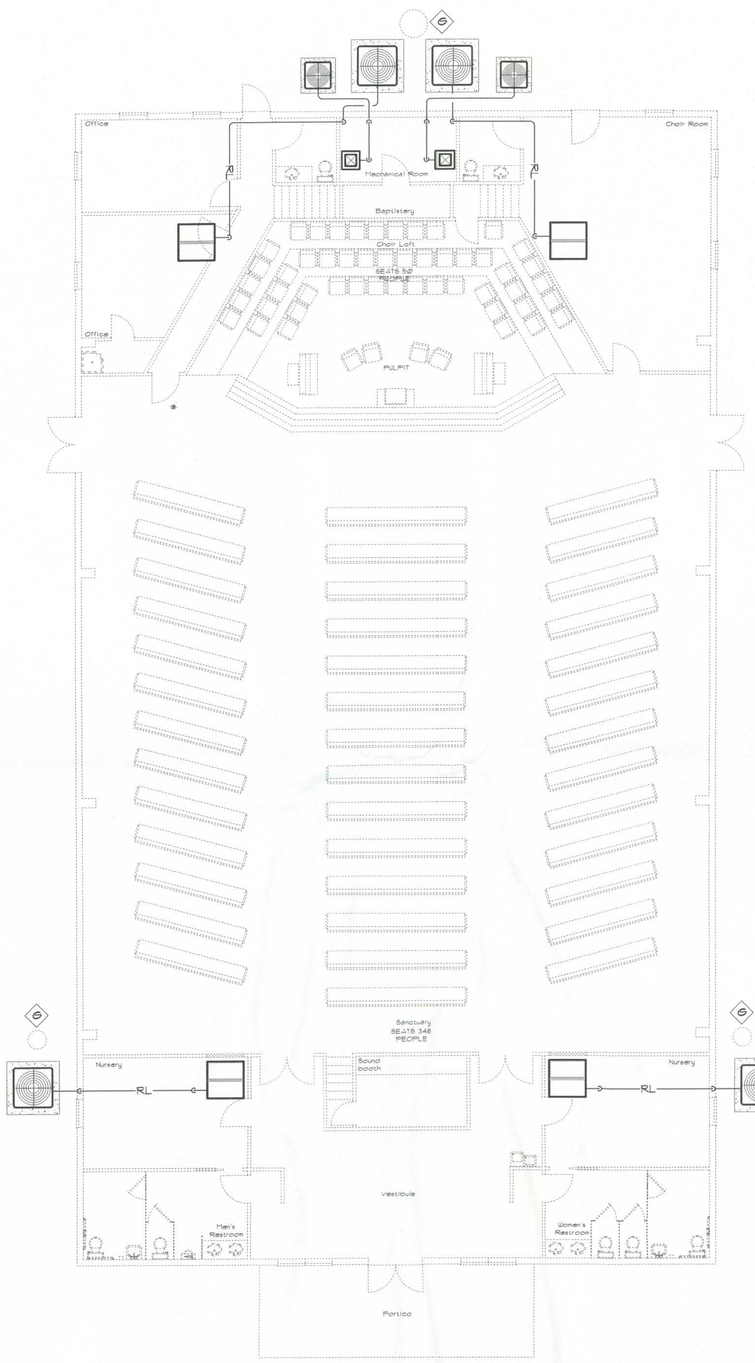
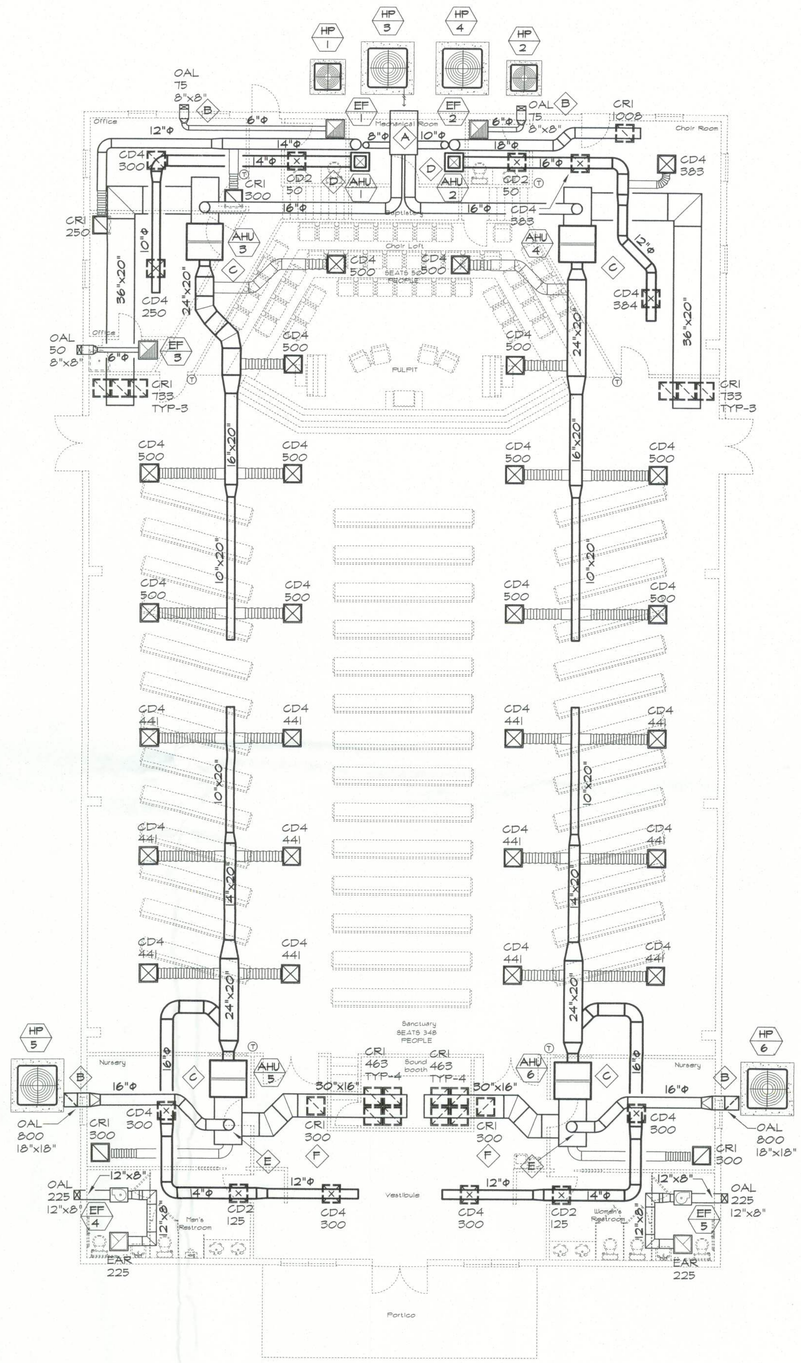


OVERALL BUILDING HVAC PIPING PLAN

SCALE 1/8"=1'-0"



OVERALL BUILDING HVAC AIR DIST. PLAN

SCALE 1/8"=1'-0"

Drawing Information Notes

A. Outside air intake duct above finished ceiling sized at 20"x20" with wall louver equal to Metalaire Model EHH4 sized at 24"x24" painted to match exterior wall color; provide with bug/bird screen, volume damper & motorized damper; damper shall be equal to Ruskin 24 volt low leakage product controlled by sanctuary carbon-dioxide detector set for rise above 700ppm.

B. Wall or soffit mounted exhaust air louver equal to "OAL" noted in schedules; verify location prior to installation; roof mounted Jennair vent cap maybe used in lieu of louver; item shall be painted to match roof color; verify exact requirement with project architect & local building official.

C. Install air handling unit above finished ceiling as noted in detail in compliance with Florida Building Code; verify access location & requirements.

D. AHU mounted on steel stand as shown in detail with ducted supply, return & outside air intake.

E. Install Ruskin 24 volt low leakage motorized damper in intake duct controlled by sanctuary carbon-dioxide detector set for rise above 700ppm.

F. Ceiling return grille to have fire/smoke damper equal to Ruskin per UL555S; item to be 24 volt DC for normally open device in case of power failure and/or alarm mode.

G. Condensate drain dry-well as noted in detail; route all nearby AHU lines below finished grade to dry-well.

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DRAFTING BY: E. LOCKE

Project Name:
Mt. Carmel Baptist Church
Lake City, Florida

Project #: 1311-050711-Mt. Carmel Church	Sheet M1 of 4
Date: July 29, 2005	
Scale: 1/8"=1'	
Paper Size: 24 x 36	

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VENTILATION INFORMATION

ROOM NAME	APPROX ROOM SIZE (SQ.FT.)	VENTILATION REQUIREMENT				EST. MAX. VENTILATION RATE (CFM)			AHU OUTSIDE AIR CFM PER PERSON AS DESIGNED	OUTSIDE CFM PER AREA AS DESIGNED	REMARKS
		ASHRAE 62-1999 TABLE 2	FMC 403.3 TABLES	OCCUPANCY AMOUNT PER ASHRAE	OCCUPANCY AMOUNT PER DESIGN	ASHRAE 62-1999 TABLE 2	FMC 403.3 TABLES	OCCUPANCY AMOUNT PER DESIGN			
SANCTUARY AREA	5615	150/1000 15 CFM/PERSON	150/1000 15 CFM/PERSON	843 PEOPLE	343 PEOPLE	12645	12465	5200	8	5200	CALCULATED USING TYPICAL AUDITORIUM AREA PER ASHRAE 62-1999 & FLORIDA MECHANICAL CODE SECTION 403.3, TIME LIMIT EXPOSURE DURATION LESS THAN 3 HOURS APPLIED (15 CFM x .5 = 8 CFM EACH); PEOPLE COUNT FROM ARCHITECT NOT CODE AMOUNT
OFFICE AREA	345	7/1000 20 CFM/PERSON	7/1000 20 CFM/PERSON	3 PEOPLE	2 PEOPLE	60	60	50	20	50	CALCULATED USING TYPICAL OFFICE AREA PER ASHRAE 62-1999 & ICC MECHANICAL SECTION 403.3; PEOPLE COUNT BASED ON DATA FROM ARCHITECT

NOTES;
1) ASHRAE VENTILATION TABLES & ICC MECHANICAL CODE WERE USED AS BASIS FOR DESIGN.
2) RATES CALCULATED PER ANSI/ASHRAE 62-1999 VENTILATION FOR ACCEPTABLE INDOOR AIR QUALITY STANDARDS.
3) AREA REFELECTS LESS AMOUNT THAN ASHRAE GUIDELINES OR TABLE 403.3 FLORIDA MECHANICAL CODE; PEOPLE COUNT DETERMINED BY PROJECT ARCHITECT.

SPLIT HEAT PUMP UNIT SCHEDULE

AHU/HP NO.	AREA SERVED	MANUF.	AIR HANDLER MODEL #	HEAT PUMP MODEL #	RATINGS		AIR HANDLING UNIT DATA						HEAT PUMP UNIT DATA			CAPACITY		NOTES
					EER	COP	V-Ph	CFM	ESP	HP	HTG KW	OSA CFM	V-PH	MCA	MOCP	COOL MBTU	HEAT MBTU	
3-6	SANC-TUARY	CARRIER	40RMQ008	38ARQ008	10.4	3.2	208-3	3000-3375	.75"	2.4	20	800	208-3	39	60	88	93	1,2,3,4,6, 8,9,11
2	CHOIR PRACT.	CARRIER	FVBNB005	38EYG036	11.76	3.8	208-1	1200	.45"	1/2	10	192	208-3	16.4	25	35	36.4	1,2,3,4,5, 6,7,9,10
1	OFFICE AREA	CARRIER	FVBNB002	38EYG018	11.45	3.26	208-1	600	.35"	1/2	5	50	208-1	11.3	20	18	17	1,2,3,4,5, 6,7,9,10

SYSTEM NOTES :
1. SEE MECHANICAL SPECIFICATIONS & DETAILS FOR ADDITIONAL REQUIREMENTS & INFORMATION
2. IN-LINE UL APPROVED SMOKE DETECTOR IN SUPPLY AIR PLENUM PER 2001 FLORIDA MECHANICAL CODE
3. WALL MOUNTED DIGITAL PROGRAMMABLE TYPE THERMOSTAT WITH SMART FAN CONTROL & HUMIDISTAT CONTROLLER (THERMIDISTAT)
4. OUTSIDE HP CONDENSING UNIT TO HAVE COIL GUARD PROTECTION
5. AIR FILTER EQUAL TO PRECISION AIR "CARBON-PLEATED" IN 1" THICKNESS WITH BIOLOGICAL-MICROBIAL TREATMENT
6. FLEXIBLE SUPPLY DUCT CONNECTION PER DETAIL AT ALL AHU'S
7. AHU MOUNTED ON STEEL STAND AS NOTED IN DETAIL
8. INSTALL HEAT PIPE COIL IN AHU CONTROLLED BY WALL MOUNTED DIGITAL HUMIDISTAT DEVICE
9. INSTALL WITH LOW AMBIENT CONTROLLER FOR COOLING CYCLE
10. AHU FAN TO BE VARIABLE SPEED TYPE CONTROLLED BY DIGITAL THERMOSTAT & HUMIDISTAT
11. AIR FILTER EQUAL TO PRECISION AIR "CARBON-PLEATED" IN 2" THICKNESS WITH BIOLOGICAL-MICROBIAL TREATMENT

FAN SCHEDULE

FANS NO.	ROOM NAMES & NOS.	MANUF.	MODEL NO.	TYPE	BLOWER DATA				MOTOR DATA				SONES	CONTROL	NOTES
					CFM	ESP	TYPE	DRIVE	V-PH	WATTS/HP	AMPS	RPM			
EF-1,2	DRESSING ROOMS	GREENHECK	SPB90	CABINET EXHAUSTER	75	.125"	CTR.	DRT	120-1	50 WATTS	0.65	700	1.9	WALL SWITCH	1,2,3,5
EF-3	JANITOR CLOSET	GREENHECK	SPB90	CABINET EXHAUSTER	50	.125"	CTR.	DRT	120-1	50 WATTS	0.65	700	1.9	TIME CLOCK	1,2,3,4
EF-4,5	MEN'S & WOMEN'S	GREENHECK	CSPA290	IN-LINE EXHAUSTER	225	.25"	CTR.	DRT	120-1	80 WATTS	0.71	1050	2.6	TIME CLOCK	1,2,3,4

FAN NOTES :
1. BACKDRAFT DAMPER WITH SPRING RETURN
2. SOLID STATE SPEED CONTROLLER
3. FLEXIBLE DUCT CONNECTOR AT EACH SIDE OF FAN
4. CONTROLLED BY PARAGON QUARTZ TIME CLOCK WITH 24-HOUR, 7-DAY FUNCTION & BATTERY BACK-UP
5. CONTROLLED BY ROOM LIGHT SWITCH WITH 5 MINUTE TIME DELAY ON BREAK

DIFFUSER, REGISTER, & GRILLE SCHEDULE

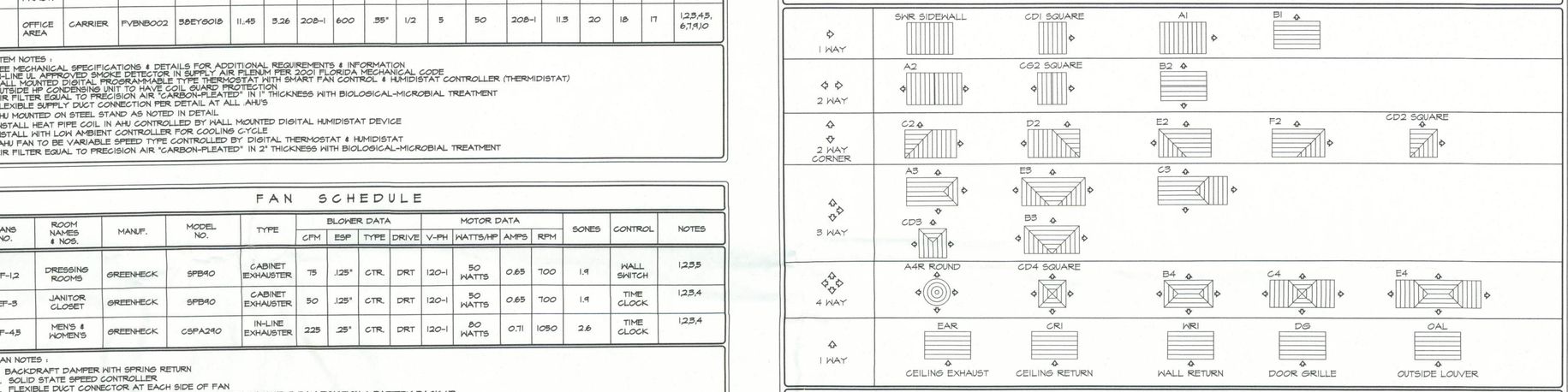
NO.	LOCATION	FUNCTION	SIZE (INCHES)		AIR PATTERN	MANUFACTURER	TYPE MODEL NUMBER	DAMPER	COLOR FINISH	NOISE CRITERIA	AIR VELOCITY RANGE (FPM)	NOTES
			FACE	NECK								
CD4	CEILING	SUPPLY	SEE DWGS	SEE DWGS	4-WAY	METALAIRE	5500	OBDR	WHITE	15-20	500-600	1,2,3,4,5,6,7,8
CD2	CEILING	SUPPLY	SEE NOTE 1	SEE DWGS	2-WAY	METALAIRE	5500	OBDR	WHITE	15-20	400-600	1,2,3,4,5,6,7,8
CR1	CEILING	RETURN	SEE DWGS	SEE DWGS	1-WAY	METALAIRE	RH	OBDR	WHITE	15-20	400-600	4
EAR	CEILING	EXHAUST	SEE NOTE 1	SEE DWGS	1-WAY	METALAIRE	RH	OBDR	ALM.	15-20	400-500	1,2,3,4,5,6,7
OAL	WALL *	EXHAUST-INTAKE	SEE NOTE 4	SEE DWGS	1-WAY	METALAIRE	EHH4	OBDR	ALM.	15-20	400-500	4,7,9
CG2	CEILING	SUPPLY	SEE NOTE 1	SEE DWGS	2-WAY	METALAIRE	5500	OBDR	WHITE	15-20	400-600	1,2,3,4,5,6,7,8
DG1	DOOR	RETURN	12"x12"	12"x12"	1-WAY	METALAIRE	300DSDF	NONE	ALM	15-20	300-400	4

NOTES;
1. GRILLE FACE SHALL BE INSTALLED AT ONE DIMENSIONAL SIZE UP FROM CONNECTING DUCT (I.E. 10" ROUND NECK TO HAVE 12"x12" GRILLE FACE)
2. PROVIDE ALL DEVICES WITH PROPER FRAME STYLE TO MATCH CEILING INDICATED BY PROJECT ARCHITECT; SEE ARCHITECTURAL DRAWINGS FOR REQUIREMENTS
3. ALL LAY IN TYPE PRODUCTS SHALL HAVE T-BARS WITH PANEL
4. DEVICES SHALL HAVE FACTORY FINISHES TO MATCH SURROUNDING DUCTS, DOOR, CEILING OR WALL AREAS; COORDINATE WITH ARCHITECT DRAWINGS PRIOR TO ORDER
5. BRANCH LINE SIZE SHOWN ON DRAWING TO BE ACTUAL LINE SERVING GRILLE DEVICE
6. RADIANT DAMPERS OR FIRE DAMPERS SHALL COMPLY WITH UL555 AND NFPA REQUIREMENTS; SEE ARCHITECTURAL DRAWINGS FOR RATED CEILINGS OR WALLS
7. NECK SIZE TO BE SAME AS BRANCH LINE INDICATED ON DRAWINGS
8. SUPPLY AIR DIFFUSER SHOWN TO BE 4-WAY THROW UNLESS OTHERWISE INDICATED ON DRAWING
9. INSTALL BACKDRAFT DAMPER AND OPPOSED BLADE DAMPER FOR OUTSIDE AIR INTAKE DEVICE

*INSTALL VENT IN OUTSIDE WALL AT OR IN SOFFIT

SPECIAL NOTE;
SOME OF THE DEVICES AND PRODUCTS INDICATED ABOVE MAY NOT APPEAR ON CONSTRUCTION DOCUMENTS; VERIFY ACTUAL ITEMS PRIOR TO INSTALLATION

