GENERAL ELECTRICAL NOTES:

1. ELECTRICAL PLANS ARE INTENDED TO PROVIDE INFORMATION FOR INSTALLATION OF A COMPLETE, FUNCTIONAL, ELECTRICAL SYSTEM. PROVIDE ALL ESSENTIAL LABOR, MATERIALS & DEVICES REQUIRED TO PRODUCE A QUALITY END PRODUCT WHICH COMPLIES WITH LOCAL & STATE CODES AND MEETS OR EXCEEDS INDUSTRY STANDARDS FOR WORKMANSHIP.

1. REVIEW AND BECOME FAMILIAR WITH THE WORK OF ALL TRADES FOR PURPOSES OF COORDINATION AND ROUTING. PROVIDE REQUIRED PLANNING, COORDINATION AND SEQUENCING OF ELECTRICAL INSTALLATION WITH BUILDING COMPONENTS AND OTHER TRADES.

2. PROVIDE ALL NEW MATERIALS IN LIKE NEW CONDITION AT TIME OF INSTALLATION AND MAINTAIN IN LIKE NEW CONDITION UNTIL ACCEPTANCE OF COMMISSIONING.

4. ANCHOR COMPONENTS PER APPLICABLE SEISMIC REQUIREMENTS. SEE SH. T-1 FOR SEISMIC CLASSIFICATION.

5. COORDINATE ELECTRICAL EQUIPMENT INSTALLATION WITH G.C. TO PROVIDE ACCESS AND WORKING SPACE PER NEC 110.26

6. ALL DISCONNECTS, STARTERS, DEVICES AND ELECTRICAL COMPONENTS PROVIDED BY E.C. UNLESS SPECIFICALLY NOTED AS PROVIDED BY OTHERS. (SEE ELECTRICAL, PLUMBING AND HVAC EQUIPMENT SCHEDULES)

7. ELECTRICAL CONTRACTOR TO PROVIDE ALL LINE AND LOAD SIDE POWER WIRING & TERMINATIONS INCLUDING FOR ELECTRICAL POWER TERMINATIONS TO EQUIPMENT PROVIDED UNDER OTHER TRADES. LOW VOLTAGE CONTROL WIRING TO BE PROVIDED BY THE CONTRACTOR INSTALLING THE CONTROL DEVICE.

8. ALL ELECTRICAL WIRING, PANELBOARDS, MATERIALS, DEVICES, APPLIANCES AND EQUIPMENT MUST BE LABEL LISTED BY A NORTH CAROLINA APPROVED THIRD PARTY TESTING AGENCY. ALL MATERIALS TO MEET THE NEC FOR THE INTENDED USE AND INSTALLED IN ACCORDANCE WITH THE NEC.

9. UNLESS OTHERWISE NOTED, PROVIDE THHN/THWN COPPER WIRE. PROVIDE A MINIMUM #12 GAUGE WIRE SIZE. ALL WIRE #8 AND LARGER TO BE STRANDED. SMALLER WIRE SIZES CAN BE SINGLE CONDUCTOR OR STRANDED.

10. PRIOR TO INSTALLATION, E.C. TO VERIFY CONDUCTORS, AMPACITIES AND CONDUIT SIZES ON PLANS AND SCHEDULES USING NEC 310-16 75C RATING, WITH TERMINATIONS, LUGS, ETC. RATED PER NEC 110-14C AND CONDUCTOR AMPACITY SIZED PER LOWEST TEMPERATURE RATING OF ANY TERMINATION WITHIN A CIRCUIT.

11. PROVIDE EMT OR RIGID CONDUIT FOR ALL CONDUITS ABOVE GRADE. MC CABLE ALLOWED ONLY FOR ABOVE GRADE, SINGLE PHASE BRANCH CIRCUITS, RATED 30 AMPS AND LESS, AND WHERE IT IS NOT EXPOSED TO PHYSICAL DAMAGE. CONDUIT BELOW GRADE MAY BE PVC, CHANGING TO EMT OR RIGID BEGINNING WITH THE ELBOW TURNING UP ABOVE GRADE. USE COMPRESSION TYPE FITTINGS ON EMT AND RIGID CONDUIT.

12. PROVIDE EITHER (A) PLASTER RING, PULL STRING AND TOP WALL TRACK BUSHING OR (B) 3/4" EMPTY CONDUIT WITH PROTECTIVE BUSHINGS ON ENDS OF CONDUIT TERMINATING ABOVE THE CEILING AND IN AN EMPTY 3 X 2 X 3-½ DEEP SINGLE GANG BOX IN THE WALL FOR EACH TEL/DATA OUTLET AND THERMOSTAT SHOWN ON THE PLANS.

13. FOR PLASTER RING OR CONDUIT PROVIDED FOR THERMOSTATS PER NOTE 12 ABOVE, COORDINATE LOCATION AND ORIENTATION WITH M.C. INSTALL 48" AFF TO ELECTRICAL ROUGH-IN BTM UNLESS OTHERWISE NOTED.

14. PROVIDE SERVICE ENTRANCE RATED PANELBOARDS FOR SERVICE ENTRANCE. PROVIDE NEUTRAL AND GROUNDING BARS IN ALL PANELBOARDS UNLESS OTHERWISE NOTED. ELECTRICALLY GROUND ALL SERVICE ENTRANCE PANELS IN ACCORDANCE WITH THE NEC. PROVIDE BREAKERS AS NOTED.

15. PROVIDE NON-HAND WRITTEN PANEL SCHEDULES IN EACH PANELBOARD INDICATING THE LOAD DESCRIPTION FOR EACH BREAKER. LABEL PANELS ON PANEL FACE WITH PHENOLIC LABELS (BLACK WITH WHITE CORE) INDICATING PANEL NOMENCLATURE, VOLTAGE, AND PHASES.

16. PROVIDE NEMA-3R ENCLOSURES FOR EQUIPMENT EXPOSED TO THE WEATHER.

17. FUSED AND NON-FUSED DISCONNECTS TO BE HEAVY DUTY AND PROVIDED WITH REJECTION-TYPE FUSE CLIPS.

18. PROVIDE HORSEPOWER RATED STARTERS AND DISCONNECTS WHEN CONNECTED TO MOTORS.PROVIDE STARTERS WITH OVERLOAD HEATERS SIZED TO MATCH MOTOR RATINGS.

19. PROVIDE LIGHTING AS SCHEDULED IN THE FIXTURE SCHEDULE OR OTHERWISE NOTED ON PLANS. SUPPORT LIGHTING INSTALLED IN SUSPENDED CEILINGS INDEPENDENTLY OF THE CEILING GRID SUPPORT SYSTEM AN PER MANUFACTURER'S INSTRUCTIONS.

20. PROVIDE EMERGENCY AND EXIT LIGHTS AS SHOWN ON PLANS. PROVIDE POWER BY THE UNSWITCHED LEG OF A LIGHTING CIRCUIT SUCH THAT POWER TO THE EMERGENCY AND EXIT LIGHTS IS NOT DISCONNECTED WHEN NORMAL LIGHTING IS SWITCHED OFF.

21. PROVIDE 20 AMP, 120V RECEPTACLES UNLESS OTHERWISE NOTED.

22. PROVIDE GROUND-FAULT TYPE RECEPTACLES WHERE LOCATED ABOVE COUNTERTOPS, IN TOILETS, BREAKROOMS, LOUNGES, KITCHENS AND OUTSIDE. PROVIDE WEATHERPROOF COVERS ON OUTSIDE RECEPTACLES.

23. PROVIDE SINGLE-POLE, 20 AMP, 120/277V WALL SWITCHES UNLESS OTHERWISE NOTED.

24 PROVIDE STANDARD SIZE, HIGH IMPACT, SMOOTH NYLON WALL PLATES FOR ALL DEVICES, COLOR TO MATCH DEVICE, UNLESS OTHERWISE NOTED. FOR JUNCTION BOXES, PROVIDE BLANK WALL PLATES, COLOR TO MATCH OTHER WALL PLATES, UNLESS OTHERWISE NOTED.

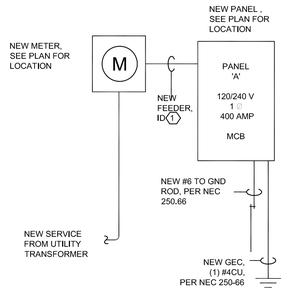
25. CLEAN ALL EXPOSED ELECTRICAL COMPONENTS AND FIXTURES JUST PRIOR TO COMMISSIONING. PAINTED SURFACES TO BE TOUCHED UP TO MATCH FACTORY APPLIED FINISHES. HOWEVER, ACCEPTANCE OF EXTENSIVE TOUCH-UP IN LIEU OF REPLACEMENT IS AT THE DISCRETION OF THE PROJECT MANAGER.

26. WHERE LIGHTING IS USED DURING CONSTRUCTION, CLEAN LAMPS JUST PRIOR TO ACCEPTANCE OF COMMISSIONING.

27. GUARANTEE ALL EQUIPMENT, MATERIALS, AND INSTALLATION TO BE FREE OF DEFECTS FOR A PERIOD OF 1 YEAR AFTER DATE OF ACCEPTANCE.

