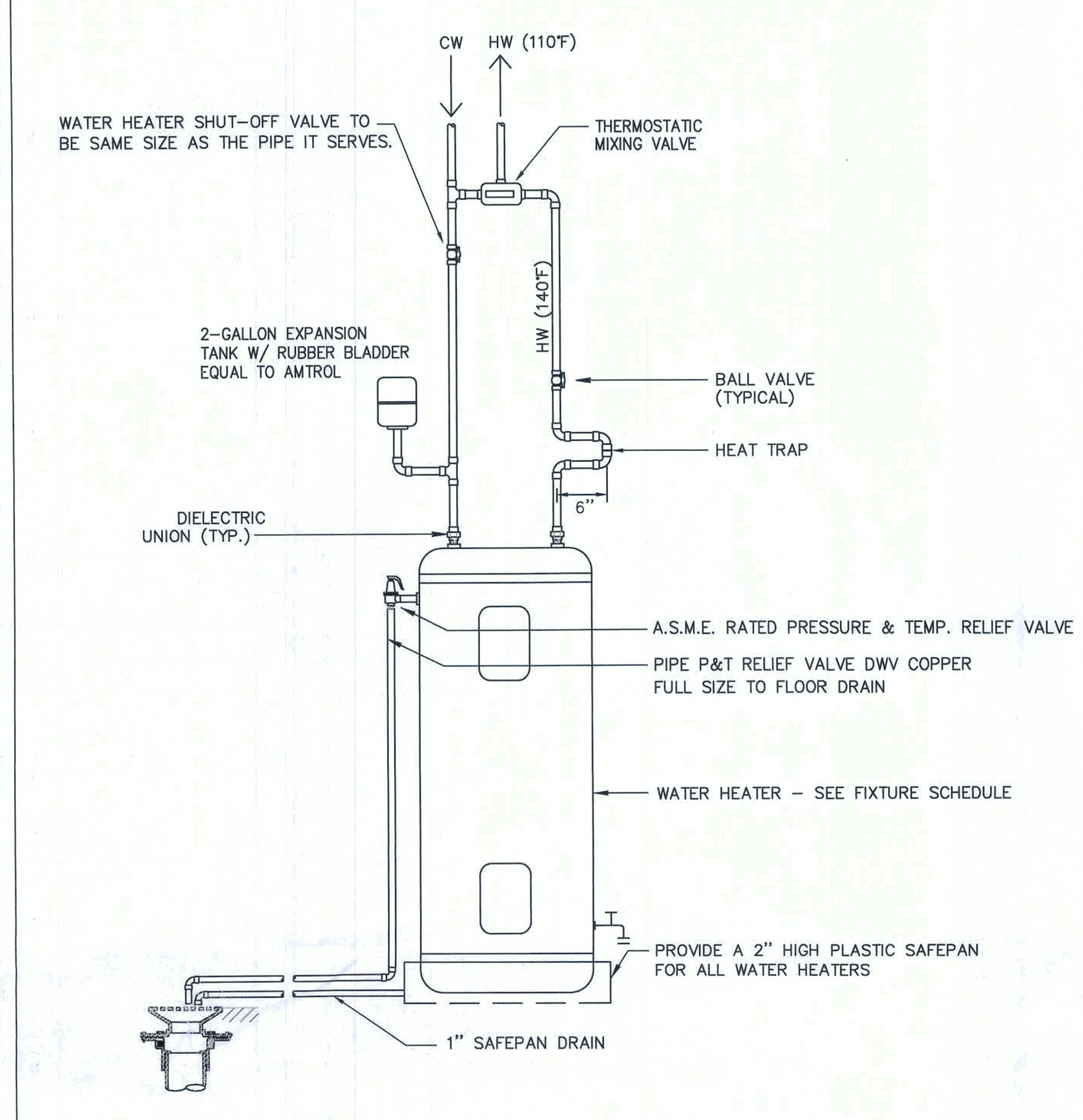
FIXTURE	DESCRIPTION	OCCUPANCY	QTY.	DRAINAGE FIXTURE UNITS	SUB-TOTAL	LOAD VALUES IN WATER (EACH) SUPPLY FIXTURE UNITS (WSFU)			LOAD VALUES IN WATER (TOTAL) SUPPLY FIXTURE UNITS (WSFU)			Remarks
						COLD	HOT	TOTAL	COLD	HOT	TOTAL	
WC	Water Closet, Flush Tank, 1.6 GPF	Public	9	4	36	5.0	-	5.0	45	0	45	
UR	Urinal, 3/4" Flush Valve, 1.0 GPF	Public	2	2	4	5.0	-	5.0	10	0	10	
LAV1	Lavatory, Wall Hung, HC	Public	1	1	1	1.5	1.5	2.0	1.5	1.5	2	
LAV2	Lavatory, Countertop	Public	6	1	6	1.5	1.5	2.0	9	9	12	
SHWR	Shower, HC	Public	1	2	2	3.0	3.0	4.0	3	3	4	
DCS	Two-compartment sink	Private	1	2	2	1.0	1.0	1.4	1	1	1.4	
MS	Mop (Service) Sink	Offices, etc.	1	2	2	2.3	2.3	3.0	2.25	2.25	3	
EWC	Electric Water Cooler (Drinking Fountain)	Offices, etc.	2	0.5	1	0.3	-	0.3	0.5	0	0.5	
IMB	Ice Maker Valve Box - (Refrigerator / Ice Maker)	Public or Private	2	0	0	0.3	-	0.3	0.5	0	0.5	
FD	Floor Drain - General / Restroom		4	2	8	0.0	0.0	0.0	0	0	0	

TOTALS
DFU = DRAINAGE FIXTURE UNITS
WSFU = WATER SUPPLY FIXTURE UNITS

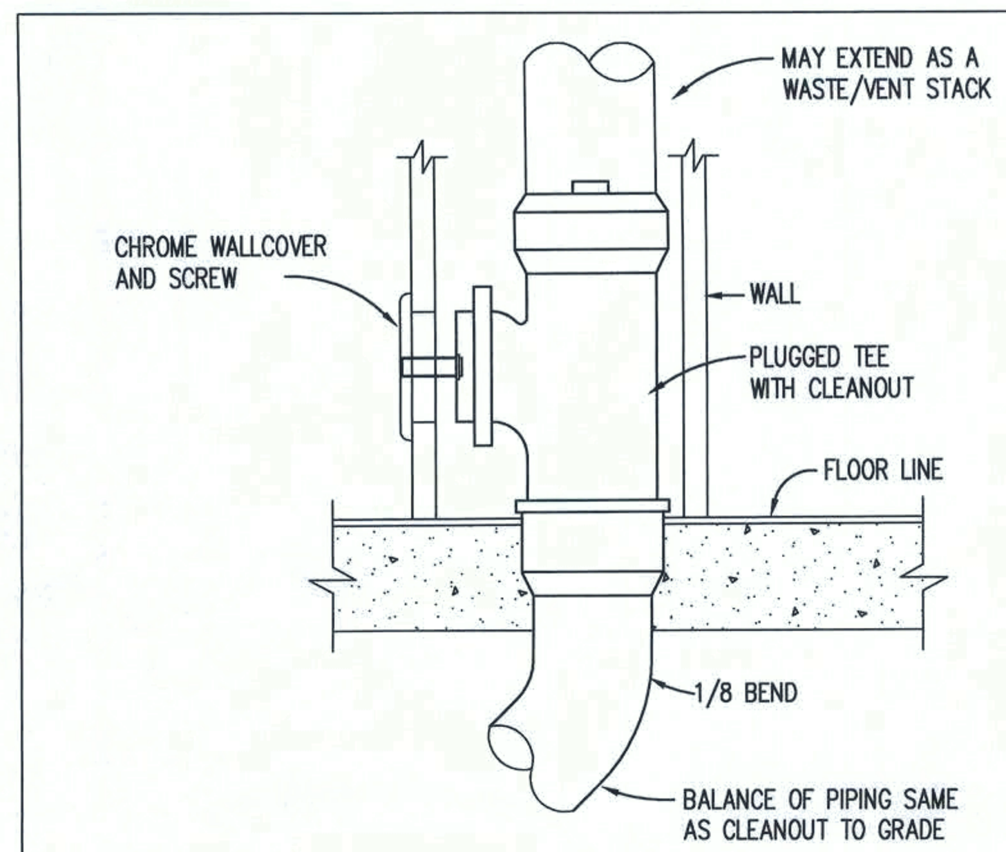
62	DFU	72.75	16.75	78.4	WSFU
EIGHTH	INCH SLOPE PER FOOT	35.8	18.3	37.5	GPM
4	DIAMETER OF PIPE (INCHES)	1 1/2"	3/4"	1 1/2"	INCHES REQ'D.

PLUMBING FIXTURE SCHEDULE

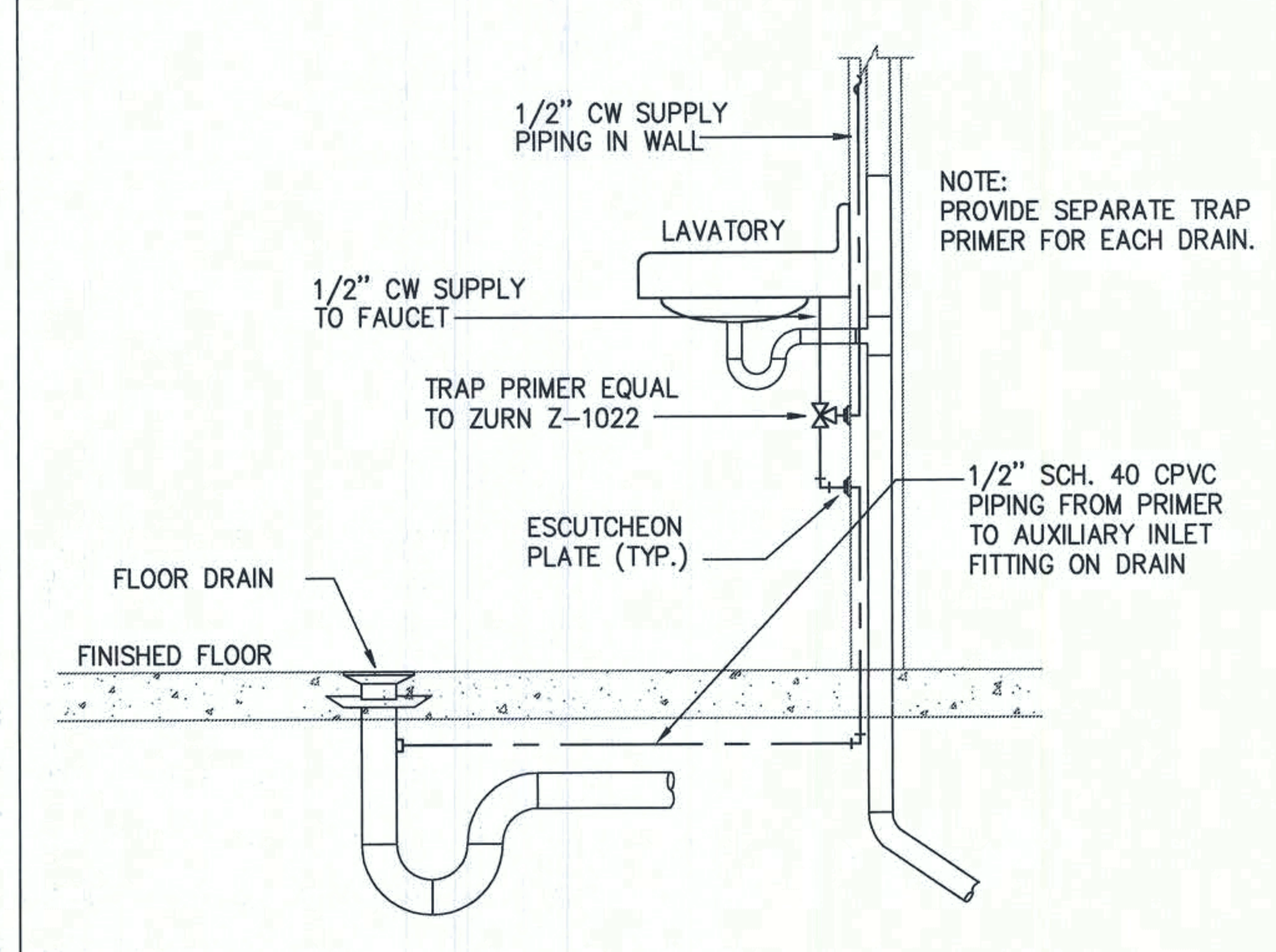
DESIGNATION	MANUFACTURER	MODEL NO.	FIXTURE DESCRIPTION	CONNECTION SCHEDULE WASTE	VENT	CW	HW
WC	AMERICAN STANDARD	"ADET" 2898.012	14" HIGH VITREOUS CHINA WATER CLOSET W/ ELONGATED BOWL LOW CONSUMPTION FLUSH TANK (1.6 GPF) SEAT (NO LID) – CHURCH MODEL 9500–SSC	3"	2"	1/2"	--
WC–HC	AMERICAN STANDARD	"ADET" 2998.012	16 1/2" HIGH VITREOUS CHINA WATER CLOSET W/ ELONGATED BOWL LOW CONSUMPTION FLUSH TANK (1.6 GPF) SEAT (NO LID) – CHURCH MODEL 9500–SSC MOUNT FLUSH CONTROL ON WIDE SIDE OF STALL	3"	2"	1/2"	--
LAV	AMERICAN STANDARD	"QUALYN" 0476.028	VITREOUS CHINA COUNTERTOP LAVATORY FAUCET – SPEAKMAN SC–3074 TRAP – 1 1/4" CAST BRASS WITH C.O. PLUG SUPPLY – 3/8" ANGLE–TYPE WITH STOPS	2"	1 1/4"	1/2"	1/2"
LAV–HC	AMERICAN STANDARD	"UCERNE" 0355.012	VITREOUS CHINA WALL–HUNG LAVATORY (HANDICAP) FAUCET – SPEAKMAN NO. SC–3074 W/ 4" LEVER HANDLES TRAP – 1 1/4" CAST BRASS WITH C.O. PLUG SUPPLY – 3/8" ANGLE–TYPE WITH STOPS PROVIDE SUITABLE CONCEALED ARM CARRIER AND OFFSET TAILPIECE INSULATE TRAP, OUTLET TUBE & HW SUPPLY TO MEET A.D.A.	2"	1 1/4"	1/2"	1/2"
UR	AMERICAN STANDARD	ALLBROOK" 6541.132	WALL–HUNG, VITREOUS CHINA, FLUSH VALVE URINAL FLUSH VALVE – SLOAN REGAL PRO NO. 186–1 LOW WATER CONSUMPTION (1.0 GALLON PER FLUSH) MOUNT TOP OF FRONT RIM AT 24" A.F.F. PROVIDE SUITABLE FIXTURE CARRIER	3"	2"	3/4"	--
EWC	ELKAY	'S–8	ELECTRIC WATER COOLER (BARRIER–FREE) 8.0 GPH CAPACITY, 4.5 F.L.A., 120–1–60.	2"	1 1/4"	1/2"	--
FD	ZURN	–415–S	FLOOR DRAIN W/ 5" SQUARE NICKALOY STRAINER TOP AND 3" OUTLET PROVIDE AUXILIARY INLET FITTING FOR TRAP PRIMER CONNECTION	3"	2"	--	--
DCS	JUST	I–2133–A–GR	DOUBLE–COMPARTMENT, STAINLESS STEEL SINK FAUCET – SPEAKMAN NO. SC–5763 CUP STRAINERS – (2) JUST MODEL J–35 SUPPLY – 3/8" ANGLE–TYPE WITH STOPS TRAP – 1 1/2" CAST BRASS WITH C.O. PLUG	2"	1 1/2"	1/2"	1/2"
MS	FIAT	'–1–F	MOP SINK W/ STEEL ANGLE LEGS FAUCET – SPEAKMAN NO. SC–5811–RCP W/ VACUUM BREAKER TRAP – 1 1/2" CAST BRASS WITH C.O. PLUG	3"	2"	1/2"	1/2"
EWH	RHEEM	.D–52	50–GALLON ELECTRIC WATER HEATER 4.5 KW, 208–1–60, 21.6 AMPS SET WATER TEMP. CONTROL TO 140 F	--	--	3/4"	3/4"
SHWR–HC	SEE ARCH. SPECS	'E ARCH. SPECS	SHOWER (HANDICAP/BARRIER FREE) W/ GRAB BARS AND SEAT DRAIN – SIOUX CHIEF 821 SERIES W/ 2" OUTLET SHOWER VALVE – SYMMONS BP56–300–V HANDICAP SHOWER SHALL MEET ALL A.D.A. REQUIREMENTS ANTI–SCALD BALANCED PRESSURE SHOWER VALVE MAXIMUM FLOW – 2.5 GALLONS PER MINUTE	2"	1 1/2"	1/2"	1/2"
WHA	ZURN	Z–1700 SERIES	WATER HAMMER ARRESTOR. SIZE PER P.D.I. WH–201. VERIFY THAT COMPONENT IS ACCESSIBLE.	--	--	--	--
IMB	SPECIALTY PRODUCTS	IB–817	ICE MAKER BOX	--	--	3/8"	--
CO	ZURN	'–1400	FLOOR CLEANOUT – PROVIDE SCREW COVER MATCH SIZE OF PIPE.	--	--	--	--



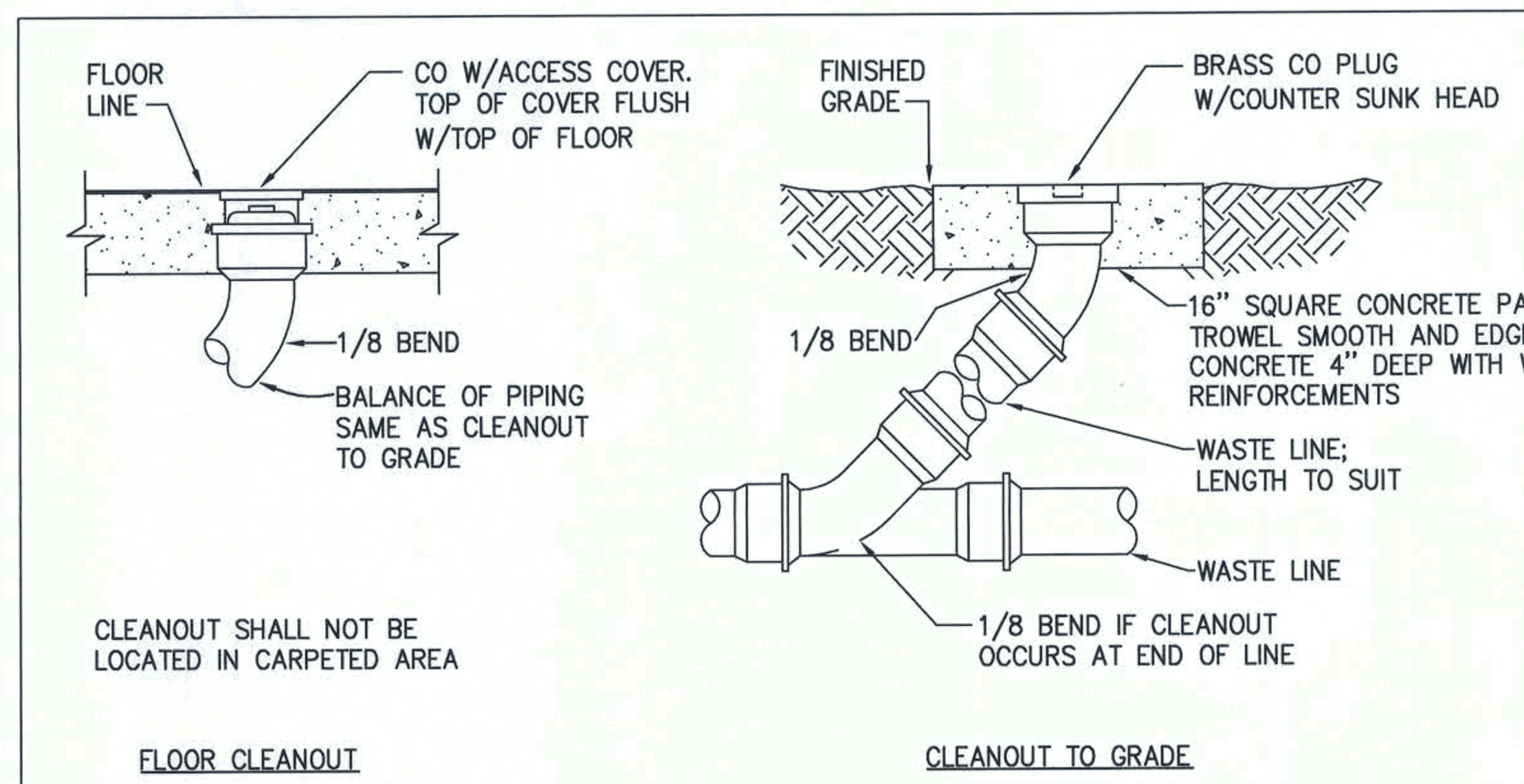
3 P2.1 WATER HEATER PIPING DETAIL
NOT TO SCALE



1 P2.1 WALL CLEANOUT DETAILS
NOT TO SCALE



4 P2.1 FLOOR DRAIN TRAP PRIMER DETAIL
NOT TO SCALE



2 P2.1 FLOOR CLEANOUT DETAILS
NOT TO SCALE

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DATE	DRAWN BY
9/18/09	WMG

REVISIONS

SHEET P2.1 OF

PROJECT NO. 09.C016

PLUMBING SPECIFICATIONS

PART 1 – GENERAL

1.01 INSTRUCTIONS
SCOPE OF WORK SHALL INCLUDE ALL MATERIALS, EQUIPMENT AND LABOR NECESSARY FOR A COMPLETE AND OPERATIONAL SYSTEM IN ACCORDANCE WITH LOCAL AND STATE CODES, AND CONTRACT DRAWINGS AND SPECIFICATIONS.

1.02 LOCAL CONDITIONS CONTRACTOR SHALL VISIT THE SITE AND OBSERVE ALL EXISTING LOCAL CONDITIONS WHICH WOULD AFFECT WORK UNDER THIS CONTRACT. CONTRACTOR SHALL EXAMINE ALL PLANS AND SPECIFICATIONS FOR THIS PROJECT AND CONSULT TEM FOR INSTRUCTIONS PERTAINING TO WORK OF THIS SECTION.

1.03 PERMITS AND FEES CONTRACTOR SALL OBTAIN ALL NECESSARY PERMITS AND INSPECTIONS REQUIRED FOR PERTAINING TO WORK UNDER IIS CONTRACT AND PAY ALL CHARGES INCIDENTAL THERETO. DELIVER TO ARCHITECT ALL CERTIFIATES OF INSPECTION ISSUED BY AUTHORITIES HAVING JURISDICTION.

1.04 CODES AND STANDARDS
A. FURNISH AND INSTALL MECHANICAL SYSTEMS TO MEET ALL CURRENT REQUIREMENTS OF NATIONAL, STATE AND MUNICIPAL CODES, RULES REGULATIONS, LAWS, AND STANDARDS AS THEY ARE ADOPTED BY THE GOVERNING AGENCY AND AS HEY MAY APPLY.
1. 2007 FLORIDA BUILDING CODE;
2. 2007 FLORIDA MECHANICAL CODE;
3. 2007 FLORIDA PLUMBING CODE;
4. 2007 FLORIDA FIRE PREVENTION CDE

1.05 SUBMITTALS
A. MATERIAL LIST: WITHIN TWENTY(20) DAYS OF AWARD OF CONTRACT, CONTRACTOR SHALL SUBMIT TO ARCHITECT A COMPLETE LIST (MATERIALS TO BE PROVIDED FOR THE HVAC WORK. THE LIST SHALL INCLUDE SUPPLIERS' NAMES AD MANUFACTURERS' NAMES AND NUMBER OR SERIES FOR EACH ITEM ON LIST.
B. SHOP DRAWINGS: SUBMIT TO 'E ARCHITECT FOR APPROVAL, BEFORE COMMENCING WORK, SHOP DRAWINGS FOR ALL MATERIALS AND EQUIRENT TO BE PROVIDED UNDER THIS CONTRACT. THE FOLLOWING APPLIES TO THE SHOP DRAWINGS:
1. CONTRACTOR SHALL SUBIT WITHIN 30--DAYS AFTER AWARD OF CONTRACT, DRAWINGS AND/OR CUT SHEETS OF ALL MATERIAL AND EQUIPMENT, AND 1/4" SCALE EQUIPMENT ROOM DRAWINGS FOR APPROVAL BY ARCHITECTENGINEER. SUCH SUBMITTALS MUST CONTAIN OUTLINE DIMENSIONS, OPERATING CLEARANCES, NSTALLATION, OPERATING AND MAINTENANCE INFORMATION AND SUFFICIENT ENGINEERING DATA TO INICATE SUBSTANTIAL COMPLIANCE WITH SPECIFICATIONS. ALL SHOP DRAWINGS FOR ONE SECTN OF WORK OR ONE MECHANICAL SYSTEM SHALL BE SUBMITTED AT ONE TIME IN LOOSE-LEAF 3-RG BINDERS; NO APPROVAL WILL BE GIVEN IF SUBMITTED PIECEMEAL.
2. WHERE CONTRACTOR CONDERS ADDITIONAL DETAIL OR SHOP DRAWINGS ESSENTIAL TO PROPER FABRICATION OR INSTALLION OF EQUIPMENT, DUCTWORK, AND PIPING HE SHALL PREPARE SUCH CONSISTENT WITH CURREN INDUSTRY METHODS AND STANDARDS. ENGINEER RESERVES THE RIGHT TO DIRECT REMOVAL ANDEPLACEMENT OF ANY ITEMS WHICH, IN HIS OPINION, DO NOT PRESENT AN ORDERLY AND REASONAB NEAT AND WORKMANLIKE APPEARANCE, PROVIDED SUCH AN ORDERLY INSTALLATION CAN BE MAE USING CUSTOMARY TRADE METHODS. REMOVAL AND REPLACEMENT SHALL BE DONE WHEN DECTED IN WRITING BY ENGINEER AT THE CONTRACTOR'S EXPENSE AND WITHOUT ADDITIONAL EXPSE TO OWNER.
3. APPROVAL GRANTED ON 'OP DRAWINGS IS RENDERED AS A SERVICE ONLY AND SHALL NOT BE CONSIDERED AS GUARANTE OF MEASUREMENTS OF BUILDING CONDITIONS; NOR SHALL IT BE CONSTRUED AS RELIEVINCTHE MECHANICAL CONTRACTOR OF BASIC RESPONSIBILITIES UNDER THIS CONTRACT.
4. CHANGES IN FOUNDATION BASES, CONNECTIONS, PIPING, CONTROLS, STARTERS, ELECTRICAL EQUIPMENT, WIRING AND 3NDUIT, SPACE OPENINGS, WALLS AND CEILINGS, AND VIBRATION ISOLATION IN ORDER TO 2COMMODATE SUBSTITUTE EQUIPMENT SHALL BE MADE AT NO ADDITIONAL COST TO THE OWNER.
5. CONTRACTOR SHALL SUBIT SHOP DRAWINGS AND RECEIVE ENGINEER'S APPROVAL BEFORE INSTALLING MATERIALS OR EQUIPMEN ANY EQUIPMENT OR MATERIALS INSTALLED PRIOR TO RECEIPT OF APPROVED SHOP DRAWIN FROM ENGINEER SHALL BE SUBJECT TO REMOVAL AND/OR ALTERATION AT THE DISCRETION OF THE ECHANICAL ENGINEER AT NO ADDITIONAL COST.
6. APPROVAL OF ANY SUBMTED DATA OR SHOP DRAWINGS FOR MATERIALS, EQUIPMENT, APPARATUS DEVICES, ARRANGEMENTS AND/OR LAYOUTS WILL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY OF FURNISHING SAME OF PROPER DIMENSIONS, CAPACITIES, SIZES, QUANTITIES AND INSTALLATION DETAILS TO EFFICIENTLY 2RFORM REQUIREMENTS AND INTENT OF CONTRACT. SUCH APPROVAL SHALL NOT RELIEVE CONTRACTOI FROM RESPONSIBILITY FOR ERRORS OF ANY SORT.
C. ANY ELECTRICAL DEVIATIONS ETWEEN THE CONTRACT DOCUMENTS AND THE FURNISHED EQUIPMENT MUST BE SEPARATELY ACKNOWLEDGE BY A SUBSTITUTION REQUEST AND ADDITIONALLY NOTED ON THE SUBMITTAL.
D. PROVIDE PLUMBING SHOP DRANGS FOR: WASTE AND VENT PIPING, DOMESTIC WATER PIPING, VALVES, PLUMBING FIXTURES AND PIPE 'SULATION.