AIR DIFFUSER PATTERNS



CFM RANGE & DUCT CONNECTION SCHEDULE

CFM RANGE	DUCT CONNECTION SIZE (INCHES)				CFM RANGE	DUCT CONNECTION SIZE (INCHES)		
	SUPPLY AIR	RETURN AIR	EXHAUST AIR			SUPPLY AIR	RETURN AIR	EXHAUST AIR
25-80	5"ø	6"ø	4"ø		311-400	12"ø	14"ø	12"ø
81-115	6"ø	8"ø	6"ø		401-475	12"ø	16"ø	14"ø
116-150	7"ø	9"ø	6"ø		476-600	14"ø	16"ø	14"ø
151-200	8"ø	10"ø	8"ø		601-800	16"ø	18"ø	16"ø
201-249	9"ø	10"ø	8"ø		801-1000	18"ø	20"ø	16"ø
250-310	10"ø	12"ø	10"ø		1000-1600	20"ø	20"ø	18"ø

DIFFUSER LEGEND

A4 — SEE DIFFUSER, REGISTER & GRILLE SCHEDULE & AIR DIFFUSER PATTERN SCHEDULE
400 — REQUIRED AIR QUANITY (CFM) SEE CFM RANGE & DUCT CONNECTION SCHEDULE

MECHANICAL MATERIAL SCHEDULE

AIR DISTRIBUTION DUCTS		REFRIGERANT & CONDENSATE DRAIN PIPING			PIPING INSULATION DATA				PIPE HANGERS	PIPE PENETRATIONS	FLEXIBLE DUCTS				EXTERNAL DUCT INSULATION WRAP						INTERNAL DUCT INSULATION ACOUSTIC LINER					
MATERIAL	SEALER	BELOW FINISHED FLOOR	CONDENSATE DRAIN	ABOVE FINISHED FLOOR	FITTINGS	JACKET	THICKNESS	LOCATION			MANUF.	SERIES	MAX. LENGTH	R-VALUE	MANUF.	SERIES	MIN. THICKNESS	MIN. R-VALUE	VAPOR BARRIER	SEALER	LOCATION	MANUF.	SERIES	MIN. THICKNESS	COATING	LOCATION	MIN-MAX. LENGTH
CLASS "G" GALVANIZED STEEL OR ROLLED STEEL IN COMPLIANCE WITH SMACNA LOW-MEDIUM PRESURE DUCT STANDARDS, TESTED AT LESS THAN 1% AIR LEAKAGE	SEE DUCT INSULATION-WRAPPING DETAIL	COPPER TUBING-TYPE "K" SOFT ANNEALED TEMPER NO JOINTS BELOW FLOOR	SCHEDULE 40 PVC WITH SOLVENT WELD PVC FITTINGS IF APPROVED BY LOCAL CODES	COPPER TUBING-TYPE "L" HARD DRAWN TEMPER WITH WROUGHT COPPER FITTINGS & BRAZED JOINTS AT 1100 DEG F!, FLUX MATERIAL NOT ALLOWED	ZESTON FITTING COVERS	UNIVERSAL ALUMINUM JACKET AT OUTSIDE & EXPOSED AREAS	5/4" ARMAFLEX	REFRIGERANT SUCTION LINE CONDENSATE DRAIN IN ATTIC AREA	CLEVIS TYPE ON THREADED RODS IN COMPLIANCE WITH 2003 ICC STANDARD PLUMBING CODE SECTION 308	METACAULK UL-CAJ1154 UL-WL2185	THERMAFLEX	MKE	6 FT	8.0	JOHNS MANVILLE	MICROLITE	2.5"	8.5	FSK	SEE DUCT INSULATION-WRAPPING DETAIL	ALL SUPPLY, RETURN & EXHAUST AIR DUCTS	JOHNS MANVILLE	PERMACOTE LINACOUSTIC R300 RATED AT 6000 FPM	1"	WITH HOSPITAL MICROBIAL WHITE COATING	ALL SUPPLY, RETURN & EXHAUST AIR DUCTS AT EQUIPMENT	FROM EQUIPMENT OUT AT 10 FT FOR AHU-3-6 & 5 FT FOR ALL OTHER AH-1,2, & 5 FT FOR EF-4,5

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E. LOCKE

Project Name:
Mt. Carmel
Baptist Church
Lake City, Florida

Project #: 1311-050711-Mt. Carmel Church
Date: July 29, 2005
Scale: NTS
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Sheet M2 of 4

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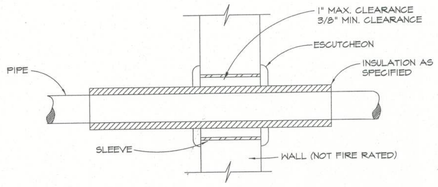

PIPE PENETRATION OF NON-FIRE RATED WALL

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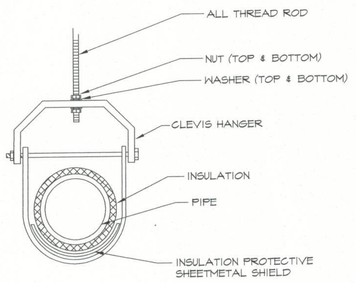

CLEVIS HANGER DETAIL

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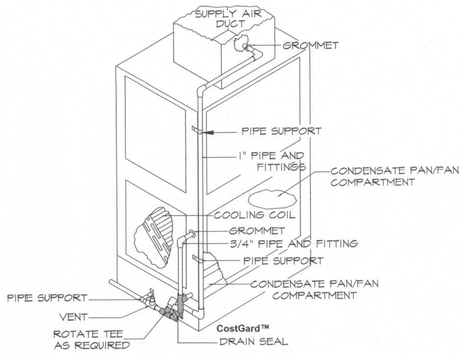


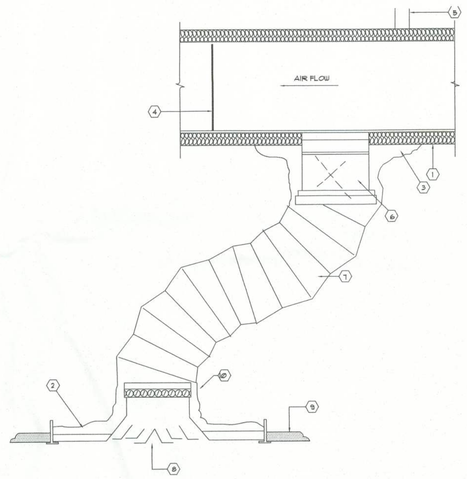
VERT. AHU UNIT CONDENSATE REMOVAL SYSTEM

NO SCALE

MECHANICAL LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
H	DIGITAL HUMIDISTAT CONTROL	D	DRAIN LINE	AC	AIR COND. UNIT	FCU	FAN COIL UNIT
T	DIGITAL ROOM THERMOSTAT (MOUNTED AT 54" AFF)	RL	REFRIGERANT LINES	AFF	ABOVE FINISHED FLOOR	MUA	MAKE-UP AIR
F	FIRESTAT (UL APPROVED TYPE)	G	GAS LINES	AHU	AIR HANDLING UNIT	NTS	NOT TO SCALE
S	SMOKE DETECTOR (IN-LINE TO ALARM SYSTEM)		PIPE TURN-UP	B	BOILER	OSA	OUTSIDE AIR
	RETURN AIR DUCT, GRILLE OR REGISTER		PIPE TURN-DOWN	BD	BALANCING DAMPER	P	PUMP
	SUPPLY AIR DUCT, DIFFUSER, GRILLE OR REGISTER		LONG RADIUS ELBOW	CD	CEILING DIFFUSER	RA	RETURN AIR
	EXHAUST AIR DUCT, GRILLE OR REGISTER		FLEXIBLE PIPE CONNECTOR	CR	CEILING RETURN	RAF	RETURN AIR FAN
	EXHAUST FAN (CEILING/CABINET TYPE)		SIGHT GLASS MOISTURE INDICATOR	CT	COOLING TOWER	RTU	ROOF TOP UNIT
	EXHAUST SUPPLY AIR FAN (IN LINE TYPE)		NEW DUCTS/AIR DISTRIBUTION	DG	DOOR GRILLE	SA	SUPPLY AIR
	EXHAUST/SUPPLY AIR FAN (WALL CENTR. MOUNTED TYPE)		EXISTING DUCTS/AIR DISTRIBUTION TO BE REMOVED PER EPA	DH	DUCT HEATER	SF	SUPPLY FAN
	EXHAUST/SUPPLY AIR FAN (WALL PROP. MOUNTED TYPE)		EXISTING DUCTS/AIR DISTRIBUTION TO REMAIN	EA	EXHAUST AIR	SHD	SIDEWALL DIFFUSER
D	24"ø DRYWELL FOR CONDENSATE DRAIN		FLEXIBLE DUCT NOT TO EXCEED 6 FEET IN LENGTH	EAR	EXHAUST AIR REGISTER	UC	UNDER-CUT
MD	MOTORIZED DAMPER (RUSKIN LOW LEAKAGE 24VOLT)		MANUAL OPPOSED BLADE BALANCING DAMPER (RUSKIN)	EF	EXHAUST FAN	UH	UNIT HEATER
	FLEXIBLE DUCT CONNECTOR			FA	FRESH AIR INTAKE	CWS	COLD WATER SUPPLY
	FIRE DAMPER (RUSKIN) WITH ACCESS DOOR			HWR	HOT WATER RETURN	CWR	COLD WATER RETURN
	ROOF MOUNTED EXHAUST FAN		CEILING RETURN GRILLE/REGISTER WITH 18" OPEN-END BOOT	HR	WALL RETURN	HWS	HOT WATER SUPPLY
	ROOF MOUNTED MAKE-UP OR SUPPLY FAN		CEILING DIFFUSER WITH FLEXIBLE DUCT; DUCT NOT TO EXCEED 6 FEET IN LENGTH	X	VAV BOX TAG NUMBER	?	DRAWING INFORMATION NOTES
	FIRE/SMOKE DAMPER WITH ACCESS DOOR EQUAL TO RUSKIN WITH DG CURRENT		RECTANGULAR OR ROUND DUCT TRANSITION PER SMACNA	X / X	DETAIL NUMBER / SHEET ON WHICH DETAIL IS SHOWN	T	DIGITAL WALL THERMOSTAT WITH 24 VOLT ZONE DAMPER, TRANSFORMER & LOGIC CONTROLLER DEVICE EQUAL TO CARRIER V V T SYSTEM
	45° ELBOW W/AIR FOIL TURNING VANES	10"x18" 12"x24"	RECTANGULAR OR ROUND DUCT. FIRST # INDICATES SIZE OF SIDE SHOWN, NET FREE DIMENSIONS IN INCHES				
	90° ELBOW W/AIR FOIL TURNING VANES		SIDEWALL, WALL OR SOFFIT EXHAUST, SUPPLY, RETURN, OR OUTSIDE AIR DIFFUSER, GRILLE, OR REGISTER.			XX / X	EQUIPMENT TYPE (EF, AHU, RTU, ETC.) SEE SCHEDULES FOR INFORMATION / UNIT NUMBER
	RECTANGULAR BRANCH DUCT OFF RECTANGULAR MAIN TRUNK DUCT WITH ADJUSTABLE AIR FOIL EXTRACTOR WITH ROD		RECTANGULAR BRANCH DUCT OFF RECTANGULAR MAIN TRUNK DUCT WITH VOLUME DAMPER (OPPOSED BLADE TYPE).	X	DIFFUSER, REGISTER OR GRILLE #. SEE SCHEDULE.		

NOTE:
SOME SYMBOLS AND ABBREVIATIONS MAY NOT BE USED ON THESE DRAWINGS.

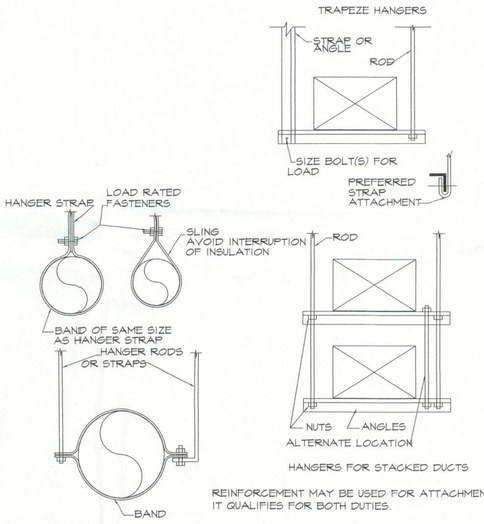


LAY-IN DIFFUSER DETAIL

NTS

DIFFUSER NOTES

1. 2.3" (R-8.5) EXTERNAL INSULATION.
2. FOIL BACK FIBERGLASS INSULATION 2.3" (R-8.5) EXTERNAL. WRAP COMPLETELY AROUND TRUNK DUCT DROP AND GRILLE AS SHOWN.. TAPE AND STAPLE PER DUCT INSULATION/WRAPPING DETAIL FOR ALL DUCTS.
3. SEAL ALL SEAMS AROUND CONNECTION WITH FASON (SMACNA APPROVED) ACRYLIC ALUMINUM REINFORCED DUCT TAPE....SQUEEGEE TAPE TO DUCT FOR SECURE BOND.
4. SEAL ALL DUCT JOINTS AND SEAMS, PAINT SMOOTH AND FILL ALL PIN HOLES ON ALL CONNECTIONS WITH SMACNA APPROVED DUCT SEALER; (USE DUCTMATE FITTINGS ON RECTANGULAR DUCTS).
5. ALL DUCTS SHALL BE SUPPORTED IN AN APPROVED MANNER; SEE DUCT HANGER DETAIL.
6. SPIN-IN EXTRACTOR WITH DAMPER, COASTLINE DISTRIBUTORS MODEL MSI-6 (WITHOUT AIR SCOOP).
7. FLEXIBLE DUCT, THERMAFLEX OR APPROVED EQUAL.
8. LAY-IN TYPE OR SHEET-ROCK CEILING DIFFUSERS. SEE "MECHANICAL SPEC'S" OR SCHEDULES FOR MANUFACTURER AND SERIES.
9. LAY-IN CEILING AND GRID, (BY OTHERS); ADDITIONAL T-BAR FOR LAY-IN PANEL BY OTHERS (VERIFY).
10. OPPOSED BLADE DAMPER.



DUCT HANGER DETAILS

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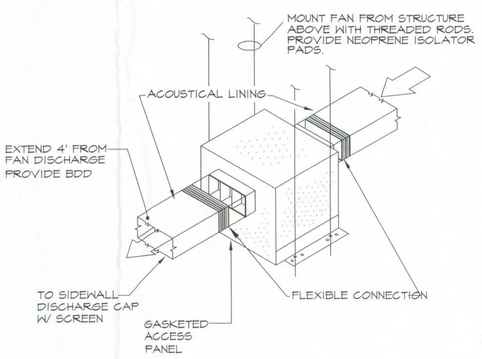

IN-LINE CEILING EXHAUST FAN DETAIL

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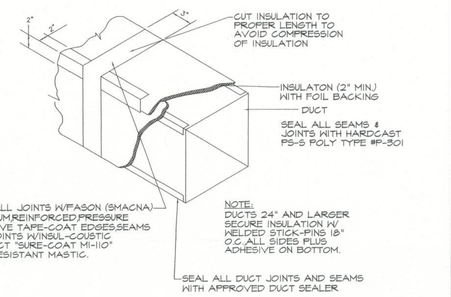
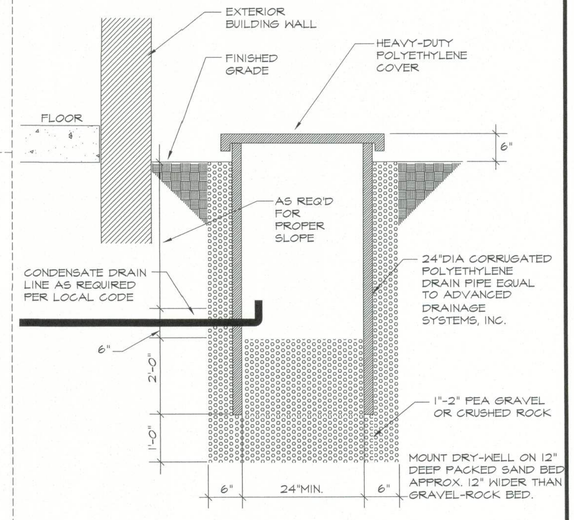


DUCT INSULATION/WRAPPING DETAIL

NTS



TYPICAL DRY-WELL DETAIL

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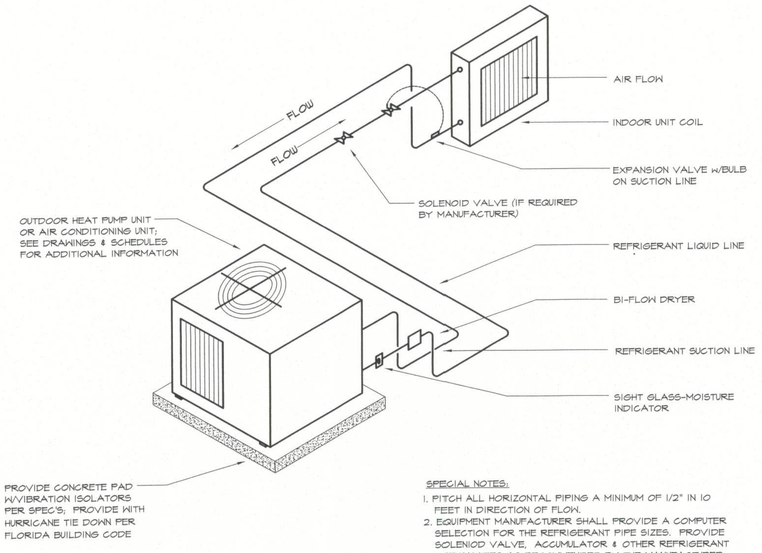
Paper Size:	24 x 36
Sheet	M3 of 4



SPECIAL NOTES:

1. PITCH ALL HORIZONTAL PIPING A MINIMUM OF 1/2" IN 10 FEET IN DIRECTION OF FLOW.
2. EQUIPMENT MANUFACTURER SHALL PROVIDE A COMPUTER SELECTION FOR THE REFRIGERANT PIPE SIZES. PROVIDE SOLENOID VALVE, ACCUMULATOR & OTHER REFRIGERANT SPECIALITIES AS RECOMMENDED BY THE MANUFACTURER.

REFRIGERANT PIPING SCHEMATIC

NTS

A. INSTALL INSULATED CONDENSATE DRAIN WITH DEVICE BY TRENT TECHNOLOGIES (COST-GARD) WITH CLEANOUT; ROUTE TO DRY-WELL OR FLOOR DRAIN AS SO NOTED IN DRAWINGS & SPEC'S.

B. UL APPROVED IN-LINE SMOKE DETECTOR; SEE SPEC'S FOR ADDITIONAL INFORMATION.

C. ROUTE REFRIGERANT LINES TO MATCHING HP OR AC UNIT; SEE SPEC'S, DRAWINGS & PIPING SCHEMATIC FOR REQUIREMENTS.

D. AHU TO BE MOUNTED ON UNISTRUIT STEEL SUPPORTS FROM ROOF STRUCTURE WITH THREADED RODS & SPRING TYPE VIBRATION ISOLATORS; SEE SPEC'S FOR ADDITIONAL REQUIREMENTS.

E. ROUTE 3/4" PAN DRAIN TO OUTSIDE AREA IN COMPLIANCE WITH LOCAL CODES.

F. FLEXIBLE DUCT CONNECTOR.

G. OPPOSED BLADE BALANCING DAMPER & BACKDRAFT DAMPER.

H. UL APPROVED BREAKER OR DISCONNECT FOR FAN & HEATER IN COMPLIANCE WITH NEC CODE & LOCAL REQUIREMENTS.

J. AIR FILTER & RACK; SEE SPEC'S FOR ADDITIONAL INFORMATION & REQUIREMENTS.

K. SUPPLY AIR DUCT WITH 1" LINER & INSULATION AS NOTED IN SPEC'S.

L. EXTERNAL INSULATED OUTSIDE AIR DUCT WITH BUG/BIRD SCREEN.

M. BUILDING RETURN AIR DUCT; DUCT TO BE INSULATED WITH 1" LINER & DUCT WRAP AS NOTED IN SPEC'S.

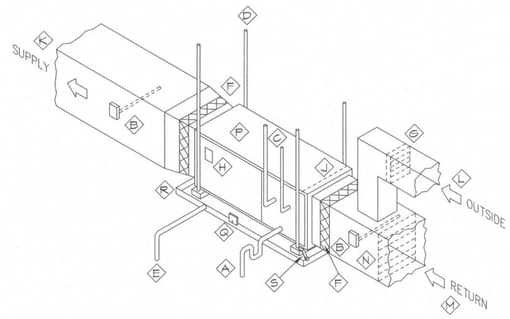
N. OPPOSED BLADE BALANCING DAMPER.