SERVICE ENTRANCE NOTES:

1. E.C. TO VERIFY GROUND SERVICE ENTRANCE FOR PER NEC 250-24.
2. E.C. TO VERIFY GROUND SERVICE ENTRANCE PER NEC 250-50 AND 250-104 (SIZED PER 250-66) TO BUILDING STEEL, WATER MAIN, AND, WHERE AVAILABLE, CONCRETE-ENCASED ELECTRODE (PER NEC 250-52 (A)(3)).
3. E.C. TO PROVIDE EQUIPMENT RATED FOR 22,000 AIC.
4. UTILITY FOR PROJECT IS DUKE ENERGY.



2 RISER
NTS

FEEDER SCHEDULE

ID	FEEDER AMPS	CONDUIT AND FEEDER	FEEDING THESE DEVICES
1	200	2"C,2#3/0,#3/0N,#4G	A, METER

SIZING METHOD: COPPER, 60°C #12 THROUGH #1, 75°C 1/0 AND ABOVE

A

ROOM
MOUNTING FLUSH
FED FROM METER
NOTE

VOLTS 240/120V 2P 3W
BUS AMPS 400
NEUTRAL 100%

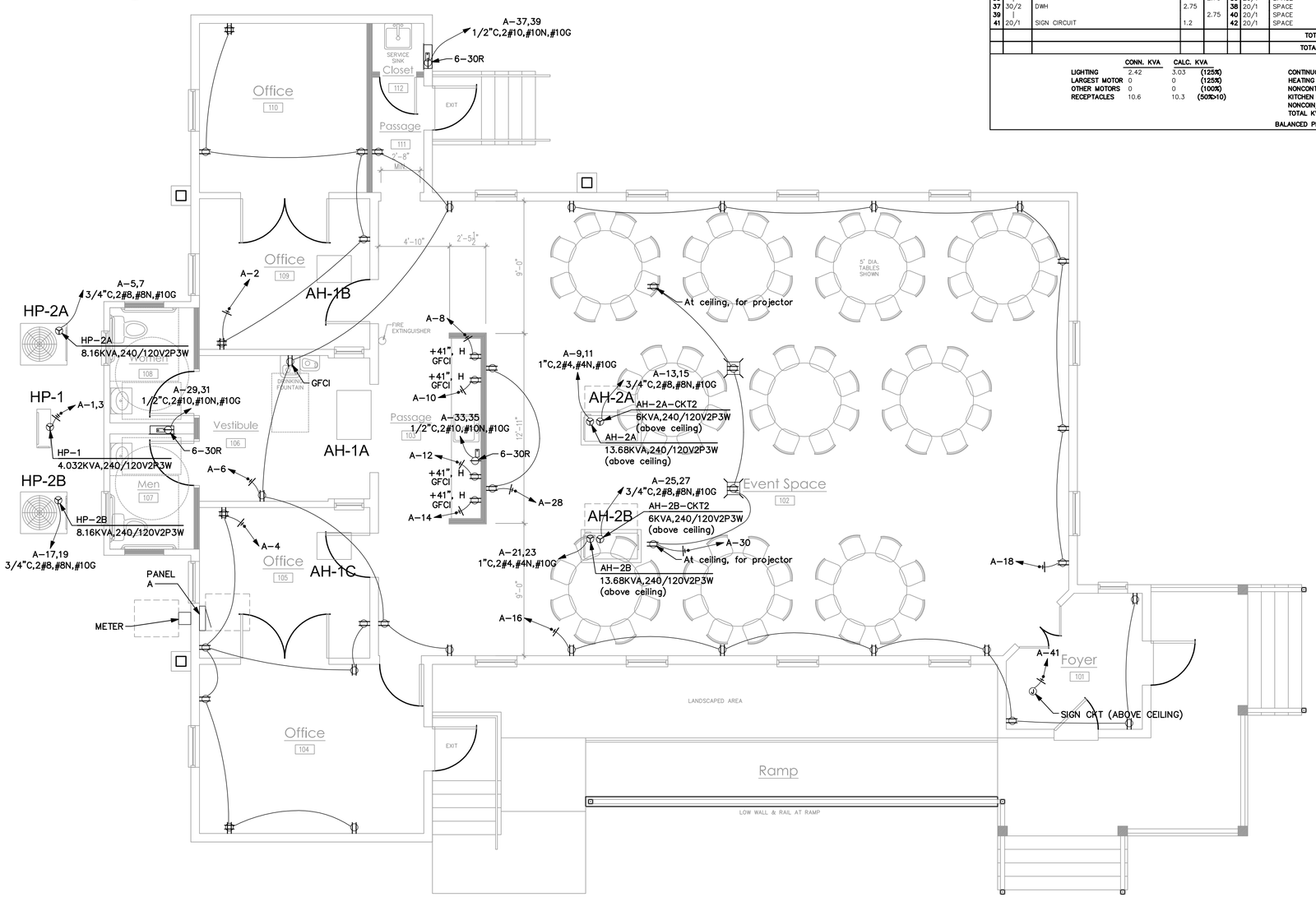
AIC 22,000
MAIN BKR 400
LUGS STANDARD

CKT #	CKT BKR	CIRCUIT DESCRIPTION	KVA LOAD A	KVA LOAD B	CKT #	CKT BKR	CIRCUIT DESCRIPTION	KVA LOAD A	KVA LOAD B
1	20/2	HP-1	2.02		2	20/1	RECEPTACLE	1.26	
3	|			2.02	4	20/1	RECEPTACLE		1.62
5	40/2	HP-2A	4.08		6	20/1	EWC, RECEPTACLE	1.26	
7	|			4.08	8	20/1	MICROWAVE		0.54
9	60/2	AH-2A	6.84		10	20/1	COFFEE MAKER	0.54	
11	|			6.84	12	20/1	COFFEE MAKER		0.54
13	40/2	AH-2A-CKT2	3		14	20/1	MICROWAVE	0.54	
15	|			3	16	20/1	RECEPTACLE		1.26
17	40/2	HP-2B	4.08		18	20/1	RECEPTACLE	1.26	
19	|			4.08	20	20/1	EMER, LIGHTING, Ltg		0.432
21	60/2	AH-2B	6.84		22	20/1	EMER, EXIT, LIGHTING, LTG, RR EXH	0.722	
23	|			6.84	24	20/1	EMER, EXIT, LIGHTING, LTG		0.265
25	40/2	AH-2B-CKT2	3		26	20/1	EMER, EXIT, LIGHTING, LTG	1.01	
27	|			3	28	20/1	RECEPTACLE		0.36
29	30/2	DWH	2.75		30	20/1	RECEPTACLE	1.44	
31	|			2.75	32	20/1	SPACE		0
33	30/2	DWH	2.75		34	20/1	SPACE	0	
35	|			2.75	36	20/1	SPACE		0
37	30/2	DWH	2.75		38	20/1	SPACE	0	
39	|			2.75	40	20/1	SPACE		0
41	20/1	SIGN CIRCUIT	1.2		42	20/1	SPACE	0	
							TOTAL CONNECTED KVA BY PHASE	47.3	43.1
							TOTAL CONNECTED AMPS BY PHASE	394	359

	CONN. KVA	CALC. KVA	
LIGHTING	2.42	3.03	(125%)
LARGEST MOTOR	0	0	(125%)
OTHER MOTORS	0	0	(100%)
RECEPTACLES	10.6	10.3	(50%>10)

	CONN. KVA	CALC. KVA	
CONTINUOUS	1.2	1.5	(125%)
HEATING	28.5	28.5	(100%)
NONCONTINUOUS	47.7	47.7	(100%)
KITCHEN EQUIP	0	0	(N/A)
NONCOIN./DIVERSE	0	0	(N/A)
TOTAL KVA	90.5	91.1	

BALANCED PHASE AMPS 379



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

PLAN NOTES:

1. SEE ARCHITECTURAL PLAN(S) FOR WALL CONSTRUCTION DETAILS.
2. SEE ARCHITECTURAL FOR KEYPLAN OF BUILDING.
3. CONFIRM LOCATION OF FIXTURES, DEVICES AND EQUIPMENT WITH OWNER PRIOR TO ROUGH-IN.
4. COORDINATE SERVICE DROP FROM UTILITY WITH UTILITY.
5. THE DEMAND WATER HEATERS IN THE MEN'S ROOM AND SERVICE CLOSET ARE IN WALL BOXES, NEMA 6-30R IS TO BE IN THE WALL BOX. THE DEMAND WATER HEATER IN THE PASSAGE AREA IN THE CABINET, THE NEMA 6-30R IS TO BE IN THE CABINET.

NORTH CAROLINA PROFESSIONAL SEAL C-3367 CORPORATION ENGINEERING
NORTH CAROLINA PROFESSIONAL SEAL 15492 ENGINEER DAVID A. WEBB

WEBB ENGINEERING, PC
MEBANE, NC 27302

REVISIONS

No.	DATE	DESCRIPTION	REV. BY

COORDINATOR:

DRAWN BY: WE

CHK BY:

Manns Chapel - remodeling
175 Poythress Road
Chapel Hill, NC 27516

24 X 36
1/4" = 1'-0"

06.05.2014

140401

Power Plan

E1
of 2

BUILDING CODE ELECTRICAL SUMMARY:

ELECTRICAL SYSTEM AND EQUIPMENT

METHOD OF COMPLIANCE: PRESCRIPTIVE X
PERFORMANCE
ENERGY COST BUDGET

LIGHTING SCHEDULE:
NOT APPLICABLE
INCLUDED IN PLANS X

TOTAL INTERIOR WATTAGE-SPECIFIED VS. ALLOWED

EVENT SPACE 0.83 W/SF SPECIFIED < or = 1.5 W/SF ALLOWED
OFFICE SPACE 0.39 W/SF SPECIFIED < or = 1.0 W/SF ALLOWED
SEE LIGHTING ENERGY SUMMARY ON SH. E2

TOTAL EXTERIOR EFFICACY-SPECIFIED VS. ALLOWED
N/A (none operate at >100watts)
EQUIPMENT SCHEDULES WITH MOTORS
(NOT USED FOR MECHANICAL SYSTEMS)
NOT APPLICABLE
INCLUDED IN PLANS X

DESIGNER STATEMENT:
TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE DESIGN OF THIS BUILDING COMPLIES WITH THE ELECTRICAL SYSTEM AND EQUIPMENT REQUIREMENTS OF THE NORTH CAROLINA STATE BUILDING CODE, VOLUME X-ENERGY.