1.06 CONNECTING TO WORK OF OTHERS
A. BEFORE STARTING HIS WORK, AD FROM TIME TO TIME AS WORK PROGRESSES, PLUMBING CONTRACTOR SHALL EXAMINE 2RK AND MATERIALS INSTALLED BY OTHERS INSOFAR AS THEY APPLY TO HIS WORK AND SHA NOTIFY ENGINEER IMMEDIATELY IN WRITING IF CONDITIONS EXIST WHICH WILL. SHOULD CONTRATOR START HIS WORK WITHOUT SUCH NOTIFICATION, IT SHALL BE CONSTRUED AS.
B. AN ACCEPTANCE BY HIM OF A. CLAIMS OR QUESTIONS AS TO SUITABILITY OR WORK OF OTHERS TO RECEIVE HIS WORK. HE SALL REMOVE AND REPLACE, AT HIS OWN EXPENSE, ALL WORK UNDER THIS CONTRACT WHICH AY HAVE TO BE REMOVED ON ACCOUNT OF SUCH DEFECTS.

1.07 CONTRACT DRAWINGS
A. IT IS THE INTENT OF DRAWING AND SPECIFICATIONS TO OBTAIN A COMPLETE AND FULLY OPERATIONAL, AND SATISFACTORY INSTALLATN. AN ATTEMPT HAS BEEN MADE TO SEPARATE AND COMPLETELY DEFINE WORK UNDER THIS CONTRACT. HOWEVER, SUCH SEPARATE DIVISONAL DRAWINGS AND SPECIFICATIONS SHALL NOT RELIEVE CONTRACTR FROM FULL RESPONSIBILITY OF COMPLIANCE WITH WORK OF HIS TRADE WHICH MAY BE INDICATED ON NY DRAWING OR IN ANY SECTION OF THE SPECIFICATIONS.
B. CONTRACTOR SHALL CAREFULL EXAMINE ARCHITECTURAL, STRUCTURAL, ELECTRICAL, AND MECHANICAL DRAWINGS PRIOR TO SUBMITTIN BID. CONTRACTOR WILL BE REQUIRED TO FURNISH, INSTALL AND CONNECT WITH APPROPRIATE SRVICES ALL ITEMS SHOWN ON ANY DRAWINGS WITHOUT ADDITIONAL EXPENSE TO OWNER. ARCHITET SHALL BE NOTIFIED PRIOR TO BID DATE OF ANY DISCREPANCIES, OMISSIONS, CONFLICTS OR INTFERENCES WHICH OCCUR BETWEEN DRAWINGS OR BETWEEN DRAWINGS AND SPECIFICATIONS. IF SUCNOTIFICATION IS RECEIVED IN ADEQUATE TIME, ADDITIONAL DATA OR CHANGES WILL BE ISSUED BY 3DENDUM TO ALL BIDDERS. SUBMITTAL OF BID BY CONTRACTOR SHALL INDICATES THE CONTRACTOR'S ICKNOWLEDGEMENT AND ACCEPTANCE TO PROVIDE ALL NECESSARY EQUIPMENT, MATERIALS AND L3OR TO MEET THE INTENT OF THE DRAWINGS AND SPECIFICATIONS IN ACCORDANCE WITH ALL CODE SQUIREMENTS.
C. ARCHITECTURAL DRAWINGS SHAL TAKE PRECEDENCE OVER MECHANICAL DRAWINGS WITH REFERENCE TO BUILDING CONSTRUCTION. PLUBING DRAWINGS ARE DIAGRAMMATIC BUT SHALL BE FOLLOWED AS CLOSELY AS ACTUAL CONSTRUCTION OFBUILDING AND WORK OF OTHER TRADES WILL PERMIT. WHERE LOCATIONS OF EQUIPMENT, DEVICES OR FITURES ARE CONTROLLED BY ARCHITECTURAL FEATURES, ESTABLISH SUCH LOCATIONS BY REFERRING TO MENSIONS ON ARCHITECTURAL DRAWINGS AND NOT BY SCALING DRAWINGS. CHANGES FROM DRAWINGS NECSSARY TO MAKE WORK OF CONTRACTOR CONFORM WITH BUILDING AS CONSTRUCTED AND TO FIT WOI OF OTHER TRADES OR RULES OF BODIES HAVING JURISDICTION SHALL BE MADE BY CONTRACTOR AT HISOWN EXPENSE. SOME DRAWINGS MAY HAVE BEEN PREPARED FROM EXISTING DRAWINGS WITH INTENT OF PRVIDING THE CONTRACTOR WITH INFORMATION CONCERNING THE EXISTING CONDITIONS. DATA SHOWN HA NOT BEEN COMPLETELY VERIFIED BY ARCHITECT/ENGINEER AND NO GUARANTEE OF ACCURACY OF HIS INFORMATION IS GIVEN OR INTENDED. IT SHALL BE THE RESPONSIBILITY OF CONTRACTC TO VERIFY ALL EXISTING CONDITIONS. DATA WHICH IS SHOWN BUT PROVES TO BE INCORRECT SHAL IN NO WAY RELIEVE THE CONTRACTOR FROM INSTALLING HIS WORK WITHIN THE INTENT OF PLANS ND SPECIFICATIONS, NOR SHALL IT CONSTITUTE BASIS FOR A CHANGE ORDER UNLESS, IN THE OPINIO OF THE ARCHITECT/ENGINEER IT IS DETERMINED TO BE AN EXTRA COST OVER AND ABOVE THE BASIC ITENT OF THESE PLANS AND SPECIFICATIONS.

1.08 DAMAGE TO OTHER WORK
A. CONTRACTOR SHALL BE RESPCSIBLE FOR PROPER PROTECTIVE MEASURES WHEN WORKING OVERHEAD OR IN FINISHED AREAS. HE/SHE SHAL REPAIR, REPLACE OR TOUCH-UP ALL FINISHED SURFACES WHICH MAY BE DAMAGED AS A RESULT OF HI OPERATIONS.

1.09 STORAGE AND WORK AREAS
A. ALL EQUIPMENT AND MATERIAL SHALL BE PROTECTED FROM THE WEATHER, DAMAGE, MOISTURE, DIRT, DEBRIS, ETC. USE OF CARDBORD, VISQUEEN, OR OTHER SIMILAR MATERIALS WHILE STORED OUTSIDE IS NOT ACCEPTABLE. DO NOT INFALL DAMAGED EQUIPMENT.

1.10 APPROVAL OF MATERIAL
A. EQUIPMENT OTHER THAN SPECIED IN THE CONTRACT DOCUMENTS REQUIRES APPROVAL FROM ENGINEER 10 DAYS PRIOR TO BID DATE.
B. WRITTEN REQUEST FOR PRIOR PROVAL MUST BE RECEIVED IN ENGINEER'S OFFICE BY CLOSE OF BUSINESS NO LATER THAN 10 DAYS PRIC TO SCHEDULED BID DATE. REQUEST SHALL CONTAIN DETAILED INFORMATION ON THE PROPOSE ITEM. THIS SHALL INCLUDE:
1. CATALOG CUTS SHEETS
2. DETAILED SPECIFICATIONS
3. DESCRIPTION OF DEVIATIO FROM SPECIFIED ITEM
C. AN ADDENDA SHALL BE ISSUEILISTING ALL PROSPECTIVE CONTRACTORS LISTING ALL PRIOR APPROVED MANUFACTURERS AND PRODUCS.

PART 2 – PRODUCTS

2.01 PLUMBING SYSTEMS.
A. PIPE MATERIALS:
1. DWV (DRAIN, WASTE, AND VENT) PIPING: FITTINGS SHALL BE LONG RADIUS FITTINGS, EXCEPT FITTINGS IN VENT PIPING MAY BE SHORT RADIUS FITTINGS. MINIMUM SIZE PIPING SHALL BE 2 INCHES FOR BURIED PIPING AND 1-1/4 INCHES FOR ABOVEGROUND PIPING. CONTRACTOR'S OPTION:
A. BELOW GRADE: CAST IRON, ASTM A74, STANDARD, SINGLE HUB, COATED, WITH JOINTS CAULKED AND LEADED.
B. ABOVE GRADE: CAST IRON, NO HUB, CISPI STANDARD 301, WITH CAST IRON COUPLING WITH GASKET AND STAINLESS STEEL BANDS.
C. ABOVE AND BELOW GRADE: PVC, SCHEDULE 40, MEETING ASTM D1785, WITH SOLVENT WELD JOINTS MEETING ASTM D2564.
2. DOMESTIC WATER PIPING (CONTRACTOR'S OPTION):
A. BELOW GRADE
1. COPPER, MEETING ASTM B88: TYPE K, COATED WITH COAL TAR SHELLAC, 95/5 SOLDERED JOINTS.
2. SDR PIPE: PVC, SCHEDULE 40, MEETING ASTM 2241.
B. ABOVE GRADE
1. CPVC, MEETING ASTM D2846 AND F441. PIPING UP TO 1-1/4" SHALL BE SCHEDULE 40. PIPING 1-1/2" AND LARGER SHALL BE SCHEDULE 80; SOLVENT WELD JOINTS.
2. COPPER, MEETING ASTM B88: TYPE L, WITH 95/5 SOLDERED JOINTS.
C. DIELECTRIC UNIONS: SHALL BE USED AT ALL JOINTS OF DISSIMILAR PIPE MATERIALS.
3. ROOF DRAINAGE PIPING: SAME AS DWV ABOVE. INSULATE ALL ROOF DRAINAGE PIPE ABOVE GROUND
B. PIPING INSULATION:
1. ELECTRIC WATER COOLER WASTE:
A. 3/4-LB., 1-1/2 INCH BLANKET.
B. FSK JACKET.
2. DOMESTIC COLD AND HOT WATER MAINS AND RISERS:
A. 1-INCH STANDARD FIBERGLASS.
B. FACTORY JACKET AND FITTING COVERS.
3. DOMESTIC WATER PIPING EXPOSED TO EXTERIOR: NITRILE RUBBER BASED ELASTOMERIC SHEET INSULATION; ARMSTRONG "ARMAFLEX 2". MINIMUM INSULATION THICKNESS SHALL BE 3/4-INCH.
4. CPVC WATER PIPING AND PVC WASTE, VENT AND ROOF DRAIN PIPING RUN IN RETURN AIR PLENUMS: WRAP WITH A FIRE PROTECTIVE JACKET WITH A MAXIMUM FLAME SPREAD RATING OR 25 AND A MAXIMUM SMOKE DEVELOPMENT RATING OF 50 IN ACCORDANCE WITH NFPA-90A, PARAGRAPHS 2-3.3.1 AND 2-3.10.1.
5. PIPING TO BE UNINSULATED: PIPING RUN-OUTS TO FIXTURES (EXCEPT AS NOTED FOR HANDICAP-ACCESSIBLE FIXTURES).
C. ACCEPTABLE MANUFACTURERS:
1. MANUFACTURERS' MODEL NUMBERS ARE LISTED TO ESTABLISHED A STANDARD OF QUALITY AND LEVEL OF PERFORMANCE.
2. EQUIVALENT ITEMS OF THE FOLLOWING MANUFACTURES ARE ACCEPTABLE:
A. FIXTURES: SEE FIXTURE SCHEDULE.
1. AMERICAN-STANDARD, ELJER, KOHLER, CRANE, ELKAY, JUST, AND BRIGGS.
B. FIXTURE TRIM: SEE FIXTURE SCHEDULE
1. AMERICAN-STANDARD, KOHLER, SPEAKMAN, MOEN, DELTA, T&S BRASS, CHICAGO FAUCET, SYMMONS, BRIGGS.
3. DRAIN AND FIXTURE SPECIALTIES: J.R. SMITH, JOSAM, ZURN.
A. FLOOR AND EXTERIOR CLEANOUTS: ZURN-1440 OR EQUAL
B. WALL CLEANOUT: ZURN-1441 OR EQUAL W/ SMOOTH SECURED COVER.
C. FLOOR DRAINS: SEE SCHEDULE.
D. ROOF DRAINS: ZURN-100 OR EQUAL.
4. WATER COOLERS: SEE FIXTURE SCHEDULE, OASIS, ELKAY, HALSEY TAYLOR.
5. WATER HEATERS: SEE FIXURE SCHEDULE, RHEEM, A.O. SMITH, STATE, LOCHINVAR.
6. WATER SYSTEM SPECIALTIES.
A. WATER HAMMER ARRESTORS SHALL CONFORM TO PDI WH201 AND ASSE 1010. ACCEPTABLE: ZURN SHOKTROLS Z-1700 OR EQUAL.
B. WALL HYDRANTS AND HOSE BIBBS: SEE FIXTURE SCHEDULE.

2.03 PIPING SPECIALTIES
A. ESCUTCHEONS SHALL BE MANUFACTURED WALL, CEILING AND FLOOR PLATES; DEEP-PATTERN TYPE WHERE REQUIRED TO CONCEAL PROTRUDING FITTINGS AND SLEEVES. CONSTRUCT OF ONE-PIECE CAST BRASS WITH POLISHED CHROME PLATE FINISH AND SET-SCREW.

2.04 PIPE INSULATION
A. FLEXIBLE ELASTOMERIC CELLULAR INSULATION, TYPE I, ASTM C 534, FLEXIBLE EXPANDED CLOSED-CELL STRUCTURE WITH SMOOTH SKIN ON BOTH SIDES. PRODUCT AS MANUFACTURED BY ARMSTRONG OR EQUIVALENT BY RUBATEX OR HALSTEAD. AVERAGE MAXIMUM THERMAL CONDUCTIVITY SHALL BE 0.30 AT 75 DEG F.
B. FLEXIBLE ELASTOMERIC CELLULAR INSULATION ADHESIVE, SOLVENT-BASED, CONTACT ADHESIVE RECOMMENDED BY INSULATION MANUFACTURER.

2.05 HANGERS AND SUPPORTS
A. PROVIDE HANGERS, RODS, AND SUPPORT CLAMPS AS REQUIRED TO PROPERLY SUPPORT PIPING FROM STRUCTURE.
B. PROVIDE BUILDING ATTACHMENTS OR CONCRETE INSERTS APPROPRIATE FOR BUILDING MATERIALS.

2.06 SLEEVES:
A. WALLS AND PARTITIONS:
1. PIPE SLEEVES 8-INCH DIAMETER AND SMALLER (ABOVE GRADE): SLEEVES SHALL BE MILD STEEL PIPE OR PLASTIC SLEEVES BUILT INTO WALL, PARTITION OR BEAM, SIZED TO PASS PIPE AND COVERING, LEAVING A CLEAR SPACE OF 1/4-INCH MINIMUM BETWEEN COVERING AND SLEEVE. PENETRATIONS OF FIRE RATED BARRIERS SHALL HAVE MILD STEEL SLEEVES.
2. PIPE SLEEVES INSTALLED IN EXTERIOR WALLS BELOW GRADE: SCHEDULE 40 STEEL HOT DIPPED GALVANIZED AFTER FABRICATION OR CAST IRON SLEEVE WITH 1/4-INCH X 3-INCH CENTER FLANGE (WATER STOP) AROUND THE OUTSIDE.
B. PIPE SLEEVES IN FLOORS (ABOVE GRADE): SLEEVES SHALL BE 14 GAUGE GALVANIZED SHEET STEEL OR PLASTIC, SET BEFORE FLOOR IS POURED, SIZED TO PASS PIPE AND COVERING, LEAVING A CLEAR SPACE OF 1/4-INCH BETWEEN COVERING AND SLEEVE, AND SHALL EXTEND 1/2-INCH ABOVE FINISHED FLOOR.
C. SEALING OF SLEEVES:
1. SLEEVES BELOW GRADE: CAULK ANNULAR SPACE BETWEEN PIPE AND SLEEVE USING OAKUM AND POURED LEAD BOTH SIDES MINIMUM ONE INCH DEEP TO MAKE WALL PENETRATION WATER TIGHT.
2. SLEEVES ABOVE GRADE: OPENINGS AROUND PIPES, DUCT, ETC., PASSING THROUGH SLEEVES SHALL BE MADE DRAFT FREE AND VERMIN-PROOF BY PACKING SOLIDLY WITH MINERAL WOOL OR FIBERGLASS.
3. SEALING OF SLEEVES THROUGH FIRE RATED BARRIERS: OPENINGS AROUND PIPES, ETC., THROUGH FIRE RATED BARRIERS SHALL BE SEALED USING AN U.L. APPROVED METHOD RATED AT LEAST EQUAL TO THE WALL BEING PENETRATED.

PART 3 – EXECUTION

3.01 PIPE INSULATION INSTALLATION
A. INSTALL ONE INCH THICK PIPE INSULATION ON HOT WATER PIPING. INSTALL ONE INCH THICK PIPE INSULATION ON COLD WATER PIPING THAT IS ABOVE THE ROOF INSULATION.
B. INSTALL INSULATION IN STRICT ACCORDANCE WITH MANUFACTURERS WRITTEN RECOMMENDATIONS.

3.02 TESTING OF WATER DISTRIBUTION SYSTEMS
A. TEST FOR LEAKS AND DEFECTS IN NEW WATER DISTRIBUTION PIPING SYSTEMS. IF TESTING IS PERFORMED IN SEGMENTS, SUBMIT SEPARATE REPORT FOR EACH TEST, COMPLETE WITH DIAGRAM OF PORTION OF SYSTEM TESTED.
B. LEAVE UNCOVERED AND UNCONCEALED NEW WATER DISTRIBUTION PIPING UNTIL IT HAS BEEN TESTED AND APPROVED. EXPOSE WORK THAT HAS BEEN COVERED OR CONCEALED BEFORE IT HAS BEEN TESTED AND APPROVED FOR TESTING.
C. CAP AND SUBJECT THE PIPING SYSTEM TO A STATIC WATER PRESSURE OF 50 PSIG ABOVE THE OPERATING PRESSURE WITHOUT EXCEEDING PRESSURE RATING OF PIPING SYSTEM MATERIALS. ISOLATE TEST SOURCE AND ALLOW TO STAND FOR 4 HOURS. LEAKS AND LOSS IN TEST PRESSURE CONSTITUTE DEFECTS THAT MUST BE REPAIRED.
D. REPAIR LEAKS AND DEFECTS WITH NEW MATERIALS AND RETEST SYSTEM OR PORTION THEREOF UNTIL SATISFACTORY RESULTS ARE OBTAINED.
E. PREPARE REPORTS FOR TESTS AND REQUIRED CORRECTIVE ACTION.

3.03 TESTING OF DRAINAGE AND VENT PIPING SYSTEMS
A. TEST FOR LEAKS AND DEFECTS IN NEW DRAINAGE AND VENT PIPING SYSTEMS. IF TESTING IS PERFORMED IN SEGMENTS, SUBMIT A SEPARATE REPORT FOR EACH TEST, COMPLETE WITH A DIAGRAM OF THE PORTION OF THE SYSTEM TESTED.
B. LEAVE UNCOVERED AND UNCONCEALED NEW DRAINAGE AND VENT PIPING UNTIL IT HAS BEEN TESTED AND APPROVED. EXPOSE FOR TESTING WORK THAT HAS BEEN COVERED OR CONCEALED BEFORE IT HAS BEEN TESTED AND APPROVED.
C. TEST PIPING OF PLUMBING DRAINAGE AND VENTING SYSTEMS ON COMPLETION OF ROUGH-IN PIPING INSTALLATION. TIGHTLY CLOSE ALL OPENINGS IN PIPING SYSTEM AND FILL WITH WATER TO POINT OF OVERFLOW, BUT NOT LESS THAN 5 FEET HEAD OF WATER. WATER LEVEL SHALL NOT DROP DURING THE PERIOD FROM 15 MINUTES BEFORE INSPECTION STARTS THROUGH COMPLETION OF INSPECTION. INSPECT JOINTS FOR LEAKS. AFTER PLUMBING FIXTURES HAVE BEEN SET AND THEIR TRAPS FILLED WITH WATER, TEST CONNECTIONS AND PROVE GASTIGHT AND WATERTIGHT. PLUG STACK OPENINGS ON ROOF AND BUILDING DRAIN WHERE IT LEAVES THE BUILDING AND INTRODUCE AIR INTO THE SYSTEM EQUAL TO PRESSURE OF 1-INCH WATER COLUMN. USE A U TUBE OR MANOMETER INSERTED IN THE TRAP OF A WATER CLOSET TO MEASURE THIS PRESSURE. AIR PRESSURE SHALL REMAIN CONSTANT WITHOUT INTRODUCING ADDITIONAL AIR THROUGHOUT PERIOD OF INSPECTION. INSPECT PLUMBING FIXTURE CONNECTIONS FOR GAS AND WATER LEAKS.
D. REPAIR LEAKS AND DEFECTS USING NEW MATERIALS AND RETEST SYSTEM OR PORTION THEREOF UNTIL SATISFACTORY RESULTS ARE OBTAINED.
E. PREPARE REPORTS FOR TESTS AND REQUIRED CORRECTIVE ACTION.

3.04 CLEANING
A. PURGE NEW POTABLE WATER DISTRIBUTION PIPING SYSTEMS PRIOR TO USE.
B. USE PURGING AND DISINFECTING PROCEDURE PRESCRIBED BY AUTHORITY HAVING JURISDICTION OR, IF A METHOD IS NOT PRESCRIBED BY THAT AUTHORITY, THE PROCEDURE DESCRIBED IN EITHER AWWA C651 OR AWWA C652OR AS DESCRIBED BELOW:
1. FLUSH PIPING SYSTEM WITH CLEAN, POTABLE WATER UNTIL DIRTY WATER DOES NOT APPEAR AT OUTLETS.
2. FILL SYSTEM OR PART THEREOF WITH WATER/CHLORINE SOLUTION CONTAINING AT LEAST 50 PARTS PER MILLION OF CHLORINE. ISOLATE (VALVE OFF) AND ALLOW TO STAND FOR 24 HOURS. PROVIDE PROPER SIGNAGE TO PREVENT ACCIDENTAL USE DURING DISINFECTION.
3. DRAIN SYSTEM OR PART THERE OF OF PREVIOUS SOLUTION AND REFILL WITH WATER/CHLORINE SOLUTION CONTAINING AT LEAST 200 PARTS PER MILLION OF CHLORINE. ISOLATE AND ALLOW TO STAND FOR 3 HOURS.
4. FLUSH SYSTEM WITH CLEAN, POTABLE WATER UNTIL CHLORINE DOES NOT REMAIN IN WATER COMING FROM SYSTEM FOLLOWING ALLOWED STANDING TIME.
C. SUBMIT WATER SAMPLES IN STERILE BOTTLES TO AUTHORITY HAVING JURISDICTION. REPEAT PROCEDURE IF BIOLOGICAL EXAMINATION MADE BY THE AUTHORITY SHOWS EVIDENCE OF CONTAMINATION.
D. PREPARE AND SUBMIT REPORTS FOR PURGING AND DISINFECTING ACTIVITIES.
E. CLEAN INTERIOR OF PIPING SYSTEM. REMOVE DIRT AND DEBRIS AS WORK PROGRESSES.

3.05 AS-BUILT DRAWINGS
A. UPON COMPLETION OF INSTALLATION, THE CONTRACTOR SHALL FURNISH TO THE ARCHITECT A SET OF DRAWINGS, MARKED TO SCALE, INDICATING THE SIZE AND LOCATION OF PIPING AND DUCTS, AND NOTING ALL MAJOR CHANGES MADE DURING CONSTRUCTION. THE CONTRACTOR SHALL OBTAIN THE DRAWINGS FROM THE ARCHITECT AND SHALL BEAR ALL COSTS IN OBTAINING THE DRAWINGS AND PROVIDING THE AS-BUILT DRAWINGS. THE CONTRACTOR SHALL DELIVER THE DRAWINGS PLUS TWO SETS OF AS-BUILT DRAWINGS TO THE ARCHITECT. EACH SHEET IN EACH SET SHALL BE SIGNED BY A PRINCIPAL REPRESENTATIVE OF THE CONTRACTOR, DATED AND HAVE "AS-BUILT" STAMPED NEAR THE SIGNATURE. DRAWINGS SHALL GIVE ACCURATE DIMENSIONS MEASURED FROM COLUMNS, WALLS, BEAMS AND OTHER FIXED PARTS OF THE BUILDING TO THE CONCEALED MATERIALS. THE CONTRACTOR SHALL MAINTAIN A SET OF DRAWINGS AT THE SITE AND EACH DAY SHALL RECORD INSTALLATION OF PIPE, DUCTS, ETC. TO INSURE ACCURATE "AS-BUILT" DRAWINGS. THE CONTRACTOR SHALL ALSO FURNISH A SET OF DRAWINGS AND TWO SETS OF CONTRACTOR SIGNED AND DATED AS-BUILT DRAWINGS OF THE CONTROLS.

3.06 GUARANTEE AND SERVICE
A. IN ADDITION TO THE GUARANTEE OF EQUIPMENT BY THE MANUFACTURER OF EACH PIECE OF EQUIPMENT SPECIFIED HEREIN, THE MECHANICAL CONTRACTOR SHALL ALSO GUARANTEE SUCH EQUIPMENT AND SHALL BE HELD RESPONSIBLE FOR A PERIOD OF ONE YEAR FROM FINAL ACCEPTANCE FOR NECESSARY ADJUSTMENTS AND/OR REPLACEMENTS OF ALL DEFECTIVE EQUIPMENT, MATERIALS AND WORKMANSHIP WITHOUT EXPENSE TO THE OWNER. PROVIDE A LETTER TO THE OWNER STATING THE CONTRACTOR'S GUARANTEE AND DATES OF GUARANTEE COVERAGE.

3.07 REMOVAL OF RUBBISH
A. CONTRACTOR SHALL AT ALL TIMES KEEP PREMISES FREE FROM ACCUMULATIONS OF WASTE MATERIAL OR RUBBISH GENERATED BY WORK UNDER THIS CONTRACT.

3.08 EXCAVATION, BACKFILLING AND COMPACTION
A. ALL EXCAVATION, BACKFILLING, COMPACTION, TESTING, ETC. REQUIRED FOR THE INSTALLATION OF UNDERGROUND PIPING IN THIS DIVISION OF THE SPECIFICATIONS SHALL BE DONE BY THE PLUMBING CONTRACTOR. THIS WORK SHALL BE DONE IN STRICT ACCORDANCE WITH EXCAVATION AND BACKFILLING SECTION OF DIVISION 2.