P. AIR HANDLING UNIT; SEE SCHEDULES, SPEC'S & DRAWINGS FOR ADDITIONAL REQUIREMENTS.

Q. MICRO SWITCH BOLTED TO DRAIN PAN WITH CONNECTION TO AHU LOW VOLTAGE HOT WIRE FOR SAFETY.

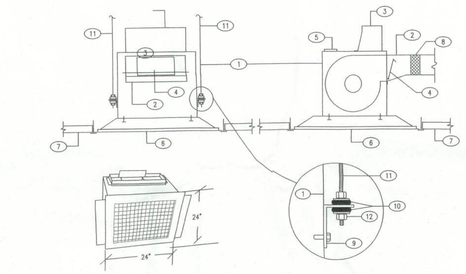
R. INSTALL GALVANIZED AUX. DRAIN PAN UNDER UNIT WITH ANGLE ATTACHMENTS TO UNIT SUPPORTS PER CODE.

S. METAL ANGLE SUPPORTS FOR AUX. DRAIN PAN AT EACH CORNER; PROVIDE ADDITIONAL SUPPORTS TO ASSURE PROPER PAN STRENGTH & DRAINAGE.

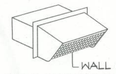


HORIZONTAL AIR HANDLING UNIT WITH WITH ATTACHED DUCT SYSTEM DETAIL

N.T.S.



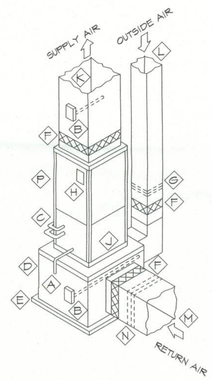
1. GALVANIZED STEEL HOUSING
2. HORIZONTAL DISCHARGE DUCT CONNECTION
3. OPTIONAL VERTICAL DISCHARGE
4. BACKDRAFT DAMPER
5. EXTERNAL ELECTRICAL ACCESS COVER
6. 24"x24" PERFORATED GRILLE
7. CEILING TILE
8. FLEXIBLE DUCT CONNECTOR
9. ADJUSTABLE MOUNTING FLANGE
10. VIBRATION ISOLATOR, TOP AND BOTTOM
11. 3/16" DIAMETER THREADED HANGER RODS, TOTAL OF FOUR, SUPPORT FROM BUILDING STRUCTURE. PROVIDE SECONDARY FRAMING AS NECESSARY
12. NUT AND WASHER



NOTE: PROVIDE WALL CAP WITH ALUMINUM CONSTRUCTION, 10"x4" DUCT CONNECTION, BUILT IN DAMPER AND BIRDSCREEN, AND BAKED ENAMEL FINISH.

CEILING EXHAUST FAN DETAIL

NOT TO SCALE



A. INSTALL CONDENSATE DRAIN WITH DEVICE BY TRENT TECHNOLOGIES (COST-GARD) WITH CLEANOUT; ROUTE TO DRY-WELL OR FLOOR DRAIN AS SO NOTED IN DRAWINGS.

B. UL APPROVED IN-LINE SMOKE DETECTOR; SEE SPEC'S FOR ADDITIONAL INFORMATION.

C. ROUTE REFRIGERANT LINES TO MATCHING HP UNIT; SEE SPEC'S, DRAWINGS & PIPING SCHEMATIC FOR REQUIREMENTS.

D. AHU TO BE MOUNTED ON STEEL ANGLE STAND WITH SEALED METAL PLENUM BOX; BOX TO BE LINED WITH 1" RIGID DUCTBOARD WITH FOIL SURFACE EXPOSED TO AIR SIDE.

E. MOUNT UNIT & PLENUM BOX ON NEOPRENE/CORK PAD COVERING ENTIRE BASE AS SHOWN; AHU'S MOUNTED IN UPPER FLOORS SHALL HAVE AUX. DRAIN PANS UNDER SYSTEM WITH MICRO SAFETY SWITCH & SECONDARY DRAIN PER CODE.

F. FLEXIBLE DUCT CONNECTOR.

G. OPPOSED BLADE BALANCING DAMPER & BACKDRAFT DAMPER.

H. UL APPROVED BREAKER OR DISCONNECT FOR FAN & HEATER IN COMPLIANCE WITH NEC CODE & LOCAL REQUIREMENTS.

J. AIR FILTER & RACK; SEE SPEC'S FOR ADDITIONAL INFORMATION & REQUIREMENTS.

K. SUPPLY AIR DUCT WITH 1" LINER & INSULATION AS NOTED IN SPEC'S.

L. EXTERNAL INSULATED OUTSIDE AIR DUCT WITH BUG/BIRD SCREEN.

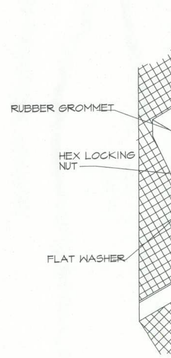
M. BUILDING RETURN AIR DUCT; DUCT TO BE INSULATED WITH 1" LINER & DUCT WRAP AS NOTED IN SPEC'S.

N. OPPOSED BLADE BALANCING DAMPER.

P. AIR HANDLING UNIT; SEE SCHEDULES, SPEC'S & DRAWINGS FOR ADDITIONAL REQUIREMENTS.

UP FLOW VERTICAL AIR HANDLING UNIT WITH ATTACHED DUCT SYSTEM DETAIL

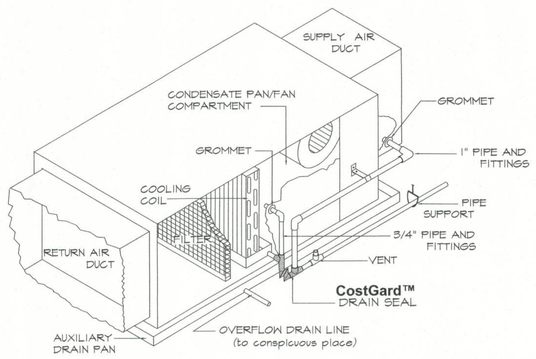
N.T.S.



NOTE:
SECURE BRACKET TO EF WITH SCREWS; VERIFY MOTOR-FAN LOCATION IN CABINET PRIOR TO ANCHORS.

IN-LINE FAN HANGER DETAIL

NTS



HORZ. AHU UNIT CONDENSATE REMOVAL SYSTEM

NO SCALE

COPY

General Notes

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DRAFTING BY:
E. LOCKE

Project Name:
Mt. Carmel
Baptist Church
Lake City, Florida

Project #: 1311-050711-Mt. Carmel Church	Sheet M4 of 4
Date: July 29, 2005	
Scale: NTS	
Paper Size: 24 x 36	

SECTION 15100-MECHANICAL & PLUMBING SPECIFICATIONS

1.1 SUMMARY:

A. Mechanical Specifications provided in this section and on construction documents are in conjunction to other specifications; when conflict occurs between those noted in bid documents or specifications the most restrictive compliance is required.

1.2 QUALITY ASSURANCE:

A. The Contractor shall not fabricate or order any equipment, air distribution, piping or materials until he/she has verified that sufficient clearances are available for the installation of HVAC systems or plumbing materials considering requirements for piping, light fixtures, ceiling systems, floor systems, foundations, and/or structures.

B. Drawings are diagrammatic and indicative of work to be furnished and installed under this contract; refer to architectural, structural, civil and foundations documents for all dimensions.

C. The terms "provide" and "install" shall be considered synonymous with "furnish" and "install".

D. All work shall be installed in a workmanlike manner by experienced tradesmen with at least 5 years experience in this type project.

E. The submission of a bid or proposal will construed as evidence that the Contractor has familiarized himself/herself with the plans, specifications and building site. Claims made subsequent to the proposal for materials and or labor due to difficulties encountered will not be recognized, unless difficulties could not have been foreseen even though proper examination had been made.

F. Equipment, fixtures, ductwork, dampers, louvers, grilles, registers, diffusers, piping and/or other items noted shall conform to the latest editions of the following:

1. ASHRAE
2. ICC-SBCCI
3. SMACNA
4. NFPA
5. AMCA Standard Handbook 99
6. Air Diffusion Council Test Code 1062R3
7. ANSI
8. ASME
9. AGA
10. UL Fire Resistance Directory
11. State Plumbing Code
12. Governing Health Regulations
13. Enviormental Regulations
14. BOCA Codes
15. Any Local Governing Regulations

G. Deviation from materials, methods and procedures set forth herein must be approved in writing by the Engineer. Approval will not be given unless the Engineer is satisfied that the proposed systems is superior in performance, durability, longevity, and reliability to that specified.

H. Approvals of equipment or systems, by the Engineer, must be in written form no less than ten (10) working days prior to project bid date. Any contractor, sub-contractor, manufacturer or representative wishing to bid equal products must comply with this mandatory requirement. Failure to get pre-approval of systems or products prior to this date will result in immediate "NOT APPROVED" signature from Engineer during shop drawing review phase.

I. Systems on schedules, specifications and construction documents are basis for design only; other systems and manufacturers may be approved at review by Engineer.

J. Contractor and sub-contractors must pre-qualify with the Engineer prior to bidding project. Qualifications will be reviewed based on contractors/sub-contractors experience with systems proposed, type of facility, time in trade, quality of workmanship, and experience with the Engineer.

K. Contractor or Owner shall not operate HVAC systems, equipment or fans during construction. Failure to comply with this specification item will result in complete cleaning of all fans, blowers, filters, ducts and air distribution systems with approval by Certified Indoor Air Quality Professional.

L. In order to comply with Indoor Air Quality standards building mechanical systems may be operated for facility "off-gasing" procedures once Owners have obtained professional services of Certified Indoor Air Quality Professional. If professional is not obtained systems shall not be operated as so noted above.

M. Contractor shall maintain a clean and healthy work premise at all times and shall clean construction site of all his/her debris at the completion of the job or as requested by Owner's representative; this is required prior to release of final project payment to contractor.

1.3 GUARANTEE/WARRANTY:

A. All work and materials shall be guaranteed/warranted (parts and labor) for a period of one year from date of FINAL acceptance by Owner. An additional warranty (parts only) shall be included for a period of nine (9) years on all compressors.

1.4 SUBMITTALS/PROJECT MANUALS:

A. Contractor shall supply, to the Engineer, five (5) sets of submittals (in three binder form) for approval on the following:

1. Air Distribution Materials (turning vanes, extractors, spin-in, diffusers, grilles, registers, louvers, etc.)
2. Heating, Ventilation and Air Conditioning equipment
3. Dampers
4. Fans
5. Insulation Materials
6. Controls
7. Plumbing Fixtures
8. Valves, Arrestors, Supports, Circuit Setters, etc.
9. Isolation Devices and Materials
10. Hangers

B. All submittals must be APPROVED, in writing, by the Engineer prior to contractor ordering or project delivery.

C. Contractor shall provide a complete set of reproducible (sepia) "as-built" documents of all equipment, systems, air distribution, controls, piping, etc. This documents shall be provided at the completion of the project and prior to Owner acceptance. As-built documents shall include the location of all cleanouts, shut-off valves, balancing valves, dampers, extractors, etc. with the dimensional location of all exterior utilities. Failure to comply with item will result in Architects/Engineers completing effort with professional services payable by this contractor. Marked-up blueprints by contractor will not constitute compliance with this specification.

D. Operation Instructions/Manuals:

a) Upon completion of work contractor shall supply to the Owner a minimum of four bound sets of all work, tests and necessary instructions for the complete operation and maintenance of all equipment and products installed.

b) Contractor must provide at least a forty-eight (48) hours notice to Owner of training task for Owner personnel on operation and basic maintenance all systems installed, training period shall not be less than one (1) eight work day.

c) Manufacturer's advertising information or catalogs will not be accepted for operating and maintenance manuals.

d) Operation and Maintenance Manuals shall include:

1. maintenance and operating instructions for all equipment and products installed at this job
2. characteristics and curves of all equipment
3. date on all the equipment and products installed to include item, make, model, capacity, electrical characteristics, etc.
4. name, address and telephone number of service agent

1.5 TEST AND BALANCE:

A. A complete certified test and balance report shall supplied by an independent certified test and balance agency per AABC Test and Balance Report Manual (latest edition); this action must take effect prior to Owners final acceptance of the facility.

B. Once Owners have occupied facility agency shall again re-visit site and re-adjust systems based on actual space usage. If this event occurs during one season (cooling or heating) agency shall make an additional adjustment during other remaining season (heating or cooling), as required.

C. Testing shall be for all air distribution, hydronic systems, equipment, fans, controls, dampers, etc.

D. Air distribution devices shall be in compliance with construction documents; Test and Balance agency shall provide all sizes, quantities, and "velocities" noted in documents; air velocities (FPM) not indicated in bid documents shall still be recorded at each device for Engineer review; failure to record both CFM's & FPM's will result in complete system retesting and balance; each air device indicated in documents will include the following typical information at either actual product or as so indicated in schedules:

*Product Face Size Type & Air Pattern
15"x 15" - CD-4
Quantity (CFM's) Velocity (FPM's)
300 - 550
Branch duct size serving air device
w/10"

*does not include T-bar panel or framing

E. Certified Test and Balance agency shall be approved by the Engineer, prior to bidding project.

F. All domestic hot water systems shall also be tested and adjusted to meet design requirements as required by governing codes or as so noted in specifications.

G. All building structures shall have air balance systems to assure slight positive air pressure via designed mechanical systems; this effort shall be field verified by either digital manometer or blower door method; readings to be recorded during typical occupied building usage; additional building spaces maybe required to be tested at request of project Engineer.

1.6 EQUIPMENT/SCHEDULES/FIXTURES:

A. All equipment schedules, fixtures and construction document information notes are hereby noted in specifications and construction documents.

B. Equipment foundations for HP units shall be reinforced concrete 6" thick with pad 6" wider and longer than unit; provide 12" pea-gravel trench, framed in 2" x 12" treated lumber (12" in depth) around entire concrete pad for system defrost and drainage.

C. Materials and products specified shall be listed by the Underwriters Laboratories (UL) or National Electrical Manufacturer's Association (NEMA).

D. All AHU's shall have one inch "carbon-pleated" air filters at units equal to American Air Filter or Precisionaire with INTERCEPT treatment per ASHRAE 62-1999; fiberglass throw-away type filters are NOT acceptable; provide one extra set of filters to Owner after final acceptance.

E. Locate all equipment which must be serviced, operated and/or maintained in fully accessible positions. Doors for access to electric heating coils shall have disconnect switch to break circuits as door is opened. Furnish all doors/panels in accordance with local codes and manufacturer's recommendations for each control valve, control, damper, or other device requiring service.

1.7 PLUMBING/CONDENSATE DRAIN PIPING:

A. All condensate drains shall terminate into indirect waste drains, dry-wells or french drains with concrete pipe minimum 24" in diameter at 24" height filled with pea gravel and 12" sand bed bottom approximately 36" in diameter with approved lid cover and anchored drainpipe not less than 6" below grade; provide through condensate control device as manufactured by Trent Technologies, in Tyler, Texas called "CostGard"; deep seal P-traps with cleanouts are acceptable for condensate drains at equipment.

B. Unless otherwise noted, all water piping shall be routed above sheet-rock ceilings and/or in walls or chases with offsets, as required, to miss obstacles; coordinate with other trades prior to installation.

C. No PVC piping or other materials shall be routed or installed in return air plenums or free pulling mechanical rooms; insulate vent stacks with PVC materials in these areas with 2" external R-6 duct wrap with FSK foil backing and vapor seal with SMACNA approved tape.

D. Water piping below slab floor and finished grade shall be sleeved with 3/4" Armaflex tubing insulation; insulation minimum length shall be three feet; piping shall be tested at 300 PSI prior to earth fill and covering.

E. Water hammer arrestors shall be installed at all water closets, urinals, drinking fountains, washing machines, dishwashers, & tubs/showers in accordance with PDI-WH201 & ANSI/ASSE-1010-1996 as manufactured by Wade or Sioux Chief. Devices to be installed within 6 feet of valve served in hot & cold water lines. Size shall be "A" unless noted otherwise. Vent stacking is not permitted for water hammer arrestors.

F. All copper pressure piping for potable water and condensate drains shall be soldered entirely with silver solder with less than 0.2% lead per ICC-SBCCI Standard Plumbing Code.

G. All water piping must be disinfected in accordance with ICC-SBCCI Standard Plumbing Code and verified by written report from the local and State Boards of Health.

H. Utility connections indicated on documents are the best information available to the design engineer and shall be field verified by the contractor prior to installation.

I. All piping inverts will be established after finished floor elevations and utility sewer inverts are determined.

J. Prior to cover-up or back-fill of soil-waste-vent piping (below finished grade/floor areas) systems shall be filled with water and tested at ten (10) foot head with all fittings and joints open for review by Engineer and/or local building inspection department. Any piping not inspected will be removed with damages to be fully repaired by this contractor. After plumbing fixtures have been set and their traps filled with water the entire sanitary sewer system shall be tested with air pressure of not more than 0.1 inches of water column and smoke peppermint test. Perform the air an smoke test with an approved smoke testing machine which will show a clear passage of smoke and air throughout the entire system. The system shall be proven absolutely tight under such test.

K. All water piping shall be tested at a minimum of 150 PSI for 2 hours, with no leaks, prior to insulation or connections to local utilities; review of test shall be by Engineer or local utility official.

L. Route all temperature-pressure relief lines to outside per ICC-SBCCI Standard Plumbing Code.

M. Route all vent lines to common stacks in order to limit roof penetrations; roof penetrations shall be routed to backside of roof at all times; verify locations and slopes at site.

N. All piping sizes shown are clear net inside dimensions.

O. All piping materials shall be of the following:

1. Soil-Waste-Vent Piping
   a. schedule 40 PVC (solid) with solvent welding; thin-wall or core type walls (coextruded core) are NOT accepted except for venting systems only
2. Potable Water Piping
   a. below floor-type "K" soft copper (pressure tested) in compliance with ASTM-B.88
   b. above floor-type "L or M" hard drawn copper with ANSI-B16.8 & ASME-B16.22 soldered joint fittings with 457A tin-antimony soldering
   c. stop valves shall be bronze ball valves with stainless steel balls & Teflon packing & gaskets
3. Condensate Piping
   a. copper type "L or M" hard drawn or
   b. schedule 40 PVC with solvent welding
4. Insulation
   a. ALL potable water piping, including hot water, hot water return and cold water piping (in non-conditioned areas and outside walls) shall be 1" thick fiberglass insulation (ASTM C547) with Universal jacket (secured with Foster 85-75); provide protection blocking & shields at each hanger; fittings shall be furnished with "Zeston" plastic fitting covers; all joints shall be finished with Foster 30-36 & reinforced with 20x20 glass fabric; Armaflex, RubaTex or similar tubing insulation is NOT approved
5. Pipe Hangers
   a. pipe hanger spacing and sizing shall be in accordance with Section 308 of International Code Congress Standard Plumbing Code(2003); hanger strap or bands will not be permitted
   b. hangers shall be Fee & Mason Figure 364 with Figure 227 adjustable for copper pipe
   c. hangers for horizontal sanitary piping shall be expansion ring or clevis type spaced no more than 5 feet apart; vertical pipe passing thru slabs shall be supported with Fee & Mason Figure 241 riser clamps
6. Cleanouts
   a. floor cleanouts (FCO) to be equal to Wade #W-6030-SV-27S
   b. outside cleanouts (COTG) to be equal to Wade #W-6030-SV-2 in 18" square by 6" thick concrete pad flush with finished grade
   c. wall cleanout (WCO) to be equal to J.R. Smith #4420
7. Valves
   a. ball valves equal to Hammond #806
   b. check valves equal to Hammond #915
8. Meters
   a. water meter/regulators equal to Hilkins #475 in underground vault with traffic lid per local code
9. Backflow Preventors
   a. equal to Hays #40301 in underground vault with traffic lid per local code

P. All water piping, outside building, shall be buried minimum of 18" below finished grade for freeze protection in accordance with International Code Congress Standard Plumbing Code.