SIGNED
NAME DAVID A. WEBB, P.E.
TITLE CONSULTING ENGINEER

INTERIOR LIGHTING ENERGY SUMMARY -Event Space

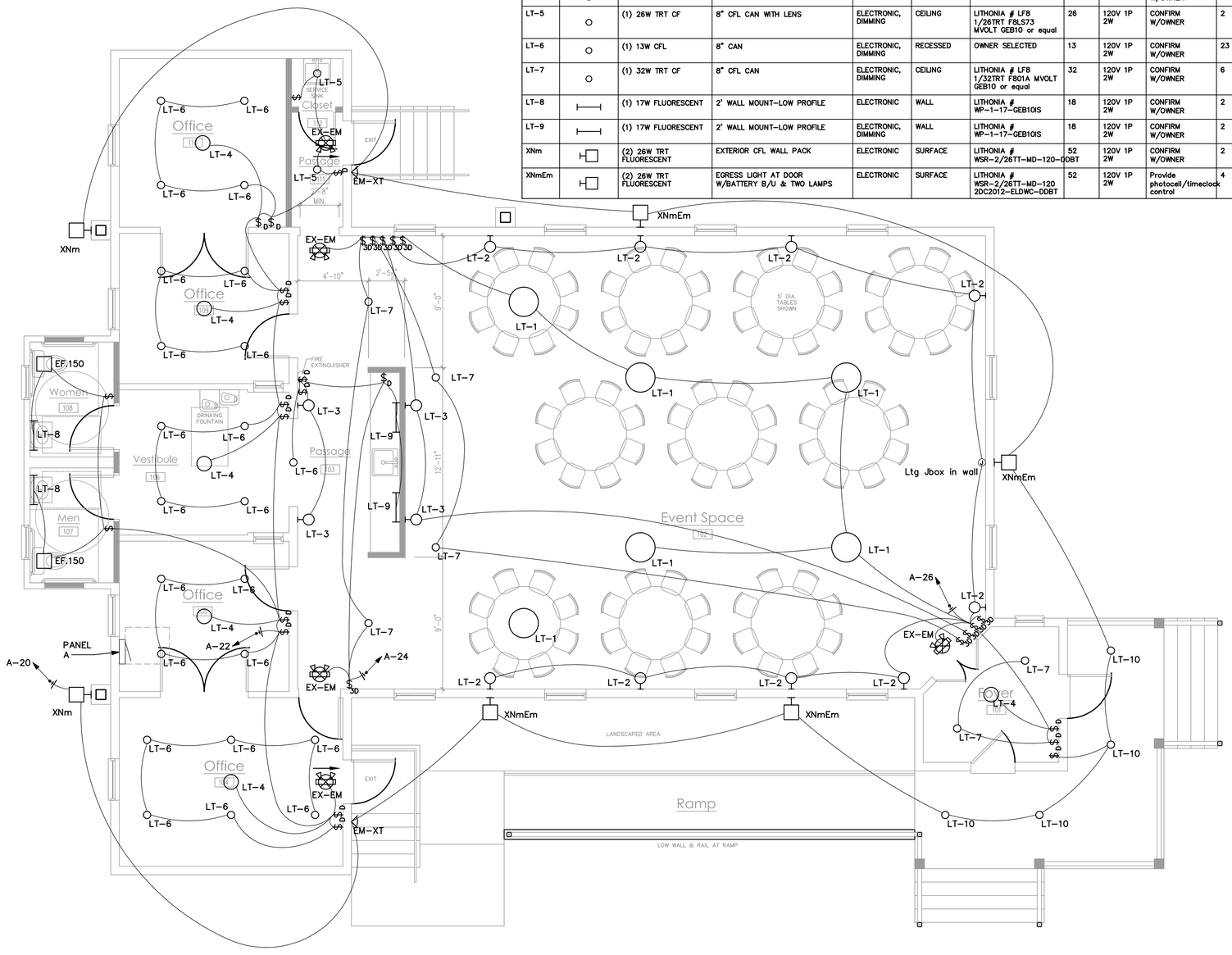
FIXTURE CALLOUT	QTY.	INPUT WATTS	TOTAL WATTS			
LT-1	6	130	780			
L6	6	32	192			
LT-4B	1	26	26			
LT-2	9	13	117			
LT-2B	2	13	26			
					EVENT SPACE	
				AREA, SF	WATTS/SF ALLOWED	WATTS/SF ACTUAL
TOTALS			1141	1310	1.3	0.87

INTERIOR LIGHTING ENERGY SUMMARY - Office Space

FIXTURE CALLOUT	QTY.	INPUT WATTS	TOTAL WATTS			
LT-2B	2	13	26			
LT-8	2	26	52			
LT-9	23	13	299			
VL-1	2	18	36			
VL-2	2	18	36			
LT-4B	5	26	130			
					OFFICE SPACE	
				AREA, SF	WATTS/SF ALLOWED	WATTS/SF ACTUAL
TOTALS			579	1050	1.0	0.55

LIGHT FIXTURE SCHEDULE

CALLOUT	SYMBOL	LAMP	DESCRIPTION	BALLAST	MOUNTING	MODEL	INPUT WATTS	VOLTS	NOTE 1	QTY
EF.150	□		141 CFM CEILING EXHAUST FAN	ELECTRONIC	CEILING	ACME # VQ150	100	120V 1P 2W	CONFIRM W/OWNER	2
EM-XT	◁	(2) 6W XENON	TWIN LAMP LOW PROFILE DIE CAST ALUM HOUSING W/MAINT FREE BATTERY	BATTERY	WALL	LITHONIA AFFINITY # ELA AFNR DB or equal		120V 1P 2W	CONFIRM W/OWNER	4
EX-EM		(1) 1W LED (2) 7W KRYPTON	TWIN HEAD THERMOPLASTIC COMBINATION EMERGENCY & LED EXIT SIGN FIXTURE	BATTERY BATTERY	WALL/CEILING	LITHONIA QUANTUM SERIES # LHOM S W 3 R 120/277 H or equal	3 15	120V 1P 2W	CONFIRM W/OWNER	5
LT-1	○	(10) 13W	CFL CHANDELIER	ELECTRONIC, DIMMING	PENDANT	OWNER SELECTED	130	120V 1P 2W	CONFIRM W/OWNER	6
LT-2	⊢○	(1) 13W	WALL SCONCE	ELECTRONIC, DIMMING	WALL	OWNER SELECTED	13	120V 1P 2W	CONFIRM W/OWNER	9
LT-3	⊢○	(1) 13W	WALL SCONCE	ELECTRONIC, DIMMING	WALL	OWNER SELCTED	13	120V 1P 2W	CONFIRM W/OWNER	4
LT-4	○	(1) 26W CFL	CFL CHANDELIER	ELECTRONIC, DIMMING	PENDANT	OWNER SELECTED	26	120V 1P 2W	CONFIRM W/OWNER	6
LT-5	○	(1) 26W TRT CF	8" CFL CAN WITH LENS	ELECTRONIC, DIMMING	CEILING	LITHONIA # LF8 1/26TRT F8LS73 MVOLT GEB10 or equal	26	120V 1P 2W	CONFIRM W/OWNER	2
LT-6	○	(1) 13W CFL	8" CAN	ELECTRONIC, DIMMING	RECESSED	OWNER SELECTED	13	120V 1P 2W	CONFIRM W/OWNER	23
LT-7	○	(1) 32W TRT CF	8" CFL CAN	ELECTRONIC, DIMMING	CEILING	LITHONIA # LF8 1/32TRT F801A MVOLT GEB10 or equal	32	120V 1P 2W	CONFIRM W/OWNER	6
LT-8	⊢⊣	(1) 17W FLUORESCENT	2' WALL MOUNT-LOW PROFILE	ELECTRONIC	WALL	LITHONIA # WP-1-17-GEB10IS	18	120V 1P 2W	CONFIRM W/OWNER	2
LT-9	⊢⊣	(1) 17W FLUORESCENT	2' WALL MOUNT-LOW PROFILE	ELECTRONIC, DIMMING	WALL	LITHONIA # WP-1-17-GEB10IS	18	120V 1P 2W	CONFIRM W/OWNER	2
XNm	⊢□	(2) 26W TRT FLUORESCENT	EXTERIOR CFL WALL PACK	ELECTRONIC	SURFACE	LITHONIA # WSR-2/26TT-MD-120-DDBT	52	120V 1P 2W	CONFIRM W/OWNER	2
XNmEm	⊢□	(2) 26W TRT FLUORESCENT	EGRESS LIGHT AT DOOR W/BATTERY B/U & TWO LAMPS	ELECTRONIC	SURFACE	LITHONIA # WSR-2/26TT-MD-120 2DC2012-ELDWC-DDBT	52	120V 1P 2W	Provide photocell/timeclock control	4



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

PLAN NOTES:

1. SEE ARCHITECTURAL PLAN(S) FOR WALL CONSTRUCTION DETAILS.
2. SEE ARCHITECTURAL FOR KEYPLAN OF BUILDING.
3. EXIT & EMERGENCY LIGHTS ARE WIRED ON THE UNSWITCHED LEG OF CIRCUITS.
4. COORDINATE LOCATION OF FIXTURES, DEVICES AND EQUIPMENT WITH OWNER PRIOR TO ROUGH-IN.
5. LIGHT FIXTURES ARE TO BE SELECTED BY OWNER. ADVISE ENGINEER OF MAJOR CHANGES TO WATTAGES.