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Freeman Design Group inc

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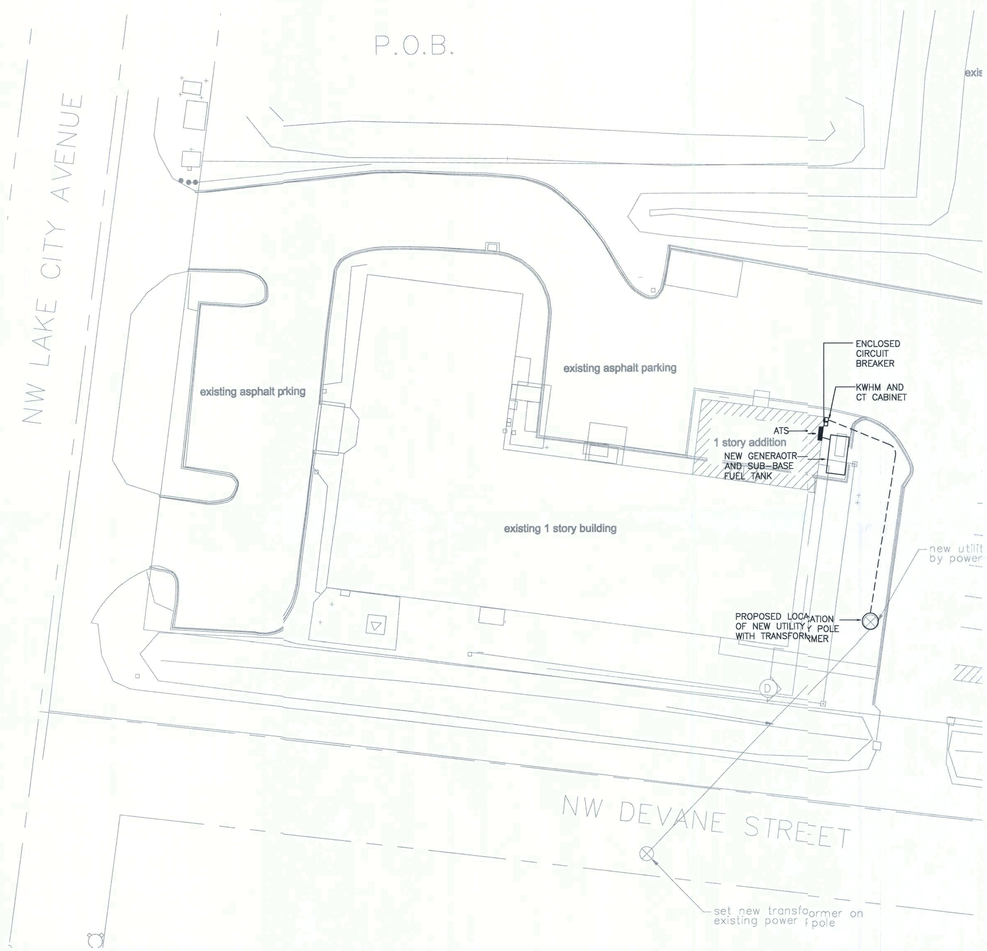

ELECTRICAL SITE PLAN

SCALE: 1"=20'-0"

GENERAL NOTES

1. RESTORE DISTURBED WALLS TO ITS ORIGINAL CONDITION. FINISH AND PAINT DAMAGED WALL AREAS. PAINT SHALL MATCH EXISTING.
2. PAINT SURFACE MOUNTED CONDUITS SAME COLOR AS SURFACE.
3. UPDATE DIRECTORIES OF ALL PANELBOARDS TO REFLECT TYPE AND LOCATION OF THE ADDED CIRCUITS. NEW DIRECTORIES SHALL BE TYPED DESCRIBING NEW AND EXISTING CIRCUITS.
4. DRAWINGS SHOW APPROXIMATE LOCATION OF EQUIPMENT, THE EXACT LOCATION SHALL BE DETERMINED AT BUILDING SITE.
5. CONTRACTOR SHALL PROVIDE ALL WORK REQUIRED TO PROVIDE COMPLETE CONDUIT SYSTEMS AND RUNS. THIS INCLUDES, BUT IS NOT LIMITED TO, ALL MATERIALS, INSTALLATION HARDWARE, DRILLING OF WALLS/BEAMS, MOUNTING HARDWARE, LABOR, PAINTING, REPAIRING OF EXISTING SURFACES, FIRESTOPPING AND ACCESSORIES.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR PROPERLY SEALING ALL NEW PENETRATIONS IN FIRE RATED ASSEMBLIES, BOTH VERTICAL AND HORIZONTAL, IN ACCORDANCE WITH SECTION 712 OF THE FLORIDA BUILDING CODE, WHICH REQUIRES THAT ALL INSTALLATIONS OF PENETRATIONS THROUGH FIRE RATED ASSEMBLIES OR FIRE STOP SYSTEMS SHALL BE AS TESTED BY ASTM E 119 & ASTM E 814.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING ENGINEER OF ANY ITEMS OF NON-COMPLIANCE WHETHER IT IS THE RESULT OF NEW WORK OR IS AN UNCOVERED EXISTING CONDITION.
8. CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO COVER AND PROTECT EXISTING ELECTRONICS AND EQUIPMENT DURING CONSTRUCTION.
9. CONTRACTOR SHALL INCLUDE IN BASE BID NEEDED MODIFICATIONS TO CREATE PATH FOR NEW RACEWAYS. EXISTING CONDITIONS MAY REQUIRE CONTRACTOR TO OFFSET NEW RACEWAYS OVER EXISTING PIPING IN ORDER TO PROVIDE INDICATED ROUTING, SIDE WALK/PAVEMENT CUTTING AND PATCHING, ETC.
10. CONTRACTOR SHALL VISIT SITE PRIOR TO PREPARING HIS BID AND DETERMINE THE EXTENT OF EXISTING EQUIPMENT AND WIRING TO ACCOMMODATE CHANGES AND ADDITIONS. ALL THE NECESSARY REROUTING, RELOCATING AND/OR REMOVAL OF EXISTING EQUIPMENT, WIRING ETC. SHALL BE INCLUDED IN THE SCOPE OF THIS WORK. ANY VARIATION FROM EXISTING CONDITIONS SHALL BE INCLUDED UNDER THIS CONTRACT.
11. REPLACE DAMAGED CEILING TILES. NEW CEILING TILES SHALL BE SAME TYPE AND QUALITY OF EXISTING TILES. NEW TILES SHALL COMPLY WITH THE FLAME SPREAD REQUIREMENT OF AN EDUCATIONAL OCCUPANCY AS REQUIRED BY SECTION 803 OF THE FBC.
12. CONDUITS SHALL BE CONCEALED IN WALLS, ABOVE CEILING SPACE, OR UNDERGROUND. SURFACE MOUNTED CONDUITS WILL BE PERMITTED ON CONCRETE WALLS OR ON CEILINGS WITH NO CAVITY.
13. THE ELECTRICAL CONTRACTOR SHALL MAINTAIN ACCURATE RECORDS OF ANY MODIFICATIONS TO EXISTING SYSTEMS AND SHALL UPON COMPLETION, DELIVER "AS-BUILT" DRAWINGS TO THE OWNER, INDICATING ANY SUCH CHANGES.
14. NOT USED.
15. NOT USED.
16. THE CONTRACTOR SHALL NOT TAKE POSSESSION OF OR DISPOSE OF ANY SALVAGEABLE ITEMS IN ASSOCIATION WITH THE WORK. ALL SALVAGEABLE ITEMS SHALL BE THE OWNER'S PROPERTY AT HIS OPTION. ALL UNSALVAGEABLE EQUIPMENT AND MATERIALS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE.
17. WHERE FEEDERS ARE ABANDONED, WIRE SHALL BE PULLED OUT AND ALL EXPOSED SECTIONS OF CONDUITS REMOVED. ALL SWITCHES, PANELS, ETC. SHALL BE REMOVED. ALL CONCEALED CONDUITS SHALL BE CAPPED AT POINT OF CONCEALMENT.
18. NOT USED.
19. NOT USED.
20. PROVIDE CONCRETE PAD. GENERATOR SHALL BE ANCHORED TO CONCRETE PAD.
21. MUFFLER SHALL BE RATED FOR CRITICAL. GENERATOR HOUSING SHALL BE STAINLESS STEEL.
22. CONTRACTOR SHALL COMPLY WITH FLORIDA STATUTE 553.60, "TRENCH SAFETY ACT".

"2008 NEC"

ELECTRICAL LEGEND

	FLUORESCENT LIGHTING FIXTURE – RECESSED WITH JUNCTION BOX AND FLEXBLE METALLIC CONDUIT CONNECTION.
	WALL MOUNTED LIGHT FIXTURE.
	PL FLUORESCENT, INCANDESCENT OR H.I.D. LIGHTING FIXTURE – RECESSID.
	FLUORESCENT LIGHTING FIXTURE – SURFACE OR PENDANT MOUNTED.
	EMERGENCY LIGHTING FIXTURE. DO NOT SWITCH.
	EXIT LIGHT – PROVIDE ARROWS AS INDICATED, SHADING DENOTES FACE OPETATION. DO NOT SWITCH.
$	TOGGLE SWITCH – SINGLE POLE – QUIET TYPE 20 AMP, 120/277 VOLT, HUBBELL NO. HBL1221I WITH NO. P1 COVERPLATE – 46" MOUNTING HEIGHT, U.N.O.
$_M$	TOGGLE SWITCH – SINGLE POLE, 20 AMP, 120/277V, MOTOR RATED, GROUNDING TYPE, MOUNT AT EQUIPMENT HOUSING.
$_D$	DIMMER SWITCH – LUTRON VT-1000M, 1000 WATTS. IVORY FINISH. 46" MOUNTING HEIGHT, U.N.O.
	DUPLEX RECEPTACLE – 20 AMP, 120 VOLT, 3 WIRE GROUNDING, HUBBELL NO. 5352I WITH NO. P8 COVERPLATE, 18" MOUNTING HEIGHT, U.N.O.
	DUPLEX RECEPTACLE – SAME AS ABOVE EXCEPT MOUNTED ABOVE COUNTER, 42" MOUNTING HEIGHT, U.N.O.
	DOUBLE DUPLEX RECEPTACLES – (2) TWO 20 AMP, 120 VOLT, 3 WIRE GROJNDING, HUBBELL NO. 5352I WITH NO. P82 COVERPLATE, 18" MOUNTING HEIGHT, U.NO.
	SPECIAL PURPOSE RECEPTACLE COMPLETE WITH COVERPLATE. SEE FLOOR PLIN FOR COMPLETE CONFIGURATION TO MATCH EQUIPMENT SUPPLIED/INSTALLED.
	DUPLEX RECEPTACLE WITH GROUND FAULT INTERRUPTER, 20 AMP, 120 VOLT, 3 WIRE GROUNDING. HUBBELL NO. GFS3521A WITH NO. HPS1I COVERPLATE, COORDINITE WITH KITCHEN EQUIPMENT FOR MOUNTING HEIGHTS. EXTERIOR LOCATIONS SHALL BI MOUNTED AT 18" A.F.F.
	DATA/TELEPHONE OUTLET – 4 INCH SQUARE JUNCTION BOX WITH 1-GANG EXTENSION RING, BLANK COVERPLATE – 18" MOUNTING HEIGHT, U.N.O. PROVIDE 3/4" CNDUIT TO ACCESSIBLE CEILING SPACE.
J	JUNCTION BOX SIZE PER NEC.
	MOTOR; FAN, PUMP OR AIR CONDITIONING UNIT CONNECTION PER NEC.
	LIGHTING AND/OR POWER PANELBOARD.
	WIRING IN CONDUIT, RUN CONCEALED IN SLAB OR UNDERGROUND.
	WIRING IN CONDUIT, RUN CONCEALED ABOVE CEILING OR IN WALLS.
	HOMERUN TO PANELBOARD – NUMBER OF ARROWS DENOTES QUANTITY OF CRCUITS. CROSSMARKS INDICATE QUANTITY OF NO. 12 CONDUCTORS. RUNS VOID OF CROSSMARKS ARE 1/2 INCH CONDUIT, 3 NO. 12, U.N.O. DO NOT COMBINE HOMERUNS EXCEPT AS SPECIFICALLY INDICATED ON THE PLAN.
WP	DENOTES WEATHERPROOF – MOUNT RECEPTACLES HORIZONTALLY AND PROVIE TAYMAC 60350 COVERPLATE, FOR SWITCHES PROVIDE TAYMAC 40110 COVERPLATE.
U.N.O.	UNLESS NOTED OTHERWISE.
A.C.	ABOVE COUNTER. MOUNTED HORIZONTALLY.
A.F.F.	ABOVE FINISHED FLOOR.
C	INDICATES DEVICE TO BE LOCATED ON CEILING.
NL	NIGHT LIGHT FIXTURE, DO NOT SWITCH.
FM	FLOOR MOUNTED.
60/40	DISCONNECT SWITCH, "3 60/40" DENOTES 3 POLE, 60 AMP, 40 AMP FUSES
F	SEMI-FLUSH MOUNTED MANUAL FIRE ALARM PULL STATION, 46 INCH MOUNTIIG HEIGHT.
H	SEMI-FLUSH MOUNTED FIRE ALARM AUDIO/VISUAL WARNING DEVICE, 80 INCH MOUNTING HEIGHT FROM FLOOR TO BOTTOM OF DEVICE.
S	DUCT MOUNTED SMOKE DETECTOR, MOUNTED IN A/C DUCT. SEE MECHANICAL DRAWING FOR MOUNTING LOCATION AND QUANTITY.
R	AIR CONDITIONING/HEAT PUMP SHUT-DOWN RELAY.
H	CEILING MOUNTED HEAT DETECTOR.

LIGHTING FIXTURE SCHEDULE

TYPE	MANUFACTURER	CATALOG NUMBER	LAMP SIZE	LAMP QUAN.	VOLTS	MTG. HEIGHT	NOTES
A	DAYBRITE	2TG8-2-32-12-UNV-EB10R	32W T8 3500K	2	UNV	CEILING	FLUORESCENT TROFFER
B	DAYBRITE	2-LP3-G-S-4-32-48-FL-EB10R	32W T8 3500K	4	UNV	CEILING	FLOURESCENT PARABOLIC
C	CAPRI	CM6-FV42-U-V65WR	42W CFL 3500K	1	UNV	CEILING	CF SHOWER LIGHT
D	DAYBRITE	OWN-2-32-120-EB10R	32W T8 3500K	2	120	CEILING	4' FLUORESCENT WRAP
E	MCPHILBEN	VE-R-W-EM	INCLUDED	NA	120/277	SEE NOTE 1	LED EXIT SIGN
F	MCPHILBEN	CAX6H	INCLUDED	NA	120	8'-0"	EMERGENCY LIGHT
G	NITEBRITES	NWP-28C-F-12-LP	INCLUDED	NA	120	7'-0"	EXTERIOR CF SCONCE
H							
J							
K							

LIGHTING FIXTURE SCHEDULE NOTES:
1. SINGLE OR DOUBLE FACED AS INDICATED ON DRAWING. MOUNT TO CEILING UNLESS CEILING EXCEEDS 9'-0", THEN MOUNT ABOVE DOOR.
2. ALL LAMPS SHALL BE PHILLIPS OR EQUAL.

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OF	
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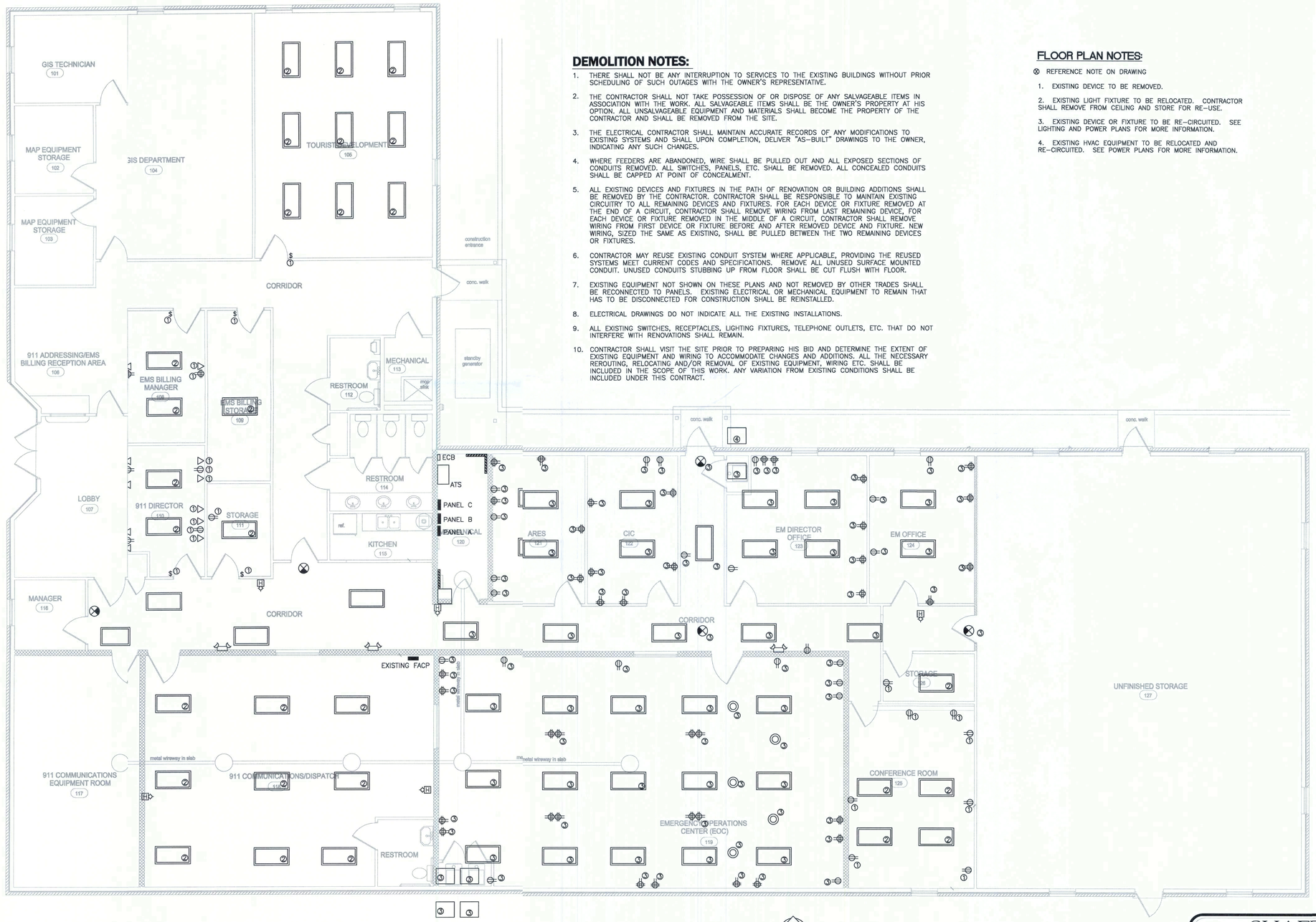

DEMOLITION NOTES:

1. THERE SHALL NOT BE ANY INTERRUPTION TO SERVICES TO THE EXISTING BUILDINGS WITHOUT PRIOR SCHEDULING OF SUCH OUTAGES WITH THE OWNER'S REPRESENTATIVE.
2. THE CONTRACTOR SHALL NOT TAKE POSSESSION OF OR DISPOSE OF ANY SALVAGEABLE ITEMS IN ASSOCIATION WITH THE WORK. ALL SALVAGEABLE ITEMS SHALL BE THE OWNER'S PROPERTY AT HIS OPTION. ALL UNSALVAGEABLE EQUIPMENT AND MATERIALS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE.
3. THE ELECTRICAL CONTRACTOR SHALL MAINTAIN ACCURATE RECORDS OF ANY MODIFICATIONS TO EXISTING SYSTEMS AND SHALL UPON COMPLETION, DELIVER "AS-BUILT" DRAWINGS TO THE OWNER, INDICATING ANY SUCH CHANGES.
4. WHERE FEEDERS ARE ABANDONED, WIRE SHALL BE PULLED OUT AND ALL EXPOSED SECTIONS OF CONDUITS REMOVED. ALL SWITCHES, PANELS, ETC. SHALL BE REMOVED. ALL CONCEALED CONDUITS SHALL BE CAPPED AT POINT OF CONCEALMENT.
5. ALL EXISTING DEVICES AND FIXTURES IN THE PATH OF RENOVATION OR BUILDING ADDITIONS SHALL BE REMOVED BY THE CONTRACTOR. CONTRACTOR SHALL BE RESPONSIBLE TO MAINTAIN EXISTING CIRCUITRY TO ALL REMAINING DEVICES AND FIXTURES. FOR EACH DEVICE OR FIXTURE REMOVED AT THE END OF A CIRCUIT, CONTRACTOR SHALL REMOVE WIRING FROM LAST REMAINING DEVICE, FOR EACH DEVICE OR FIXTURE REMOVED IN THE MIDDLE OF A CIRCUIT, CONTRACTOR SHALL REMOVE WIRING FROM FIRST DEVICE OR FIXTURE BEFORE AND AFTER REMOVED DEVICE AND FIXTURE. NEW WIRING, SIZED THE SAME AS EXISTING, SHALL BE PULLED BETWEEN THE TWO REMAINING DEVICES OR FIXTURES.
6. CONTRACTOR MAY REUSE EXISTING CONDUIT SYSTEM WHERE APPLICABLE, PROVIDING THE REUSED SYSTEMS MEET CURRENT CODES AND SPECIFICATIONS. REMOVE ALL UNUSED SURFACE MOUNTED CONDUIT. UNUSED CONDUITS STUBBING UP FROM FLOOR SHALL BE CUT FLUSH WITH FLOOR.
7. EXISTING EQUIPMENT NOT SHOWN ON THESE PLANS AND NOT REMOVED BY OTHER TRADES SHALL BE RECONNECTED TO PANELS. EXISTING ELECTRICAL OR MECHANICAL EQUIPMENT TO REMAIN THAT HAS TO BE DISCONNECTED FOR CONSTRUCTION SHALL BE REINSTALLED.
8. ELECTRICAL DRAWINGS DO NOT INDICATE ALL THE EXISTING INSTALLATIONS.
9. ALL EXISTING SWITCHES, RECEPTACLES, LIGHTING FIXTURES, TELEPHONE OUTLETS, ETC. THAT DO NOT INTERFERE WITH RENOVATIONS SHALL REMAIN.
10. CONTRACTOR SHALL VISIT THE SITE PRIOR TO PREPARING HIS BID AND DETERMINE THE EXTENT OF EXISTING EQUIPMENT AND WIRING TO ACCOMMODATE CHANGES AND ADDITIONS. ALL THE NECESSARY REROUTING, RELOCATING AND/OR REMOVAL OF EXISTING EQUIPMENT, WIRING ETC. SHALL BE INCLUDED IN THE SCOPE OF THIS WORK. ANY VARIATION FROM EXISTING CONDITIONS SHALL BE INCLUDED UNDER THIS CONTRACT.

FLOOR PLAN NOTES:

⊗ REFERENCE NOTE ON DRAWING

1. EXISTING DEVICE TO BE REMOVED.
2. EXISTING LIGHT FIXTURE TO BE RELOCATED. CONTRACTOR SHALL REMOVE FROM CEILING AND STORE FOR RE-USE.
3. EXISTING DEVICE OR FIXTURE TO BE RE-CIRCUITED. SEE LIGHTING AND POWER PLANS FOR MORE INFORMATION.
4. EXISTING HVAC EQUIPMENT TO BE RELOCATED AND RE-CIRCUITED. SEE POWER PLANS FOR MORE INFORMATION.

DEMOLITION PLAN

SCALE: 3/16"=1'-0"

North

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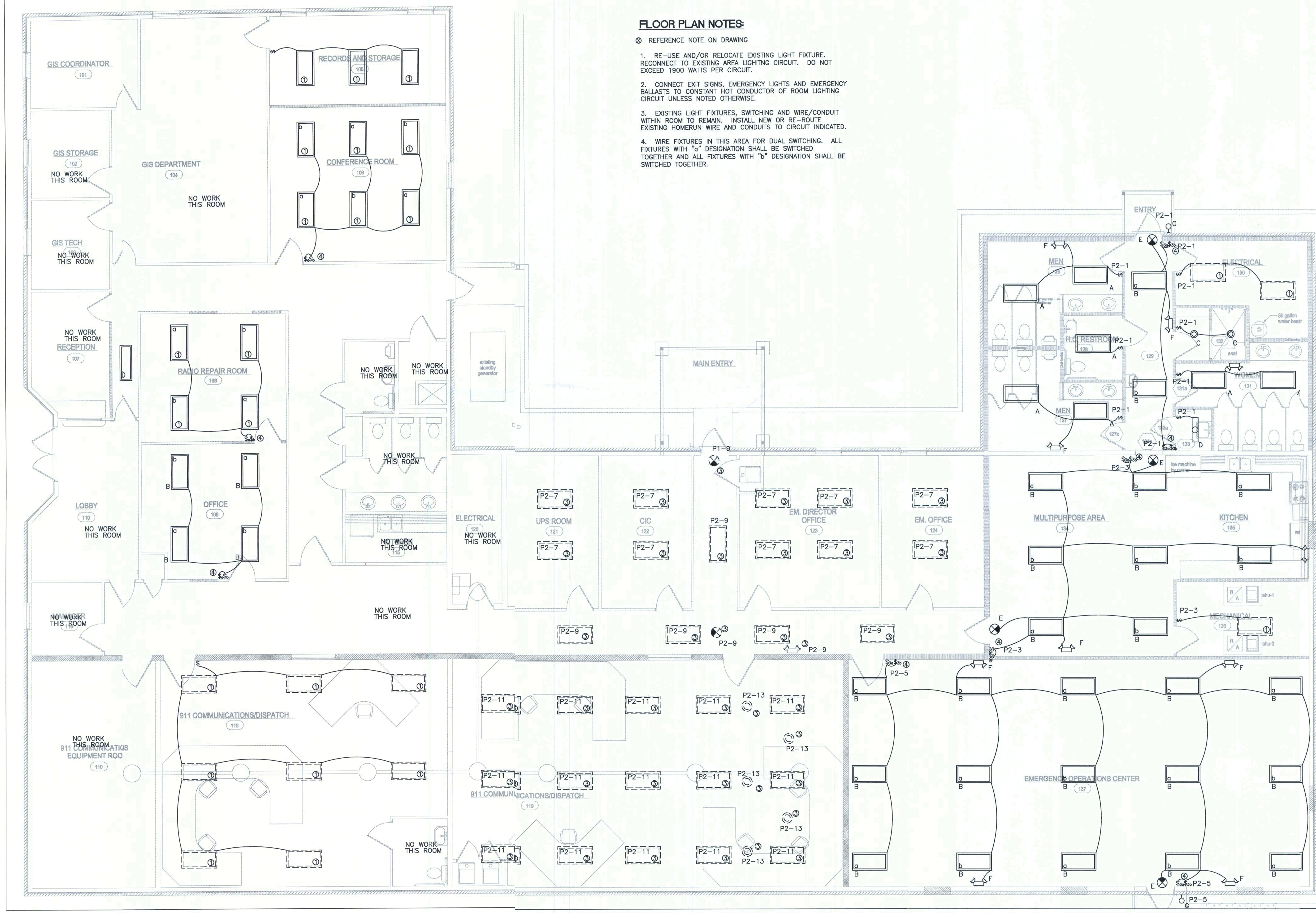

FLOOR PLAN NOTES:

⊗ REFERENCE NOTE ON DRAWING

1. RE–USE AND/OR RELOCATE EXISTING LIGHT FIXTURE. RECONNECT TO EXISTING AREA LIGHITNG CIRCUIT. DO NOT EXCEED 1900 WATTS PER CIRCUIT.