Q. All floor drains or floor sinks serving ice machines or similar products shall be insulated with sealed 1/2" Armaflex tubing material from drain to a minimum of 10 feet down stream; purpose is to prevent possible condensation issues; actual length maybe increased if so deemed necessary by Engineer.

1.8 PIPING SPECIALTIES:

A. Escutcheons: Chrome-plated, stamped steel, hinged, split-ring escutcheon, with set screw. Inside diameter shall closely fit pipe outside diameter, or outside of pipe insulation where pipe is insulated. Outside diameter shall completely cover the opening in floors, walls, or ceilings. All exposed pipes, refrigerant lines and/or water piping & drains under cabinets or counters shall have escutcheons installed; this action also applies to piping systems installed in mechanical rooms, outside structures or other exposed areas.

B. Unions: Malleable-iron, Class 150 for low pressure service and class 250 for high pressure service; hexagonal stock, with ball-and-socket joints, metal-to-metal bronze seating surfaces; female threaded ends.

C. Dielectric Unions: Provide dielectric unions with appropriate and connections for pipe materials in which installed (screwed, soldered, or flanged), which effectively isolate dissimilar metals, to prevent galvanic action, and stop corrosion.

D. Dielectric Waterway Fittings: Electroplated steel or brass nipple, with an inert and non-corrosive, thermoplastic lining.

E. Y-Type Strainers: Provide strainers full line size of connecting piping, with ends matching piping system materials. Screens shall be Type 304 stainless steel, with 3/64" perforations at 233 per square inch.

F. Sleeves:

1. Sheet-Metal Sleeves: 10 gage, galvanized sheet metal, round tube closed with welded longitudinal joint.
2. Steel Sleeves: Schedule 40 galvanized, welded steel pipe, ASTM A53, Grade A.

G. Mechanical Sleeve Seals: Modular mechanical type, consisting of interlocking synthetic rubber links shaped to continuously fill annular space between pipe and sleeve, connected with bolts and pressure plates which cause rubber sealing elements to expand when tightened, providing watertight seal and electrical insulation.

H. P-Traps and water piping underneath handicapped lavatories, sinks and drinking fountains shall be wrapped with "HANDI LAV-GUARD" kits per American With Disabilities Act, as manufactured by Truebro, Inc.

I. Contractor shall maintain the integrity of all fire walls, structures, ceilings and floor systems with "METACAULK" approved fire system materials per UL-CA.12154 (ceiling-floor systems) or UL-WL.2155 (wall systems); verify actual ratings with architectural construction documents; contact manufacturer "RECTORSEAL" at 800-231-3345 for additional information.

1.9 AIR DISTRIBUTION:

A. All air distribution shall be air tight and free of leaks, and must be inspected for leaks prior to installation of fan units or finished ceiling/floor systems; ductwork shall be sealed with air duct sealer per SMACNA Standards and UL ratings.

B. All supply, return, exhaust and outside air ducts shall be galvanized metal with 2.5" external insulation having vapor, retarding jacket (FSK type) with R-8.5 value equal to Johns Manville "Microlite"(formaldehyde-free product). Insulation shall comply with UL 181 and must have flame spread rating of 25 and a smoke developed rating no higher than 50. Apply white mastic fire rated duct insulation sealer to all joints and seams per SMACNA Standards.

C. No ducts shall be internally insulated, unless otherwise noted.

D. Fibrous Ductboard systems are NOT approved.

E. Install flexible duct connectors at all fans, air handling units, roof-top-units, package units and other air moving equipment.

F. All ducts are to have air extractors (adjustable type) on square or rectangular take-offs with spin-in volume dampers (no scoops) on round or oval take-offs.

G. Square or rectangular 90 degree and 45 degree elbows shall have "air-foil" type turning vanes, installed per SMACNA Standards.

H. Flexible ducts must comply with UL 181 and shall not exceed six feet in length; remaining branch line shall be galvanized metal with R-6 external insulation and white fire mastic sealant; flexible ducts are to have foil backing (FSK type).

I. The interior face of all ductwork housing supply, return and exhaust air diffusers, registers or grilles shall be painted "flat-black" so when viewed from below and above nothing beyond surface of air device is visible.

J. Wherever the depth of a trunk duct is less the round runout duct diameter noted contractor shall provide transition fittings (manufactured) of equivalent area to the round duct.

K. All exhaust (including plumbing vents) shall be separated at least ten (10) feet from air intakes.

L. Fire dampers shall be rated at a minimum of 2 hours per UL555, equal to RUSKIN, with approved access doors (insulated); dampers shall be FREE area type.

M. Install backdraft dampers, volume dampers, insect screens and approved weather proof wall louvers or door grilles on all outside air intakes.

N. All duct sizes shown are clear net inside dimensions.

O. Ducts shall be properly supported from structure per SMACNA Standards.

P. All square or rectangular ducts 24" wide or larger shall be connected using "Ductmate" type fittings; bar locks, "S" locks, etc. for larger ducts will NOT be accepted for joints; joints smaller than 24" shall be screwed bar lock type with drives & mastic duct sealer.

Q. Galvanized metal ducts must be constructed of the following minimum gauge requirements using either cross-breaking, bead construction or mechanical stiffeners:

1) 10" & down.....26 gauge
2) 11"-18".....26 gauge
3) 19"-20".....24 gauge
4) 21"-24".....22 gauge
5) 25"-26".....20 gauge
6) 27"-36".....18 gauge
7) 37"-48".....16 gauge
8) 49" & up.....comply with SMACNA manual

X. Provide 1/2" duct liner for all AHU's as noted in "Mechanical Material Schedule" for acoustics using Johns-Manville "Permacote Linacoustic"; material shall be properly applied, clipped and sealed per SMACNA Standards; products to have hospital sealer with biological treatment; apply lining to both supply and return ducts but NOT outside air intakes.

Y. All supply, return & exhaust air ducts shall have galvanized elbows with 2.5" (R-8.5) external duct insulation at diffusers, grilles or registers; this requirement is to prevent air restrictions caused by typical flexible duct materials.

1.10 SPECIAL PROJECT NOTES:

A. Entire building shall be pressure tested during certified test-n-balance effort to assure positive building pressure of at least 2.5 pascal. Other rooms in building shall also tested based on the following requirements:

1. toilet rooms, lockers, kitchens, outside storage or electrical rooms shall be under negative air pressure from 0.0 to -.1 pascal
2. office areas, work rooms, sanctuary rooms, class rooms, etc. shall be under positive room pressure from 0.00 to 2.5 pascal

Certified room map testing and recording shall be submitted with certified system report by project approved certified test and balance contractor. Project will not be accepted until this effort has been approved by project engineer.

B. Water and sewer systems shall connect to existing systems; verify at site prior to installation and connection; if existing systems are not adequate to handle additional load requirements then contractor shall immediately notify Owners and Engineers.

C. Install chrome drainage pipe at all sinks, lavatories and water coolers from P-traps with tail-piece to wall sleeve; material to be same size, gauge and type as device specified; PVC products shall not be used for any exposed components (unless otherwise noted).

D. Some supply, return or exhaust air diffusers, grilles or registers are shown on drawings directly below main air trunk ducts for information only; these lines must be routed in such manner as to prevent direct sound noise from main trunk ducts by either side line tap-in with 3 foot flexible duct extensions or bottom drops with same length flexible ducts; verify exact requirements in field with finished ceilings prior to installation.

E. Water piping over 50 feet in "straight" length shall have pipe expansion joint to prevent leaks due to building & thermal movement; expansion joint loop maybe used in lieu of mechanical fitting if approved by project engineer.

F. All domestic hot water piping in facility shall be delivered at 140 degrees F° to last fixture from tank unit unless otherwise noted; this is a mandatory requirement in an attempt to control bacteria growth inside systems such as Legionella; tempered mixing valves shall be installed at each point-of-use in compliance with the American Society of Safety Engineers section 1016 for all showers, bath-tubs, lavatories and sinks; these devices shall be Type T/P for control of both temperature and pressure as noted in ASSE 1016 with water tempered for delivery at 110 degrees F°.

1.11 APPROVED MANUFACTURERS

A. The following manufacturers are approved for products specified on construction documents:

1. PLUMBING SYSTEMS
   a) Water Closets: Kohler, American Standard or Mansfield
   b) Lavatories: Kohler, American Standard, Elkay or Dayton
   c) Cleanouts: Wade or Zurn
   d) Valves: Hammonds or Chicago
   e) Faucets: Kohler, American Standard, Mansfield, Delta or Chicago
   f) Water Coolers: Oasis or Haveley Taylor
   g) Water Heaters: A.O.Smith, Rheem/Ruud or State
2. HEATING & AIR CONDITIONING
   a) Carrier, York, Trane, Lennox or Rheem/Ruud
3. VENTILATION
   a) Greenheck, Acme, Penn or Cook
4. AIR DISTRIBUTION
   a) Metalaire, Carnes or Titus

1.12 IDENTIFICATION:

A. Equipment and piping identification marking shall be black stenciled 3/4" high letters applied over finished painting and shall comply with ANSI specifications, local codes or as herein described. Identification must include unit number, area served, flow direction (air, water, refrigerant, gas, etc.) and material type (supply air, return air, exhaust air, chilled water supply, chilled water return, etc.). All valve tags are to be applied to valves controlling main, risers and branches. Valve tags shall be plastic not less than 1-1/2" wide with 3/4" high stamped numbers and coded lettering.

B. All equipment, air distribution and piping shall be properly identified and labeled for easy understanding of systems and flows.

C. Water and refrigerant piping shall be labeled with painted color stencils (minimum 1" high) indicated material type (hot, cold, discharge, liquid, etc.) with flow direction.

D. Duct systems (supply, exhaust, and return) to be labeled (same as piping) with directional arrow for air flow; labeling must be at equipment and every 20 feet of systems.

1.13 ELECTRICAL/CONTROLS:

A. All air handling units (AHUs) shall have in-line smoke detectors installed in both supply-return air plenums, as so noted in construction documents; detectors shall be type as manufactured by "BRK" or approved equal; units shall automatically sound audible alarm, turn-off fans and send signal to fire control alarm panel per NFPA; contractor must provide and install detectors, compatible with fire alarm system, with necessary wiring, controls and transformers; if detectors and wiring are provided by fire alarms contractor then HVAC contractor shall install detectors in ducts; if detectors are not compatible with fire alarm system contractor shall purchase correct units to maintain fire alarm system certification and warranty. all system smoke detectors to have remote indicator light systems located in ceiling area directly above room thermostats served by controlled unit (verify exact location prior to installation).

B. All controls, wiring, relays, transformers, starters, disconnects and accessories for HVAC systems and equipment shall be under this contractor for a complete heating, ventilation and air conditioning system.

C. Room thermostats shall be mounted at 54 inches above finished floor; thermostats to be programmable type with night set-up/set-back and 7-day clock functions with battery back-up; thermostat controls shall be with bi-metallic actuated adjustment sensing elements and have internal mounting plate and tamper proof blank cover plate in lieu of locking cover device; if manufacturer can not provide tamper proof product then locking cover product maybe substituted (with approval from Engineer); heat pump units shall have outdoor thermostats; all indoor fans shall be cycled "on" (SMART fan control) during normal occupancy for facility air balance with system operating at "auto" fan position during unoccupied periods; heating and cooling cycles must be manual switched type; control contractor shall guarantee the control system installed to be free from defects and must provide service for one full year after date of final acceptance by Owner.

D. All control wiring shall be plenum rated cable; wiring in walls & exposed locations shall be installed in EMT per latest edition of the National Electrical Code, with correct turns and pull-boxes.

E. Motor starters shall be supplied by HVAC Contractor and installed by Electrical Contractor; motor starters must be approved with automatic controls capable of making frequent starts as device demands; horsepower rating each starter shall not be less than the motor it controls; each starter shall be equipped with a TwinBreak type contact for each ungrounded line to motor.

1.14 PIPING INSTALLATIONS:

A. Ream ends of pipes and tubes, and remove burrs. Bevel plain ends of steel pipe.

B. Remove scale, slag and dirt for both inside and outside of piping and fittings before assembly.

C. Conceal all pipe installations in walls, pipe chases, utility spaces, above ceilings, below grade of floors, unless indicated otherwise.

D. Install piping free of sags or bends and with ample space between piping to permit proper insulation applications.

E. Install exposed piping at right angles or parallel to building walls. Diagonal runs are not permitted, unless expressly indicated on the construction documents.

F. Install piping tight to slabs, beams, joists, columns, walls and other permanent elements of the building. Provide space to permit insulation applications, with 1" clearance outside the insulation. Allow sufficient space above removable ceiling panels to allow for panel removal.

G. Locate groups of pipes parallel to each other, spaced to permit applying full insulation and servicing of valves.

H. Install drains at low points in mains, risers and branch lines consisting of a tee fitting, 3/4" ball valve, and a short 3/4" threaded nipple and cap.

I. Wall Penetrations: Seal all pipe penetrations through interior and exterior walls using sleeves and mechanical sleeve seals. Pipe sleeves smaller than 6" shall be steel; pipe sleeves 6" and larger shall be sheet metal.

J. Fire Barrier Penetrations: Where pipes pas through fire rated walls, partitions, ceilings, or floors, the fire rated integrity shall be maintained with "Metacaulk" material.

K. Use pipe fittings for all changes in directions and all branch connections.

L. Remake leaking joints using new materials.

M. Install strainers on the supply side of each piping control valve, pressure reducing or regulating valve, solenoid valve, and elsewhere as required.

N. Install unions adjacent to each valve, and at the final connection to each piece of equipment and plumbing fixture having 2" and smaller connections, and elsewhere as required.

O. Install flanges in piping 2-1/2" and larger, adjacent to each valve, at the final connections.

P. Install dielectric unions to connect piping materials of dissimilar metals in dry and wet piping systems (water, steam, gas, compressed air, vacuum).

Q. Refrigerant lines under slab floors or below grade shall be installed in PVC schedule 30/54; seal open ends with proper slope per manufacturer recommendations.

R. All underground piping shall be painted with a minimum of two coats of black asphaltum; material embedded in concrete need not be painted. Pipes protruding through concrete floors shall be bitumastic coated at the point of breach.

1.15 EXECUTION:

A. Contractor shall pay for all inspection permits, certificates, meters, connection fees, systems charges and license fees in connection with his/her work.

END OF SECTION 15100

General Notes

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DRAFTING BY:
E. LOCKE

Project Name:
Mt. Carmel
Baptist Church
Lake City, Florida

Project #: 1311-050711-Mt. Carmel Church	Sheet MS of 1
Date: July 29, 2005	
Scale: NTS	
Paper Size: 24 x 36	

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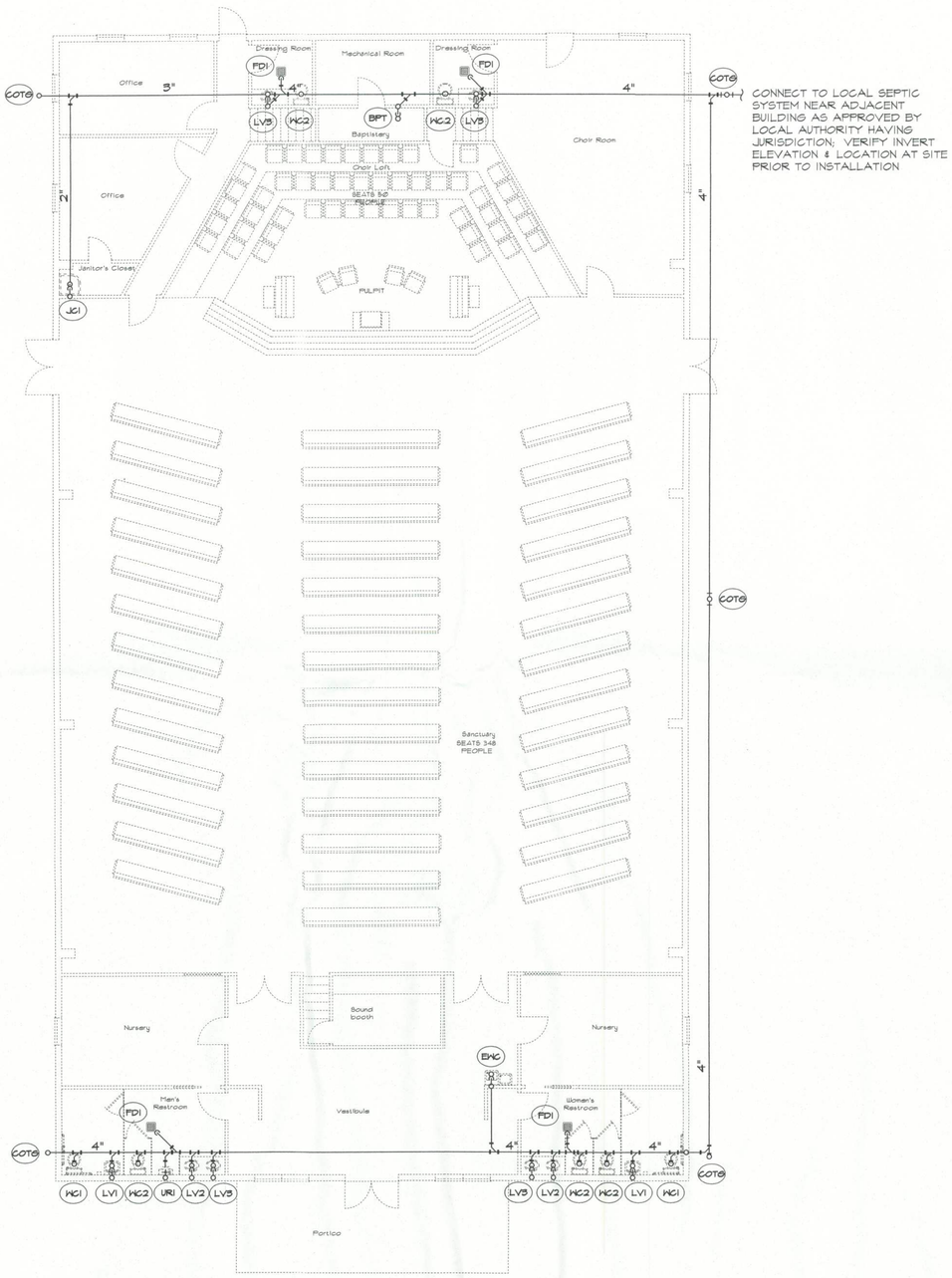
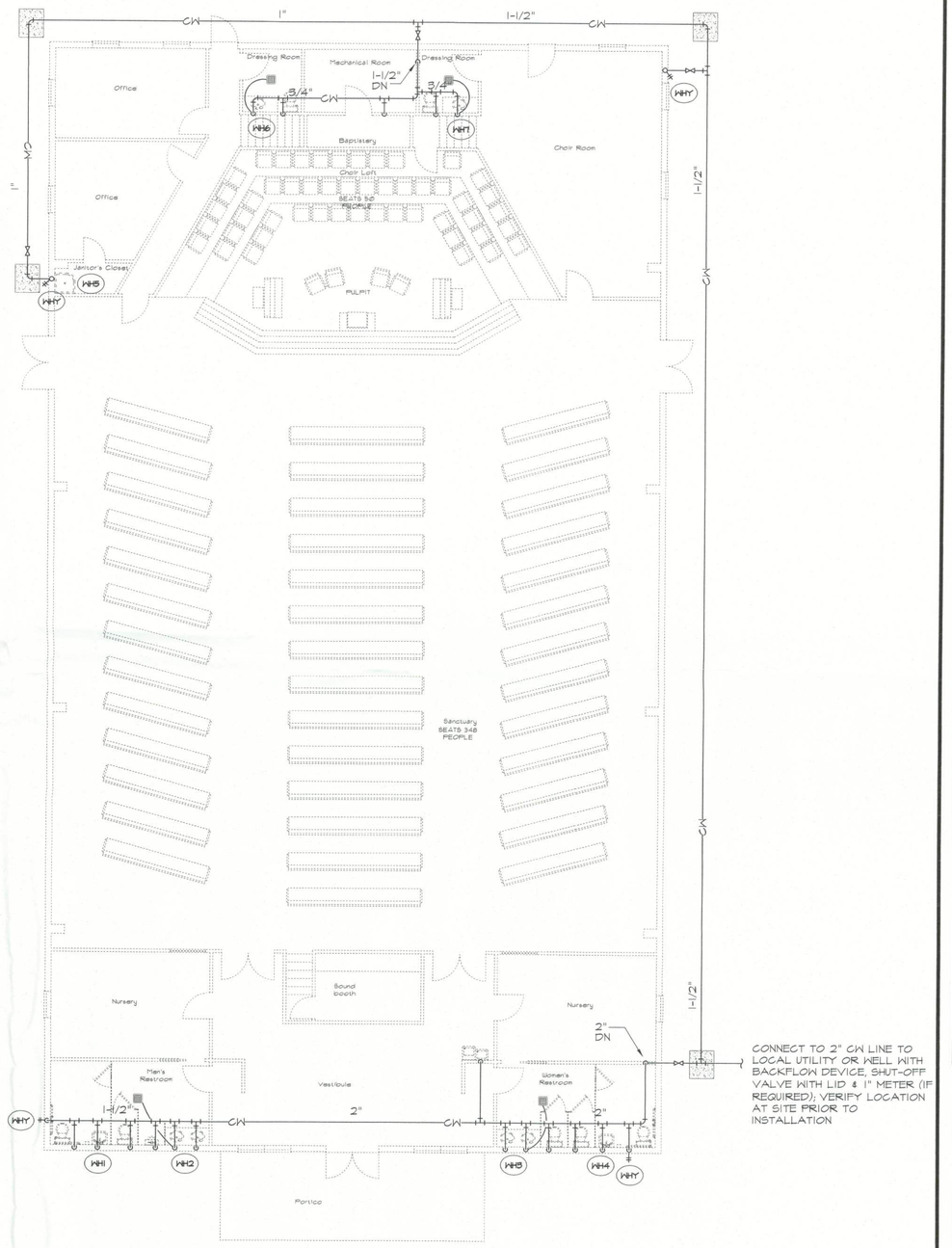