NORTH CAROLINA PROFESSIONAL SEAL C-3367 CORPORATION WEBB ENGINEERING, P.C.
NORTH CAROLINA PROFESSIONAL SEAL 15492 ENGINEER DAVID A. WEBB

WEBB ENGINEERING, PC
MEBANE, NC 27302

REVISIONS

No.	DATE	DESCRIPTION	REV. BY

COORDINATOR:

DRAWN BY: WE

CHK BY:

Manns Chapel - remodeling
175 Poythress Road
Chapel Hill, NC 27516

24 X 36
1/4" = 1'-0"

06.05.2014

140401

Lighting Plan & Schedules

E2
of 2

GENERAL HVAC NOTES:

1. HVAC PLANS ARE INTENDED TO PROVIDE INFORMATION FOR INSTALLATION OF A COMPLETE, FUNCTIONAL HVAC SYSTEM. PROVIDE ALL ESSENTIAL LABOR, MATERIALS & DEVICES REQUIRED TO PRODUCE A QUALITY END PRODUCT, WHICH COMPLIES WITH LOCAL & STATE CODES AND MEETS OR EXCEEDS INDUSTRY STANDARDS FOR WORKMANSHIP.

2. REVIEW AND BECOME FAMILIAR WITH THE WORK OF ALL TRADES FOR PURPOSES OF COORDINATION AND ROUTING. PROVIDE REQUIRED PLANNING, COORDINATION AND SEQUENCING OF HVAC INSTALLATION WITH BUILDING COMPONENTS AND OTHER TRADES.

3. PROVIDE ALL NEW MATERIALS IN LIKE NEW CONDITION AT TIME OF INSTALLATION AND MAINTAIN IN LIKE NEW CONDITION UNTIL ACCEPTANCE OF COMMISSIONING.

4. BALANCE AIR SYSTEM TO QUANTITIES INDICATED ON PLANS AND PROVIDE TYPE WRITTEN AIR BALANCE REPORT WITH O&M MANUALS.

5. ANCHOR COMPONENTS PER APPLICABLE SEISMIC REQUIREMENTS. SEE SH. T-1 FOR SEISMIC CLASSIFICATION.

6. FABRICATE AND INSTALL DUCT PER SMACNA STANDARDS FOR 2 INCH WG WITH GALVANIZED METAL (26 GAUGE MINIMUM). ALL RADIUS ELBOWS AND TEES TO HAVE CENTERLINE RADIUS OF 1.5 X DUCT WIDTH. ALL SQUARE ELBOWS & TEES TO HAVE TURNING VANES.

7. SEAL ALL DUCT JOINTS, SEAMS AND BRANCH TAKEOFFS WITH DUCT SEALANT EQUAL TO HARDCAST IRON-GRIP 601 FOR MASTIC TYPE SEALANTS OR HARDCAST FOIL-GRIP 1402 FOR ROLLED ELASTOMERIC TYPE SEALANTS. INSTALLATION TO MEET SMACNA SEAL CLASS "C".

8. ROUND RUNOUTS TO HAVE SPIN-INS WITH DAMPERS, RECTANGULAR BRANCH DUCTS TO HAVE 45 DEGREE TAPS WITH AIR EXTRACTORS AND ALL TEES TO HAVE SPLITTER DAMPERS. PROVIDE ANY OTHER AIRFLOW CONTROL COMPONENTS NEEDED TO BALANCE THE AIR SYSTEM.

9. PROVIDE UL LABELED FLEX DUCT WITH METALIZED VAPOR BARRIER, MIN. R-VALUE OF 5.0. SECURE ENDS WITH NYLON BANDS AND METALIZED DUCT TAPE PER MFG'S RECOMMENDATIONS AND IN ACCORDANCE WITH U.L. 181B.

10. INSULATE RIGID ROUND AND RECTANGULAR DUCT WITH 2 INCH THICK FIBROUS GLASS DUCT INSULATION HAVING A MIN. R-VALUE OF 8.0 (MAX. k-VALUE OF .31 FOR TYPE I AND MAX. k-VALUE OF .27 FOR TYPE II). WHEN USING DUCT LINER, PRODUCTS SHALL EXHIBIT NO MICROBIOLOGICAL APLIFICATION PER ASTM C 1338 WHEN TESTED PER ASTM G 21-96 (FUNGI TEST) AND ASTM G 22-96 (BACTERIA TEST). WHEN USING DUCT WRAP, PRODUCTS SHALL INCLUDE AN FSK VAPOR BARRIER. DUCT DIMENSIONS SHOWN ON PLANS ARE FINISHED INSIDE DIMENSIONS. FABRICATION AND INSTALLATION TO CONFORM TO THE MANUFACTURER'S RECOMMENDATIONS AND TO THE REQUIREMENTS OF THE LATEST EDITION OF NAIMA FGDLS OR SMACNA HVAC DCS.

11. INSULATE & SEAL ALL GRILLE & DIFFUSER NECKS TO MAINTAIN VAPOR BARRIER AND ELIMINATE CONDENSATION.

12. SIZE CONDENSATE TRAPS FOR ALL AC UNITS AS RECOMMENDED BY UNIT MFGR, ROUTE TO DRYWELL, U.O.N.; TRAPS AND PIPING TO BE SCHEDULE 40 PVC. INSTALL SUCH THAT DISCHARGE RUNOFF DOES NOT CAUSE A NUISANCE, COORDINATE WITH G.C. INSULATE INTERIOR PIPING WITH 1/2 INCH THICK UNICELLULAR INSULATION.

13. PROVIDE TYPE ACR COPPER REFIGERANT PIPING WITH SILVER SOLDERED JOINTS. SIZE, INSULATE AND INSTALL PER EQUIPMENT MFGR INSTALLATION INSTRUCTIONS. PROVIDE MIN. 1" THICK INSULATION ON ALL REFRIGERENT LINES.

14. SUPPORT & SECURE ALL PIPING TO PREVENT ANY AND ALL DROOPS & SAGS USING SUITABLE HANGERS, STRAPS OR PIPE STANDS THAT ARE EITHER PLATED, GALVANIZED OR PAINTED. PROVIDE ISOLATION BETWEEN PIPING AND HANGERS, ETC. OF DISSIMILAR MATERIALS.

15. E.C. TO PROVIDE POWER WIRING, DISCONNECTS & STARTERS NOT FURNISHED WITH HVAC EQUIPMENT. E.C. TO PROVIDE ALL FINAL ELECTRICAL POWER CONNECTIONS.

16. M.C. TO PROVIDE LOW VOLTAGE CONTROL WIRING, RELAYS AND INTERLOCKING DEVICES FOR MECHANICAL EQUIPMENT.

17. TEMPERATURE CONTROLS FOR EACH HEATING-COOLING SYSTEM TO CONSIST OF AN ELECTRONIC PROGRAMMABLE HEATING-COOLING THERMOSTAT WITH HEAT-OFF-COOL-AUTO SYSTEM CONTROL & AUTO-ON FAN CONTROL. MOUNT TOP OF THERMOSTAT 48 INCHES A.F.F. U.O.N.

18. INSTALL EQUIPMENT TO FACILITATE EASE OF SERVICING, MAINTENANCE & REPAIR, ALL IN ACCORDANCE WITH MANUFACTER'S INSTALLATION INSTRUCTIONS AS WELL AS SPECIFIC INSTRUCTIONS ON PLANS.

19. PROVIDE FLEX-TYPE CONNECTORS AT ALL DUCT TO EQUIPMENT CONNECTIONS WHEN EQUIPMENT DOES NOT HAVE INTERNALLY ISOLATED FANS.

20. WASH AND CLEAN ALL EQUIPMENT & SYSTEMS, & MECHANICAL AREAS JUST PRIOR TO COMMISSIONING. PAINTED EQUIPMENT SURFACES ARE TO BE TOUCHED UP TO MATCH FACTORY APPLIED FINISHES, HOWEVER ACCEPTANCE OF EXTENSIVE TOUCH UP OF EXPOSED EQUIPMENT IN LIEU OF REPLACEMENT IS AT THE DISCRETION OF THE PROJECT MANAGER.

21. PROVIDE & INSTALL A NEW SET OF FILTERS AS SOON AS FEASIBLE AFTER ACCEPTANCE OF COMMISSIONING. COORDINATE TIMING WITH PROJECT MANAGER.