2. CONNECT EXIT SIGNS, EMERGENCY LIGHTS AND EMERGENCY BALLASTS TO CONSTANT HOT CONDUCTOR OF ROOM LIGHTING CIRCUIT UNLESS NOTED OTHERWISE.

3. EXISTING LIGHT FIXTURES, SWITCHING AND WIRE/CONDUIT WITHIN ROOM TO REMAIN. INSTALL NEW OR RE–ROUTE EXISTING HOMERUN WIRE AND CONDUITS TO CIRCUIT INDICATED.

4. WIRE FIXTURES IN THIS AREA FOR DUAL SWITCHING. ALL FIXTURES WITH "a" DESIGNATION SHALL BE SWITCHED TOGETHER AND ALL FIXTURES WITH "b" DESIGNATION SHALL BE SWITCHED TOGETHER.

LIGHTING PLAN

SCALE: 3/16"=1'-0"

North

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FLOOR PLAN NOTES:

REFERENCE NOTE ON DRAWING ⊗

1. EXISTING DEVICE TO REMAIN.
2. EXISTING RECEPTACLE AND WIRE/CONDUIT WITHIN ROOM TO REMAIN. INSTALL NEW OR RE-REOUTE HOMERUN WIRE AND CONDUITS TO CIRCUIT INDICATED.
3. EXISTING HVAC EQUIPMENT TO REMAIN. INSTALL NEW OR RE-ROUTE EXISTING HOMERUN WIRE AND CONDUITS TO CIRCUIT INDICATED.
4. INSTALL BAKED ENAMEL SIGN WITH RED BACKGROUND AND WHITE ½" LETTERS TO READ "ELECTRICAL SERVICE DISCONNECT 2 OF 2".
5. INSTALL BAKED ENAMEL SIGN WITH RED BACKGROUND AND WHITE ½" LETTERS TO READ "ELECTRICAL SERVICE DISCONNECT 1 OF 2 LOCATED INSIDE ELECTRICAL ROOM".
6. INSTALL NEW RECEPTACLE. CONNECT TO EXISTING RECEPTACLE CIRCUIT WITHIN ROOM.
7. NOT USED
8. INSTALL BAKED ENAMEL SIGN ON COVER OF EACH RECEPTACLE INDICATING PANEL AND CIRCUIT THAT FEEDS RECEPTACLE. SIGN SHALL BE WHITE WITH ⅛" BLACK LETTERS.
9. PROVIDE POWER FOR POWER DOOR ACTUATOR. PROVIDE CONDUIT AND BOX FOR ACTUATOR CONTROLS.
10. J-BOX AND CONDUITS FOR AUDIO/VIDEO INTERCOM SYSTEM. PROVIDE POWER TO CEILING JUNCTION BOX AND ½" CONDUITS FROM WALL JUNCTION BOXES TO CEILING SPACE. INSTALL ADDITIONAL J-BOX WITH ½" CONDUIT TO CEILING SPACE AT LOCATION OF INTERCOM MASTER STATION. COORDINATE LOCATION WITH OWNER.
11. MAINTAIN 4' CLEAR FROM GENERATOR TO WALL.
12. INTERLOCK EF-1 WITH AHU-1.
13. PROVIDE CONNECTION TO UPS. COORDINATE EXACT LOCATION WITH OWNER.
14. EXTEND EXISTING WALKERDUCT 2 CHANNEL UNDERFLOOR DUCT AND ACCESS BOX AT END OF EXTENSION. FLOOR DUCT AND ACCESS BOX SHALL MATCH EXISTING ACCESS BOXES. CUT AND PATCH CONCRETE SLAB AS REQUIRED. FIELD VERIFY MANUFACTURER AND MODEL NUMBER.

GIS COORDINATOR 101 — NO WORK THIS ROOM
RECORDS AND STORAGE 105
GIS STORAGE 102 — NO WORK THIS ROOM
GIS DEPARTMENT 104 — NO WORK THIS ROOM
CONFERENCE ROOM 106
GIS TECH 103 — NO WORK THIS ROOM
RECEPTION 107 — NO WORK THIS ROOM
RADIO REPAIR ROOM 108
NO WORK THIS ROOM
NO WORK THIS ROOM
NO WORK THIS ROOM
existing standby generator
NO WORK THIS ROOM
NO WORK THIS ROOM
NO WORK THIS ROOM
OFFICE 109
NO WORK THIS ROOM 110
NO WORK THIS ROOM 115
NO WORK THIS ROOM 116
NO WORK THIS ROOM 117
NO WORK THIS ROOM

CIRCUIT NUMBER IN PANEL P2 (TYP. U.N.O.)

ECB
ATS
PANEL C
PANEL B
PANEL A
ELECTRICAL 129
UPS ROOM 121
CIC 122
EM. DIRECTOR OFFICE 123
EM. OFFICE 124
MULTIPURPOSE AREA 134
KITCHEN 135
ENTRY
MEN 128
FLUSH MTD. GENERATOR ANNUNCIATOR
H.C. RESTROOM 129
MEN 127
WOMEN 131
MECHANICAL 136
AHU2
EF-1 P3-17
KWH METER ENCLOSED C.B.
ATS #2
PANEL P1
PANEL P2
PANEL P3
proposed standby generator
GENERATOR #2
HPI
HPR
EXISTING FACP
911 COMMUNICATIONS/DISPATCH 118
911 COMMUNICATIONS EQUIPMENT ROOM 110
911 COMMUNICATIONS/DISPATCH 119
EMERGENCY OPERATIONS CENTER 137
ENTRY

POWER AND SYSTEMS PLAN

SCALE: 3/16"=1'-0"

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REVISIONS

SHEET E-4
OF

PROJECT NO. 09.C016

PANEL P1

MOUNTING: SURFAC
STYLE: ILIN
ENCLOSURE TYPE: NEMA

VOLTS & PHASE: 240/120V, 1 PHASE, 3 WIRE
AMPS: 800
M.C.B. OR M.L.O: MCB
AIC RATING 65,000

CIR NUM	DESCRIPTION	WIRE/CONDUIT	BREAKER SIZE	BREAKER POLE	LOAD KVA	PHASE A	PHASE B	LOAD KVA	BREAKER POLE	BREAKER SIZE	WIRE/CONDUIT	DESCRIPTION	CIR NUM
1	PANEL P2	#3/0, #6G, 2"	200	2	18	X		4.8	2	50	#8, #10G, 3/4"	RANGE 135	2
3	)				22		X	4.8				)	4
5	AHU - EXISTING	#6, #10G, 3/4"	60	2	5.7	X		9	2	100	#3, #8G, 1 1/4"	UPS	6
7	)				5.7		X	9				)	8
9	CU-EXISTING	#8, #10G, 3/4"	50	2	2.6	X		2.3	2	30	#10, #10G, 3/4"	WH	10
11	)				2.6		X	2.3				)	12
13	AHU - EXISTING	#6, #10G, 3/4"	60	2	5.7	X		5.1	2	60	#6, #10G, 1"	AHU-1	14
15	)				5.7		X	5.1				)	16
17	CU-EXISTING	#8, #10G, 3/4"	50	2	2.6	X		2.9	2	50	#8, #10G, 1"	HP-1	18
19	)				2.6		X	2.9				)	20
21	AHU - EXISTING	#6, #10G, 3/4"	60	2	5.7	X		5.1	2	60	#6, #10G, 1"	AHU-2	22
23	)				5.7		X	5.1				)	24
25	CU-EXISTING	#8, #10G, 3/4"	50	2	2.6	X		2.9	2	50	#8, #10G, 1"	HP-2	26
27	)				2.6		X	2.9				)	28
29	PANEL P3	#1/0, #6G, 1 1/	150	2	8	X						SPACE	30
31	)				8		X					SPACE	32
33	SPACE					X						SPACE	34
35	SPACE						X					SPACE	36
37	SPACE					X						SPACE	38
39	SPACE						X		2	30		TVSS	40
41	SPACE					X						)	42

PANEL LOAD	KVA	AMPS	
PHASE A	83	691	
PHASE B	87	725	
TOTAL	170	708	@ 240V, 1 PHASE

NOTES: 1

PANEL P2

MOUNTING: SURFACE
STYLE: SQ. D NQOD
ENCLOSURE TYPE: NEMA 1

VOLTS & PHASE: 240/120V, 1 PHASE, 3 WIRE
AMPS: 225
M.C.B. OR M.L.O: MLO
AIC RATING 22,000A

CIR NUM	DESCRIPTION	WIRE/CONDUIT	BREAKER SIZE	BREAKER POLE	LOAD KVA	PHASE A	PHASE B	LOAD KVA	BREAKER POLE	BREAKER SIZE	WIRE/CONDUIT	DESCRIPTION	CIR NUM
1	LTG-126-131	#12, #12G, 1/2"	20	1	1.1	X		0.7	1	20	#10, #10G, 1/2"	REC-119	2
3	LTG-134-136	#12, #12G, 1/2"	20	1	1.2		X	0.7	1	20	#10, #10G, 1/2"	REC-119	4
5	LTG-137	#12, #12G, 1/2"	20	1	1.9	X		0.5	1	20	#12, #12G, 1/2"	DOOR SECURITY	6
7	LTG-121-124	#12, #12G, 1/2"	20	1	1.2		X	1.3	1	20	#10, #10G, 1/2"	REC-119	8
9	LTG-CORRIDOR, 125	#12, #12G, 1/2"	20	1	1.2	X		0.7	1	20	#10, #10G, 1/2"	REC-118	10
11	LTG-119	#12, #12G, 1/2"	20	1	1.9		X	1.5	1	20	#12, #12G, 1/2"	REC-130	12
13	LTG-119	#12, #12G, 1/2"	20	1	0.5	X		0.5	1	20	#12, #12G, 1/2"	REC-126,128,129	14
15	REC-121,122	#10, #10G, 1/2"	20	1	1.9		X	0.5	1	20	#12, #12G, 1/2"	REC-127,131,132	16
17	REC-121	#10, #10G, 1/2"	20	1	1.5	X		0.3	1	20	#12, #12G, 1/2"	REC-129,133	18
19	REC-122	#10, #10G, 1/2"	20	1	1.1		X	0.9	1	20	#12, #12G, 1/2"	REC-134	20
21	REC-122	#10, #10G, 1/2"	20	1	0.7	X		1.1	1	20	#12, #12G, 1/2"	REC-134	22
23	REC-123	#12, #12G, 1/2"	20	1	1.3		X	0.4	1	20	#12, #12G, 1/2"	REC-135 COUNTER	24
25	REC-123	#12, #12G, 1/2"	20	1	1.3	X		0.4	1	20	#12, #12G, 1/2"	REC-135 COUNTER	26
27	REC-124,125	#12, #12G, 1/2"	20	1	1.5		X	1	1	20	#12, #12G, 1/2"	REC-REFRIGERATOR 135	28
29	REC-124	#12, #12G, 1/2"	20	1	0.4	X		0.4	1	20	#12, #12G, 1/2"	REC-135 COUNTER	30
31	REC-124,125	#12, #12G, 1/2"	20	1	1.6		X	1	1	20	#12, #12G, 1/2"	HOOD/MICROWAVE 135	32
33	REC-119	#10, #10G, 1/2"	20	1	1.5	X		0.4	1	20	#12, #12G, 1/2"	REC-135 COUNTER	34
35	REC-119	#10, #10G, 1/2"	20	1	0.7		X	0.4	1	20	#12, #12G, 1/2"	REC-135 COUNTER	36
37	REC-119	#10, #10G, 1/2"	20	1	0.7	X		1.3	1	20	#12, #12G, 1/2"	REC-137	38
39	REC-119	#12, #12G, 1/2"	20	1	1.5		X		2	30		TVSS	40
41	REC-119	#12, #12G, 1/2"	20	1	0.7	X						)	42

PANEL LOAD	KVA	AMPS	
PHASE A	17.8	148	
PHASE B	21.6	179	
TOTAL	39.4	164	@ 240V, 1 PHASE

NOTES: 1

PANEL P3

MOUNTING: SURFACE
STYLE: SQ. D NQOD
ENCLOSURE TYPE: NEMA 1

VOLTS & PHASE: 240/120V, 1 PHASE, 3 WIRE
AMPS: 225
M.C.B. OR M.L.O: MLO
AIC RATING 22,000A

CIR NUM	DESCRIPTION	WIRE/CONDUIT	BREAKER SIZE	BREAKER POLE	LOAD KVA	PHASE A	PHASE B	LOAD KVA	BREAKER POLE	BREAKER SIZE	WIRE/CONDUIT	DESCRIPTION	CIR NUM
1	SPARE		20	1		X		0.5	1	20	#12, #12G, 1/2"	GENERATOR BATT CHARGER	2
3	REC-137	#12, #12G, 1/2"	20	1	1.3		X	1	1	20	#12, #12G, 1/2"	GENERATOR HEATER	4
5	REC-137	#12, #12G, 1/2"	20	1	1.3	X		0.5	1	20	#12, #12G, 1/2"	GENERATOR LTS/REC	6
7	REC-137	#12, #12G, 1/2"	20	1	1.3		X		1	20		SPARE	8
9	REC-137	#12, #12G, 1/2"	20	1	1.3	X			1	20		SPARE	10
11	REC-137	#12, #12G, 1/2"	20	1	1.3		X		1	20		SPARE	12
13	REC-137	#12, #12G, 1/2"	20	1	1.3	X			1	20		SPARE	14
15	REC-137	#12, #12G, 1/2"	20	1	1.3		X		1	20		SPARE	16
17	EF-1	#12, #12G, 1/2"	20	1	0.2	X			1	20		SPARE	18
19	SPARE		20	1			X					SPACE	20
21	SPARE		20	1		X						SPACE	22
23	ICE MACHINE	#12, #12G, 1/2"	20	1	1		X					SPACE	24
25	SPACE					X						SPACE	26
27	SPACE						X					SPACE	28
29	SPACE					X						SPACE	30
31	SPACE						X					SPACE	32
33	SPACE					X						SPACE	34
35	SPACE						X					SPACE	36
37	SPACE					X						SPACE	38
39	SPACE						X		2	30		TVSS	40
41	SPACE					X						)	42

PANEL LOAD	KVA	AMPS	
PHASE A	5.1	42	
PHASE B	7.2	60	
TOTAL	12.3	51	@ 240V, 1 PHASE

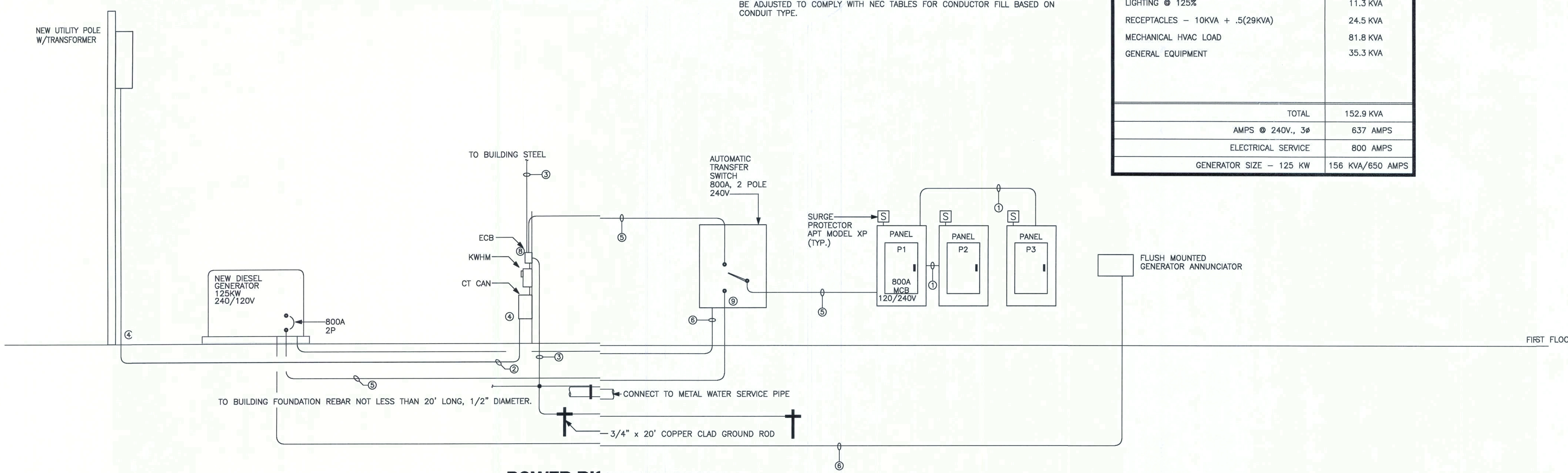
NOTES: 1

PANEL SCHEDULE NOTES:

1. CIRCUITS MAY BE GANGED TOGETHER WITH THE WIRE SIZES INDICATED FOR UP TO THREE CURRENT CARRYING CONDUCTORS IN A CONDUIT. WHEN THE NUMBER OF CURRENT CARRYING CONDUCTORS EXCEEDS THREE, WIRES SHALL BE UPSIZED AND DERATED IN ACCORDANCE WITH NEC TABLE 310.15(B)(2)(a). CONDUIT SIZES SHALL BE ADJUSTED TO COMPLY WITH NEC TABLES FOR CONDUCTOR FILL BASED ON CONDUIT TYPE.

LOAD CALCULATION

	PANEL 'P1'
LIGHTING @ 125%	11.3 KVA
RECEPTACLES – 10KVA + .5(29KVA)	24.5 KVA
MECHANICAL HVAC LOAD	81.8 KVA
GENERAL EQUIPMENT	35.3 KVA
TOTAL	152.9 KVA
AMPS @ 240V., 3ø	637 AMPS
ELECTRICAL SERVICE	800 AMPS
GENERATOR SIZE – 125 KW	156 KVA/650 AMPS



POWER RISER DIAGRAM

NOT TO SCALE

NOTES:

① SEE PANEL SCHEDULE FOR WIRE AND CONDUIT SIZES.

② 3 SETS: (4) #300, 3" CONDUIT.

③ #3/0 G, 1"C.

④ COORDINATE WITH UTILITY COMPANY FOR ALL REQUIREMENTS PRIOR TO SUBMITTING BID. ALL UTILITY REQUIREMENTS OR ANY MODIFICATIONS TO NEW SERVICE SHALL BE INCLUDED IN BASE BID.

⑤ 3 SETS: (4) #300, #1/0G, 3" CONDUIT.

⑥ 1 1/2" CONDUIT WITH CONTROL CABLES.

⑦ ALL WIRE AND CONDUIT SIZES ARE BASED ON USE OF COPPER CONDUCTORS.

⑧ 800 AMP, 2 POLE ENCLOSED CIRCUIT BREAKER IN NEMA 3R ENCLOSURE, 65,000 AIC.

⑨ 800 AMP, 2 POLE AUTOMATIC TRANSFER SWITCH, ASCO OR EQUAL WITH 65,000 AIC RATING.

SHAFFER ENGINEERING GROUP, LLC
2752 Racetrack Road, Suite 305, PMB-121
Jacksonville, FL 32259
Certificate of Authorization #: 28265

J. BRYAN SHAFFER, P.E.
P.E. #58168
10-30-09

COLUMBIA COUNTY EMERGENCY OPERATIONS CENTER

Freeman Design Group Inc
128 SW NASSAU STREET
LAKE CITY, FL. 32025
(386) 758-4209
CERTIFICATE OF AUTHORIZATION # 00008701

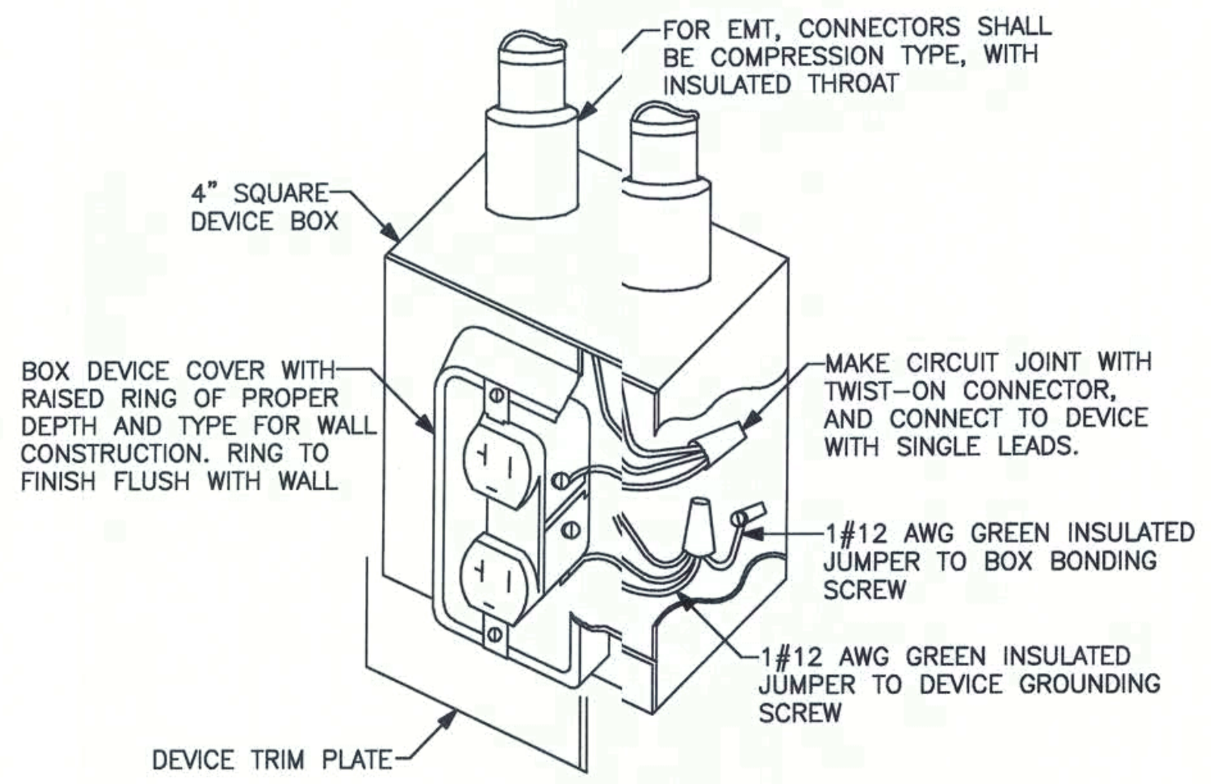
DATE	DRAWN BY
09/18/09	J.B.S.