CONNECT TO LOCAL SEPTIC SYSTEM NEAR ADJACENT BUILDING AS APPROVED BY LOCAL AUTHORITY HAVING JURISDICTION; VERIFY INVERT ELEVATION & LOCATION AT SITE PRIOR TO INSTALLATION

OVERALL BUILDING SWV PLUMBING PLAN

SCALE 1/8"=1'-0"



CONNECT TO 2" CW LINE TO LOCAL UTILITY OR WELL WITH BACKFLOW DEVICE, SHUT-OFF VALVE WITH LID & 1" METER (IF REQUIRED); VERIFY LOCATION AT SITE PRIOR TO INSTALLATION

OVERALL BUILDING WATER PIPING PLAN

SCALE 1/8"=1'-0"

General Notes

ALL PROJECT WATER HEATERS TO BE INSTANTANEOUS TYPE FOR EITHER SINGLE OR DUAL FIXTURES & NOTED IN SCHEDULES & DETAILS

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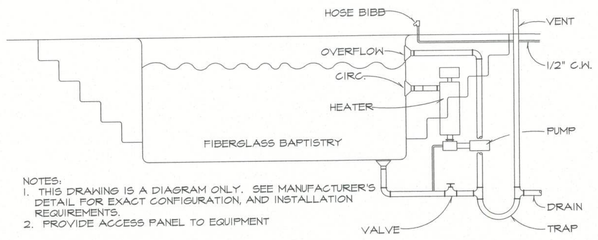
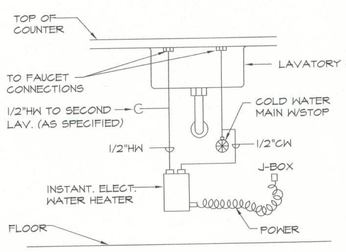


NOTES:
1. THIS DRAWING IS A DIAGRAM ONLY. SEE MANUFACTURER'S DETAIL FOR EXACT CONFIGURATION, AND INSTALLATION REQUIREMENTS.
2. PROVIDE ACCESS PANEL TO EQUIPMENT

TYPICAL BAPTISTRY UNIT DETAIL

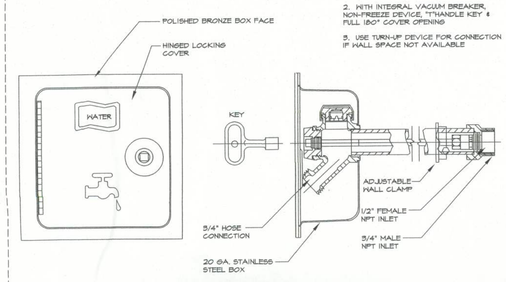
NTS



INSTANTANEOUS WATER HEATER DETAIL

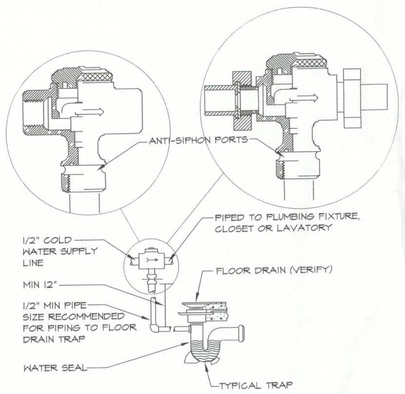
NOT TO SCALE

NOTES:
1. TURN PIPING UP INSIDE WALL AS REQUIRED WITH BOX ANCHORED TO WALL SYSTEM
2. WITH INTEGRAL VACUUM BREAKER, NON-FREEZE DEVICE, "T"HANDLE KEY & FULL 180° COVER OPENING
3. USE TURN-UP DEVICE FOR CONNECTION IF WALL SPACE NOT AVAILABLE



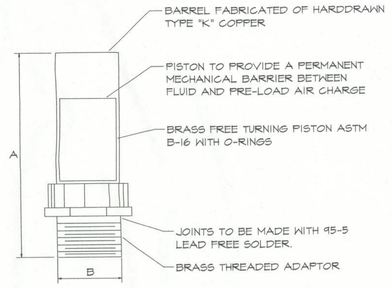
WALL HYDRANT DETAIL

NTS



TYPICAL TRAP PRIMER DETAIL

NTS



PPP SIZE	P.D.I. SYMBOL	FIXTURE UNIT RATINGS	A SIZE	B SIZE
1/2"	A	1 - 11	5"	1/2"
3/4"	B	12 - 32	5"	3/4"
1"	C	33 - 60	7"	1"
1-1/4"	D	61 - 113	7"	1-1/4"
1-1/2"	E	114 - 154	9"	1-1/2"
2"	F	155 - 330	9"	2"

NOTE: INSTALL AT WATER CLOSETS, LAVATORIES, WASHING MACHINE BOX, & WATER HEATERS AS NOTED IN SPEC'S.

WATER HAMMER ARRESTOR DETAIL

NOT TO SCALE

PLUMBING FIXTURE SCHEDULE

SYMBOL	DESCRIPTION	MANUF.	MODEL NO.	CW	HW	WASTE	VENT	ADA/ANSI HEIGHT	MAX. WATER USAGE	COLOR FINISH	REMARKS
WC1	FLOOR MOUNTED HANDICAPPED WATER CLOSET	KOHLER BEMISS	K-3544 1855SSC	1/2"		3"	2"	17-19" AFF	1.6 GPF	WHITE	FLOOR MOUNTED UNIT WITH CHROME STOPS/SUPPLIES, LID LOCKS, BED PAN LUGS & ANTI-MICRO SEAT; INSTALL PER ADA/ANSI-A117.1 HANDICAPPED CODE
WC2	FLOOR MOUNTED STANDARD WATER CLOSET	KOHLER BEMISS	K-3458 1855SSC	1/2"		3"	2"		1.6 GPF	WHITE	FLOOR MOUNTED UNIT WITH CHROME STOPS/SUPPLIES, LID LOCKS, BED PAN LUGS & ANTI-MICRO SEAT
UR1	WALL MOUNTED HANDICAPPED URINAL	KOHLER SLOAN	K-4960ET 186	1"		3"	2"	17" AFF	1.0 GPF	WHITE	WALL MOUNTED UNIT WITH J.R.SMITH WALL CARRIER INSTALLED PER ADA/ANSI-A117.1 HANDICAPPED CODE
LV1	HANDICAPPED WALL LAVATORY	KOHLER	K-2867 K-15635	1/2"	1/2"	2"	1-1/4"	34" TO RIM	2.50 GAL/MIN	WHITE	CHROME STOPS/SUPPLIES & P-TRAP WITH TAILPIECE; INSTALL WITH J.R. SMITH WALL CARRIER PER HANDICAPPED CODE
LV2	HANDICAPPED COUNTER LAVATORY	KOHLER	K-2196 K-15542F	1/2"	1/2"	2"	1-1/4"	34" TO RIM	2.50 GAL/MIN	WHITE	CHROME STOPS/SUPPLIES & P-TRAP WITH TAILPIECE; INSTALL PER HANDICAPPED CODE
LV3	STANDARD COUNTER LAVATORY	KOHLER	K-2196 K-15542F	1/2"	1/2"	2"	1-1/4"		2.50 GAL/MIN	WHITE	CHROME STOPS/SUPPLIES & P-TRAP WITH TAILPIECE
WH-1 THRU WH-7	INSTANTANEOUS WATER HEATER	EEMAX	SP2412	3/4"	3/4"						INSTANTANEOUS WATER HEATER LOCATED UNER SINK OR ABOVE JANITOR CLOSET RATED AT 115V-1PH-2400 WATTS
FD1	FLOOR DRAIN	J.R. SMITH	DX2310	3/8"		3"	2"		2.0 DFU	BRASS	WITH SQUARE ADJUSTABLE TOP & TRAP PRIMER TO NEARBY COLD WATER LINE
JC1	JANITOR SINK	KOHLER	K-6710	3/4"	3/4"	2"	1-1/2"		3.0 GAL/MIN	WHITE	FLOOR UNIT WITH 6FT. HOSE, SPRAY NOZZLE, RIM GUARD & VACUUM BREAKER
EWC	HANDICAPPED WATER COOLER	ELKAY	PSAMSL	1/2"		2"	1-1/2"		1.50 GAL/MIN	BEIGE	WALL MOUNTED UNIT WITH CHROME STOPS/SUPPLIES USING J.R.SMITH WALL CARRIER PER HANDICAPPED CODE
WHY	WALL HYDRANT	WOODFORD	B65	3/4"					3.0 GAL/MIN		WITH KEY BOX, VACUUM BREAKER & FREEZE PROTECTION DEVICE

SPECIAL NOTES:
1. WSFU = WATER SIZING FIXTURE UNITS
2. DFU = DRAINAGE FIXTURE UNITS
3. GPF = GALLON PER FLUSH
4. GAL/MIN= GALLON PER MINUTE
5. OTHER APPROVED VENDOR PRODUCTS FOR NOTED MANUFACTURERS ARE: MANSFIELD, ELJER, DAYTON, RHEEM/RUUD, WADE, ZURN, SILVER CAST, ELKAY, AND AMERICAN STANDARD

PLUMBING LEGEND

G	GAS METER		BALANCING VALVE
HWRC	HOT WATER RECIRCULATED		CHECK VALVE
HWR	HOT WATER RETURN		GLOBE VALVE/BALL VALVE
HWS	HOT WATER SUPPLY	C	IN LINE PUMP
CWR	CHILLED WATER RETURN	O	OXYGEN
CWS	CHILLED WATER SUPPLY	NO	NITROUS OXIDE
CW	COLD WATER	V	VACUUM
HW	HOT WATER	A	COMPRESSED AIR
WHY	WALL HYDRANT	R	TEMPERED WATER RETURN
HB	HOSE BIBB	TWR	TEMPERED WATER
	UNION		180° F HOT WATER
	GATE VALVE	HWR	HOT WATER RECIRCULATED
	SOIL OR WASTE	G	NATURAL GAS LINE
	VENT	BFG	BELOW FINISHED GRADE
CW	COLD WATER	BFF	BELOW FINISHED FLOOR
HW	HOT WATER	AFC	ABOVE FINISHED CEILING
GL	GREASE LINE		P-TRAP
WHA	WATER HAMMER ARRESTER	SS	SANITARY SEWER
FD	FLOOR DRAIN	M	WATER METER
FS	FLOOR SINK		PIPE TURNED DOWN
HD	HUB DRAIN		PIPE TURNED UP

FCO	FLOOR CLEANOUT		END OF PIPE; SEE CONTINUATION
COTG	CLEANOUT TO GRADE		TEE FITTING
WCO	WALL CLEANOUT		ELBOW FITTING (90 DEGREE)
CO	END OF LINE CLEANOUT		WYE FITTING
VTR	VENT THRU ROOF		ELBOW FITTING (45 DEGREE)
NTS	NOT TO SCALE	WH	WATER HEATER
RWL	RAIN WATER LINE		P-TRAP
R-1	SOIL/WASTE/VENT RISER NUMBER		DOUBLE WYE FITTING
A-1	DETAIL SHEET NUMBER	P-1	PLUMBING FIXTURE NUMBER
W-1	WATER RISER NUMBER		GARBAGE DISPOSAL
	FLUSH VALVE WATER CLOSET		WALL MOUNTED URINAL
	TANK TYPE WATER CLOSET		DOUBLE COMPARTMENT SINK
	FAUCET FOR SINK OR LAVATORY		WALL MOUNTED SINK OR LAVATORY
	COUNTER MOUNTED SINK OR LAVATORY		FLOOR MOUNTED JANITOR SERVICE SINK
	COUNTER MOUNTED LAVATORY		DRINKING FOUNTAIN OR WATER COOLER
	TUB UNIT		SHOWER OR CAN WASH W/FLOOR DRAIN

PLUMBING MATERIAL SCHEDULE

SOIL, WASTE, VENT PIPING	WATER PIPING			INSULATION DATA				CLEANOUT DATA						WATER HAMMER ARRESTORS				VALVES						PIPE HANGERS	BACKFLOW DEVICE	WATER METER	PIPE PENETRATIONS	NATURAL GAS PIPING		HOT WATER MIXING VALVES AT LAVATORIES & SINKS	REMARKS
								FLOOR (FCO)		WALL (WCO)		OUTSIDE (COTG)						BALL		GATE		CHECK								2 PSI	0.5 IN WATER		
	BELOW FINISHED FLOOR	BELOW GRADE-OUTSIDE	ABOVE FINISHED FLOOR	FITTINGS	JACKET	THICKNESS	LOCATION	MANUF.	MODEL NO.	MANUF.	MODEL NO.	MANUF.	MODEL NO.	MANUF.	MODEL	TYPE	LOCATION	MANUF.	MODEL NO.	MANUF.	MODEL NO.	MANUF.	MODEL NO.								
SOLID SCHEDULE 40 PVC WITH SOLVENT WELD & PVC FITTINGS EQUAL TO CHARLOTTE PIPE & FOUNDRY; CORD-ENTRANCE OR THIN WALL PIPE MATERIALS ARE NOT APPROVED	COPPER TUBING-TYPE "K" SOFT, ANNEALED TEMPER NO JOINTS BELOW FLOOR	SCHEDULE 40 PVC WITH SOLVENT WELD PVC FITTINGS, IF APPROVED BY LOCAL CODES	COPPER TUBING-TYPE "L" HARD DRAWN TEMPER, WROUGHT COPPER FITTINGS; SOLDER JOINTS MAY USE SCHEDULE 80 CPVC FOR HOT & COLD WATER IN LIEU OF COPPER IN APPROVED BY AHJ	ZESTON	UNIVERSAL	1" FIBERGLASS	ALL HOT WATER, COLD WATER & RECIRCULATING PIPE SYSTEMS	MADE	W-6220-SV-21S	J.R. SMITH	4420 W/STAINLESS STEEL COVER	MADE	W-6230-SV-2	PRECEGISION	S5300	"A"	WATER CLOSETS, URINALS, SINKS, LAVATORIES OR WATER COOLERS	HAMMOND	806	NIBCO	T115 S115	HAMMOND	615	IN COMPLIANCE WITH 2003 INTERNATIONAL PLUMBING CODE SECTION 308	WATTS 909QT WILKINS 975	HAYS MT SERIES	METACAULK UL-CAJ2184 UL-WL2195	AS REQ'D PER NFPA & LOCAL CODES	SCHEDULE 40 BLACK IRON STEEL	SYMMONS MODEL 51LOCK-3/8" 51LOCK-1/2" 5130-3/4" 5140-1"	VERIFY LOCAL UTILITIES PRIOR TO INSTALLATION; SEE CIVIL DRAWINGS

COPY

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DRAFTING BY:
E. LOCKE

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Baptist Church
Lake City, Florida

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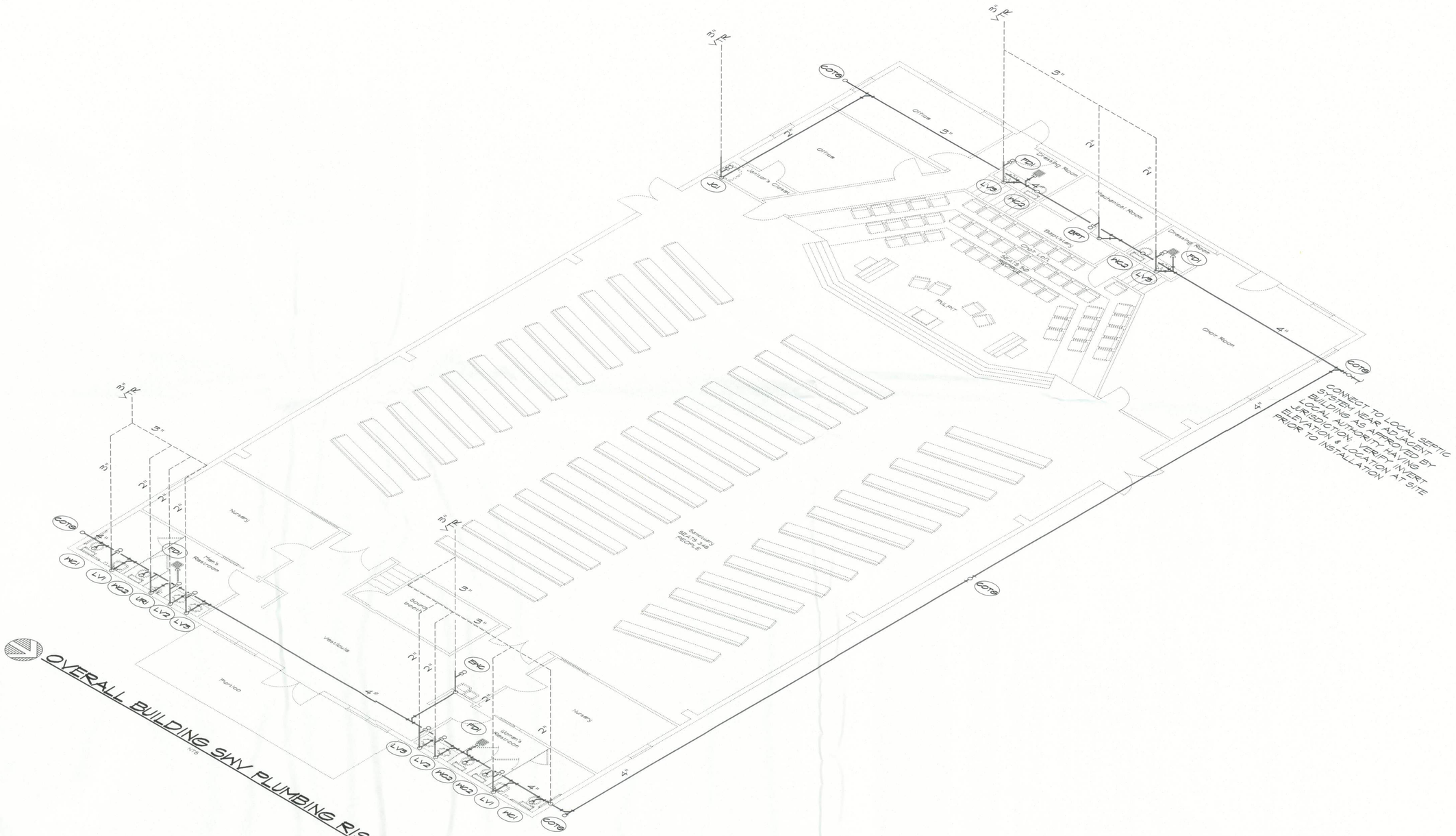
Sheet P2 of 3



OVERALL BUILDING SWV PLUMBING RISER

N.T.S.