22. PROVIDE G.C. WITH A COMPLETE OPERATING & MAINTENANCE MANUAL INCLUDING EQUIPMENT BASIC DATA, AIR BALANCE REPORT, CONTROL INFORMATION, ROUTINE MAINTENANCE REQUIREMENTS/RECOMMENDATIONS AND SERVICE AGENCIES NAME, PHONE NUMBER & ADDRESS.

23. GUARANTEE ALL EQUIPMENT, MATERIALS AND INSTALLATION FREE OF DEFECTS FOR A PERIOD OF 1 YEAR AFTER DATE OF ACCEPTANCE OF COMMISSIONING. EXTENDED GUARANTEES ON EQUIPMENT TO BE AS PUBLISHED ON MANUFACTURER'S EXTENDED WARRANTIES.

BUILDING CODE MECHANICAL SUMMARY:
MECHANICAL SYSTEMS, SERVICE SYSTEMS, AND EQUIPMENT

METHOD OF COMPLIANCE: PRESCRIPTIVE X
ENERGY COST BUDGET
THERMAL ZONE: 4A
EXTERIOR DESIGN CONDITIONS: WINTER DB 20.0°F
SUMMER DB 95.0°F
INTERIOR DESIGN CONDITIONS: WINTER DB 72.0°F
SUMMER DB 75.0°F
RELATIVE HUMIDITY 50 %
BUILDING HEATING LOAD: TENANT SPACE 91.5 MBH
TOTAL 91.5 MBH

BUILDING COOLING LOAD: TENANT SPACE 155.0 MBH
TOTAL 155.0 MBH

MECHANICAL SPACE CONDITIONING SYSTEMS:
UNIT DESCRIPTION & OUTPUTS ARE ON MECHANICAL SCHEDULES
UNITARY X
BOILER
CHILLER
EQUIPMENT EFFICIENCIES:
AS LISTED ON MECHANICAL EQUIPMENT SCHEDULES.
EQUIPMENT SCHEDULES WITH MOTORS (MECHANICAL SYSTEMS):
MOTORS USED ON THIS PROJECT ARE INTEGRAL TO THE SCHEDULED MECHANICAL EQUIPMENT AND INCLUDED IN THE EQUIPMENT'S EFFICIENCY RATING.

DESIGNER STATEMENT:
TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE DESIGN OF THIS BUILDING COMPLIES WITH THE MECHANICAL SYSTEM AND EQUIPMENT REQUIREMENTS OF THE NORTH CAROLINA STATE BUILDING CODE, VOLUME X-ENERGY.

SIGNED
NAME DAVID A. WEBB, P.E.
TITLE CONSULTING ENGINEER

Ventilation Schedule

Zone Z-1A

System Primary Airflow: Vps 727 CFM — Zone Air Distribution Effectiveness: Ez 1
Average Outdoor Air Fraction: Xs 0.187 — Primary Air Fraction to Zone: Ep 1
Occupant Diversity: D 1 — Secondary Air Fraction to Zone: Er 1
Uncorrected Air Intake: Vou 136 CFM — Fraction of Supply Air to Zone from Outside Zone: Fa 1
System Ventilation Efficiency: Ev 0.872 — Fraction of Supply Air to Zone from Fully Mixed Primary Air: Fb 1
Outdoor Air Intake: Vot 156 CFM — Fraction of Outdoor Air to Zone from Outside Zone: Fc 1
0.215

Room Information

Room	Room Type	People Outdoor Air Rate (CFM/person) Rp	People Pz	Total (CFM) Rp*Pz	Area Outdoor Air Rate (CFM/ft2) Ra	Area (ft2) Az	Total (CFM) Ra*Az	Breathing Zone Outside Airflow (CFM) Vbz	Zone Outdoor Airflow (CFM) Voz	Zone Discharge Airflow (CFM) Vdz	Discharge Outdoor Air Fraction Zd	Zone Ventilation Efficiency Evz
103	11 Break Rm	7.5	11.5	87	0.18	115	21	108	108	355	0.307	0.898
103E	7 Corridor	0	0	0	0.06	45.1	3	3	3	25	0.12	1.08
103W	7 Corridor	0	0	0	0.06	45.1	3	3	3	25	0.12	1.08
106	17 Foyer	5	2.6	17	0.06	97.8	6	20	20	148	0.135	1.07
107	3 Toilet	0	0	0	0	44.7	0	0	0	71	0	1.2
108	3 Toilet	0	0	0	0	44.7	0	0	0	71	0	1.2
111	7 Corridor	0	0	0	0.06	29	2	2	2	51	0.0392	1.16
112	6 Janitor	0	0	0	0	11.5	0	0	0	26	0	1.2

Zone Z-1B

System Primary Airflow: Vps 258 CFM — Zone Air Distribution Effectiveness: Ez 1
Average Outdoor Air Fraction: Xs 0.0891 — Primary Air Fraction to Zone: Ep 1
Occupant Diversity: D 1 — Secondary Air Fraction to Zone: Er 1
Uncorrected Air Intake: Vou 23 CFM — Fraction of Supply Air to Zone from Outside Zone: Fa 1
System Ventilation Efficiency: Ev 0.992 — Fraction of Supply Air to Zone from Fully Mixed Primary Air: Fb 1
Outdoor Air Intake: Vot 23 CFM — Fraction of Outdoor Air to Zone from Outside Zone: Fc 1
0.0891

Room Information

Room	Room Type	People Outdoor Air Rate (CFM/person) Rp	People Pz	Total (CFM) Rp*Pz	Area Outdoor Air Rate (CFM/ft2) Ra	Area (ft2) Az	Total (CFM) Ra*Az	Breathing Zone Outside Airflow (CFM) Vbz	Zone Outdoor Airflow (CFM) Voz	Zone Discharge Airflow (CFM) Vdz	Discharge Outdoor Air Fraction Zd	Zone Ventilation Efficiency Evz
109	9 Office	5	0.6	3	0.06	119	8	11	11	115	0.0957	0.992
110	9 Office	5	0.7	4	0.06	131	8	12	12	147	0.0816	1.01

Zone Z-1C

System Primary Airflow: Vps 375 CFM — Zone Air Distribution Effectiveness: Ez 1
Average Outdoor Air Fraction: Xs 0.0851 — Primary Air Fraction to Zone: Ep 1
Occupant Diversity: D 1 — Secondary Air Fraction to Zone: Er 1
Uncorrected Air Intake: Vou 27 CFM — Fraction of Supply Air to Zone from Outside Zone: Fa 1
System Ventilation Efficiency: Ev 0.987 — Fraction of Supply Air to Zone from Fully Mixed Primary Air: Fb 1
Outdoor Air Intake: Vot 27 CFM — Fraction of Outdoor Air to Zone from Outside Zone: Fc 1
0.0851

Room Information

Room	Room Type	People Outdoor Air Rate (CFM/person) Rp	People Pz	Total (CFM) Rp*Pz	Area Outdoor Air Rate (CFM/ft2) Ra	Area (ft2) Az	Total (CFM) Ra*Az	Breathing Zone Outside Airflow (CFM) Vbz	Zone Outdoor Airflow (CFM) Voz	Zone Discharge Airflow (CFM) Vdz	Discharge Outdoor Air Fraction Zd	Zone Ventilation Efficiency Evz
104	9 Office	5	0.9	5	0.06	175	11	16	16	211	0.0758	1.01
105	9 Office	5	0.5	3	0.06	119	8	11	11	115	0.0957	0.987

Zone Z-2A & 2B unoccupied (no event)

System Primary Airflow: V_{ps} 2,440 CFM — Zone Air Distribution Effectiveness E_z 1
Average Outdoor Air Fraction: X_s 0.0332 — Primary Air Fraction to Zone: E_p 1
Occupant Diversity: D 1 — Secondary Air Fraction to Zone: E_r 1
Uncorrected Air Intake: V_{ou} 81 CFM — Fraction of Supply Air to Zone from Outside Zone: F_a 1
System Ventilation Efficiency: E_v 1 — Fraction of Supply Air to Zone from Fully Mixed Primary Air: F_b 1
Outdoor Air Intake: V_{ot} 81 CFM — Fraction of Outdoor Air to Zone from Outside Zone: F_c 1
0.0332

Room Information

Room	Room Type	People Outdoor Air Rate (CFM/person) R_p	People P_z	Total (CFM) R_p*P_z	Area Outdoor Air Rate (CFM/ft²) R_a	Area (ft²) A_z	Total (CFM) R_a*A_z	Breathing Zone Outside Airflow (CFM) V_{bz}	Zone Outdoor Airflow (CFM) V_{oz}	Zone Discharge Airflow (CFM) V_{dz}	Discharge Outdoor Air Fraction Z_d	Zone Ventilation Efficiency E_{vz}
101	17 Foyer	5	0	0	0.06	74.9	5	5	5	185	0.027	1.01
102	12 Conference	5	0	0	0.06	1,260	76	76	76	2,330	0.0327	1

Zone Z-2A & 2B occupied (i.e. during an event)

System Primary Airflow: Vps 3,190 CFM — Zone Air Distribution Effectiveness: Ez 1
Average Outdoor Air Fraction: Xs 0.128 — Primary Air Fraction to Zone: Ep 1
Occupant Diversity: D 1 — Secondary Air Fraction to Zone: Er 1
Uncorrected Air Intake: Vou 408 CFM — Fraction of Supply Air to Zone from Outside Zone: Fa 1
System Ventilation Efficiency: Ev 0.998 — Fraction of Supply Air to Zone from Fully Mixed Primary Air: Fb 1
Outdoor Air Intake: Vot 409 CFM — Fraction of Outdoor Air to Zone from Outside Zone: Fc 1
0.128