REVISIONS

SHEET E-5

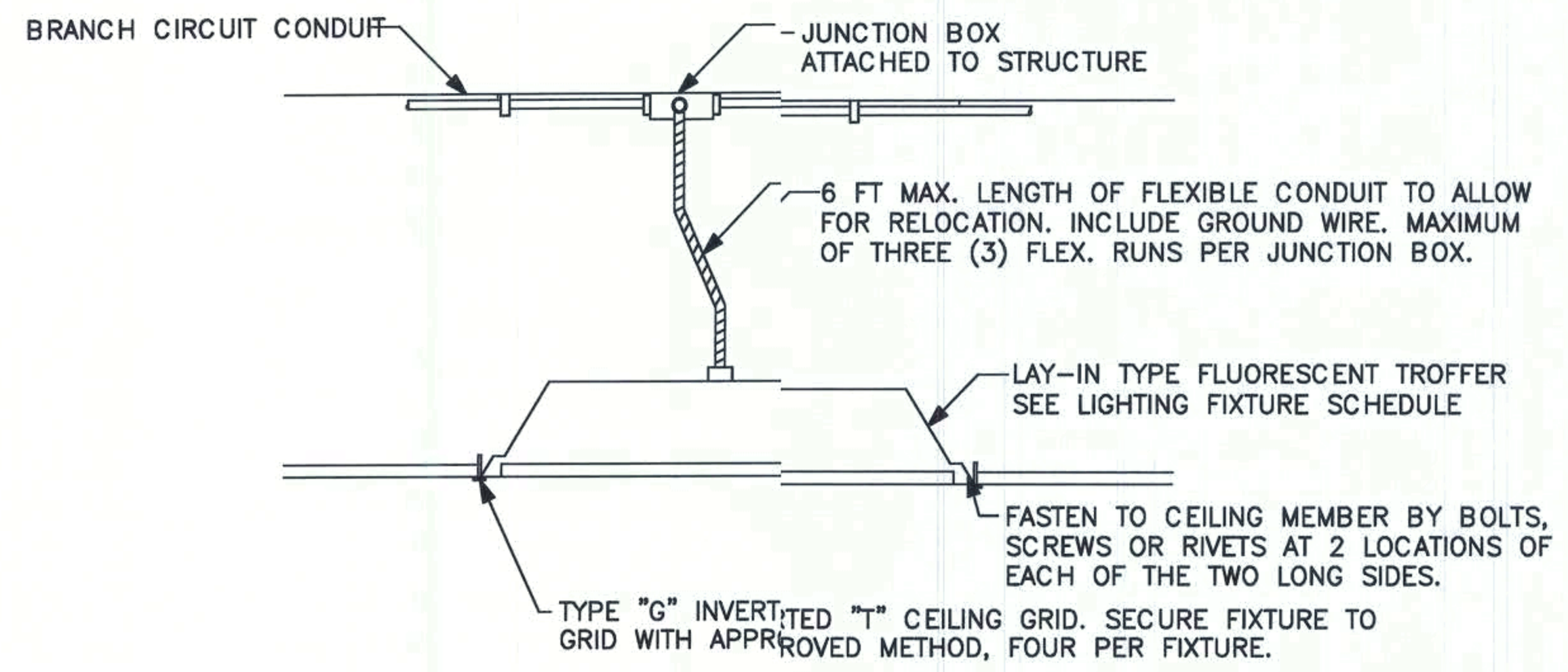
OF

PROJECT NO. 09.C016



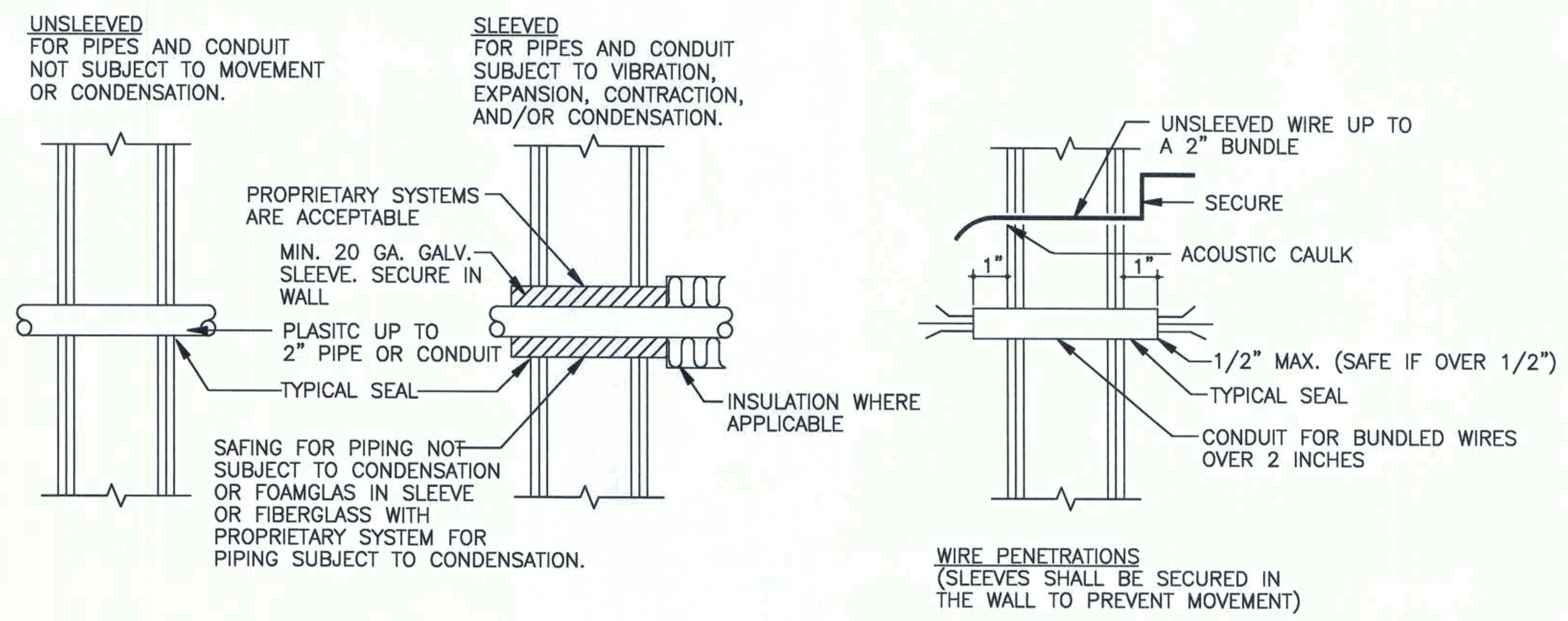
NOT TO SCALE

TYPICAL DUPLEX RECEPTACLE INSTALLATION



TYPICAL LAY-IN FIXTURE INSTALLATION - DETAIL

NOT TO SCALE

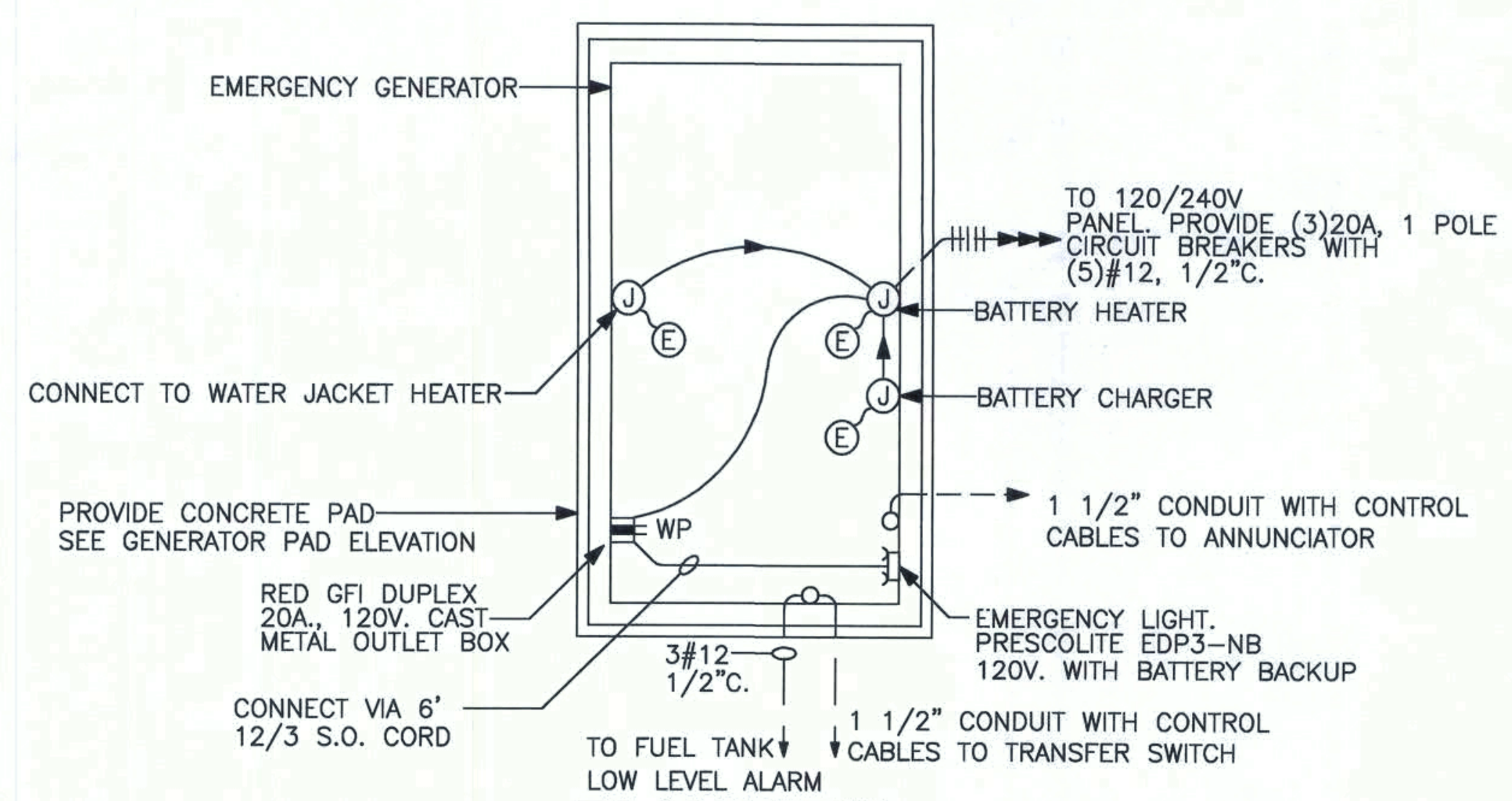


WIRE PENETRATIONS
(SLEEVES SHALL BE SECURED IN THE WALL TO PREVENT MOVEMENT)

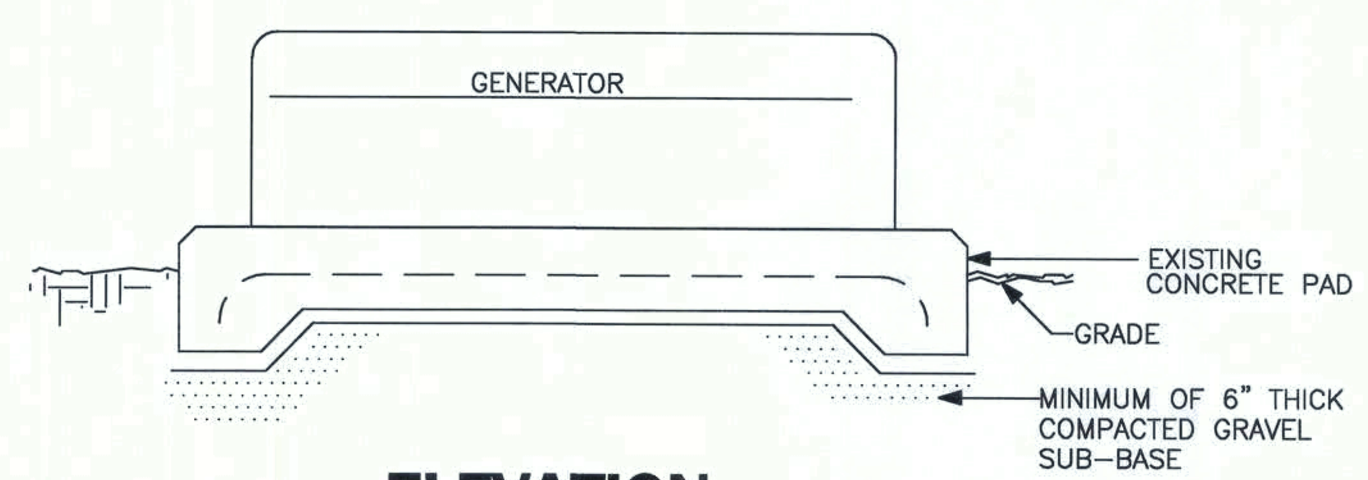
FIRE OR SMOKE WALL PENETRATIONS
PLASTER, DRYWALL, CONCRETE, OR MASONRY

TYPICAL SEAL AS FOLLOWS:
LESS THAN 1/2" = ACOUSTIC CAULK OR DRYWALL JOINT COMPOUND (NO TAPE)
MORE THAN 1/2" = BLOW-OUT PATCH OR PROPRIETARY SYSTEM.

CONDUIT PENETRATION DETAIL



PLAN VIEW



ELEVATION

GENERATOR PAD - DETAIL

NOT TO SCALE

J. BRYAN SHAFFER, P.E.
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Freeman Design Group Inc
128 SW NASSAU STREET
LAKE CITY, FL 32025
(386) 758-4209
CERTIFICATE OF AUTHORIZATION # 00008701

SHAFFER ENGINEERING GROUP, LLC
Certificate of Authorization: 28285

DATE 09/18/09	DRAWN BY J.B.S.
REVISIONS	
SHEET E-6	
OF	
PROJECT NO. 09.C016	

ELECTRICAL SPECIFICATIONS

SECTION 16050

BASIC ELECTRICAL MATERIALS AND METHODS

PART 1 GENERAL

1.1 SUMMARY
- A. GROUNDING AND BONDING.
- B. CONNECTION OF UTILIZATION EQUIPMNT.
- C. SUPPORTS.
- D. IDENTIFICATION.

1.2 SUBMITTALS
- A. PRODUCT DATA: FOR REVIEW; PROVIE CATALOG DATA FOR GROUNDING AND BONDING DEVICES.

1.3 REGULATORY REQUIREMENTS
- A. CONFORM TO REQUIREMENTS OF NFF 70.
- B. FURNISH PRODUCTS LISTED BY UL R OTHER TESTING FIRM ACCEPTABLE TO AUTHORITY HAVINGURISDICTION.
- C. FLORIDA BUILDING CODE

1.4 PROJECT CONDITIONS
- A. VERIFY FIELD MEASUREMENTS AND CCUITING ARRANGEMENTS ARE AS SHOWN ON DRAWINGS.

PART 2 PRODUCTS

2.1 GROUNDING MATERIALS
- A. GROUND ROD: COPPER-CLAD STEEL/4-INCH DIAMETER 10 FEET LENGTH.
- B. MECHANICAL CONNECTORS: BRONZEABOVE GRADE ONLY.
- C. EXOTHERMIC WELDS: BELOW GRADE ONNECTORS.

2.2 BASIC MATERIALS
- A. STEEL CHANNEL: GALVANIZED
- B. MISCELLANEOUS HARDWARE: TREAT FR CORROSION RESISTANCE.
- C. NAMEPLATES: ENGRAVED THREE-LAYE LAMINATED PLASTIC, BLACK LETTERS ON WHITE BACKGRJND.
- D. WIRE AND CABLE MARKERS: CLOTH ARKERS, SPLIT SLEEVE OR TUBING TYPE.

PART 3 EXECUTION

1 INSTALLATION
- A. INSTALL WORK ACCORDING TO NECASTANDARD OF 2.5 BUILDING WIRE AND CABLE INSTALLATION."
- B. PROVIDE BONDING TO MEET REGULARY REQUIREMENTS.
- C. MAKE ELECTRICAL CONNECTIONS TOJTILIZATION EQUIPMENT IN ACCORDANCE WITH EQUIPMENT MANFACTURER'S INSTRUCTIONS.
  1. VERIFY THAT WIRING AND OUTLETROUGH-IN WORK IS COMPLETE AND THAT UTILIZATION EQUIPMEI IS READY FOR ELECTRICAL CONNECTION, WIRING, AND ENEHZING.
  2. MAKE WIRING CONNECTIONS IN ONTROL PANEL OR IN WIRING COMPARTMENT OF PRE-WIRED EUIPMENT. PROVIDE INTERCONNECTING WIRING WHER INDICATED.
  3. INSTALL AND CONNECT DISCONNIT SWITCHES, CONTROLLERS, CONTROL STATIONS, AND CONTRL DEVICES AS INDICATED.
  4. MAKE CONDUIT CONNECTIONS TCEQUIPMENT USING FLEXIBLE CONDUIT. USE LIQUIDTIGHT FLEXLE CONDUIT IN DAMP OR WET LOCATIONS.
  5. INSTALL PRE-FABRICATED CORD ET WHERE CONNECTION WITH ATTACHMENT PLUG IS INDICATEDOR SPECIFIED, OR USE ATTACHMENT PLUG WITH SUITAB: STRAIN-RELIEF CLAMPS.
  6. PROVIDE SUITABLE STRAIN-RELIE CLAMPS FOR CORD CONNECTIONS TO OUTLET BOXES AND EQUIPMIT CONNECTION BOXES.
- D. INSTALL SUPPORT SYSTEMS SIZED AI FASTENED TO ACCOMMODATE WEIGHT OF EQUIPMENT AND CONDU INCLUDING WIRING, WHICH THEY CARRY.

3.1 EXAMINATION AND PREPARATION
1. FASTEN HANGER RODS, CONDUIT LAMPS, AND OUTLET AND JUNCTION BOXES TO BUILDINGS STRUCTUI USING PRECAST INSERT SYSTEM BEAM CLAMPS.
2. USE TOGGLE BOLTS OR HOLLOW ALL FASTENERS IN HOLLOW MASONRY, PLASTER, OR GYPSUM BOARD PITITIONS AND WALLS; EXPANSION ANCHORS OR PRESET INSERTS SOLID MASONRY WALLS; SELF-DRILLING ANCHORS OR EXPANSION ANCHO ON CONCRETE SURFACES; SHEET METAL SCREWS IN SHEET METALSTUDS; AND WOOD SCREWS IN WOOD CONSTRUCTION.
3. DO NOT FASTEN SUPPORTS TO PING, CEILING SUPPORT WIRES, DUCTWORK, MECHANICAL EQUIPINT, OR CONDUIT.
4. DO NOT USE POWER-ACTUATED ICHORS.
5. DO NOT DRILL STRUCTURAL STEE MEMBERS.
6. FABRICATE SUPPORTS FROM STRUTURAL STEEL OR STEEL CHANNEL.

- E. IDENTIFY ELECTRICAL DISTRIBUTION AD CONTROL EQUIPMENT, AND LOADS SERVED, TO MEET REGULATORY REQREMENTS AND AS SCHEDULED.
  1. DEGREASE AND CLEAN SURFACESTO RECEIVE NAMEPLATES AND TAPE LABELS.
  2. SECURE NAMEPLATES TO EQUIPMIT FRONTS USING SCREWS, RIVETS, OR ADHESIVE, WITH EDGES PARALEL TO EQUIPMENT LINES. SECURE NAMEPLATE TO INSIDE FACE OF ECESSED PANELBOARD DOORS IN FINISHED LOCATIONS.
  3. USE NAMEPLATES WITH 1/8 INCHLETTERING TO IDENTIFY INDIVIDUAL SWITCHES AND CIRCUIT BREAKES, RECEPTACLE CIRCUITS, AND LOADS SERVED.
  4. USE NAMEPLATES WITH 1/4 INCHTO IDENTIFY DISTRIBUTION AND CONTROL EQUIPMENT.
- F. INSTALL WIRE MARKERS ON EACH CCDUCTOR IN PANELBOARD GUTTERS, PULL BOXES, OUTLET AND JUNCTIONBOXES, AND AT LOAD CONNECTIONS.
  1. USE BRANCH CIRCUIT OR FEEDE NUMBER TO IDENTIFY POWER AND LIGHTING CIRCUITS.
  2. USE CONTROL WIRE NUMBER ASIDICATED ON FROM FOUNDATION WALL: PLASTIC CONDUIT. PROVIDE EQUMENT MANUFACTURER'S SHOP DRAWINGS TO IDENTIFY CONTROL WIRING.

SECTION 16100

WIRING METHODS

PART 1 GENERAL

1.1 REGULATORY REQUIREMENTS
- A. CONFORM TO REQUIREMENTS OF NFP.70.
- B. FURNISH PRODUCTS LISTED BY UL (OTHER TESTING FIRM ACCEPTABLE TO AUTHORITY HAVING JURISDICTION.

PART 2 PRODUCTS

2.1 PRODUCT REQUIREMENTS
- A. USE ONLY SPECIFIED RACEWAY IN TH FOLLOWING LOCATIONS:
  1. INSTALLATIONS IN OR UNDER CONRETE SLAB, OR UNDERGROUND WITHIN 5 FEET FROM FOUNDATION WALL:PVC SCHDULE 40 CONDUIT.
  2. IN SLAB ABOVE GRADE: PLASTIC ONDUIT.
  3. EXPOSED OUTDOOR LOCATIONS: RID STEEL CONDUIT OR ELECTRICAL METALLIC TUBING. USE THREADEIOR RAINTIGHT FITTINGS.
  4. WET INTERIOR LOCATIONS: RIGID STEEL CONDUIT OR ELECTRICAL METALLIC TUBING. USE THREADED OR RAINTIGHT FITTINGS FOR METAL CONDUIT.
  5. DRY INTERIOR LOCATIONS: RIGID STEEL CONDUIT OR ELECTRICAL METALLIC TUBING.
  6. EXPOSED LOCATIONS IN WAREHOUSE AT CEILING JOISTS AND CONCEALED BRANCH CIRCUITS IN OFFICES MAY BE MC CABLE. ALL HOMERUNS SHALL BE CONDUCTORS IN CONDUIT.
- B. USE WIRE AND CABLE IN LOCATIONS AS FOLLOWS:
  1. ALL POWER WIRES AND CABLES SHALL BE IN RACEWAY D. USE NO WIRE SMALLER THAN 12 AWG FOR POWER AND LIGHTING CIRCUITS, AND NO SMALLER THAN 14 AWG FOR CONTROL WIRING. USE 10 AWG CONDUCTOR FOR 20 AMPERE, 120 VOLT BRANCH CIRCUIT HOME RUNS LONGER THAN 75 FEET; AND FOR 20 AMPERE.

2.2 CONDUIT AND FITTINGS
- A. CONDUIT:
  1. METAL CONDUIT AND TUBING: GALVANIZED STEEL.
  2. FLEXIBLE CONDUIT: STEEL
  3. LIQUID TIGHT FLEXIBLE CONDUIT: FLEXIBLE CONDUIT WITH PVC JACKET.
  4. PLASTIC CONDUIT AND TUBING: NEMA TC 2, PVC. USE SCHEDULE 40 CONDUIT.
- B. CONDUIT FITTINGS:
  1. METAL FITTINGS AND CONDUIT BODIES: NEMA FB 1.
  2. PLASTIC FITTINGS AND CONDUIT BODIES: NEMA TC 3.
  3. EMT FITTINGS: STEEL COMPRESSION TYPE FOR WET LOCATION. SET SCREW FOR DRY LOCATION

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

2.4 ELECTRICAL BOXES
- A. BOXES:
  1. SHEET METAL: NEMA OS 1, GALVANIZED STEEL.
  2. CAST METAL: CAST FERALLOY, DEEP TYPE, GASKETED COVER, THREADED HUBS.

2.5 BUILDING WIRE AND CABLE
- A. FEEDERS AND BRANCH CIRCUITS LARGER THAN 6 AWG: COPPER STRANDED CONDUCTOR, 600 VOLT INSULATION, THHN/THWN AND XHHW.
- B. FEEDERS AND BRANCH CIRCUITS 6 AWG AND SMALLER: COPPER CONDUCTOR, 600 VOLT INSULATION, THHN/THWN, XHHW 6 AND 8 AWG, STRANDED CONDUCTOR; SMALLER THAN 8 AWG, SOLID CONDUCTOR.
- C. CONTROL CIRCUITS: COPPER, STRANDED CONDUCTOR, 600 VOLT INSULATION, THW.

2.6 REMOTE CONTROL AND SIGNAL CABLE
- A. CONTROL CABLE FOR CLASS 1 REMOTE CONTROL AND SIGNAL CIRCUITS: COPPER CONDUCTOR, 600 VOLT INSULATION, RATED 60 DEGREE C, INDIVIDUAL CONDUCTORS TWISTED TOGETHER, SHIELDED, AND COVERED WITH PVC JACKET. (PLENUM RATED)
- B. CONTROL CABLE FOR CLASS 2 OR CLASS 3 REMOTE CONTROL AND SIGNAL CIRCUITS: COPPER CONDUCTOR, 300 VOLT INSULATION, RATED 60 DEGREE C, INDIVIDUAL CONDUCTORS TWISTED TOGETHER, SHIELDED, AND COVERED WITH PVC JACKET; UL LISTED. (PLENUM RATED)

PART 3 EXECUTION

3.1 EXAMINATION AND PREPARATION
- A. VERIFY THAT INTERIOR OF BUILDING IS PHYSICALLY PROTECTED FROM WEATHER.
- B. VERIFY THAT MECHANICAL WORK THAT IS LIKELY TO DAMAGE CONDUCTORS HAS BEEN COMPLETED.
- C. COMPLETELY AND THOROUGHLY SWAB RACEWAY SYSTEM BEFORE INSTALLING CONDUCTORS.
- D. ELECTRICAL BOXES ARE SHOWN ON DRAWINGS IN APPROXIMATE LOCATIONS UNLESS DIMENSIONED.
  1. OBTAIN VERIFICATION FROM ENGINEER OF JUNCTION BOX LOCATIONS, AND LOCATIONS OF OUTLETS IN OFFICES AND WORK AREAS, PRIOR TO ROUGH-IN.
  2. IT SHALL BE UNDERSTOOD THAT ANY OUTLET MAY BE RELOCATED A DISTANCE NOT EXCEEDING 5FT FROM THE LOCATION SHOWN ON THE DRAWINGS PRIOR TO OR DURING ROUGH-IN, IF SO DIRECTED BY THE ARCHITECT-ENGINEER WITHOUT ADDITIONAL COST TO THE OWNER.
  3. LOCAL SWITCHES WHICH ARE SHOWN NEAR DOORS SHALL BE LOCATED AT THE STRIKE SIDE OF THE DOOR AS FINALLY HUNG, REGARDLESS OF SWING ON THE DRAWINGS.

3.2 INSTALLATION
- A. PERFORM WORK ACCORDING TO NECA STANDARD OF INSTALLATION.
- B. ARRANGE CONDUIT TO MAINTAIN HEADROOM AND TO PRESENT NEAT APPEARANCE.
  1. ROUTE EXPOSED RACEWAY PARALLEL AND PERPENDICULAR TO WALLS AND ADJACENT PIPING.
  2. MAINTAIN MINIMUM 6-INCH CLEARANCE TO PIPING AND 12" CLEARANCE TO HEAT SURFACES SUCH AS FLUES, STEAM PIPES, AND HEATING APPLIANCES.
  3. MAINTAIN REQUIRED FIRE, ACOUSTIC, AND VAPOR BARRIER RATING WHEN PENETRATING WALLS, FLOORS, AND CEILINGS.
  4. ROUTE CONDUIT THROUGH ROOF OPENINGS FOR PIPING AND DUCTWORK WHERE POSSIBLE; OTHERWISE, ROUTE THROUGH ROOF JACK WITH PITCH POCKET.
  5. GROUP IN PARALLEL RUNS WHERE PRACTICAL. USE RACK CONSTRUCTED OF STEEL CHANNEL. MAINTAIN SPACING BETWEEN RACEWAYS OR DERATE CIRCUIT AMPACITIES TO NFPA 70 REQUIREMENTS.
  6. USE CONDUIT HANGERS AND CLAMPS; DO NOT FASTEN WITH WIRE OR PERFORATED PIPE STRAPS.
  7. USE CONDUIT BODIES TO MAKE SHARP CHANGES IN DIRECTION.
  8. TERMINATE CONDUIT STUBS WITH INSULATED BUSHINGS.
  9. USE SUITABLE CAPS TO PROTECT INSTALLED RACEWAY AGAINST ENTRANCE OF DIRT AND MOISTURE.
  10. PROVIDE NO. 12 AWG INSULATED CONDUCTOR OR SUITABLE PULL STRING IN EMPTY RACEWAYS, EXCEPT SLEEVES AND NIPPLES.
  11. INSTALL EXPANSION JOINTS WHERE RACEWAY CROSSES BUILDING EXPANSION OR SEISMIC JOINTS.
  12. INSTALL PLASTIC CONDUIT AND TUBING ACCORDING TO MANUFACTURER'S INSTRUCTIONS.
  13. USE STEEL COMPRESSION TYPE FITTINGS WITH EMT CONDUITS.
- C. INSTALL ELECTRICAL BOXES AS SHOWN ON THE DRAWINGS, AND AS REQUIRED FOR SPLICES, TAPS, WIRE PULLING, EQUIPMENT CONNECTIONS AND REGULATORY REQUIREMENTS.
  1. USE CAST OUTLET BOX IN EXTERIOR LOCATIONS EXPOSED TO WEATHER AND WET LOCATIONS.
  2. USE HINGED COVER ENCLOSURE FOR INTERIOR PULL AND JUNCTION BOX LARGER THAN 12 INCHES IN ANY DIMENSION.
  3. LOCATE AND INSTALL ELECTRICAL BOXES TO ALLOW ACCESS. PROVIDE ACCESS PANELS IF REQUIRED.
  4. LOCATE AND INSTALL ELECTRICAL BOXES TO MAINTAIN HEADROOM AND TO PRESENT NEAT MECHANICAL APPEARANCE.
  5. INSTALL PULL BOXES AND JUNCTION BOXES ABOVE ACCESSIBLE CEILINGS OR IN UNFINISHED AREAS.
  6. PROVIDE KNOCKOUT CLOSURES FOR UNUSED OPENINGS.
  7. ALIGN WALL-MOUNTED OUTLET BOXES FOR SWITCHES, THERMOSTATS, AND SIMILAR DEVICES.
  8. COORDINATE MOUNTING HEIGHTS AND LOCATIONS OF OUTLETS ABOVE COUNTERS AND BACKSPLASHES.
  9. USE RECESSED OUTLET BOXES IN FINISHED AREAS AND WHERE INDICATED.
  10. SECURE BOXES TO INTERIOR WALL AND PARTITION STUDS, ACCURATELY POSITIONING TO ALLOW FOR SURFACE FINISH THICKNESS.
  11. USE STAMPED STEEL STUD BRIDGES FOR FLUSH OUTLETS IN HOLLOW STUD WALL, AND ADJUSTABLE STEEL CHANNEL FASTENERS FOR FLUSH CEILING OUTLET BOXES.
  12. LOCATE BOXES IN MASONRY WALLS TO REQUIRE CUTTING CORNER ONLY. COORDINATE MASONRY CUTTING TO ACHIEVE NEAT OPENINGS FOR BOXES.
  13. DO NOT INSTALL BOXES BACK-TO-BACK IN WALLS; PROVIDE 6 INCHES SEPARATION, MINIMUM; EXCEPT PROVIDE 24 INCHES SEPARATION, MINIMUM IN ACOUSTIC-RATED WALLS.
  14. DO NOT DAMAGE INSULATION.
- D. INSTALL CABLE AND WIRE ACCORDING TO MANUFACTURER'S INSTRUCTIONS
  1. NEATLY TRAIN AND SECURE WIRING INSIDE BOXES, EQUIPMENT, AND PANELBOARDS.
  2. USE WIRE PULLING LUBRICANT FOR PULLING 4 AWG AND LARGER WIRES.
  3. SUPPORT CABLES ABOVE ACCESSIBLE CEILINGS TON KEEP THEM FROM RESTING ON CEILING TILES.
  4. MAKE SPLICES, TAPS, AND TERMINATIONS TO CARRY FULL AMPACITY OF CONDUCTORS WITHOUT PERCEPTIBLE TEMPERATURE RISE.
  5. TERMINATE SPARE CONDUCTORS WITH ELECTRICAL TAPE.
- E. INSTALL WIRING DEVICES ACCORDING TO MANUFACTURER'S INSTRUCTIONS.
- F. INSTALL WALL PLATES FLUSH AND LEVEL.
  1. INSTALL PLATES ON SWITCH, RECEPTACLE, AND BLANK OUTLETS IN FINISHED AREAS, USING JUMBO SIZE PLATES FOR OUTLETS INSTALLED IN MASONRY WALLS.
  2. INSTALL GALVANIZED STEEL PLATES ON OUTLET BOXES AND JUNCTION BOXES IN UNFINISHED AREAS, ABOVE ACCESSIBLE CEILINGS, AND ON SURFACE-MOUNTED OUTLETS.
- G. INSTALL SERVICE FITTINGS ACCORDING TO MANUFACTURER'S INSTRUCTIONS.
- H. BEFORE INSTALLING RACEWAYS AND PULLING WIRE TO ANY MECHANICAL EQUIPMENT OR PLUMBING EQUIPMENT, VERIFY ELECTRICAL CHARACTERISTICS WITH FINAL SUBMITTAL ON EQUIPMENT TO ASSURE PROPER NUMBER AND AWG OF CONDUCTORS.
- I. UNDERGROUND CABLE AND CONDUIT INSTALLATION SHALL CONFORM TO ANSI C2 AND NEC EXCEPT AS OTHERWISE INDICATED. THE CONTRACTOR SHALL PROMPTLY REPAIR ANY UTILITY LINES OR SYSTEM DAMAGED BY HIS OPERATION. THE TOP OF UNDERGROUND CONDUIT SHALL NOT BE LESS THAN 24 INCHES BELOW GRADE. THE BOTTOM OF CONDUITS TRENCH SHALL BE GRADED SMOOTH, WHERE ROCK AND SHARP EDGED MATERIAL ARE ENCOUNTERED, THE BOTTOM SHALL BE EXCAVATED FOR ADDITIONAL 3 INCHES, FILLED AND TAMPED LEVEL TO THE ORIGINAL BOTTOM WITH SAND OR EARTH FREE FROM ROCKS AND SHARP MATERIALS. PROVIDE MAGNETIC YELLOW WARNING TAPE ABOVE THE ENTIRE LENGTH OF UNDERGROUND CONDUITS TAPE SHALL BE BURIED 12" BELOW GRADE.
- J. SURFACES DISTURBED DURING THE INSTALLATION OF UNDERGROUND CONDUITS SHALL BE RESTORED TO THEIR ORIGINAL CONDITIONS. PROVIDE SOD OF QUALITY EQUAL TO THAT REMOVED, PATCH PAVEMENT, SIDEWALK CURB, ETC. EXCAVATED MATERIAL NOT REQUIRED OR SUITABLE FOR BACKFILL SHALL BE REMOVED FROM PROJECT SITE. REMOVE WATER FROM EXCAVATION BY PUMPING OR OTHER APPROVED METHOD. BACKFILL SHALL BE FREE FROM LARGE CLODS OF EARTH OR STONES OVER 1 INCH IN SIZE.