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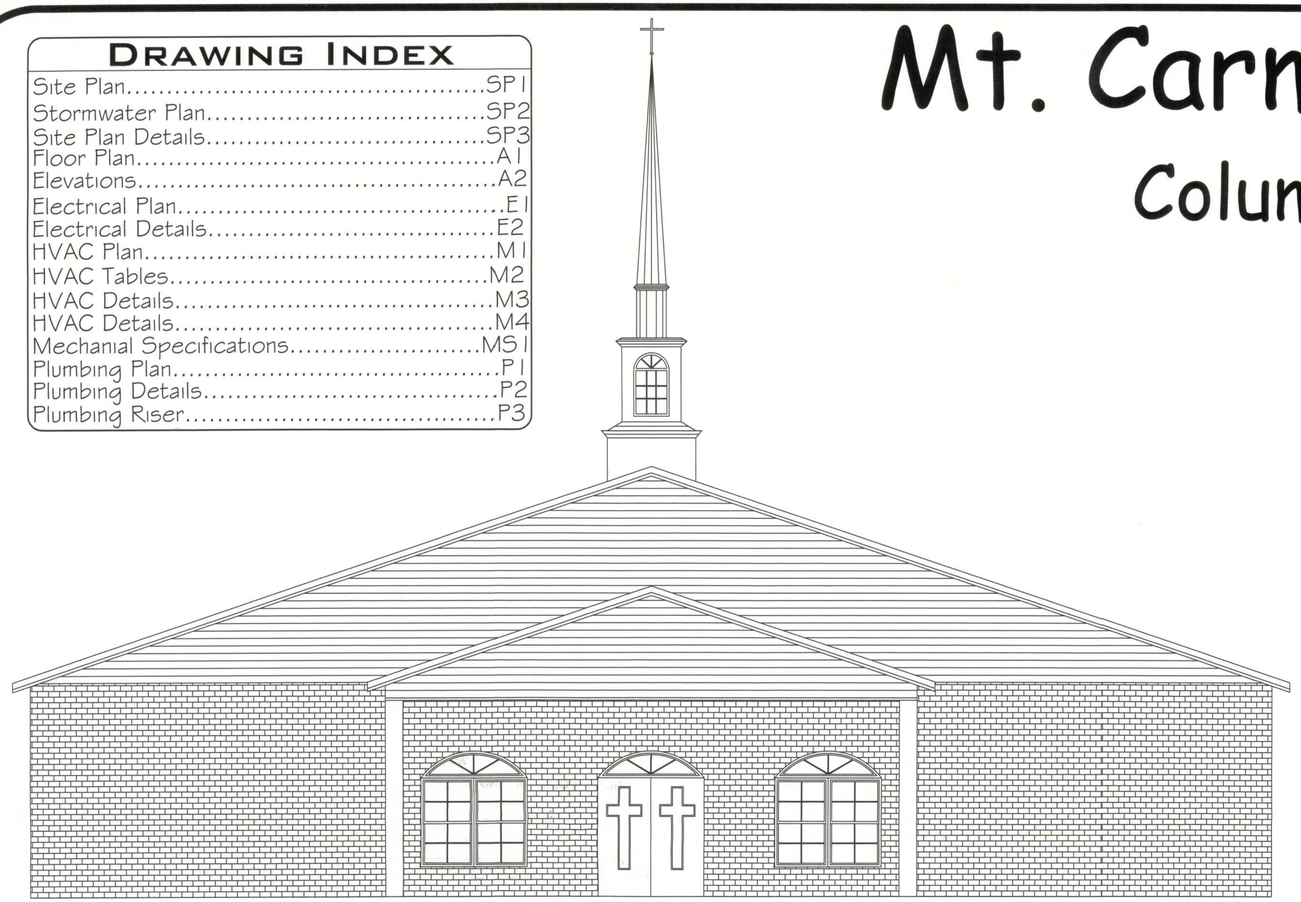
Mt. Carmel Baptist Church

Columbia County, Florida

Drawing Index



Abbreviations

AFF	ABOVE FINISHED FLOOR	JT	JOINT
AG	ABOVE GROUND	KIT	KITCHEN
A/C	AIR CONDITIONING	LAV	LAVATORY
BLDG	BUILDING	MFR	MANUFACTURER
CLG	CEILING	MAX	MAXIMUM
℄	CENTERLINE	MTL	METAL
CONC	CONCRETE	MIN	MINIMUM
CMU	CONCRETE MASONRY UNIT	MISC	MISCELLANEOUS
CONST	CONSTRUCTION	OC	ON CENTER
CONT	CONTINUOUS OR CONTINUE	OPNG	OPENING
CJ	CONSTRUCTION JOINT	PVMT	PAVEMENT
CJT	CONTROL JOINT	PVC	POLYVINYL CHLORIDE
CMP	CORRUGATED METAL PIPE	PP	POWER POLE
CTR	COUNTER	PL	PROPERTY LINE
C℄G	CURB ℄ GUTTER	R	RADIUS
DEMO	DEMOLISH OR DEMOLITION	REF	REFRIGERATOR
DIA	DIAMETER	REINF	REINFORCE (ED) (ING)
DIM	DIMENSION	REQ'D	REQUIRED
DWG	DRAWING	REV	REVISED
ELEC	ELECTRIC OR ELECTRICAL	R/W	RIGHT OF WAY
ELEV, EL	ELEVATION	RM	ROOM
EXIST	EXISTING	SIM	SIMILAR
EJ	EXPANSION JOINT	SPEC	SPECIFICATION (S)
EXT	EXTERIOR	SST	STAINLESS STEEL
FFE	FINISH FLOOR ELEVATION	TEL	TELEPHONE
FLR	FLOOR OR FLOORING	T℄G	TONGUE ℄ GROOVE
FTG	FOOTING	TYP	TYPICAL
FND	FOUNDATION	VB	VAPOR BARRIER
GA	GAGE OR GAUGE	VERT	VERTICAL
GALV	GALVANIZE	WH	WATER HEATER
GYPBD	GYPSUM BOARD	WC	WATER CLOSET
HDR	HEADER	WP	WATERPROOFING
HVAC	HEATING/VENTILATION/AIR CONDITIONING	WWF	WELDED WIRE FABRIC
INCL	INCLUDE, INCLUDED, OR INCLUDING	WWM	WELDED WIRE MESH
INT	INTERIOR	WD	WOOD
INV	INVERT ELEVATION		

General Notes

OCCUPANCY: ASSEMBLY, GROUP A

CONSTRUCTION TYPE: V UNPROTECTED

FLOOR AREA: 8,750 SF

BLDG OCCUPANCY: 348 SEATS

BUILDING SEPARATION: NOT REQUIRED

STORIES: 1

FIRE DAMPERS: NOT REQUIRED

SPRINKLERS: NOT REQUIRED

BUILDING HEIGHT: 55' MAX

1- THE HEATING VENTILATION AND AIR CONDITIONING PLAN SHEET HAS BEEN DESIGNED AND COMPLETED BY MR. EDWARD LOCKE, P.E.

2- THE ELECTRICAL PLAN SHEET HAS BEEN DESIGNED AND COMPLETED BY R. W. MEISSNER & ASSOCIATES, INC.

3- THE PLUMBING PLAN SHEET SHALL BE DESIGNED AND COMPLETED BY MR EDWARD LOCKE. P.E.

4- UNDERGROUND UTIILTIES SHALL BE LOCATED BY THE CONTRACTOR BEFORE EXCAVATION TAKES PLACE. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE COST OF UTILITIY REPAIRS AND EQUIPMENT IN THE EVENT OF DAMAGE BY THE CONTRACTOR.

5-ALL DIMENSIONS SHALL BE CHECKED IN THE FIELD TO ENSURE DIMENSIONS ON THE PLANS ARE ACCURATE.

6-CONNECT PROPOSED UTILITIES AND SERVICES TO EXISTING SERVICES WHERE POSSIBLE. (ELECTRICAL, WATER, SEWER, NATURAL GAS, TELEPHONE, ETC.)

7- THE BUILDNG FINISH FLOOR ELEVATION WILL BE SHOWN ON THE SITE PLAN.

8- THE BUILDING SHALL COMPLY WITH ADA STANDARDS.

9- THE GENERAL CONTRACTOR SHALL COORDINATE ALL OTHER CONTRACTORS AND WORK CREWS.

10- STORMWATER SHALL NOT CARRY SILT TO ADJACENT PROPERTY. HAY BALES AND SILT FENCES SHALL BE KEPT IN PLACE.

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15- ANY CHANGES FROM THE PLANS SHALL BE DISCUSSED WITH THE ENGINEER.

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17- AS-BUILT DRAWINGS SHALL BE MARKED UP BY THE CONTRACTOR AND COMPLETED BY THE ENGINEER.

18- A SIGN SHALL BE POSTED IN SANCTUARY THAT READS "MAXIMUM OCCUPANT LOAD OF 348.

REVISED 10/24/05

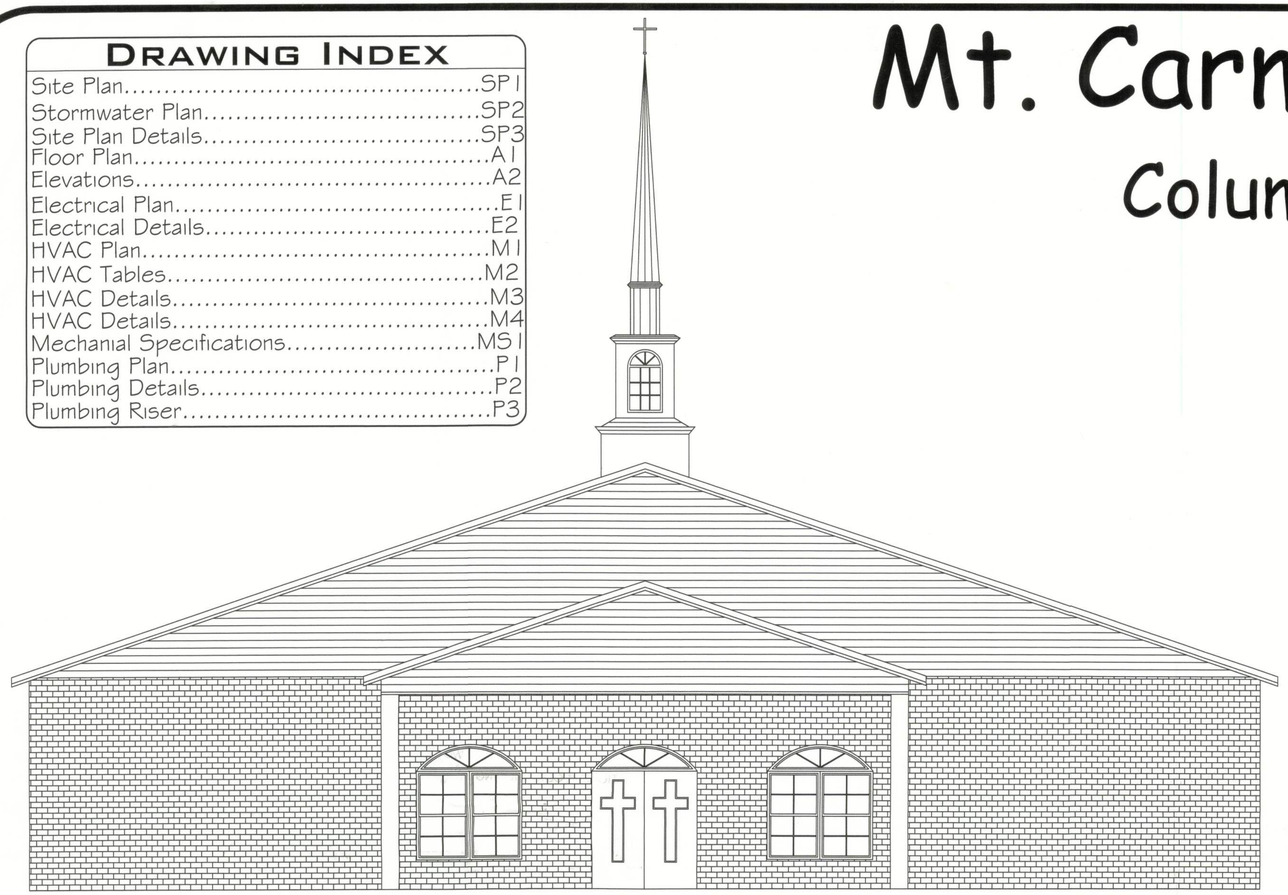
R.W. MEISSNER & ASSOCIATES, INC.

PROFESSIONAL ENGINEER No. 6530 STATE OF FLORIDA

Mt. Carmel Baptist Church

Columbia County, Florida

Drawing Index



Abbreviations

AFF	ABOVE FINISHED FLOOR
AG	ABOVE GROUND
A/C	AIR CONDITIONING
BLDG	BUILDING
CLG	CEILING
℄	CENTERLINE
CONC	CONCRETE
CMU	CONCRETE MASONRY UNIT
CONST	CONSTRUCTION
CONT	CONTINUOUS OR CONTINUE
CJ	CONSTRUCTION JOINT
CJT	CONTROL JOINT
CMP	CORRUGATED METAL PIPE
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INCL	INCLUDE, INCLUDED, OR INCLUDING
INT	INTERIOR
INV	INVERT ELEVATION
JT	JOINT
KIT	KITCHEN
LAV	LAVATORY
MFR	MANUFACTURER
MAX	MAXIMUM
MTL	METAL
MIN	MINIMUM
MISC	MISCELLANEOUS
OC	ON CENTER
OPNG	OPENING
PVMT	PAVEMENT
PVC	POLYVINYL CHLORIDE
PP	POWER POLE
PL	PROPERTY LINE
R	RADIUS
REF	REFRIGERATOR
REINF	REINFORCE (ED) (ING)
REQ'D	REQUIRED
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WH	WATER HEATER
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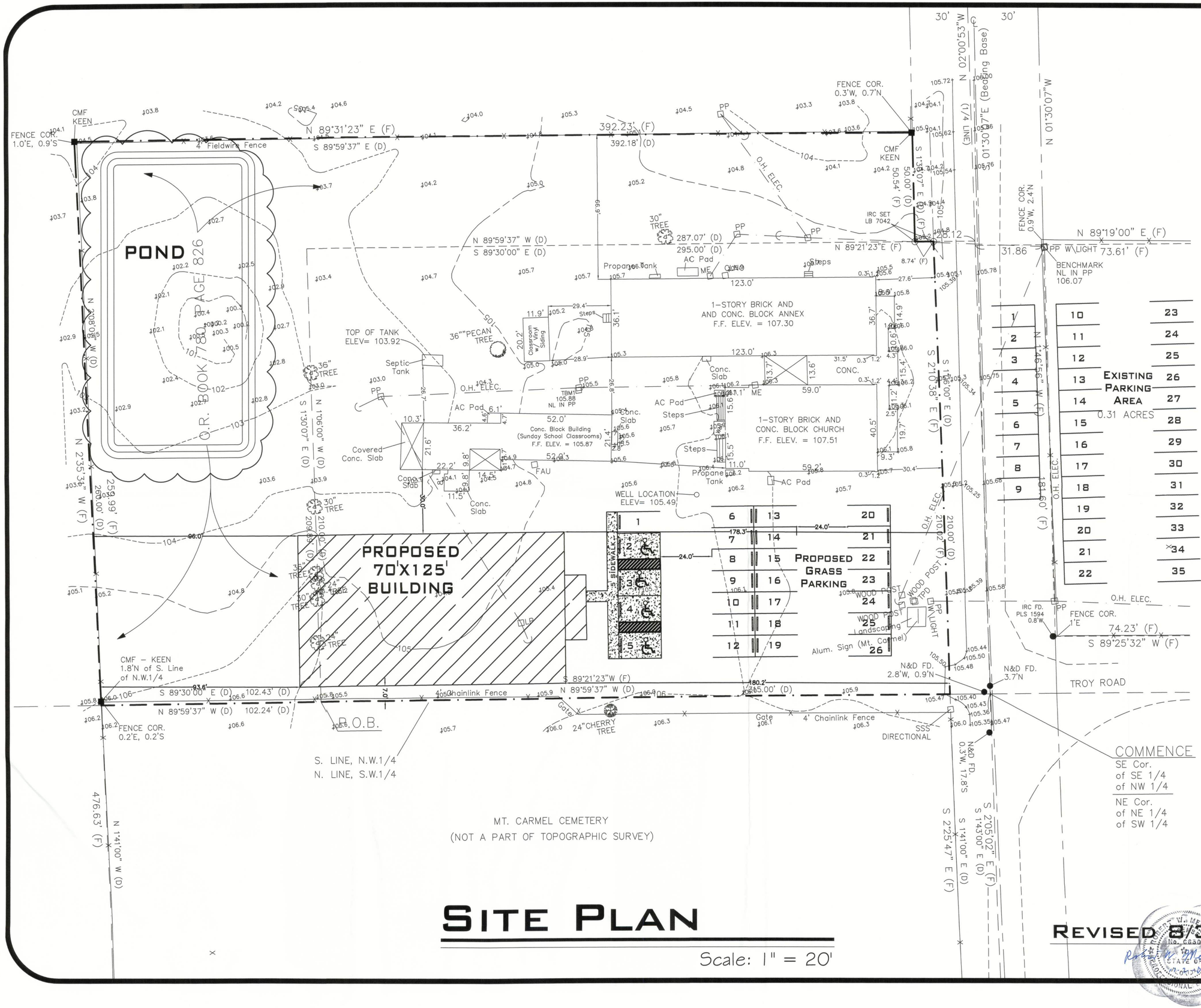
REVISED 10/24/05

R.W. MEISSNER & ASSOCIATES, INC.



SITE PLAN

Scale: 1" = 20'

REVISED 8/30/05

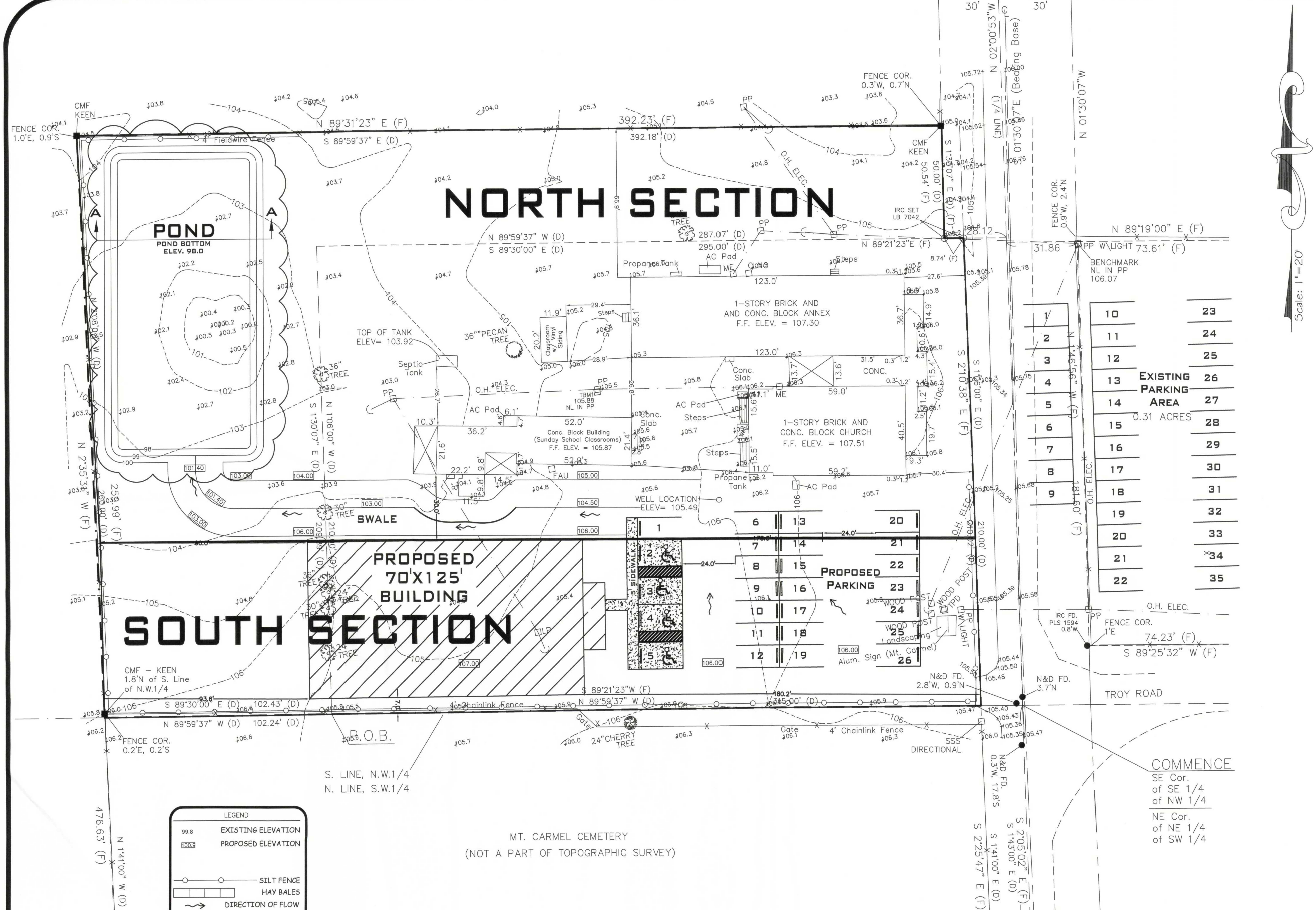
Scale: 1"=20'

RWMEISSNER & ASSOCIATES, INC.
Engineering Business # 6232
Robert W. Meissner, P.E. # 6630
216 WEST MAIN STREET
PERRY, FLORIDA 32347
PHONE # 850-584-3887 FAX # 850-223-1159
E-MAIL: rwmi@gtcom.net
President: Angela S. Cruce
Vice-President: Robert W. Meissner, P.E.