Room Information

Room	Room Type	People Outdoor Air Rate (CFM/person) Rp	People Pz	Total (CFM) Rp*Pz	Area Outdoor Air Rate (CFM/ft2) Ra	Area (ft2) Az	Total (CFM) Ra*Az	Breathing Zone Outside Airflow (CFM) Vbz	Zone Outdoor Airflow (CFM) Voz	Zone Discharge Airflow (CFM) Vdz	Discharge Outdoor Air Fraction Zd	Zone Ventilation Efficiency Evz
101	17 Foyer	5	2.3	12	0.06	74.9	5	17	17	185	0.0919	1.03
102	12 Conference	5	62.9	315	0.06	1,260	76	391	391	3,050	0.128	0.998

SPLIT SYSTEM HEAT PUMP SCHEDULE

OUTDOOR UNIT
(EQUIPMENT APPLICATION DESIGN BASIS: TRANE 4TWB & TAM7; MC TO ADVISE ENGINEER OF DEVIATION PRIOR TO ORDERING)

ZONE	TAG	NOMINAL TONNAGE	TOTAL COOLING	SENSIBLE COOLING	HEATING	MIN. SEER	MIN. HSPF	MCA	MOCP	VOLT/PH	WT**
2A	HP-2A	5.0	58.0 MBH	45.2 MBH	56.0 MBH	13.25	8.5	34.0	60	208/230/1	285
2B	HP-2B	5.0	58.0 MBH	45.2 MBH	56.0 MBH	13.25	8.5	34.0	60	208/230/1	285

SPECIFICATIONS: Scroll compressor, if available in unit size, operable in cooling mode with ambient air temp. of 60 degrees and above; suction-tube accumulator; automatic high pressure & loss of charge protection; built-in compressor delay; compressor discharge muffler; copper tube/aluminum fin coils; filter drier; external refrigerant service valves w/service ports for checking refrigerant pressures; steel cabinet, galvanized, zinc phosphate coated & finished with a smooth, hard, baked-on powder coating type finish; rust resistant exterior grade hardware; min. 1 yr. parts warranty-other than compressor; min. 5 yr. compressor warranty w/10 yr. compressor warranty available.

** nominal equipment net weight (lbs), does not include supporting hardware or other appurtanences

INDOOR UNIT
(EQUIPMENT APPLICATION DESIGN BASIS: TRANE 4TWB & TAM7; MC TO ADVISE ENGINEER OF DEVIATION PRIOR TO ORDERING)

ZONE	TAG	NOMINAL TONNAGE	AIRFLOW REQUIREMENTS	OUTSIDE AIR	FAN HP	FAN V/PH	ELEC. HEAT STAGES	ELEC. HEAT HEAT	ELEC. HEAT V/PH	ELEC. HEAT HCA	UNIT MCA	UNIT MOCP	UNIT V/PH	WT**
2A	AH-2A	5.0	1820 CFM @ 0.25 SP	100 CFM	1.0	230/1	2	14.4 KW	230/1				230/1	175
							CKT 1	9.6 KW	230/1	40.0	57*	60*	230/1	
							CKT 2	4.8 KW	230/1	20.0	25	25	230/1	
2B	AH-2B	5.0	1690 CFM @ 0.25 SP	410 CFM	1.0	230/1	2	14.4 KW	230/1				230/1	175
							CKT 1	9.6 KW	230/1	40.0	57*	60*	230/1	
							CKT 2	4.8 KW	230/1	20.0	25	25	230/1	

SPECIFICATIONS: Dx horizontally operated fan coil w/aux. electric strip heat; solid state fan controls; insulated (min. R4) galvanized steel enclosure; copper tubing coil with aluminum fins; enclosure to have easy access to A-coil for cleaning; refrigerant metering control; integral return path filter pack; condensate pan w/ primary & secondary drain connections
EAT DB/WB = 77.8°F/64.5°F ; LAT DB/WB = 54.9°F/54.3°F
OUTSIDE DESIGN SUMMER/WINTER = 94.0°F/27.0°F

* u.o.n. MCA & MOCP for circuit 1 includes the motor amps
** nominal equipment net weight (lbs), does not include supporting hardware or other appurtanences

TRI-ZONE VRF SPLIT SYSTEM HEAT PUMP SCHEDULE
(EQUIPMENT APPLICATION DESIGN BASIS: LG Model L3H36D12121800-A Tri-Zone-Concealed Duct, low static, split system heat pump; MC TO ADVISE ENGINEER OF DEVIATION PRIOR TO ORDERING)

OUTDOOR UNIT

ZONE	TAG	MODEL #	NOMINAL TONNAGE	TOTAL COOLING	HEATING	MIN. SEER	HSPF	COP	MCA*	MOCP*	VOLT/PH	WT**
1A,1B,1C	HP-1	LMU369HV	3.0	37.4 MBH	41.0 MBH @ 47°F 27.4 MBH @ 17°F	16.5	9.5	3.2 @ 47°F 2.6 @ 17°F	16.8	25	208-230/1	210

INDOOR UNITS

ZONE	TAG	MODEL #	NOMINAL TONNAGE	TOTAL COOLING	HEATING	AIRFLOW H/M/L	OUTSIDE AIR	MCA*	MOCP*	VOLT/PH	WT**
1A	AH-1A	LMDN185HV	1.5	14.5 MBH	17.5 MBH	530/477/406	70	0.25	n/a	208-230/1	60
1B	AH-1B	LMDN125HV	1.0	9.7 MBH	11.7 MBH	335/300/265	30	0.25	n/a	208-230/1	50
1C	AH-1C	LMDN125HV	1.0	9.7 MBH	11.7 MBH	335/300/265	30	0.25	n/a	208-230/1	50

SPECIFICATIONS: operable with ambient air temp. of 0-115°F cooling and 17-75°F heating; built-in compressor delay; refrigerant service valves w/service ports; steel cabinet, galvanized, zinc phosphate coated & finished with a smooth, hard, baked-on powder coating type finish; rust resistant exterior grade hardware; min. 1 yr. parts warranty-other than compressor; min. 5 yr. compressor warranty; Dx operated fan coil; solid state fan controls w/remote control w/ auto-changeover; three fan speeds plus auto-fan; enclosure to have easy access to coil for cleaning; integral condensate collection pan w/drain connections; removable front grille; washable reusable air filters; outdoor unit powered by indoor unit.

EAT DB/WB	LAT DB/WB	OUTSIDE DESIGN SUMMER/WINTER
77.8°F/64.6°F	54.9°F/54.3°F	95.0°F/20.0°F

* u.o.n. MCA is for single point electrical connection at heat pump, fan supplied from heat pump
** nominal equipment net weight (lbs), does not include supporting hardware or other appurtanences

EXHAUST FAN SCHEDULE

SPECIFICATIONS

NOTES:

1. LOW SOUND LEVEL EXHAUST FAN FOR INTERIOR APPLICATIONS. INCLUDES SPRING LOADED ALUMINUM BACKDRAFT DAMPER.
2. SURFACE MOUNT TO CEILING
3. PROVIDE ACME MODEL 643 WALL CAP

**EQUIPMENT APPLICATION DESIGN BASIS; MC TO ADVISE ENGINEER OF SUBSTITUTION PRIOR TO ORDERING

TAG	TYPE	AIRFLOW	WATTS/HP	VOLTS/Φ/AMPS	MANUFACTURER**	MODEL**	NOTES
EF1	CEILING	141 CFM @ 0.25	100 WATTS	120/1/1.3	ACME	VQ150	1,2,3

AIR DIFFUSER SCHEDULE (SEE NOTES 1 + 2)

TAG	TYPE	PANEL SIZE	CFM RANGE	SPECIFICATIONS
S-** / ***	SUPPLY LAY-IN	24 X 24	0-400	SQUARE FACED, CORROSION RESISTANT, HEAVY GAUGE, STEEL OR ALUMINUM, STAMPED ONE-PIECE CONES IN A STEPPED CONE DESIGN WITH A FIXED 360 DEGREE AIR PATTERN, WHITE BAKED ENAMEL FINISH, INCLUDE BALANCING DAMPER, FLEX DUCT ATTACHMENT COLLAR, AND INSULATED BACK (R4 MIN.)
R-** / ***	RETURN LAY-IN	24 X 24	0-1000	SQUARE FACED, CORROSION RESISTANT, HEAVY GAUGE, STEEL OR ALUMINUM, RETURN GRILLE, W/ FLUSH, REMOVABLE, 'FULL-FACE', 'PERFORATED' STYLE FACE, WHITE BAKED ENAMEL FINISH, CONCEALED LATCHES & HINGES, FLEX DUCT ATTACHMENT COLLAR AND INSULATED BACK (R4 MIN.)

AIR DIFFUSER NOTES:

1. "**" IN DIFFUSER TAG INDICATES FLEX DUCT CONNECTION SIZE FROM DIFFUSER TO HARD DUCT OR, WHERE NO HARD DUCT IS INDICATED ON PLAN, TO PLENUM BOX ON END OF AIR HANDLER.

2. "***" IN DIFFUSER OR RESTROOM EXHAUST TAG INDICATES AIR FLOW REQUIRED.