SECTION 16400

SERVICE AND DISTRIBUTION

PART 1 GENERAL 1.1 SUBMITTALS
- A. SHOP DRAWINGS: FOR REVIEW; INDICATE CONSTRUCTION DETAILS FOR THE FOLLOWING:
  1. PANELBOARDS.
- B. PRODUCT DATA: FOR REVIEW; PROVIDE RATINGS AND COMPONENT DETAILS FOR THE FOLLOWING:
  1. ENCLOSED SWITCHES.
  2. FUSES.
  3. CIRCUIT BREAKERS.

1.2 REGULATORY REQUIREMENTS
- A. CONFORM TO REQUIREMENTS OF NFPA 70.
- B. FURNISH PRODUCTS LISTED BY UL OR OTHER TESTING FIRM ACCEPTABLE TO AUTHORITY HAVING JURISDICTION.
- C. CONFORM TO REQUIREMENTS OF UTILITY COMPANY.

PART 2 PRODUCTS

2.1 ENCLOSED SWITCHES
- A. MANUFACTURERS: SQUARE D, GE, SIEMENS
- B. ENCLOSED SWITCH ASSEMBLIES: HEAVY DUTY FUSE CLIPS DESIGNED TO ACCOMMODATE CLASS R OR J FUSES.
- C. ENCLOSURES: NEMA-1 FOR INTERIOR LOCATIONS, NEMA-3R FOR EXTERIOR LOCATIONS.

2.2 FUSES
- A. FUSES 600 AMPERES AND LESS: CURRENT LIMITING, ONE-TIME FUSE, 250 VOLT, UL CLASS RK 1, RK 5 OR J

2.3 PANELBOARDS
- A. MANUFACTURERS: SQUARE D, GE, SIEMENS
- B. DISTRIBUTION PANELBOARDS: NEMA PB 1; CIRCUIT BREAKER TYPE.
  1. ENCLOSURE: TYPE 1
  2. PROVIDE SURFACE CABINET FRONT WITH SCREW COVER AND HINGED DOOR.
  3. BUS: COPPER.
- C. LIGHTING AND APPLIANCE BRANCH CIRCUIT PANELBOARDS: NEMA PB 1; CIRCUIT BREAKER TYPE.
  1. ENCLOSURE: NEMA PB 1; TYPE 1
  2. PROVIDE FLUSH OR SURFACE CABINET FRONT WITH LOCKABLE DOOR, KEYED ALIKE.
  3. BUS: COPPER BUS.

PART 3 EXECUTION

3.1 INSTALLATION
- A. COORDINATE WITH UTILITY COMPANY TO OBTAIN PERMANENT ELECTRIC SERVICE TO THE PROJECT. PROVIDE CONCRETE PAD FOR UTILITY TRANSFORMER.
- B. INSTALL EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- C. INSTALL PANELBOARDS TO NEMA PB 1.1.
- D. CLEAN EQUIPMENT
- E. PROVIDE TYPED CIRCUIT CARDS AT THE COMPLETION OF THE PROJECT.

SECTION 16510

INTERIOR LUMINAIRES

PART 1 GENERAL

1.1 REGULATORY REQUIREMENTS
- A. CONFORM TO REQUIREMENTS OF ANSI/NFPA 70.
- B. CONFORM TO REQUIREMENTS OF NFPA 101.
- C. FURNISH PRODUCTS LISTED AND CLASSIFIED BY UNDERWRITERS LABORATORIES, INC. AS SUITABLE FOR PURPOSE SPECIFIED AND SHOWN.

PART 2 PRODUCTS

2.1 LUMINARIES
- A. FURNISH PRODUCTS AS SPECIFIED IN SCHEDULE ON DRAWINGS.
- B. INSTALL BALLASTS, LAMPS, AND SPECIFIED ACCESSORIES AT FACTORY.

PART 3 EXECUTION

3.1 INSTALLATION
- A. INSTALL IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS.
- B. INSTALL SUSPENDED LUMINARIES USING PENDANTS SUPPORTED FROM SWIVEL HANGERS. PROVIDE PENDANT LENGTH REQUIRED TO SUSPEND LUMINAIRE AT INDICATED HEIGHT.
- C. LOCATE RECESSED CEILING LUMINARIES AS INDICATED ON REFLECTED CEILING PLAN.
- D. INSTALL SURFACE MOUNTED LUMINARIES AND EXIT SIGNS PLUMB AND ADJUST TO ALIGN WITH BUILDING LINES AND WITH EACH OTHER. SECURE TO PROHIBIT MOVEMENT.
- E. EXPOSED GRID CEILINGS: SUPPORT SURFACE MOUNTED LUMINARIES ON GRID CEILING DIRECTLY FROM BUILDING STRUCTURE OR PROVIDE AUXILIARY MEMBERS SPANNING CEILING T(S) TO SUPPORT SURFACE MOUNTED LUMINARIES.
- F. INSTALL RECESSED LUMINARIES TO PERMIT REMOVAL FROM BELOW.
- G. INSTALL CLIPS TO SECURE RECESSED GRID-SUPPORTED LUMINARIES IN PLACE. PROVIDE A MINIMUM OF 2 GALVANIZED STEEL WIRES TO SUPPORT LIGHTING FIXTURE FROM BUILDING STRUCTURE. PLACE WIRES DIAGONALLY AT LONG SIDES OF FIXTURE.
- H. INSTALL SPECIFIED LAMPS IN EACH LUMINAIRE, EMERGENCY LIGHTING UNIT AND EXIT SIGN.
- I. ADJUST EXIT SIGN DIRECTIONAL ARROWS AS INDICATED.
- J. RELAMP LUMINARIES THAT HAVE FAILED LAMPS AT SUBSTANTIAL COMPLETION.
- K. CLEAN ELECTRICAL PARTS TO REMOVE CONDUCTIVE AND DELETERIOUS MATERIALS. REMOTE DIRT AND DERBIS FROM ENCLOSURE. CLEAN FINISHES AND TOUCHUP DAMAGE.

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REVISIONS

SHEET E-7

OF

PROJECT NO.
09.C016

SECTION 16231

PACKAGED ENGINE GENERATORS

PART 1 GENERAL

1.1 SUBMITTALS

A. PRODUCT DATA: FOR PACKAGED ENGINE GENERATOR AND ACCESSORY INDICATED.

B. SHOP DRAWINGS: DETAIL EQUIPMENT ASSEMBLIES AND INDICATE DIMENSIONS, WEIGHTS, LOADS, REQUIRED CLEARANCES, METHOD OF FIELD ASSEMBLY, COMPONENTS, AND LOCATION AND SIZE OF EACH FIELD CONNECTION.

C. FIELD QUALITY-CONTROL TEST REPORTS.

D. OPERATION AND MAINTENANCE DATA.

E. WARRANTY: SPECIAL WARRANTY SPECIFIED IN THIS SECTION.

1.2 QUALITY ASSURANCE

A. ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, ARTICLE 100, BY A TESTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION, AND MARKED FOR INTENDED USE.

B. COMPLY WITH ASME B15.1, NFPA 37, NFPA 70, NFPA 99, NFPA 110 REQUIREMENTS, UL 2200.

1.3 WARRANTY

A. SPECIAL WARRANTY: MANUFACTURER'S STANDARD FORM IN WHICH MANUFACTURER AGREES TO REPAIR OR REPLACE COMPONENTS OF PACKAGED ENGINE GENERATORS AND ASSOCIATED AUXILIARY COMPONENTS THAT FAIL IN MATERIALS OR WORKMANSHIP WITHIN TWO YEARS OF SUBSTANTIAL COMPLETION.

PART 2 PRODUCTS

2.1 MANUFACTURERS

1. KOHLER CO.; GENERATOR DIVISION.
2. ONAN/CUMMINS POWER GENERATION; INDUSTRIAL BUSINESS GROUP.
3. SPECTRUM DETROIT DIESEL.

2.2 ENGINE-GENERATOR SET

A. FACTORY-ASSEMBLED AND -TESTED, ENGINE-GENERATOR SET. COORDINATE PARAGRAPH AND SUBPARAGRAPHS BELOW WITH PROTOTYPE TEST REQUIREMENTS IN PART 1 "SUBMITTALS" ARTICLE AND IN PART 2 "SOURCE QUALITY CONTROL" ARTICLE.

B. CAPACITIES AND CHARACTERISTICS: 125 KW, 120/240 VOLTS, 1-PHASE, 3-WIRE SYSTEM.

C. GENERATOR-SET PERFORMANCE:

1. STEADY-STATE VOLTAGE OPERATIONAL BANDWIDTH: 3 PERCENT OF RATED OUTPUT VOLTAGE FROM NO LOAD TO FULL LOAD.
2. TRANSIENT VOLTAGE PERFORMANCE: NOT MORE THAN 20 PERCENT VARIATION FOR 50 PERCENT STEP-LOAD INCREASE OR DECREASE. VOLTAGE SHALL RECOVER AND REMAIN WITHIN THE STEADY-STATE OPERATING BAND WITHIN THREE SECONDS.
3. STEADY-STATE FREQUENCY OPERATIONAL BANDWIDTH: 0.5 PERCENT OF RATED FREQUENCY FROM NO LOAD TO FULL LOAD.
4. STEADY-STATE FREQUENCY STABILITY: WHEN SYSTEM IS OPERATING AT ANY CONSTANT LOAD WITHIN THE RATED LOAD, THERE SHALL BE NO RANDOM SPEED VARIATIONS OUTSIDE THE STEADY-STATE OPERATIONAL BAND AND NO HUNTING OR SURGING OF SPEED.
5. TRANSIENT FREQUENCY PERFORMANCE: LESS THAN 5 PERCENT VARIATION FOR 50 PERCENT STEP-LOAD INCREASE OR DECREASE. FREQUENCY SHALL RECOVER AND REMAIN WITHIN THE STEADY-STATE OPERATING BAND WITHIN FIVE SECONDS.
6. OUTPUT WAVEFORM: AT NO LOAD, HARMONIC CONTENT MEASURED LINE TO LINE OR LINE TO NEUTRAL SHALL NOT EXCEED 5 PERCENT TOTAL AND 3 PERCENT FOR SINGLE HARMONICS. TELEPHONE INFLUENCE FACTOR, DETERMINED ACCORDING TO NEMA MG 1, SHALL NOT EXCEED 50 PERCENT.
7. SUSTAINED SHORT-CIRCUIT CURRENT: FOR A 3-PHASE, BOLTED SHORT CIRCUIT AT SYSTEM OUTPUT TERMINALS, SYSTEM SHALL SUPPLY A MINIMUM OF 250 PERCENT OF RATED FULL-LOAD CURRENT FOR NOT LESS THAN 10 SECONDS AND THEN CLEAR THE FAULT AUTOMATICALLY, WITHOUT DAMAGE TO GENERATOR SYSTEM COMPONENTS.
8. START TIME: COMPLY WITH NFPA, TYPE 10, SYSTEM REQUIREMENTS.

2.3 ENGINE

A. FUEL: DIESEL.
B. RATED ENGINE SPEED: 1800 RPM.
C. MAXIMUM PISTON SPEED FOR FOUR-CYCLE ENGINES: 2250 FPM (11.4 M/S).

D. LUBRICATION SYSTEM: THE FOLLOWING ITEMS ARE MOUNTED ON ENGINE OR SKID:
1. FILTER AND STRAINER: RATED TO REMOVE 90 PERCENT OF PARTICLES 5 MICROMETERS AND SMALLER WHILE PASSING FULL FLOW.
2. THERMOSTATIC CONTROL VALVE: CONTROL FLOW IN SYSTEM TO MAINTAIN OPTIMUM OIL TEMPERATURE. UNIT SHALL BE CAPABLE OF FULL FLOW AND IS DESIGNED TO BE FAIL-SAFE.

E. ENGINE FUEL SYSTEM:
1. MAIN FUEL PUMP: MOUNTED ON ENGINE. PUMP ENSURES ADEQUATE PRIMARY FUEL FLOW UNDER STARTING AND LOAD CONDITIONS.
2. RELIEF-BYPASS VALVE: AUTOMATICALLY REGULATES PRESSURE IN FUEL LINE AND RETURNS EXCESS TO FUEL SOURCE.

F. COOLANT JACKET HEATER: ELECTRIC-IMMERSION TYPE, FACTORY INSTALLED IN COOLANT JACKET SYSTEM. COMPLY WITH NFPA 110, TYPE 10, SYSTEM REQUIREMENTS. FOR A LEVEL 1 EQUIPMENT FOR HEATER CAPACITY.

G. GOVERNOR: ADJUSTABLE ISOCHRONOUS, WITH SPEED SENSING.

H. COOLING SYSTEM: CLOSED LOOP, LIQUID COOLED, WITH RADIATOR FACTORY MOUNTED ON ENGINE-GENERATOR-SET MOUNTING FRAME AND INTEGRAL ENGINE-DRIVEN COOLANT PUMP.

1. COOLANT: SOLUTION OF 50 PERCENT ETHYLENE-GLYCOL-BASED ANTIFREEZE AND 50 PERCENT WATER, WITH ANTICORROSION ADDITIVES AS RECOMMENDED BY ENGINE MANUFACTURER.
2. TEMPERATURE CONTROL: SELF-CONTAINED, THERMOSTATIC-CONTROL VALVE MODULATES COOLANT FLOW AUTOMATICALLY TO MAINTAIN OPTIMUM CONSTANT COOLANT TEMPERATURE AS RECOMMENDED BY ENGINE MANUFACTURER.

I. MUFFLER/SILENCER: CRITICAL TYPE, SIZED AS RECOMMENDED BY ENGINE MANUFACTURER AND SELECTED WITH EXHAUST PIPING SYSTEM TO NOT EXCEED ENGINE MANUFACTURER'S ENGINE BACK PRESSURE REQUIREMENTS.

1. MINIMUM SOUND ATTENUATION OF 25 DB AT 500 HZ.
2. SOUND LEVEL MEASURED AT A DISTANCE OF 10 FEET (3 M) FROM EXHAUST DISCHARGE AFTER INSTALLATION IS COMPLETE SHALL BE 85 DBA OR LESS.

J. AIR-INTAKE FILTER: HEAVY-DUTY, ENGINE-MOUNTED AIR CLEANER WITH REPLACEABLE DRY-FILTER ELEMENT AND "BLOCKED FILTER" INDICATOR.

K. STARTING SYSTEM: 12-V ELECTRIC, WITH NEGATIVE GROUND.

1. COMPONENTS: SIZED SO THEY WILL NOT BE DAMAGED DURING A FULL ENGINE-CRANKING CYCLE WITH AMBIENT TEMPERATURE AT MAXIMUM SPECIFIED IN PART 1 "PROJECT CONDITIONS" ARTICLE.
2. CRANKING MOTOR: HEAVY-DUTY UNIT THAT AUTOMATICALLY ENGAGES AND RELEASES FROM ENGINE FLYWHEEL WITHOUT BINDING.
3. CRANKING CYCLE: AS REQUIRED BY NFPA 110 FOR SYSTEM LEVEL SPECIFIED 60 SECONDS.
4. BATTERY: ADEQUATE CAPACITY WITHIN AMBIENT TEMPERATURE RANGE SPECIFIED IN PART 1 "PROJECT CONDITIONS" ARTICLE TO PROVIDE SPECIFIED CRANKING CYCLE AT LEAST TWICE WITHOUT RECHARGING.
5. BATTERY CHARGING ALTERNATOR: FACTORY MOUNTED ON ENGINE WITH SOLID-STATE VOLTAGE REGULATION AND 35-A MINIMUM CONTINUOUS RATING.

a. BATTERY CHARGER: CURRENT-LIMITING, AUTOMATIC-EQUALIZING AND FLOAT-CHARGING TYPE. UNIT SHALL COMPLY WITH UL 1236.

2.4 CONTROL AND MONITORING

A. AUTOMATIC: STARTING SYSTEM SEQUENCE OF OPERATION: WHEN MODE-SELECTOR SWITCH ON THE CONTROL AND MONITORING PANEL IS IN THE AUTOMATIC POSITION, REMOTE CONTROL CONTACTS IN ONE OR MORE SEPARATE AUTOMATIC TRANSFER SWITCHES INITIATE STARTING AND STOPPING OF GENERATOR SET. WHEN MODE-SELECTOR SWITCH IS SWITCHED TO THE ON POSITION, GENERATOR SET STARTS. THE OFF POSITION OF SAME SWITCH INITIATES GENERATOR-SET SHUTDOWN. WHEN GENERATOR SET IS RUNNING, SPECIFIED SYSTEM OR EQUIPMENT FAILURES OR DERANGEMENTS AUTOMATICALLY SHUT DOWN GENERATOR SET AND INITIATE ALARMS.

B. MANUAL: STARTING SYSTEM SEQUENCE OF OPERATION: SWITCHING ON-OFF SWITCH ON THE GENERATOR CONTROL PANEL TO THE ON POSITION STARTS GENERATOR SET. THE OFF POSITION OF SAME SWITCH INITIATES GENERATOR-SET SHUTDOWN. WHEN GENERATOR SET IS RUNNING, SPECIFIED SYSTEM OR EQUIPMENT FAILURES OR DERANGEMENTS AUTOMATICALLY SHUT DOWN GENERATOR SET AND INITIATE ALARMS.

C. CONFIGURATION: OPERATING AND SAFETY INDICATIONS, PROTECTIVE DEVICES, BASIC SYSTEM CONTROLS, AND ENGINE GAGES SHALL BE GROUPED IN A COMMON CONTROL AND MONITORING PANEL MOUNTED ON THE GENERATOR SET. MOUNTING METHOD SHALL ISOLATE THE CONTROL PANEL FROM GENERATOR-SET VIBRATION.

D. INDICATING AND PROTECTIVE DEVICES AND CONTROLS: AS REQUIRED BY NFPA 110 FOR LEVEL [1] [2] SYSTEM, AND THE FOLLOWING:

1. AC VOLTMETER.
2. AC AMMETER.
3. AC FREQUENCY METER.
4. DC VOLTMETER (ALTERNATOR BATTERY CHARGING).
5. ENGINE-COOLANT TEMPERATURE GAGE.
6. ENGINE LUBRICATING-OIL PRESSURE GAGE.
7. RUNNING-TIME METER.
8. AMMETER-VOLTMETER, PHASE-SELECTOR SWITCH(ES).
9. GENERATOR-VOLTAGE ADJUSTING RHEOSTAT.
10. FUEL TANK DERANGEMENT ALARM.
11. FUEL TANK HIGH-LEVEL SHUTDOWN OF FUEL SUPPLY ALARM.
12. GENERATOR OVERLOAD.

E. REMOTE ALARM ANNUNCIATOR: COMPLY WITH NFPA 99. AN LED LABELED WITH PROPER ALARM CONDITIONS SHALL IDENTIFY EACH ALARM EVENT AND A COMMON AUDIBLE SIGNAL SHALL SOUND FOR EACH ALARM CONDITION. SILENCING SWITCH IN FACE OF PANEL SHALL SILENCE SIGNAL WITHOUT ALTERING VISUAL INDICATION. CONNECT SO THAT AFTER AN ALARM IS SILENCED, CLEARING OF INITIATING CONDITION WILL REACTIVATE ALARM UNTIL SILENCING SWITCH IS RESET. CABINET AND FACEPLATE ARE SURFACE- OR FLUSH-MOUNTING TYPE TO SUIT MOUNTING CONDITIONS INDICATED.

2.5 GENERATOR OVERCURRENT AND FAULT PROTECTION

A. GENERATOR CIRCUIT BREAKER: MOLDED-CASE, THERMAL-MAGNETIC TYPE; 100 PERCENT RATED; COMPLYING WITH NEMA AB 1 AND UL 489.

2.6 GENERATOR, EXCITER, AND VOLTAGE REGULATOR

A. COMPLY WITH NEMA MG 1.

2.7 OUTDOOR GENERATOR-SET ENCLOSURE

A. DESCRIPTION: IMPACT-RATED, PAINTED ALUMINUM HOUSING, WIND RESISTANT UP TO 120 MPH. MULTIPLE PANELS SHALL BE LOCKABLE AND PROVIDE ADEQUATE ACCESS TO COMPONENTS REQUIRING MAINTENANCE. PANELS SHALL BE REMOVABLE BY ONE PERSON WITHOUT TOOLS. INSTRUMENTS AND CONTROL SHALL BE MOUNTED WITHIN ENCLOSURE.
B. ENGINE COOLING AIRFLOW THROUGH ENCLOSURE MAINTAIN TEMPERATURE RISE OF SYSTEM COMPONENTS WITHIN REQUIRED LIMITS WHEN UNIT OPERATES AT 110 PERCENT OF RATED LOAD FOR 2 HOURS WITH AMBIENT TEMPERATURE AT TOP OF RANGE SPECIFIED IN SYSTEM SERVICE CONDITIONS.

1. LOUVERS: FIXED-ENGINE, COOLING-AIR INLET AND DISCHARGE, STORM-PROOF AND DRAINABLE LOUVERS PREVENT ENTRY OF RAIN AND SNOW.
2. AUTOMATIC DAMPERS: AT ENGINE COOLING-AIR INLET AND DISCHARGE. DAMPERS SHALL BE CLOSED TO REDUCE ENCLOSURE HEAT LOSS IN COLD WEATHER WHEN UNIT IS NOT OPERATING.

2.8 SOURCE QUALITY CONTROL

A. PROTOTYPE TESTING: FACTORY TEST ENGINE-GENERATOR SET USING SAME ENGINE MODEL, CONSTRUCTED OF IDENTICAL OR EQUIVALENT COMPONENTS AND EQUIPPED WITH IDENTICAL OR EQUIVALENT ACCESSORIES.

1. TESTS: COMPLY WITH NFPA 110, LEVEL 1 ENERGY CONVERTERS AND WITH IEEE 115.
2. REPORT FACTORY TEST RESULTS WITHIN 10 DAYS OF COMPLETION OF TEST.

2.9 SUB-BASE FUEL TANK

A. PROVIDE A SUB-BASE FUEL TANK WITH 72 HOURS CAPACITY AT 50% LOAD. FUEL TANK SHALL BE IMPACT RATED.

PART 3 EXECUTION

3.1 INSTALLATION

A. COMPLY WITH PACKAGED ENGINE-GENERATOR MANUFACTURERS' WRITTEN INSTALLATION AND ALIGNMENT INSTRUCTIONS AND WITH NFPA 110.

3.2 FIELD QUALITY CONTROL

A. PERFORM TESTS AND INSPECTIONS AND PREPARE TEST REPORTS.

1. MANUFACTURER'S FIELD SERVICE: ENGAGE A FACTORY-AUTHORIZED SERVICE REPRESENTATIVE TO INSPECT COMPONENTS, ASSEMBLIES, AND EQUIPMENT INSTALLATIONS, INCLUDING CONNECTIONS, AND TO ASSIST IN TESTING.