DRAFTING BY: ANGELA S. CRUCE

Project Name: Mt. Carmel Baptist Church Columbia County, Fl

Project #: 1311-050830-Mt. Carmel	Sheet SP1 of SP3
Date: August 30, 2005	
Scale: 1"=20'	
Paper Size: 24x36	



STORMWATER PLAN

Scale: 1" = 20'

REVISED 8/30/05

MAINTENANCE PLAN

1. Inspect grass area of all slopes and repair with seed and hay or sod; monthly.
2. Clean sticks, leaves, etc. out of retention basin every 6 months.
3. Mow grass in retention basin and remove clippings; regularly

SEDIMENT & EROSION CONTROL PLAN

1. Construction will be phased to minimize disturbed area.
2.Retention pond will be constructed first and runoff will be redirected into it.
3. Site will be provided as needed with silt fencing and hay bales (see note to left).
4. Disturbed areas will be stabilized with cut hay and grass seed or sod as soon as possible.
5. The site sediment & erosion controls will be checked following each rainstorm or weekly and corrective action taken as needed.

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President: Angela S. Cruce
Vice-President: Robert W. Meissner, P.E.

DRAFTING BY:
ANGELA S. CRUCE
BRITNEY B. MOORE

Project Name: Mt. Carmel Baptist Church Columbia County, Fl

Project #: 1311-050830-Mt. Carmel	Sheet SP2 of SP3
Date: August 30, 2005	
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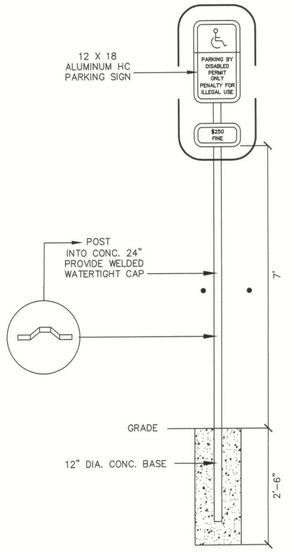

SIGN & POST DETAIL

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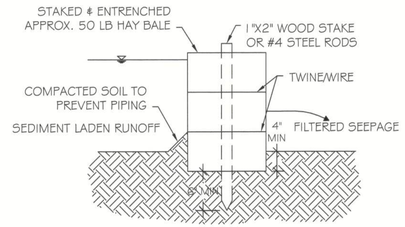

STRAW BALE DETAIL

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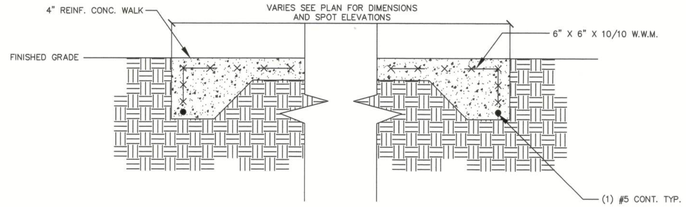

TYPICAL SIDEWALK DETAIL

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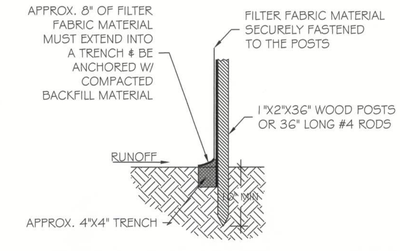

SILT FENCE DETAIL

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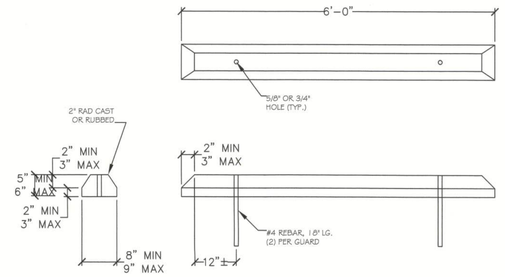

PARKING BUMPER DETAIL

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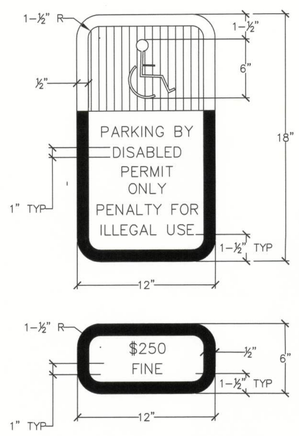

ACCESSIBILITY SIGNS

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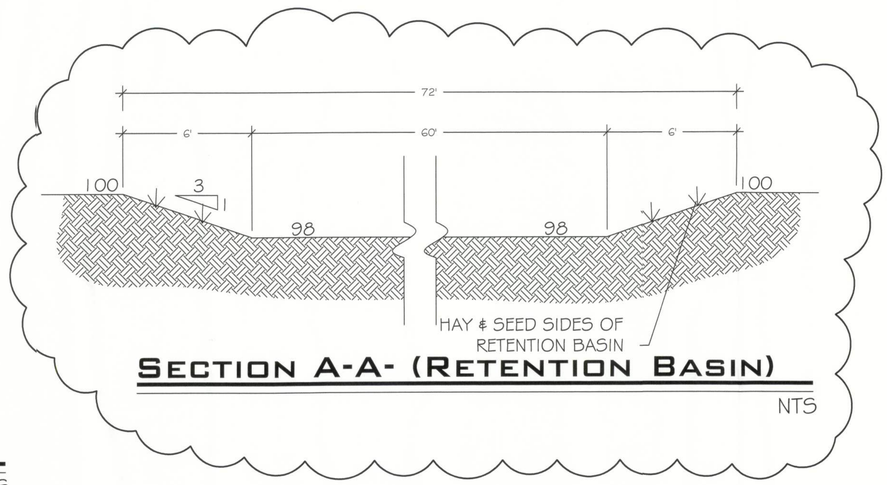

SECTION A-A- (RETENTION BASIN)

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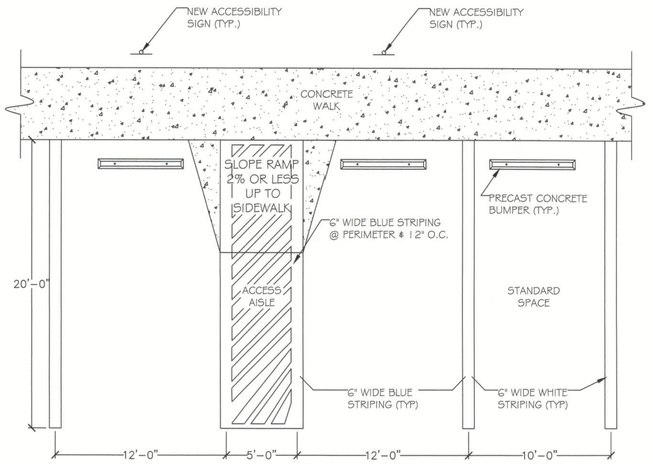

ACCESSIBLE PARKING DETAIL

SCALE: 1"=5'

REVISED 8/30/05

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E-MAIL: rwml@gtcom.net
President: Angela S. Cruce
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DRAFTING BY:
ANGELA S. CRUCE

Project Name:
Mt. Carmel Baptist
Church
Columbia County, Fl

Project #: 1311-050830-Mt. Carmel	Sheet SP3 of SP3
Date: August 30, 2005	
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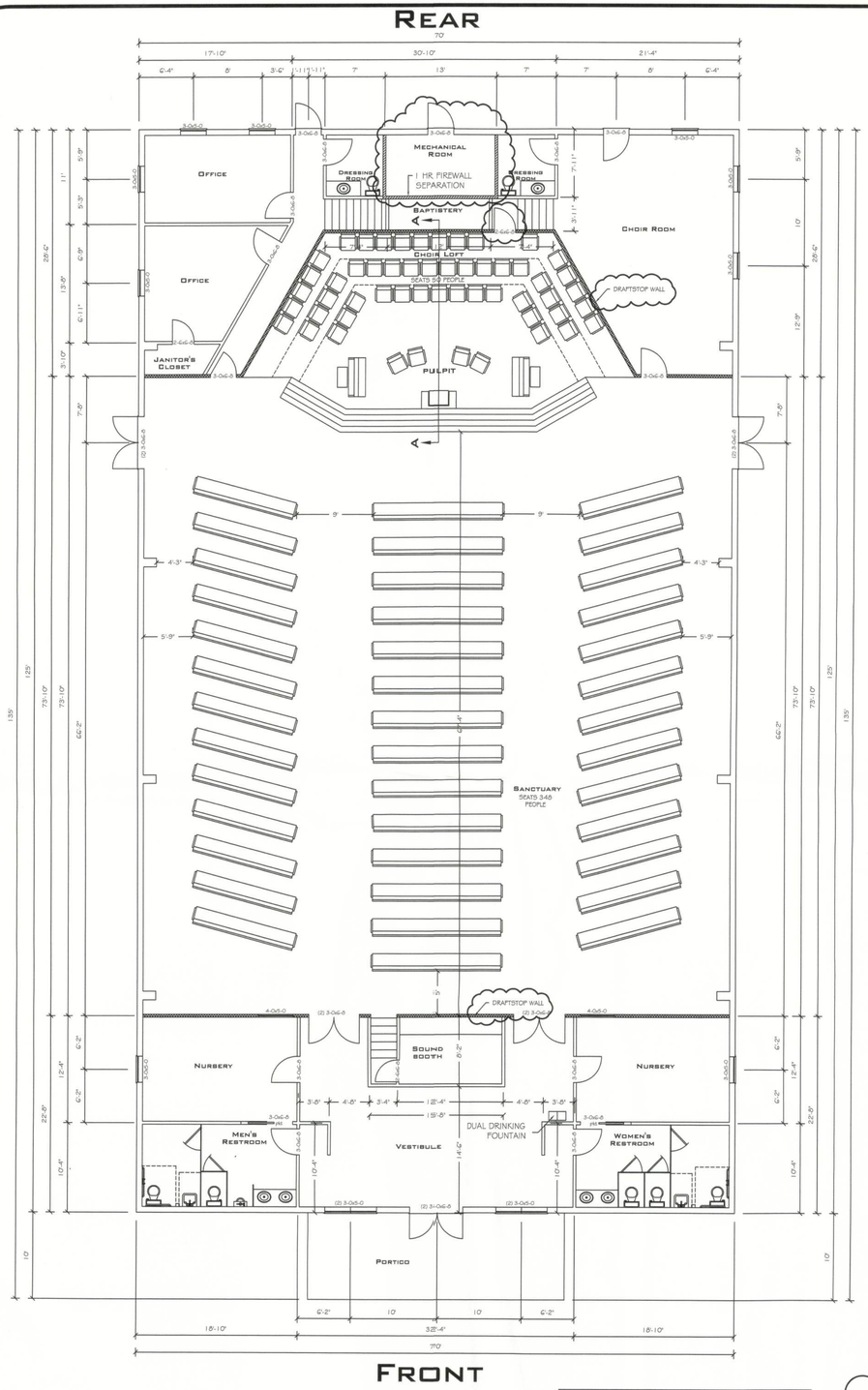
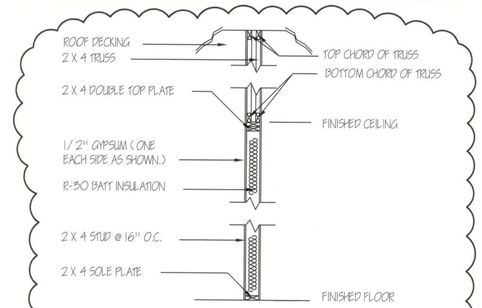


FLOOR PLAN

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

SQUARE FOOTAGE
TOTAL HEATED 8,750
PORTICO 300



DRAFTSTOP WALL DETAIL

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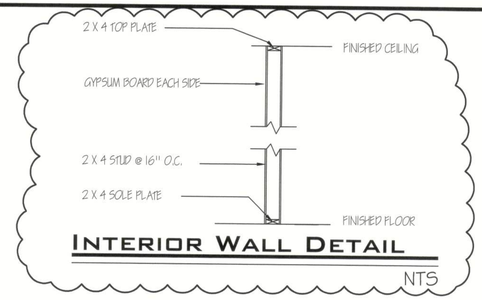

INTERIOR WALL DETAIL

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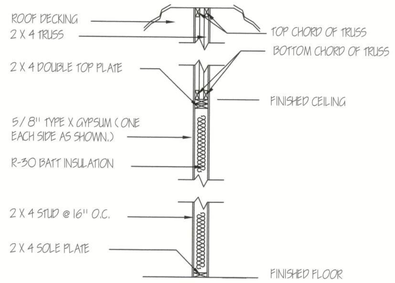

FIREWALL DETAIL

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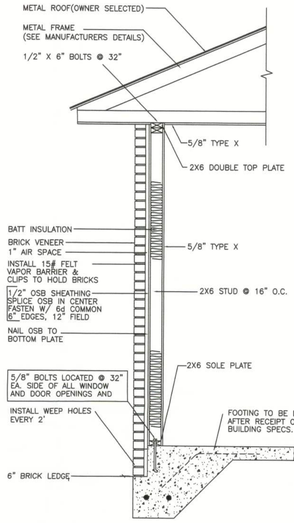

EXTERIOR WALL SECTION

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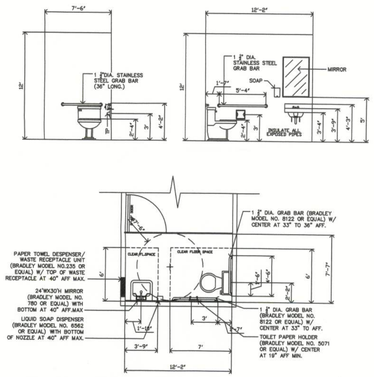

ACCESSIBLE RESTROOM DETAILS

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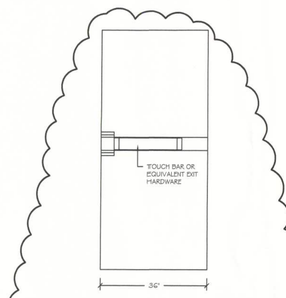
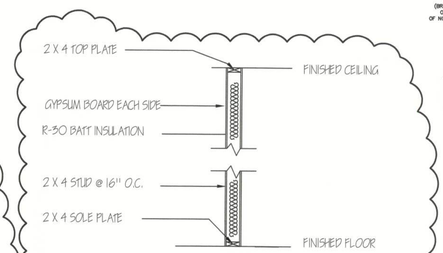


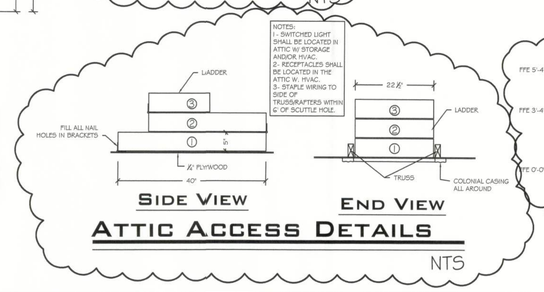
TYP. EXIT DOOR

NTS



ATTIC WALL DETAIL

NTS



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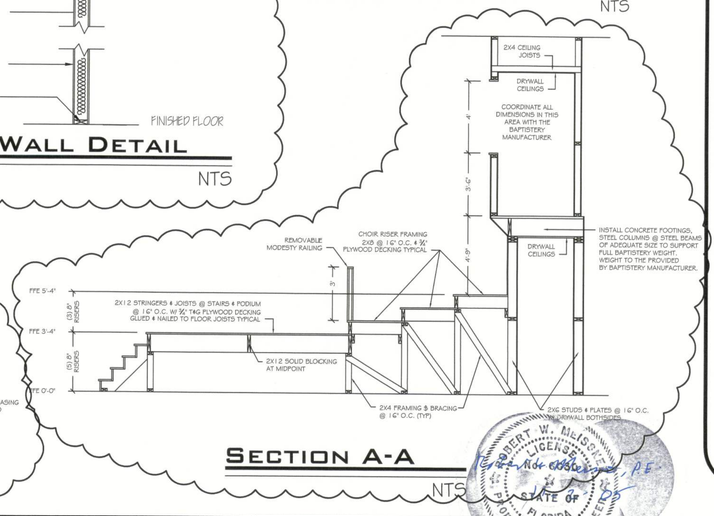
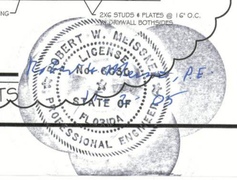


SECTION A-A

NTS



General Notes

1- BUILDING TO BE A METAL BUILDING STRUCTURE. THE METAL BUILDING SHALL BE DESIGNED BY METAL BUILDING MANUFACTURER.

REVISED 10/24/05

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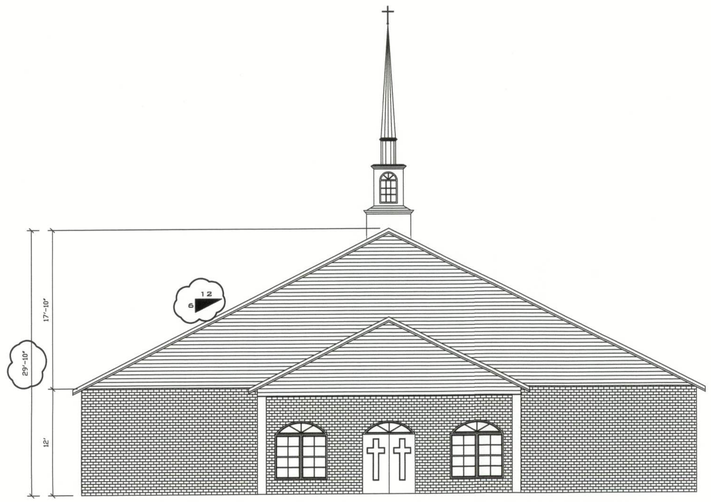
Vice-President: Robert W. Meissner, P.E.