DIFFUSER ANNOTATION KEY
S-** / ***
DIFFUSER TYPE: S=SUPPLY; R=RETURN
FLEX DUCT SIZE (UL LABELED)
DUCT AND DIFFUSER CFM

NORTH CAROLINA PROFESSIONAL CORPORATION SEAL C-3367 WEBB ENGINEERING, PC
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 15492 DAVID A. WEBB
6-1-14

WEBB ENGINEERING, PC
MEBANE, NC 27302

REVISIONS No.	DATE	DESCRIPTION	REV. BY

COORDINATOR:

DRAWN BY: WE

CHK BY:

Manns Chapel - remodeling
175 Poythress Road
Chapel Hill, NC 27516

24 X 36
1/4" = 1'-0"

06.05.2014

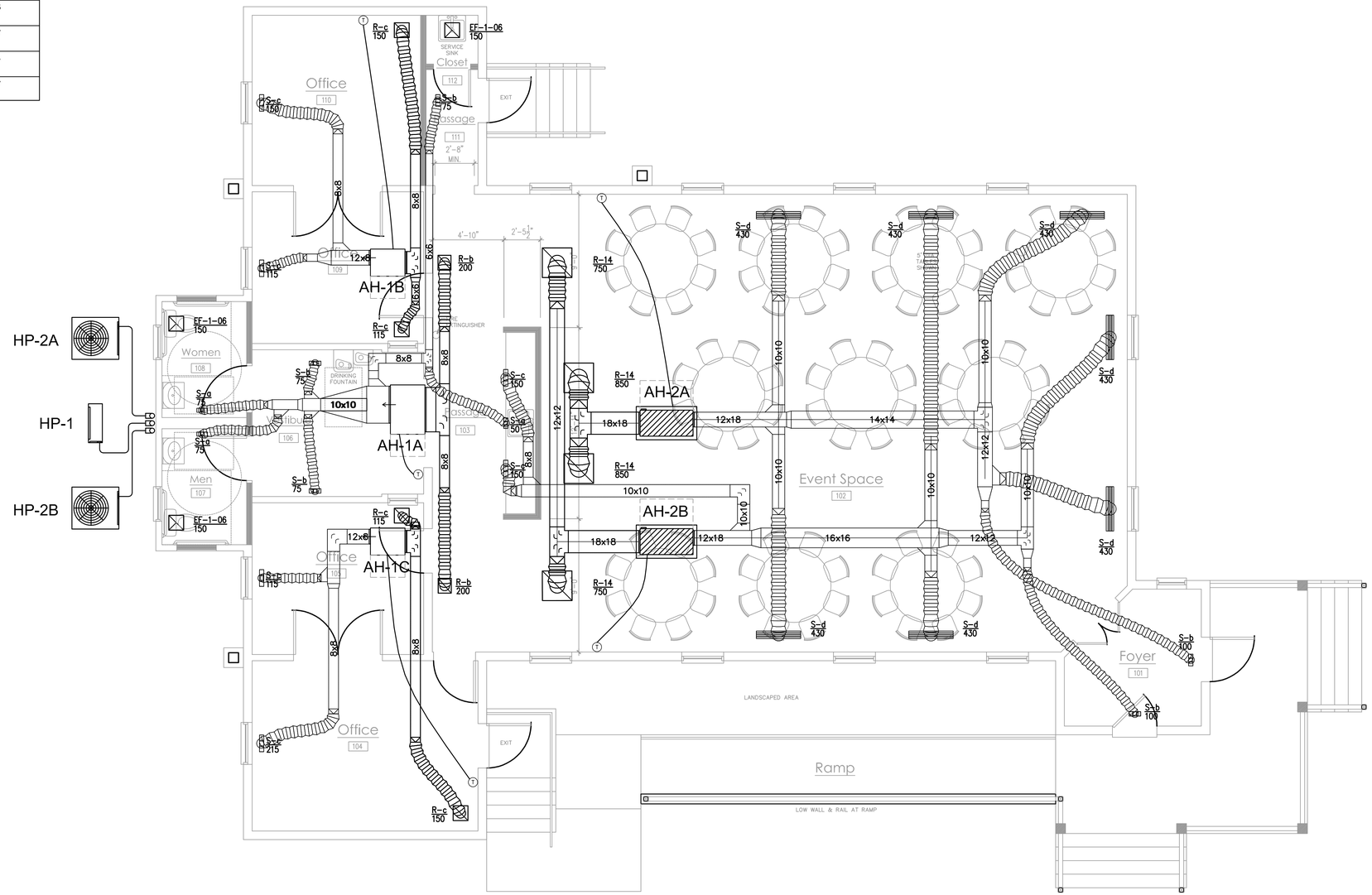
140401

HVAC Notes & Schedules

M1
of 2

DIFFUSER, GRILLE, AND REGISTER SCHEDULE

CALLOUT	FACE SIZE (IN)	INLET SIZE (IN)	QUANTITY
EF-1-06	12x12	6ø	3
R-14	24x24	14ø	4
R-b	10 1/2x12	10ø	2
R-c	12x12	6ø	4
S-a	3 1/4x8 1/2	6ø	3
S-b	3 1/2x9 1/2	6ø	7
S-c	3 1/2x13 1/2	6ø	6
S-d	36x6	12ø	7



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

PLAN NOTES:

1. SEE ARCHITECTURAL PLAN(S) FOR WALL CONSTRUCTION DETAILS.
2. SEE ARCHITECTURAL FOR KEYPLAN OF BUILDING.
3. PROVIDE OUTSIDE AIR PER SCHEDULE. NOTE: UNITS HP-2B AND AH-2B ARE INTENDED TO OPERATE ONLY DURING AN EVENT, SO O/A IS BASED ON EVENT CONDITIONS.

NORTH CAROLINA PROFESSIONAL CORPORATION
SEAL C-3367
WEBB ENGINEERING, PC
NORTH CAROLINA PROFESSIONAL ENGINEER
SEAL 15492
DAVID A. WEBB
WEBB ENGINEERING, PC
MEBANE, NC 27302

REVISIONS

No.	DATE	DESCRIPTION	REV. BY

COORDINATOR:

DRAWN BY: WE

CHK BY:

Manns Chapel - remodeling
175 Poythress Road
Chapel Hill, NC 27516

24 X 36
1/4" = 1'-0"

06.05.2014

140401

HVAC Plan

M2
of 2

PLUMBING NOTES:

1. PLUMBING PLANS ARE INTENDED TO PROVIDE INFORMATION FOR INSTALLATION OF A COMPLETE FUNCTIONAL PLUMBING SYSTEM. PROVIDE ALL ESSENTIAL LABOR, MATERIALS & DEVICES REQUIRED TO PRODUCE A QUALITY END PRODUCT WHICH COMPLIES WITH LOCAL & STATE CODES AND MEETS OR EXCEEDS INDUSTRY STANDARDS FOR WORKMANSHIP.

2. REVIEW AND BECOME FAMILIAR WITH THE WORK OF ALL TRADES FOR PURPOSES OF COORDINATION AND ROUTING. PROVIDE REQUIRED PLANNING, COORDINATION AND SEQUENCING OF PLUMBING INSTALLATION WITH BUILDING COMPONENTS AND OTHER TRADES.

3. PROVIDE ALL NEW MATERIALS IN LIKE NEW CONDITION AT TIME OF INSTALLATION AND MAINTAIN IN LIKE NEW CONDITION UNTIL ACCEPTANCE OF COMMISSIONING.

4. DRAIN, WASTE & VENT (DWV) PIPING SHALL BE SOLID SCHEDULE 40 PVC WITH SOCKET TYPE FITTINGS AND HEAVY DUTY SOLVENT-WELDED JOINTS USING PURPLE PRIMER AND FRESH CLEAR HEAVY DUTY GLUE.

5. USE ONLY HARD DRAWN TYPE L COPPER WITH SOLDERED OR BRAZED CONNECTIONS FOR ABOVE GRADE WATER PIPING OR PEX SYSTEM OF PIPING & MFG APPROVED FITTINGS.

6. PC TO SIZE INDIVIDUAL FIXTURE SUPPLY AND DRAIN CONNECTIONS.

7. INSULATE WATER PIPING INSTALLED IN UNHEATED SPACE USING ARMAFLEX TURBOLIT/TURBOLIT SS OR EQUAL 1" CLOSED CELL PIPE INSULATION AND PROVIDE HEAT TAPE SIMILAR TO TYCO/RAYCHEM WINTERGARD.

8. INSULATE THE FIRST 8 FEET OF HOT WATER PIPING WITH 0.5 INCH THICK INSULATION WITH MAXIMUM CONDUCTIVITY OF 0.28 BTU per inch/h · ft² · °F (1.59w PER 25mm/m² · k)

9. LOCATE WATER PIPING ON OUTSIDE WALLS AND IN CEILING BETWEEN BUILDING INSULATION AND CONDITIONED SPACE.

10. PROVIDE BRANCH LINE SHUTOFF VALVES AT EACH BRANCH LINE, INSTALLED IN A READILY ACCESSIBLE LOCATION THAT IS AS CLOSE AS POSSIBLE TO THE TAPPED LINE.

11. USE GATE OR BALL VALVES FOR SHUTOFF DUTY AND GLOBE OR BALL VALVES FOR THROTTLING DUTY. VALVES 2" & SMALLER TO BE CLASS 125 WITH BRONZE BODY AND BONNET.