B. TESTS AND INSPECTIONS:

1. PERFORM TESTS RECOMMENDED BY MANUFACTURER AND EACH ELECTRICAL TEST AND VISUAL AND MECHANICAL INSPECTION FOR "AC GENERATORS AND FOR EMERGENCY SYSTEMS" SPECIFIED IN NETA ACCEPTANCE TESTING SPECIFICATION. CERTIFY COMPLIANCE WITH TEST PARAMETERS.
2. NFPA 110 ACCEPTANCE TESTS: PERFORM TESTS REQUIRED BY NFPA 110 THAT ARE ADDITIONAL TO THOSE SPECIFIED HERE INCLUDING, BUT NOT LIMITED TO, SINGLE-STEP FULL-LOAD PICKUP TEST.
3. BATTERY TESTS: EQUALIZE CHARGING OF BATTERY CELLS ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS. RECORD INDIVIDUAL CELL VOLTAGES.
4. BATTERY-CHARGER TESTS: VERIFY SPECIFIED RATES OF CHARGE FOR BOTH EQUALIZING AND FLOAT-CHARGING CONDITIONS.
5. SYSTEM INTEGRITY TESTS: METHODICALLY VERIFY PROPER INSTALLATION, CONNECTION, AND INTEGRITY OF EACH ELEMENT OF ENGINE-GENERATOR SYSTEM BEFORE AND DURING SYSTEM OPERATION. CHECK FOR AIR, EXHAUST, AND FLUID LEAKS.
6. EXHAUST-SYSTEM BACK-PRESSURE TEST: USE A MANOMETER WITH A SCALE EXCEEDING 40-INCH WC (120 KPA). CONNECT TO EXHAUST LINE CLOSE TO ENGINE EXHAUST MANIFOLD. VERIFY THAT BACK PRESSURE AT FULL-RATED LOAD IS WITHIN MANUFACTURER'S WRITTEN ALLOWABLE LIMITS FOR THE ENGINE.
7. EXHAUST EMISSIONS TEST: COMPLY WITH APPLICABLE GOVERNMENT TEST CRITERIA.
8. VOLTAGE AND FREQUENCY TRANSIENT STABILITY TESTS: USE RECORDING OSCILLOSCOPE TO MEASURE VOLTAGE AND AND FREQUENCY TRANSIENTS FOR 50 AND 100 PERCENT STEP-LOAD INCREASES AND DECREASES, AND VERIFY THAT PERFORMANCE IS AS SPECIFIED.
9. HARMONIC-CONTENT TESTS: MEASURE HARMONIC CONTENT OF OUTPUT VOLTAGE UNDER 25 PERCENT AND AT 100 PERCENT OF RATED LINEAR LOAD, VERIFY THAT HARMONIC CONTENT IS WITHIN SPECIFIED LIMITS.
10. NOISE LEVEL TESTS: MEASURE A-WEIGHTED LEVEL OF NOISE EMANATING FROM GENERATOR-SET INSTALLATION, INCLUDING ENGINE EXHAUST AND COOLING-AIR INTAKE AND DISCHARGE, AT FOUR LOCATIONS ON THE PROPERTY LINE, AND COMPARE MEASURED LEVELS WITH REQUIRED VALUES.

C. COORDINATE TESTS WITH TESTS FOR TRANSFER SWITCHES AND RUN THEM CONCURRENTLY.

D. OPERATIONAL TEST: AFTER ELECTRICAL CIRCUITRY HAS BEEN ENERGIZED, START UNITS TO CONFIRM PROPER MOTOR ROTATION AND UNIT OPERATION.

E. REPORT RESULTS OF TESTS AND INSPECTIONS IN WRITING. RECORD ADJUSTABLE RELAY SETTINGS AND MEASURED INSULATION RESISTANCES, TIME DELAYS, AND OTHER VALUES AND OBSERVATIONS. ATTACH A LABEL OR TAG TO EACH TESTED COMPONENT INDICATING SATISFACTORY COMPLETION OF TESTS.

3.3 DEMONSTRATION

A. ENGAGE A FACTORY-AUTHORIZED SERVICE REPRESENTATIVE TO TRAIN OWNER'S MAINTENANCE PERSONNEL TO ADJUST, OPERATE, AND MAINTAIN PACKAGED ENGINE GENERATORS.

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REVISIONS

SHEET E-8
OF

PROJECT NO.
09.C016

SECTION 16710

FIRE ALARM

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION 1 SPECIFICATION SECTIONS, APPLY TO THIS SECTION.

1.2 DEFINITIONS

A. FACP: FIRE ALARM CONTROL PANEL.

B. LED: LIGHT-EMITTING DIODE.

C. NICET: NATIONAL INSTITUTE FOR CERTIFICATION IN ENGINEERING TECHNOLOGIES.

D. DEFINITIONS IN NFPA 72 APPLY TO FIRE ALARM TERMS USED IN THIS SECTION.

1.3 SYSTEM DESCRIPTION

A. ADDRESSABLE SYSTEM AND SIGNAL TRANSMISSION DEDICATED TO FIRE ALARM SERVICE ONLY.

1.4 PERFORMANCE REQUIREMENTS

A. COMPLY WITH NFPA 72.

B. FIRE ALARM SIGNAL INITIATION SHALL BE BY ONE OR MORE OF THE FOLLOWING DEVICES:
1. MANUAL STATIONS.
2. HEAT DETECTORS.
3. SMOKE DETECTORS.
4. VERIFIED AUTOMATIC ALARM OPERATION OF SMOKE DETECTORS.

C. FIRE ALARM SIGNAL SHALL INITIATE THE FOLLOWING ACTIONS:
1. ALARM NOTIFICATION APPLIANCES SHALL OPERATE CONTINUOUSLY.
2. IDENTIFY ALARM AT THE FACP.
3. SHUTDOWN HEATING, VENTILATING, AND AIR-CONDITIONING EQUIPMENT CONTROLS TO FIRE ALARM MODE.
4. RECORD EVENTS IN THE SYSTEM MEMORY.

D. SUPERVISORY SIGNAL INITIATION SHALL BE BY ONE OR MORE OF THE FOLLOWING DEVICES OR ACTIONS:
1. OPERATION OF A FIRE-PROTECTION SYSTEM VALVE TAMPER.

E. SYSTEM TROUBLE SIGNAL INITIATION SHALL BE BY ONE OR MORE OF THE FOLLOWING DEVICES OR ACTIONS:
1. OPEN CIRCUITS, SHORTS AND GROUNDS OF WIRING FOR INITIATING DEVICE, SIGNALING LINE, AND NOTIFICATION-APPLIANCE CIRCUITS.
2. OPENING, TAMPERING, OR REMOVAL OF ALARM-INITIATING AND SUPERVISORY SIGNAL-INITIATING DEVICES.
3. LOSS OF PRIMARY POWER AT THE FACP.
4. GROUND OR A SINGLE BREAK IN FACP INTERNAL CIRCUITS.
5. ABNORMAL AC VOLTAGE AT THE FACP.
6. A BREAK IN STANDBY BATTERY CIRCUITRY.
7. FAILURE OF BATTERY CHARGING.
8. ABNORMAL POSITION OF ANY SWITCH AT THE FACP OR ANNUNCIATOR.

F. SYSTEM TROUBLE AND SUPERVISORY SIGNAL ACTIONS: RING TROUBLE BELL AND ANNUNCIATE AT THE FACP.

1.5 SUBMITTALS

A. PRODUCT DATA: FOR EACH TYPE OF PRODUCT INDICATED.

B. SHOP DRAWINGS:
1. SHOP DRAWINGS SHALL BE PREPARED BY PERSONS WITH THE FOLLOWING QUALIFICATIONS:
   a. TRAINED AND CERTIFIED BY MANUFACTURER IN FIRE ALARM SYSTEM DESIGN.
   b. FIRE ALARM CERTIFIED BY NICET, MINIMUM LEVEL III.
2. SYSTEM OPERATION DESCRIPTION: DETAILED DESCRIPTION FOR THIS PROJECT, INCLUDING METHOD OF OPERATION AND SUPERVISION OF EACH TYPE OF CIRCUIT AND SEQUENCE OF OPERATIONS FOR MANUALLY AND AUTOMATICALLY INITIATED SYSTEM INPUTS AND OUTPUTS. MANUFACTURER'S STANDARD DESCRIPTIONS FOR GENERIC SYSTEMS ARE NOT ACCEPTABLE.
3. DEVICE ADDRESS LIST: COORDINATE WITH FINAL SYSTEM PROGRAMMING.
4. SYSTEM RISER DIAGRAM WITH DEVICE ADDRESSES, CONDUIT SIZES, AND CABLE AND WIRE TYPES AND SIZES.
5. WIRING DIAGRAMS: POWER, SIGNAL, AND CONTROL WIRING. INCLUDE DIAGRAMS FOR EQUIPMENT AND FOR SYSTEM WITH ALL TERMINALS AND INTERCONNECTIONS IDENTIFIED. SHOW WIRING COLOR CODE.
6. BATTERIES: SIZE FOR CALCULATIONS.
7. FLOOR PLANS: INDICATE FINAL OUTLET LOCATIONS SHOWING ADDRESS OF EACH ADDRESSABLE DEVICE. SHOW SIZE AND ROUTE OF CABLE AND CONDUITS.

C. QUALIFICATION DATA: FOR INSTALLER.

D. FIELD QUALITY-CONTROL TEST REPORTS.

E. OPERATION AND MAINTENANCE DATA: FOR FIRE ALARM SYSTEM TO INCLUDE IN EMERGENCY, OPERATION, AND MAINTENANCE MANUALS. COMPLY WITH NFPA 72. APPENDIX A, RECOMMENDATIONS FOR OWNER'S MANUAL. INCLUDE ABBREVIATED OPERATING INSTRUCTIONS FOR MOUNTING AT THE FACP.

F. SUBMITTALS TO AUTHORITIES HAVING JURISDICTION: IN ADDITION TO DISTRIBUTION REQUIREMENTS FOR SUBMITTALS SPECIFIED IN DIVISION 1 SECTION "SUBMITTALS," MAKE AN IDENTICAL SUBMITTAL TO AUTHORITIES HAVING JURISDICTION. TO FACILITATE REVIEW, INCLUDE COPIES OF ANNOTATED CONTRACT DRAWINGS AS NEEDED TO DEPICT COMPONENT LOCATIONS. RESUBMIT IF REQUIRED TO MAKE CLARIFICATIONS OR REVISIONS TO OBTAIN APPROVAL. ON RECEIPT OF COMMENTS FROM AUTHORITIES HAVING JURISDICTION, SUBMIT THEM TO ARCHITECT FOR REVIEW.

G. DOCUMENTATION:
1. APPROVAL AND ACCEPTANCE: PROVIDE THE "RECORD OF COMPLETION" FORM ACCORDING TO NFPA 72 TO OWNER, ARCHITECT, AND AUTHORITIES HAVING JURISDICTION.
2. RECORD OF COMPLETION DOCUMENTS: PROVIDE THE "PERMANENT RECORDS" ACCORDING TO NFPA 72 TO OWNER, ARCHITECT, AND AUTHORITIES HAVING JURISDICTION. FORMAT OF THE WRITTEN SEQUENCE OF OPERATION SHALL BE THE OPTIONAL INPUT/OUTPUT MATRIX.
   a. HARD COPIES ON PAPER TO OWNER, ARCHITECT, AND AUTHORITIES HAVING JURISDICTION.
   b. ELECTRONIC MEDIA SHALL BE PROVIDED TO OWNER.

1.6 QUALITY ASSURANCE

A. INSTALLER QUALIFICATIONS: PERSONNEL SHALL BE TRAINED AND CERTIFIED BY MANUFACTURER FOR INSTALLATION OF UNITS REQUIRED FOR THIS PROJECT.

B. INSTALLER QUALIFICATIONS: WORK OF THIS SECTION BE PERFORMED BY A UL-LISTED COMPANY.

C. INSTALLER QUALIFICATIONS: PERSONNEL CERTIFIED BY NICET AS FIRE ALARM LEVEL II.

D. ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, ARTICLE 100, BY A TESTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION, AND MARKED FOR INTENDED USE.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

A. FACP AND EQUIPMENT:
NOTIFIER

B. WIRE AND CABLE:
1. COMTRAN CORPORATION.
2. HELIX/HITEMP CABLES, INC.; A DRAKA USA COMPANY.
3. ROCKBESTOS-SUPRENANT CABLE CORPORATION; A MARMON GROUP COMPANY.
4. WEST PENN WIRE/CDT; A DIVISION OF CABLE DESIGN TECHNOLOGIES.

2.2 FACP

A. GENERAL DESCRIPTION:
1. ADDRESSABLE, MODULAR, POWER-LIMITED DESIGN WITH ELECTRONIC MODULES, UL 864 LISTED.

B. CIRCUITS:
1. SIGNALING LINE CIRCUITS: NFPA 72, CLASS A, STYLE 2.
2. SIGNALING LINE CIRCUITS: NFPA 72, CLASS B.
3. NOTIFICATION-APPLIANCE CIRCUITS: NFPA 72, CLASS A, STYLE Z.
4. ACTUATION OF ALARM NOTIFICATION APPLIANCES, ANNUNCIATION, SHALL OCCUR WITHIN 10 SECONDS AFTER THE ACTIVATION OF AN INITIATING DEVICE.
5. ELECTRICAL MONITORING FOR THE INTEGRITY OF WIRING EXTERNAL TO THE FACP FOR MECHANICAL EQUIPMENT SHUTDOWN IS NOT REQUIRED, PROVIDED A BREAK IN THE CIRCUIT WILL CAUSE MECHANICAL EQUIPMENT TO SHUTDOWN.

C. SMOKE-ALARM VERIFICATION:
1. INITIATE AUDIBLE AND VISIBLE INDICATION OF AN "ALARM VERIFICATION" SIGNAL AT THE FACP.
2. ACTIVATE A LISTED AND APPROVED "ALARM VERIFICATION" SEQUENCE AT THE FACP AND THE DETECTOR.
3. RECORD EVENTS BY THE SYSTEM PRINTER.
4. SOUND GENERAL ALARM IF THE ALARM IS VERIFIED.
5. CANCEL FACP INDICATION AND SYSTEM RESET IF THE ALARM IS NOT VERIFIED.

D. NOTIFICATION-APPLIANCE CIRCUIT: OPERATION SHALL SOUND IN A TEMPORAL PATTERN, COMPLYING WITH ANSI S3.41.

E. POWER SUPPLY FOR SUPERVISION EQUIPMENT: SUPPLY FOR AUDIBLE AND VISUAL EQUIPMENT FOR SUPERVISION OF THE AC POWER SHALL BE FROM A DEDICATED DC POWER SUPPLY, AND POWER FOR THE DC COMPONENT SHALL BE FROM THE AC SUPPLY.

F. ALARM SILENCING, TROUBLE, AND SUPERVISORY ALARM RESET: MANUAL RESET AT THE FACP, AFTER INITIATING DEVICES ARE RESTORED TO NORMAL.
1. SILENCING-SWITCH OPERATION HALTS ALARM OPERATION OF NOTIFICATION APPLIANCES AND ACTIVATES AN "ALARM SILENCE" LIGHT. DISPLAY OF IDENTITY OF THE ALARM ZONE OR DEVICE IS RETAINED.
2. SUBSEQUENT ALARM SIGNALS FROM OTHER DEVICES OR ZONES REACTIVATE NOTIFICATION APPLIANCES UNTIL SILENCING SWITCH IS OPERATED AGAIN.
3. WHEN ALARM-INITIATING DEVICES RETURN TO NORMAL AND SYSTEM RESET SWITCH IS OPERATED, NOTIFICATION APPLIANCES OPERATE AGAIN UNTIL ALARM SILENCE SWITCH IS RESET.

G. PRIMARY POWER: 24-V DC OBTAINED FROM 120-V AC SERVICE AND A POWER-SUPPLY MODULE. INITIATING DEVICES, NOTIFICATION APPLIANCES, SIGNALING LINES, TROUBLE SIGNAL, SUPERVISORY SIGNAL SHALL BE POWERED BY THE 24-V DC SOURCE.
1. THE ALARM CURRENT DRAW OF THE ENTIRE FIRE ALARM SYSTEM SHALL NOT EXCEED 80 PERCENT OF THE POWER-SUPPLY MODULE RATING.
2. POWER SUPPLY SHALL HAVE A DEDICATED FUSED SAFETY SWITCH FOR THIS CONNECTION AT THE SERVICE ENTRANCE EQUIPMENT. PAINT THE SWITCH BOX RED AND IDENTIFY IT WITH "FIRE ALARM SYSTEM POWER."

H. SECONDARY POWER: 24-V DC SUPPLY SYSTEM WITH BATTERIES AND AUTOMATIC BATTERY CHARGER AND AN AUTOMATIC TRANSFER SWITCH.
1. BATTERIES: SEALED LEAD CALCIUM.
2. BATTERY AND CHARGER CAPACITY: COMPLY WITH NFPA 72.

I. SURGE PROTECTION:
1. INSTALL SURGE PROTECTION ON NORMAL AC POWER FOR THE FACP AND ITS ACCESSORIES. COMPLY WITH DIVISION 16 SECTION "TRANSIENT VOLTAGE SUPPRESSION" FOR AUXILIARY PANEL SUPPRESSORS.
2. INSTALL SURGE PROTECTORS RECOMMENDED BY FACP MANUFACTURER. INSTALL ON ALL SYSTEM WIRING EXTERNAL TO THE BUILDING HOUSING THE FACP.

J. INSTRUCTIONS: COMPUTER PRINTOUT OR TYPEWRITTEN INSTRUCTION CARD MOUNTED BEHIND A PLASTIC OR GLASS COVER IN A STAINLESS-STEEL OR ALUMINUM FRAME. INCLUDE INTERPRETATION AND DESCRIBE APPROPRIATE RESPONSE FOR DISPLAYS AND SIGNALS. BRIEFLY DESCRIBE THE FUNCTIONAL OPERATION OF THE SYSTEM UNDER NORMAL, ALARM, AND TROUBLE CONDITIONS.

2.3 MANUAL FIRE ALARM BOXES
A. DESCRIPTION: UL 38 LISTED; FINISHED IN RED WITH MOLDED, RAISED-LETTER OPERATING INSTRUCTIONS IN CONTRASTING COLOR; STATION SHALL SHOW VISIBLE INDICATION OF OPERATION. MOUNTED ON RECESSED OUTLET BOX.
1. DOUBLE-ACTION MECHANISM REQUIRING TWO ACTIONS TO INITIATE AN ALARM, PULL-LEVER TYPE, ARRANGED TO COMMUNICATE MANUAL-STATION STATUS (NORMAL, ALARM, OR TROUBLE) TO THE FACP.
2. STATION RESET: KEY- OR WRENCH-OPERATED SWITCH.
3. ADDRESSABLE.

2.4 SYSTEM SMOKE DETECTORS

B. GENERAL DESCRIPTION:
3. UL 268 LISTED, OPERATING AT 24-V DC, NOMINAL.
4. PLUG-IN ARRANGEMENT: DETECTOR AND ASSOCIATED ELECTRONIC COMPONENTS SHALL BE MOUNTED IN A PLUG-IN MODULE THAT CONNECTS TO A FIXED BASE. PROVIDE TERMINALS IN THE FIXED BASE FOR CONNECTION OF BUILDING WIRING.
5. SELF-RESTORING: DETECTORS DO NOT REQUIRE RESETTING OR READJUSTMENT AFTER ACTUATION TO RESTORE THEM TO NORMAL OPERATION.
6. INTEGRAL VISUAL-INDICATING LIGHT: LED TYPE. INDICATING DETECTOR HAS OPERATED AND POWER-ON STATUS.
5. ADDRESSABLE.

B. PHOTOELECTRIC SMOKE DETECTORS:
1. SENSOR: LED OR INFRARED LIGHT SOURCE WITH MATCHING SILICON-CELL RECEIVER.
2. DETECTOR SENSITIVITY: BETWEEN 2.5 AND 3.5 PERCENT/FOOT (0.008 AND 0.011 PERCENT/MM) SMOKE OBSCURATION WHEN TESTED ACCORDING TO UL 268A.

C. IONIZATION SMOKE DETECTOR:
1. SENSOR: RESPONSIVE TO BOTH VISIBLE AND INVISIBLE PRODUCTS OF COMBUSTION. SELF-COMPENSATING FOR CHANGES IN ENVIRONMENTAL CONDITIONS.
2. DETECTOR SENSITIVITY: BETWEEN 0.5 AND 1.7 PERCENT/FOOT (0.0016 AND 0.0056 PERCENT/MM) SMOKE OBSCURATION WHEN TESTED ACCORDING TO UL 268A.

2.5 HEAT DETECTORS

A. GENERAL: UL 521 LISTED.

B. HEAT DETECTOR, COMBINATION TYPE: ACTUATED BY EITHER A FIXED TEMPERATURE OF 135 DEG F (57 DEG C) OR RATE-OF-RISE OF TEMPERATURE THAT EXCEEDS 15 DEG F (8 DEG C) PER MINUTE, UNLESS OTHERWISE INDICATED.
1. MOUNTING: ADAPTER PLATE FOR OUTLET BOX MOUNTING.
2. ADDRESSABLE.

2.6 NOTIFICATION APPLIANCES

A. DESCRIPTION: EQUIPPED FOR MOUNTING AS INDICATED AND WITH SCREW TERMINALS FOR SYSTEM CONNECTIONS.
1. COMBINATION DEVICES: FACTORY-INTEGRATED AUDIBLE AND VISIBLE DEVICES IN A SINGLE-MOUNTING ASSEMBLY.

B. HORN: POLARIZED TYPE, 24-V DC; WITH PROVISION FOR HOUSING THE OPERATING MECHANISM BEHIND A GRILLE. SPEAKERS SHALL PRODUCE A SOUND-PRESSURE LEVEL OF 90 DBA, MEASURED 10 FEET (3 M) FROM THE HORN.

C. VISIBLE ALARM DEVICES: XENON STROBE LIGHTS LISTED UNDER UL 1971, WITH CLEAR OR NOMINAL WHITE POLYCARBONATE LENS MOUNTED ON AN ALUMINUM FACEPLATE. THE WORD "FIRE" IS ENGRAVED IN MINIMUM 1-INCH- (25-MM-) HIGH LETTERS ON THE LENS.
1. RATED LIGHT OUTPUT: 15-75-110 SELECTABLE.
2. STROBE LEADS: FACTORY CONNECTED TO SCREW TERMINALS.

2.7 WIRE AND CABLE

A. WIRE AND CABLE FOR FIRE ALARM SYSTEMS SHALL BE UL LISTED AND LABELED AS COMPLYING WITH NFPA 70, ARTICLE 760.

B. SIGNALING LINE CIRCUITS: TWISTED, SHIELDED PAIR, NOT LESS THAN NO. 18 AWG.
1. CIRCUIT INTEGRITY CABLE: TWISTED SHIELDED PAIR, NFPA 70 ARTICLE 760, CLASSIFICATION CI, FOR POWER-LIMITED FIRE ALARM SIGNAL SERVICE. UL LISTED AS TYPE FPL, AND COMPLYING WITH REQUIREMENTS IN UL 1424 AND IN UL 2196 FOR A 2-HOUR RATING.

C. NON-POWER-LIMITED CIRCUITS: SOLID-COPPER CONDUCTORS WITH 600-V RATED, 75 DEG C, COLOR-CODED INSULATION.
1. LOW-VOLTAGE CIRCUITS: NO. 16 AWG, MINIMUM.
2. LINE-VOLTAGE CIRCUITS: NO. 12 AWG, MINIMUM.
3. MULTICONDUCTOR ARMORED CABLE: NFPA 70 TYPE MC, COPPER CONDUCTORS, TFN/THHN CONDUCTOR INSULATION, COPPER DRAIN WIRE, COPPER ARMOR[WITH OUTER JACKET] WITH RED IDENTIFIER STRIPE, UL LISTED FOR FIRE ALARM AND CABLE TRAY INSTALLATION, PLENUM RATED, AND COMPLYING WITH REQUIREMENTS IN UL 2196 FOR A 2-HOUR RATING.

PART 3 – EXECUTION

3.1 EQUIPMENT INSTALLATION

A. SMOKE OR HEAT DETECTOR SPACING:
1. SMOOTH CEILING SPACING SHALL NOT EXCEED THE RATING OF THE DETECTOR.
2. SPACING OF HEAT DETECTORS FOR IRREGULAR AREAS, FOR IRREGULAR CEILING CONSTRUCTION, AND FOR HIGH CEILING AREAS, SHALL BE DETERMINED ACCORDING TO APPENDIX A IN NFPA 72.
3. SPACING OF HEAT DETECTORS SHALL BE DETERMINED BASED ON GUIDELINES AND RECOMMENDATIONS IN NFPA 72.

B. HVAC: LOCATE DETECTORS NOT CLOSER THAN 3 FEET (1 M) FROM AIR-SUPPLY DIFFUSER OR RETURN-AIR OPENING.

C. AUDIBLE ALARM-INDICATING DEVICES: INSTALL NOT LESS THAN 6 INCHES (150 MM) BELOW THE CEILING. INSTALL HORNS ON FLUSH-MOUNTED BACK BOXES WITH THE DEVICE-OPERATING MECHANISM CONCEALED BEHIND A GRILLE.

D. DEVICE LOCATION-INDICATING LIGHTS: LOCATE IN PUBLIC SPACE NEAR THE DEVICE THEY MONITOR.

E. FACP: SURFACE MOUNT WITH TOPS OF CABINETS NOT MORE THAN 72 INCHES (1830 MM) ABOVE THE FINISHED FLOOR.

3.2 WIRING INSTALLATION

A. INSTALL WIRING ACCORDING TO THE FOLLOWING:
1. NECA 1.
2. TIA/EIA 568-A.

B. WIRING METHOD: INSTALL WIRING IN METAL RACEWAY ACCORDING TO DIVISION 16 SECTION "RACEWAYS AND BOXES." FIRE ALARM CIRCUITS AND EQUIPMENT CONTROL WIRING ASSOCIATED WITH THE FIRE ALARM SYSTEM SHALL BE INSTALLED IN A DEDICATED RACEWAY SYSTEM. THIS SYSTEM SHALL NOT BE USED FOR ANY OTHER WIRE OR CABLE.

C. WIRING METHOD:
RACEWAYS USED FOR FIRE ALARM CIRCUITS, AND EQUIPMENT CONTROL WIRING ASSOCIATED WITH THE FIRE ALARM SYSTEM, MAY NOT CONTAIN ANY OTHER WIRE OR CABLE. SIGNALING LINE CIRCUITS: POWER-LIMITED FIRE ALARM CABLES SHALL NOT BE INSTALLED IN THE SAME CABLE OR RACEWAY AS SIGNALING LINE CIRCUITS.

D. WIRING WITHIN ENCLOSURES: SEPARATE POWER-LIMITED AND NON-POWER-LIMITED CONDUCTORS AS RECOMMENDED BY MANUFACTURER. INSTALL CONDUCTORS PARALLEL WITH OR AT RIGHT ANGLES TO SIDES AND BACK OF THE ENCLOSURE. BUNDLE, LACE, AND TRAIN CONDUCTORS TO TERMINAL POINTS WITH NO EXCESS. CONNECT CONDUCTORS THAT ARE TERMINATED, SPLICED, OR INTERRUPTED IN ANY ENCLOSURE ASSOCIATED WITH THE FIRE ALARM SYSTEM TO TERMINAL BLOCKS. MARK EACH TERMINAL ACCORDING TO THE SYSTEM'S WIRING DIAGRAMS. MAKE ALL CONNECTIONS WITH APPROVED CRIMP-ON TERMINAL SPADE LUGS, PRESSURE-TYPE TERMINAL BLOCKS, OR PLUG CONNECTORS.

E. CABLE TAPS: USE NUMBERED TERMINAL STRIPS IN JUNCTION, PULL, AND OUTLET BOXES, CABINETS, OR EQUIPMENT ENCLOSURES WHERE CIRCUIT CONNECTIONS ARE MADE.

F. COLOR-CODING: COLOR-CODE FIRE ALARM CONDUCTORS DIFFERENTLY FROM THE NORMAL BUILDING POWER WIRING. USE ONE COLOR-CODE FOR ALARM CIRCUIT WIRING AND A DIFFERENT COLOR-CODE FOR SUPERVISORY CIRCUITS. COLOR-CODE AUDIBLE ALARM-INDICATING CIRCUITS DIFFERENTLY FROM ALARM-INITIATING CIRCUITS. USE DIFFERENT COLORS FOR VISIBLE ALARM-INDICATING DEVICES. PAINT FIRE ALARM SYSTEM JUNCTION BOXES AND COVERS RED.