DRAFTING BY:
ANGELA S. CRUCE

Project Name:
Mt. Carmel
Baptist Church
Lake City, Florida

Project #: 1311-051024-Mt. Carmel Church	Sheet A1 of A2
Date: October 24, 2005	
Scale: 1/8"=1'	
Paper Size: 24 x 36	



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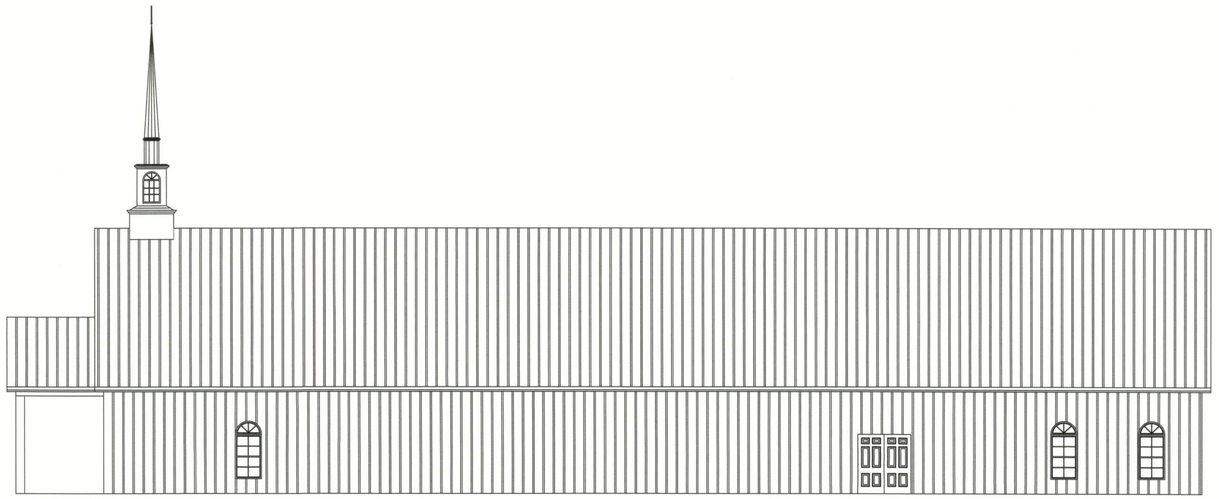
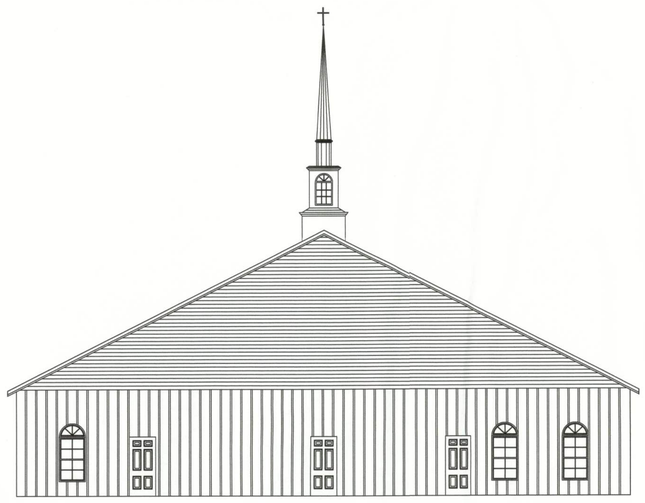


RIGHT-SIDE



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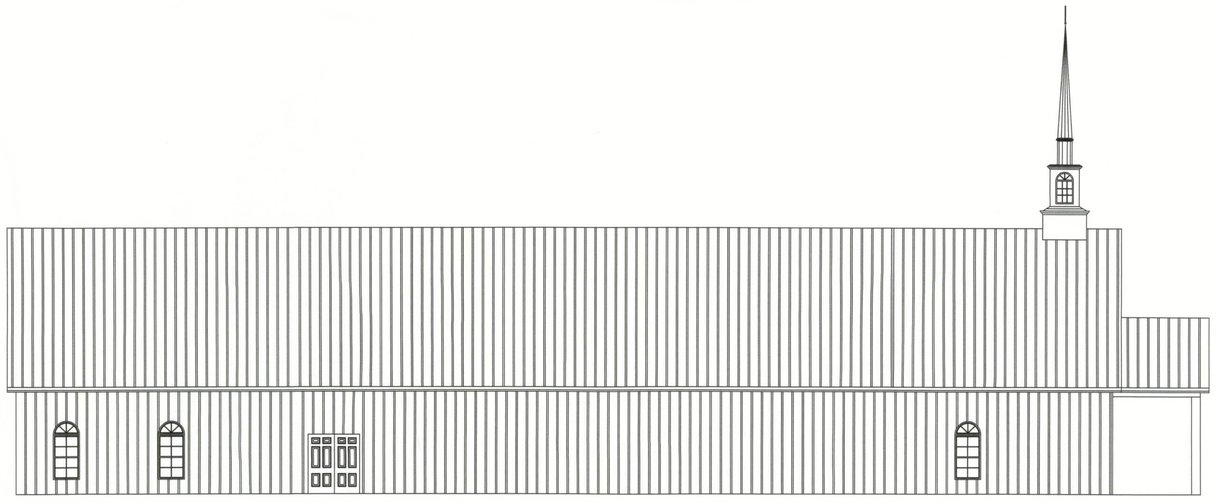

LEFT-SIDE

ELEVATIONS

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

General Notes

1- ELEVATIONS INDICATE ACTUAL SLOPE AND/OR VARIATIONS IN GRADE CONDITIONS. CONTRACTOR TO DETERMINE SITE CONDITIONS PRIOR TO CONSTRUCTION.

2-CHECK ALL DIMENSIONS FOR ACCURACY PRIOR TO CONSTRUCTION.

3-EXACT DESCRIPTION AND/OR SPECIFICATIONS CONCERNING DOORS, WINDOWS, ETC. NOT NOTED ON PLANS TO BE PROVIDED BY THE OWNER AND/OR CONTRACTOR.

4-THESE PLANS ARE IN COMPLIANCE WITH CHAPTER 1606 (120 MPH/3 SEC. GUSTS) 2001 FLORIDA BUILDING CODE.

5- THE FOLLOWING CODES MUST BE FOLLOWED:
-FLORIDA BUILDING CODE, BUILDING (FBC-B) 2001 EDITION WITH 2003 REVISIONS.
-FLORIDA BUILDING CODE, MECHANICAL (FBC-M) 2001 EDITION WITH 2003 REVISIONS.
-FLORIDA BUILDING CODE, FUEL GAS (FBC-FG) 2001 EDITION WITH 2003 REVISIONS.
-FLORIDA BUILDING CODE, PLUMBING (FBC-P) 2001 EDITION WITH 2003 REVISIONS.
-FLORIDA FIRE PREVENTION CODE (FFPC) 2001 EDITION
-NATIONAL ELECTRICAL CODE (NEC) 2002 EDITION

REVISED 10/24/05

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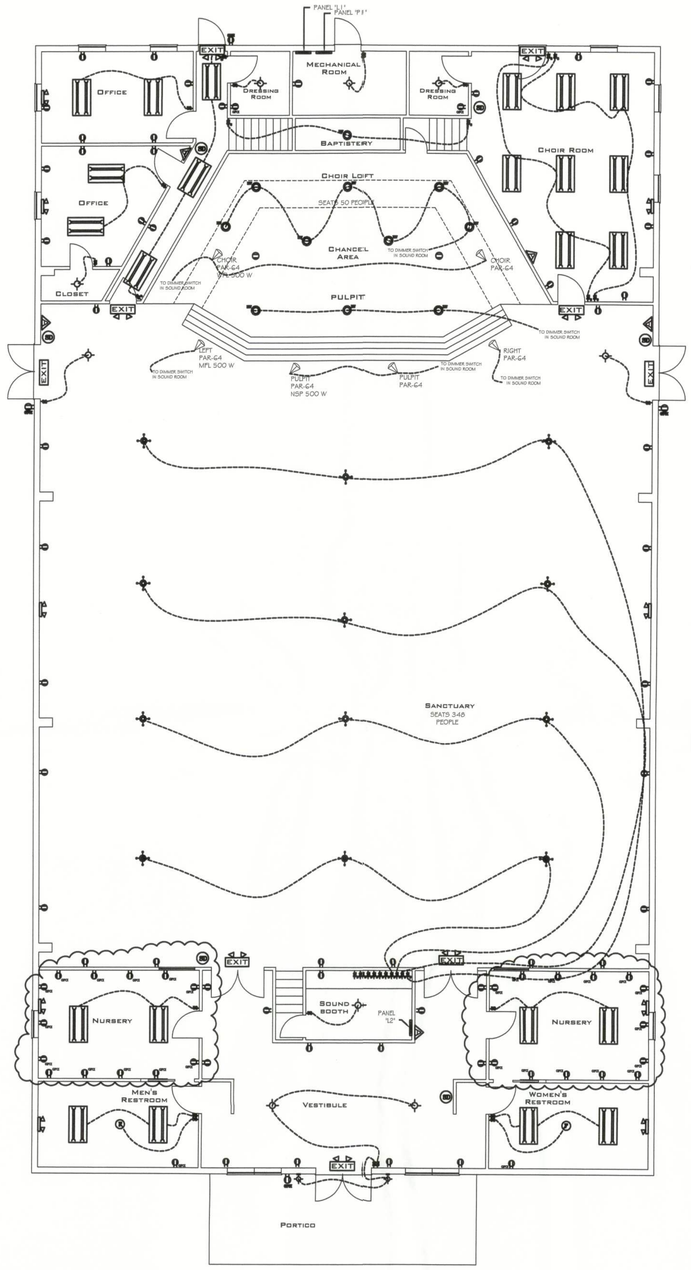
DRAFTING BY:
ANGELA S. CRUCE

Project Name:
Mt. Carmel
Baptist Church
Lake City, Florida

Project #: 1311-051024-Mt. Carmel Church	Sheet A2 OF A2
Date: October 24, 2005	
Scale: 1/8"=1'	
Paper Size: 24 x 36	

ROBERT W. MEISSNER LICENSE No. 6630 STATE OF FLORIDA PROFESSIONAL ENGINEER

REAR



LEFT-SIDE

RIGHT-SIDE

FRONT

ELECTRICAL PLAN

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

LIGHTING PANEL "L1"

LOAD DESCRIPTION	BKR	CKT	A	B	C	CKT	BKR	LOAD DESCRIPTION
LTS, OFFICES & HALL	20	1				2	20	RECEPT. REAR OFFICE & HALL
LTS, CHOIR ROOM	20	3				4		RECEPT. LEFT OFFICE
EMERGENCY/EXIT LTS REAR	20	5				6		RECEPT. CHOIR ROOM
RECEPT. SANCTUARY NORTH	20	7				8–10		BAPTISTERY HEAT
RECEPT. SANCTUARY SOUTH	20	9						
WATER HEATER, CLOSET	70	11–13				12–14		A/C NO. 1 COMPRESSOR
A/C NO. 2 COMPRESSOR	20	15–17–19				16–18		A/C NO. 1 AHU & 5KW HEAT
A/C NO. 2 AHU & 10KW HEAT		21–23						

LIGHTING PANEL "L2"

LOAD DESCRIPTION	BKR	CKT	A	B	C	CKT	BKR	LOAD DESCRIPTION
LTS, SOUND BOOTH, VESTIBULE & FRONT PORTICO	20	1				2	20	CEILING LTS RESTROOM & NURSERY
CHANDELIER DIMMER, REAR ROW	20	3				4	20	PULPIT LTS DIMMER
CHANDELIER DIMMER, CENTER REAR ROW	20	5				6	20	CHANCEL FLD LTS LEFT & RIGHT DIMMERS
CHANDELIER DIMMER, CENTER FRONT ROW	20	7				8	20	CHOIR FLD LTS DIMMER
CHANDELIER DIMMER, FRONT ROW	20	9				10	20	CHOIR RECESSED LTS DIMMER
RECEPT. @ SOUND BOOTH	20	11				12	20	RECEPT. MENS, WOMENS, & VESTIBULE
RECEPT. @ NURSERY NORTH	20	13				14	20	EMERGENCY LTS FRONT AREA
RECEPT. @ NURSERY SOUTH	20	15				16	70	WATER HEATER MENS ROOM
		17						
						20	70	WATER HEATER WOMENS ROOM

POWER PANEL "P1"

LOAD DESCRIPTION	BKR	CKT	A	B	C	CKT	BKR	LOAD DESCRIPTION
PANEL "L1"	200	1–3–5				2–4–6	200	PANEL "L2"
A/C UNIT NO. 3 COMPRESSOR	40	7–9–11				8–10–12	40	A/C UNIT NO. 4 COMPRESSOR
A/C UNIT NO. 3 AHU & 20KW HEAT	60	13–15–17				14–16–18	60	A/C UNIT NO. 4 AHU & 20KW HEAT
A/C UNIT NO. 5 COMPRESSOR	40	19–21–23				20–22–24	40	A/C UNIT NO. 6 COMPRESSOR
A/C UNIT NO. 5 AHU & 20KW HEAT	60	25–27–29				26–28–30	60	A/C UNIT NO. 6 AHU & 20KW HEAT

General Notes

ELECTRICAL SYMBOLS

- THREE-WAY SWITCH
- SINGLE-POLE SWITCH
- FLOOR OUTLET
- DUPLEX RECEPTACLE OUTLET
- WP WATER PROOF OUTLET
- 220 VOLT OUTLET
- CEILING OUTLET FIXTURE
- RECESSED LIGHT FIXTURE
- HW HIGH WATTAGE RECESSED LT FIXTURE
- INTERIOR FLOOD LIGHT
- 8 LAMP CHANDELIER
- FIRE EXTINGUISHER
- SD SMOKE DECTOR
- F EXHUST FAN
- CEILING OUTLET FIXTURE W/ PULL CORD
- HB HOSE B/B
- TELEVISION HOOK-UP
- TELEPHONE HOOK-UP
- COMPUTER HOOK-UP
- EXTERIOR FLOOD LIGHT
- EMERGENCY LIGHTS W/ BATT. BACKUP
- EXIT SIGN W/ BATTERY BACKUP
- EXIT EXIT-EMER. LIGHTS COMBO
- WALL MOUNTED LIGHT FIXTURE
- FLOURESCENT LIGHT
- CEILING FAN W/ LIGHT

REVISED 10/24/05

RWMEISSNER & ASSOCIATES, INC.
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Robert W. Meissner, P.E. # 6630
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PERRY, FLORIDA 32347
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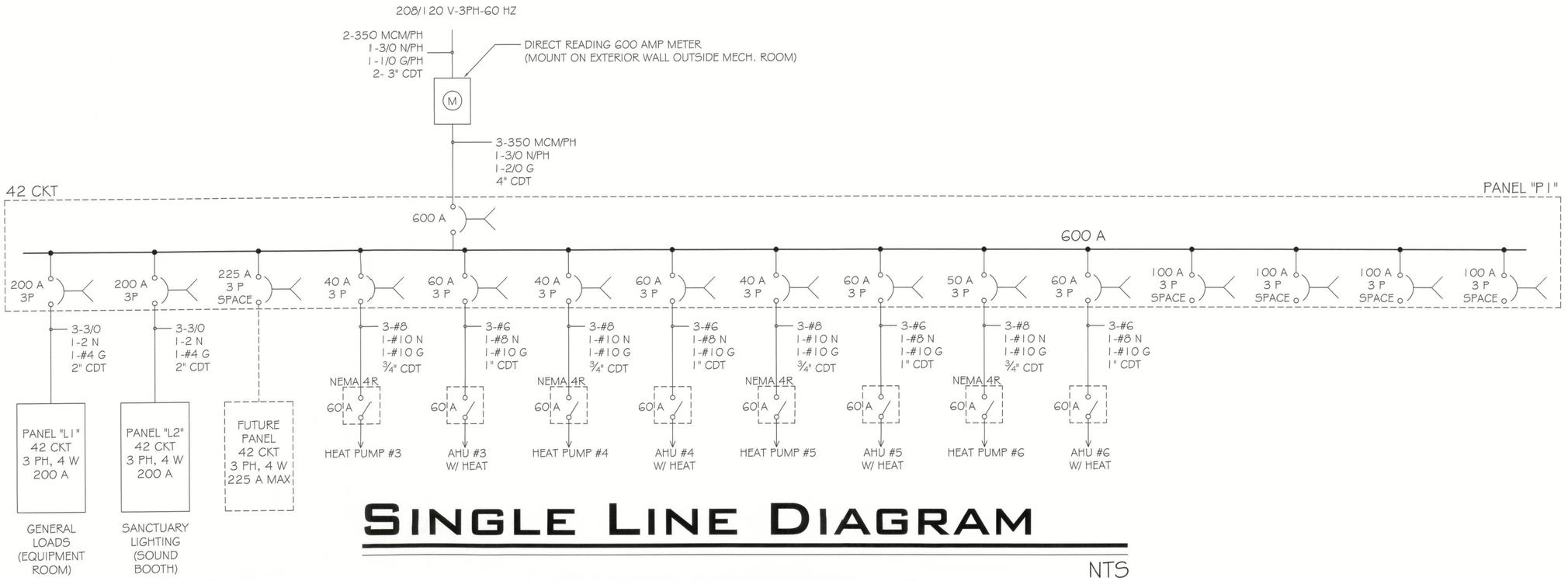
DRAFTING BY:
ANGELA S. CRUCE

Project Name:
Mt. Carmel
Baptist Church
Lake City, Florida

Project #: 1311-051024-Mt. Carmel Church	Sheet E1 of E2
Date: October 24, 2005	
Scale: 1/8"=1'	
Paper Size: 24 x 36	

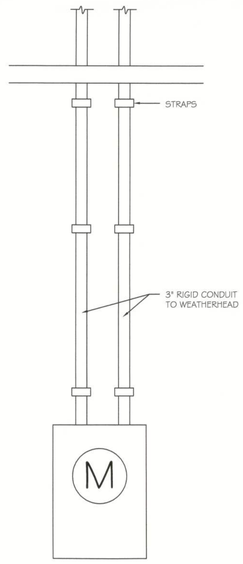
ROBERT W. MEISSNER LICENSE NO. 6630 STATE OF FLORIDA PROFESSIONAL ENGINEER



SINGLE LINE DIAGRAM

NTS

ELECTRICAL LOAD CALCULATIONS			
	CONNECTED LOAD OR ACTUAL (KVA)	DEMAND FACTOR (%)	TOTAL LOAD (KVA)
23 FLUORESCENT LIGHTS	3.68	80%	2.95
12 CHANDELIERS	5.76	80%	4.61
4 OUTDOOR FLOODLIGHTS	10.80	80%	0.64
6 SPOT/FLOOD & CHANCEL	3.00	80%	2.40
11 HIGH WATTAGE RECESSED	5.50	80%	4.40
12 MISCELLANEOUS FIXTURES	0.72	80%	0.58
5 EXHAUST FANS	0.31	100%	0.31
EMERGENCY EXIT & LIGHTS	1.00	100%	1.00
BAPTISMAL PUMP/HEATER	6.00	100%	6.00
RECEPTACLE LOAD (180VA/EA)	14.58	100% 1ST 10 KVA 50% OVER	12.29
3 TANKLESS WATER HEATERS	39.00	100%	39.00
A/C 1 COMPRESSOR	11.89	100%	1.89
A/C 1 AHU & 5 KW HEAT	5.00	100%	5.00
A/C 2 COMPRESSOR	4.18	100%	4.18
A/C 2 AHU & 10 KW HEAT	10.00	100%	10.00
A/C 3 COMPRESSOR	10.99	100%	10.99
A/C 3 AHU & 20 KW HEAT	18.63	100%	18.63
A/C 4 COMPRESSOR	10.99	100%	10.99
A/C 4 AHU & 20 KW HEAT	18.63	100%	18.63
A/C 5 COMPRESSOR	10.99	100%	10.99
A/C 5 AHU & 20 KW HEAT	18.63	100%	18.63
A/C 6 COMPRESSOR	10.99	100%	10.99
A/C 6 AHU & 20 KW HEAT	18.63	100%	18.63
TOTAL LOAD			213.73
SERVICE AMPS AT 208/120-3-60 = 600 AMPS			



NOTES:
1-SERVICE SHALL BE CONSTRUCTED IN ACCORDANCE WITH PROGRESS ENERGY "REQUIREMENTS FOR ELECTRICAL SERVICE AND METER INSTALLATION", 2003 EDITION, THE ORANGE BOOK.

2-ALL WORK SHAL COMPLY WITH THE NATIONAL ELECTRIC CODE, NED 2002 EDITION.

SERVICE ENTRANCE OUTSIDE REAR WALL OF ELECTRICAL ROOM

RISER DIAGRAM

NTS

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DRAFTING BY:
ANGELA S. CRUCE

Project Name:
Mt. Carmel Baptist Church
Lake City, Florida

Project #: 1311-050810-Mt. Carmel Church	Sheet E2 of E2
Date: August 10, 2005	
Scale: NTS	
Paper Size: 24 x 36