G. WIRING TO REMOTE ALARM TRANSMITTING DEVICE:
1-INCH- (25-MM-) CONDUIT BETWEEN THE FACP AND THE TRANSMITTER. INSTALL NUMBER OF CONDUCTORS AND ELECTRICAL SUPERVISION FOR CONNECTING WIRING AS NEEDED TO SUIT MONITORING FUNCTION.

3.3 IDENTIFICATION

A. INSTALL INSTRUCTIONS FRAME IN A LOCATION VISIBLE FROM THE FACP.

B. LABEL DEVICES, PANEL AND PROVIDE A TAG FOR CABLES AT BOTH ENDS.

3.4 GROUNDING

A. GROUND THE FACP AND ASSOCIATED CIRCUITS; COMPLY WITH IEEE 1100. INSTALL A GROUND WIRE FROM MAIN SERVICE GROUND TO THE FACP.

3.5 FIELD QUALITY CONTROL

A. MANUFACTURER'S FIELD SERVICE: ENGAGE A FACTORY-AUTHORIZED SERVICE REPRESENTATIVE TO INSPECT, TEST, AND ADJUST FIELD-ASSEMBLED COMPONENTS AND EQUIPMENT INSTALLATION, INCLUDING CONNECTIONS, AND TO ASSIST IN FIELD TESTING. REPORT RESULTS IN WRITING.

B. PERFORM THE FOLLOWING FIELD TESTS AND INSPECTIONS AND PREPARE TEST REPORTS:
1. BEFORE REQUESTING FINAL APPROVAL OF THE INSTALLATION, SUBMIT A WRITTEN STATEMENT USING THE FORM FOR RECORD OF COMPLETION SHOWN IN NFPA 72.
2. PERFORM EACH ELECTRICAL TEST AND VISUAL AND MECHANICAL INSPECTION LISTED IN NFPA 72. CERTIFY COMPLIANCE WITH TEST PARAMETERS. ALL TESTS SHALL BE CONDUCTED UNDER THE DIRECT SUPERVISION OF A NICET TECHNICIAN CERTIFIED UNDER THE FIRE ALARM SYSTEMS PROGRAM AT LEVEL III.
a. INCLUDE THE EXISTING SYSTEM IN TESTS AND INSPECTIONS.
3. VISUAL INSPECTION: CONDUCT A VISUAL INSPECTION BEFORE ANY TESTING. USE AS-BUILT DRAWINGS AND SYSTEM DOCUMENTATION FOR THE INSPECTION. IDENTIFY IMPROPERLY LOCATED, DAMAGED, OR NONFUNCTIONAL EQUIPMENT, AND CORRECT BEFORE BEGINNING TESTS.
4. TESTING: FOLLOW PROCEDURE AND RECORD RESULTS COMPLYING WITH REQUIREMENTS IN NFPA 72.
a. DETECTORS THAT ARE OUTSIDE THEIR MARKED SENSITIVITY RANGE SHALL BE REPLACED.
5. TEST AND INSPECTION RECORDS: PREPARE ACCORDING TO NFPA 72, INCLUDING DEMONSTRATION OF SEQUENCES OF OPERATION BY USING THE MATRIX-STYLE FORM IN APPENDIX A IN NFPA 70.

3.6 ADJUSTING

A. OCCUPANCY ADJUSTMENTS: WHEN REQUESTED WITHIN 12 MONTHS OF DATE OF SUBSTANTIAL COMPLETION, PROVIDE ON-SITE ASSISTANCE IN ADJUSTING SYSTEM TO SUIT ACTUAL OCCUPIED CONDITIONS. PROVIDE UP TO TWO VISITS TO PROJECT OUTSIDE NORMAL OCCUPANCY HOURS FOR THIS PURPOSE.

B. FOLLOW-UP TESTS AND INSPECTIONS: AFTER DATE OF SUBSTANTIAL COMPLETION, TEST THE FIRE ALARM SYSTEM COMPLYING WITH TESTING AND VISUAL INSPECTION REQUIREMENTS IN NFPA 72. PERFORM TESTS AND INSPECTIONS LISTED FOR THREE MONTHLY, AND ONE QUARTERLY, PERIODS.

3.7 DEMONSTRATION

A. ENGAGE A FACTORY-AUTHORIZED SERVICE REPRESENTATIVE TO TRAIN OWNER'S MAINTENANCE PERSONNEL TO ADJUST, OPERATE, AND MAINTAIN THE FIRE ALARM SYSTEM, APPLIANCES, AND DEVICES.

END OF SECTION

J. BRYAN SHAFFER, P.E.
P.E.#56188

COLUMBIA COUNTY EMERGENCY OPERATIONS CENTER

128 SW NASSAU STREET
LAKE CITY, FL 32025
(386) 758-4209
CERTIFICATE OF AUTHORIZATION # 00000701

Freeman Design Group Inc

DATE	DRAWN BY
09/18/09	J.B.S.

REVISIONS

SHEET E-9
OF

PROJECT NO.
09.C016

SHAFFER
ENGINEERING GROUP, LLC
2750 Rarotrock Road, Suite 306, MB-121
Jacksonville, FL 32259 www.shafeng.com
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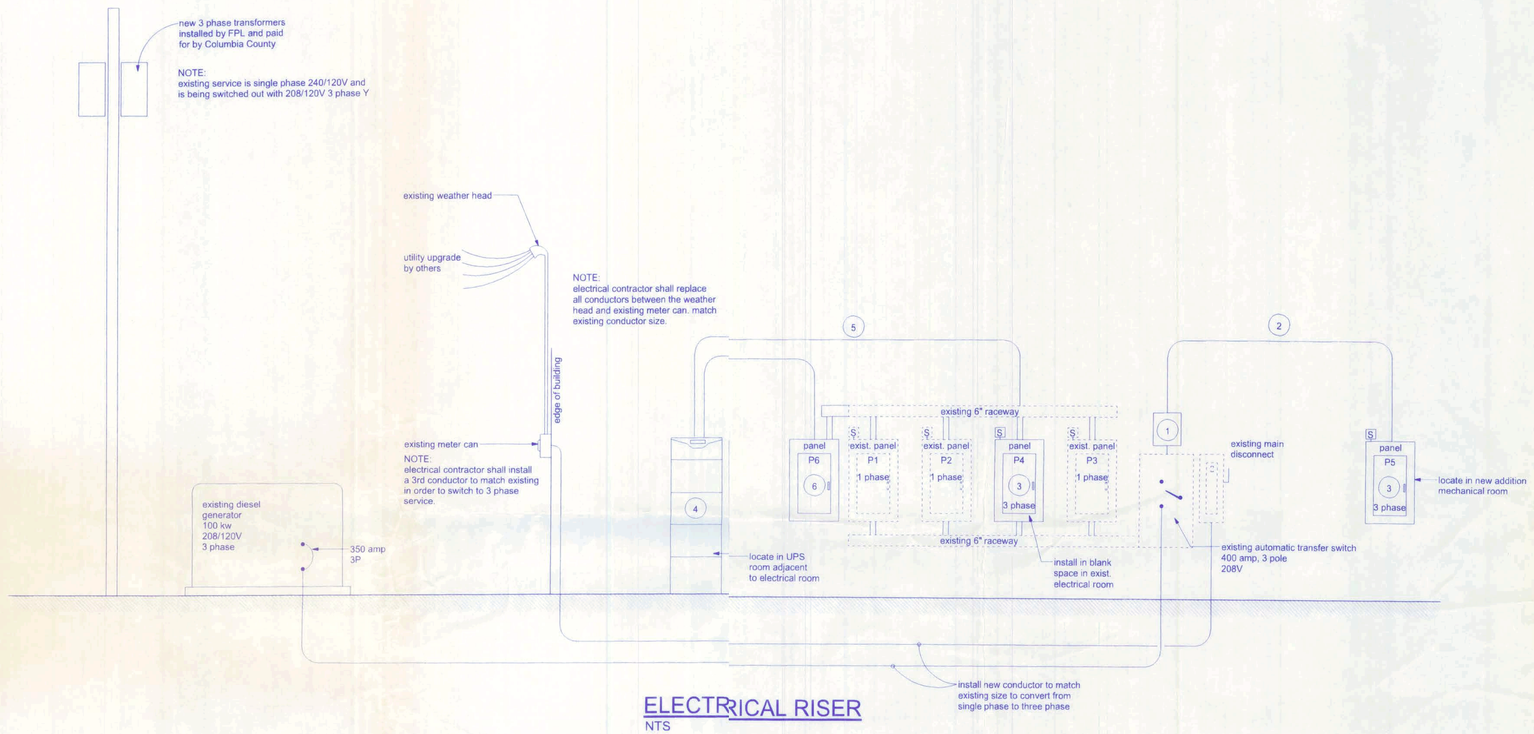
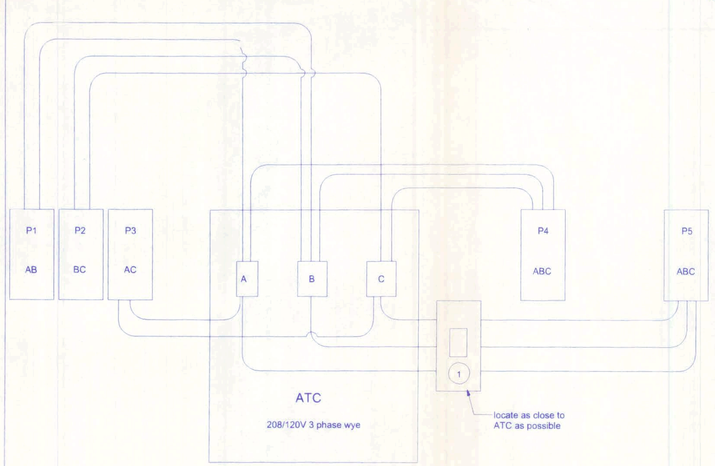
Certificate of Authorization # : 3285



ELECTRICAL RISER
NTS



TRANSFER SWITCH WIRING
NTS

NOTES:

1. Cutler Hammer 200 amp breaker, 3 phase in a surface mt. enclosure. purchased by Columbia County, Installed by the electrial contractor
2. 200 Ampere Feeder: 3-3/0-THW-Cu, 1-#2-Cu-GND, 2 1/2" Conduit.
3. 200 Amp Cutler Hammer Panel, 3 Ph, 40 ckt. with MCE and surface covers. purchased by Columbia County, Installed by the electrial contractor. Install 125 amp breaker for UPS supply in panel 4.
4. Eaton 9355 20 kva UPS battery backup system with Eaton 9355 EBM Battery bank installed per manufacturer.
5. 3-#1 THW-Cu, 1-#4-Cu Gnd. 2" Conduit.
6. 100 Amp Cutler Hammer Panel, 3 Ph, 30 ckt. with MLC and surface covers.

NOTE:
The minimum AIC rating for panel boards, breakers and disconnect switches shall be 22,000 AIC.

NOTE:
All existing HVAC equipment needs to be adaptable to 208 volts.

NOTE:
No shared neutrals shall be allowed.

NOTE:
If rerouted wires are too short, do not splice. Replace with wires of adequate length.

NOTE:
Electrical Contractor shall determine which existing circuits are critical to the 911 communications and shall route to Panel 6 (UPS Panel).

NOTE:
Electrical Contractor shall extend the 6" cable tray as needed in the field to reroute critical circuits to Panel 6.

ELECTRICAL PLAN NOTES

WIRE ALL APPLIANCES, HVAC UNITS AND OTHER EQUIPMENT PER MANUF. SPECIFICATIONS.

ELECTRICAL CONT'R SHALL PREPARE "AS-BUILT" SHOP DWGS INDICATING ALL ELECTRICAL WORK, INCLUDING ANY CHANGES TO THE ELEC. PLAN, ADD'NS TO THE ELEC. PLAN, RISER DIAGRAM, AS-BUILT PANEL SCHEDULE W/ ALL CKTS IDENTIFIED W/ CKT Nr., DESCRIPTION & BRKR, SERVICE ENT. & ALL UNDERGROUND WIRE LOCATIONS/ROUTING/DEPTH. RISER DIA. SHALL INCLUDE WIRE SIZES/TYPE & EQUIPMENT TYPE W/ RATINGS & LOADS.
CONTRACTOR SHALL PROVIDE 1 COPY OF AS-BUILT DWGS TO OWNER & 1 COPY TO THE ENGINEER.

COLUMBIA COUNTY
EMERGENCY OPERATIONS CENTER

William H. Freeman
11/23/09
P.E. # 56001

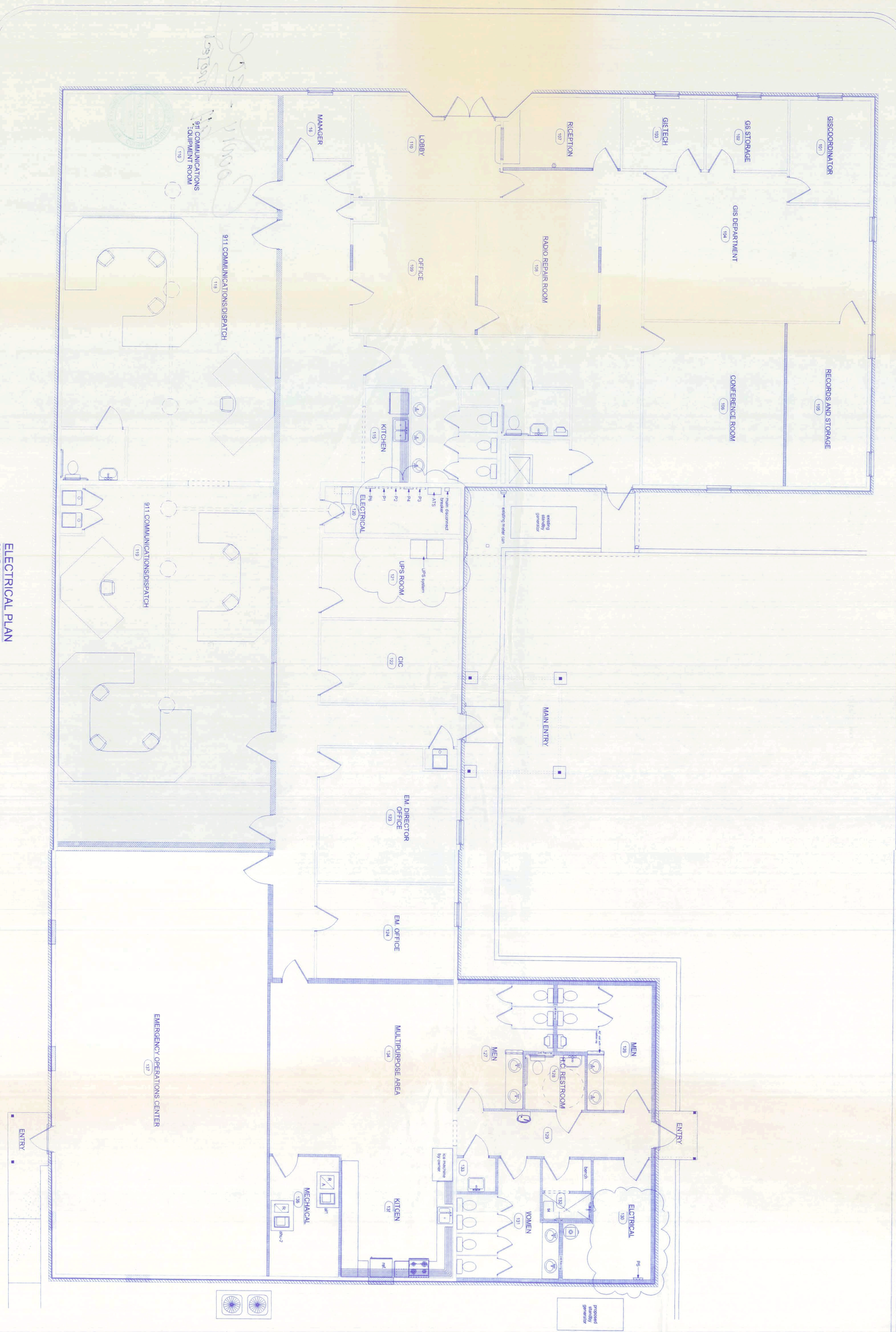
Freeman Design Group inc
128 SW NASSAU STREET
LAKE CITY, FL. 32025
(386)758-4209
CERTIFICATE OF AUTHORIZATION # 00008701

DATE	DRAWN BY
11/23/09	W.H.F.
	APPROVED W.H.F.

REVISIONS

SHEET E-10
OF 11

PROJECT NO.
09.C016



ELECTRICAL PLAN
SCALE: 3/16" = 1'-0"

Freeman Design Group PE
128 SW NASSAU STREET
LAKE CITY, FL. 32025
(386)758-4209
CERTIFICATE OF AUTHORIZATION # 00008701

COLUMBIA COUNTY EMERGENCY OPERATIONS CENTER

P.E. # 56001

PROJECT NO.	09.C016
SHEET	E-11
OF	11
REVISIONS	
DATE	11/23/09
DRAWN BY	W.H.F.
APPROVED	W.H.F.

For City Zoning Compliance

RECEIVED DEC 1 1 2009 Col. Co. P+Z

SITE DATA

PROJECT:	COLUMBIA COUNTY E.O.C. BUILDING
LEGAL DESCRIPTION:	REFER TO ATTACHED SURVEY
ZONING:	COMMERCIAL GENERAL
AREA COMPUTATIONS:	SQUARE FEET
REMOVED ASPHALT	(1,156.00 sf)
NEW BUILDING	912.00 sf
NET PERVIOUS	(244.00 sf)

NOTE:
The project shall result in a net gain of 244 sqaure feet of pervious area.

ADDITIONAL ESTIMATED SEWAGE FLOW	
OFFICE	15 GAL. PER 100 SF 2,785 SF/1000*15 = 42 GPD
TOTAL	42 GPD

NOTE:
PROVIDE CLEANOUTS AT EACH TURN AND MAX. SPACING OF 100' ALONG SANITARY SEWER.

GENERAL UTILITY NOTES

1. WATER, SEWER, AND GAS UTILITIES ARE TO BE PROVIDED BY THE GREATER LAKE CITY REGIONAL UTILITIES. ELECTRICAL TO BE PROVIDED BY FLORIDA POWER AND LIGHT (FPL). CONTRACTOR SHALL COORDINATE WITH APPROPRIATE UTILITY COMPANIES TO VERIFY ALL SITE UTILITY CONNECTION LOCATIONS, INVERTS, DETAILS ETC.
2. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE SITE TELEPHONE & CABLE TV CONNECTIONS WITH THE APPLICABLE UTILITY PROVIDER. THE LOCATION OF THE CONNECTION TO THE BUILDING SHALL BE VERIFIED WITH THE PROVIDER.
3. EXISTING UTILITIES TO BE FIELD VERIFIED PRIOR TO BEGINNING CONSTRUCTION. COORDINATE WITH APPLICABLE UTILITY COMPANIES FOR CONNECTIONS.

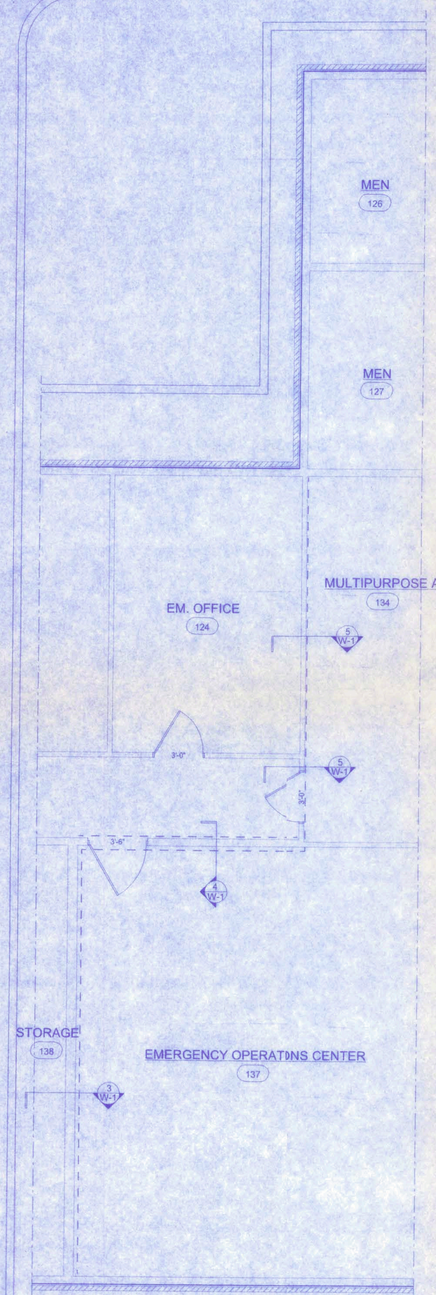
OK for Permitting
12-11-09

11/24/09 P.E. #56801

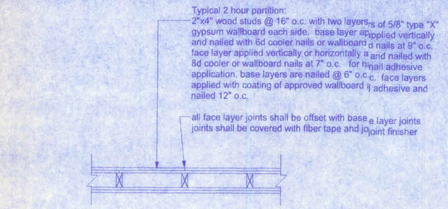
COLUMBIA COUNTY EMERGENCY OPERATIONS CENTER

Freeman Design Group inc
128 SW NASSAU STREET
LAKE CITY, FL. 32025
(386) 758-4209
CERTIFICATE OF AUTHORIZATION # 00008701

DATE 9/18/09	DRAWN BY W.H.F.
REVISIONS	
SHEET SP- 2	
OF 4	
PROJECT NO. 09.C016	



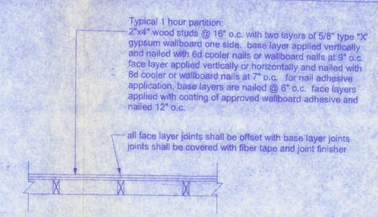
ATTIC FIRE WAL PLAN
SCALE: 1/4" = 1'-0"



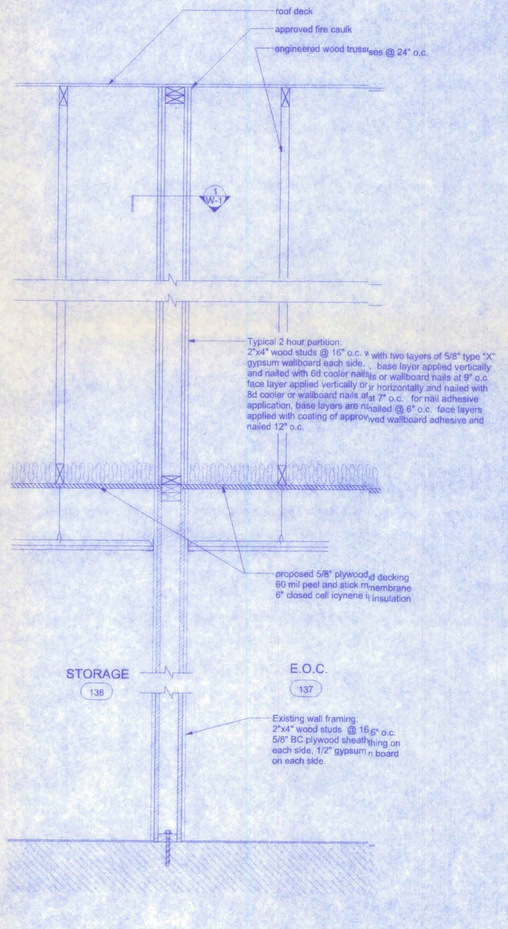
1 2-HR WALL SECTION
SCALE: 3/4" = 1'-0"

NOTE:
nails may be substituted with screws as follows: base layer attached to studs with the 1-7/8 in. nails spaced 6 in. OC. Outer layer attached to studs over inner layer with the 2-3/8 in. long nails spaced 8 in. OC. Vertical joints located over studs. All joints in face layers staggered with joints in base layers. Joints of each base layer offset with joints of base layer on opposite side.

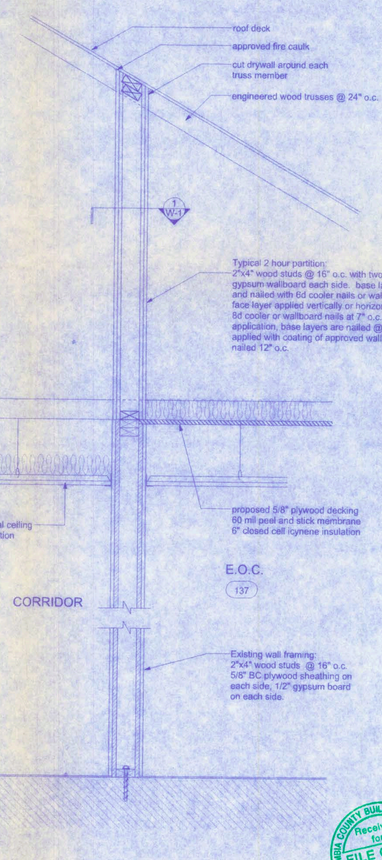
NOTE:
fire barriers shall be constructed in the attic space only. the wall partitions shall remain as is with no modifications. build new fire barrier directly over the existing wall partition.



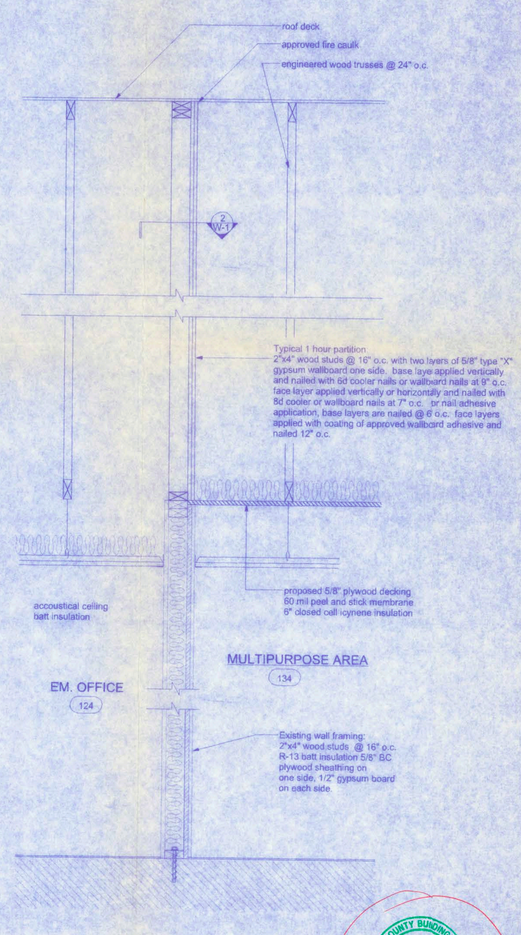
2 1-HR WALL SECTION
SCALE: 3/4" = 1'-0"



3 2 HR FIRE BARRIER
SCALE: 1" = 1'-0"



4 2 HR FIRE BARRIER
SCALE: 1" = 1'-0"



5 1 HR FIRE BARRIER
SCALE: 1" = 1'-0"

COLUMBIA COUNTY BUILDING DEPARTMENT Received for FILE COPY Code Compliance PLANS EXAMINER

COLUMBIA COUNTY BUILDING DEPARTMENT Received for FILE COPY Code Compliance PLANS EXAMINER

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DATE 12/15/09	DRAWN BY W.H.F.
	APPROVED W.H.F.

REVISIONS

SHEET W-1
OF 1
PROJECT NO. 09.C016