12. PROTECT COPPER PIPING FROM DIRECT CONTACT WITH MASONRY AND DISSIMILAR METAL.

13. HANGERS, SUPPORTS, ANCHORS AND CLIPS USED FOR COPPER PIPING ARE TO HAVE ELECTROLYTIC ISOLATION MATERIAL. ALL OTHER HANGERS AND SUPPORTS ARE TO BE PAINTED OR GALVANIZED.

14. PROTECT PIPING PASSING THROUGH CONCRETE/MASONRY WALLS OR FLOORS AGAINST EXTERNAL CORROSION BY PROTECTIVE SHEATHING OR WRAPPING.

15. PROTECT PIPE SLEEVES THROUGH FIRE-RATED WALLS, FLOORS, AND CEILINGS WITH APPROPRIATELY RATED AND INSTALLED PENETRATION FIRE SEALS.

16. PROVIDE MECHANICAL WATER HAMMER ARRESTORS AS SHOWN ON PLANS.

17. FOR WALL MOUNTED LAVATORIES PROVIDE McGUIRE MANUFACTURING "PROWRAP", OR EQUAL, TYPE OF PREWRAPPED INSULATION AND PIPING FOR HOT & COLD SUPPLY RISER TUBING & WHEEL VALVE HANDLES AND ADJUSTABLE P-TRAP.

18. COORDINATE ROOF VENT LOCATIONS WITH HVAC CONTRACTOR TO MAINTAIN A MINIMUM CLEARANCE OF 10 FEET WITH HVAC OUTSIDE AIR INTAKES.

19. COORDINATE AND VERIFY FINAL LOCATIONS FOR ROUGH-INS WITH GC MAKING USE OF THESE PLANS, FIELD MEASUREMENTS, AND THE EQUIPMENT/FIXTURE REQUIREMENTS.

20. INSTALL PLUMBING FIXTURES AND EQUIPMENT LEVEL & PLUMB. ROUTE PIPING PARALLEL & PERPENDICULAR TO OTHER BUILDING SYSTEMS AND COMPONENTS U.O.N.

21. INSTALL EQUIPMENT TO FACILITATE SERVICING, MAINTENANCE & REPAIR IN ACCORDANCE WITH MFG'S WRITTEN INSTALLATION INSTRUCTIONS AS WELL AS SPECIFIC INSTRUCTIONS ON THESE PLANS.

22. WASH & CLEAN ALL FIXTURES & EXPOSED SURFACES JUST PRIOR TO COMMISSIONING. EQUIPMENT/FIXTURE SURFACES ARE TO BE TOUCHED UP TO MATCH FACTORY APPLIED FINISHES, HOWEVER, ACCEPTANCE OF EXTENSIVE TOUCH UP IN LIEU OF REPLACEMENT, IS AT THE DISCRETION OF THE GC'S PROJECT MANAGER.

23. DWV AND WATER DISTRIBUTION PIPING SHALL BE TESTED IN ACCORDANCE WITH NC PLUMBING CODE SECTION 312.

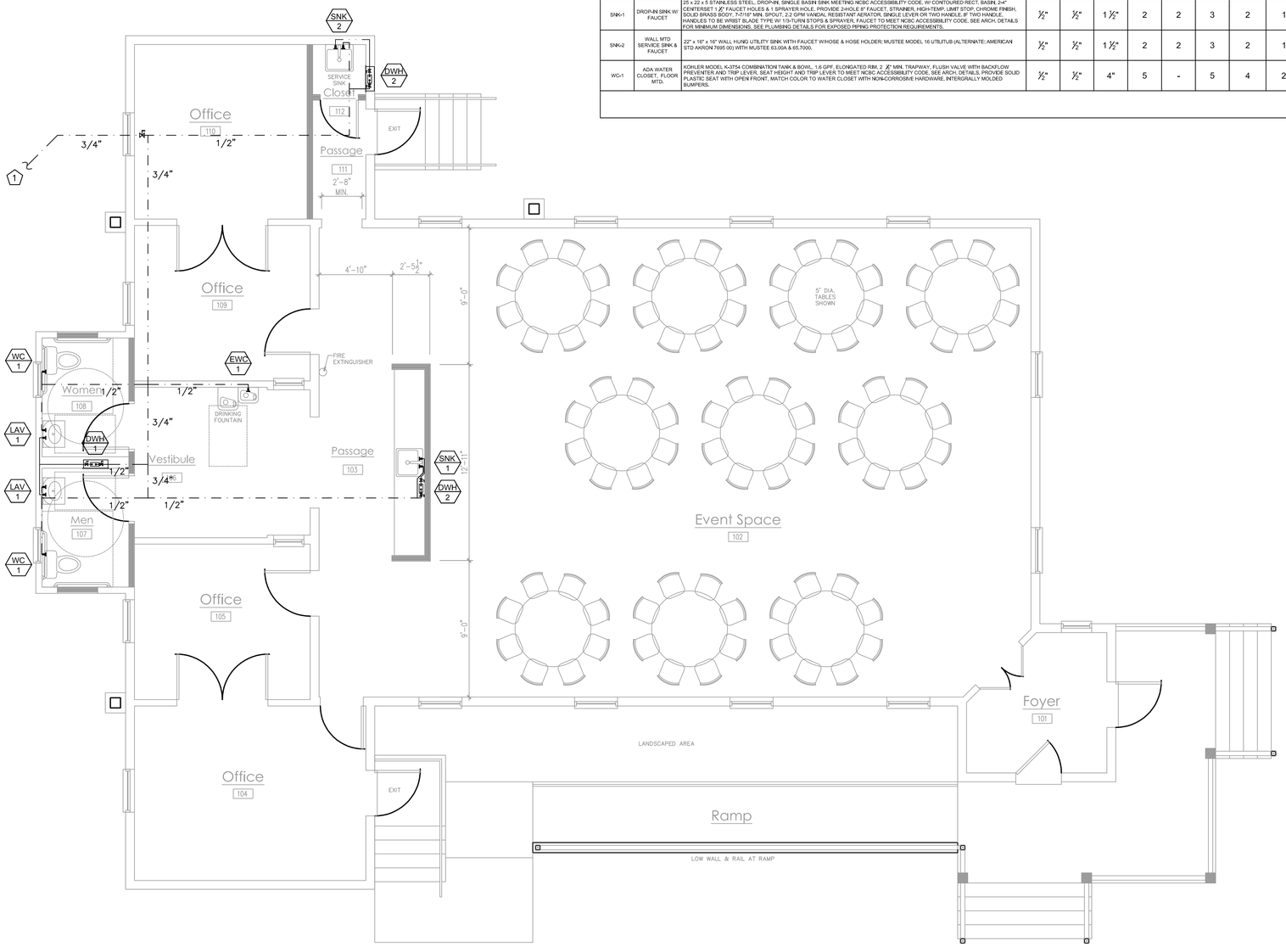
24. POTABLE WATER PIPING SHALL BE PURGED AND DISINFECTED. FLUSH SYSTEM WITH CLEAN, POTABLE WATER. ISOLATE AND FILL SYSTEM WITH WATER/CHLORINE SOLUTION WITH AT LEAST 200 PPM OF CHLORINE. ALLOW TO STAND FOR 3 HOURS. FLUSH SYSTEM WITH CLEAN, POTABLE WATER UNTIL CHLORINE SOLUTION IS REMOVED, AS
EVIDENCED BY WATER SAMPLE REPORT, A COPY OF WHICH IS TO BE SUBMITTED TO THE AHJ.

25. GUARANTEE ALL EQUIPMENT, MATERIALS AND INSTALLATION TO BE FREE OF DEFECTS FOR A PERIOD OF 1 YEAR AFTER DATE OF ACCEPTANCE OF COMMISIONING.

PLUMBING FIXTURES & EQUIPMENT

NOTE : REFER TO ARCH SUMMARY SHEET FOR FIXTURE COUNT SUMMARY

			FIXTURE UITS & SERV. PER FIXTURE							FIXTURE UNIT TOTALS			
			PIPE SERVICE & CONN. SIZE			SUPPLY FIXTURE UNITS, EA.			DRAINAGE FIXTURE UNITS	FIXTURE QUANTITY	SUPPLY FIXTURE UNIT (TOTALS)			DRAINAGE FIXTURE TOTALS
TAG	DESCRIPTION	SPECIFICATIONS	CW	HW	WASTE	COLD	HOT	TOTAL			COLD	HOT	TOTAL	
DWH-1	DEMAND WATER HEATER, ELECTRIC	EEMAX MODEL EX55T-WL, MULTIPLE LAV, 240V, 5.5KW, 23A, 75°F RISE AT 0.5 GPM, OR EQUAL.	½"	½"	-	-	-	-	0	1	-	-	-	0.0000
DWH-2	DEMAND WATER HEATER, ELECTRIC	EEMAX MODEL EX55T, 240V, 5.5KW, 23A, 75°F RISE AT 0.5 GPM, OR EQUAL.	½"	½"	-	-	-	-	0	2	-	-	-	0.0000
EWC-1	ADA ELECTRIC WATER COOLER	SELF-CONTAINED BI-LEVEL, WALL-MOUNTED, REFRIGERATED WATER COOLER MEETING NCBC ACCESSIBILITY CODE (SEE PLMBG & ARCH DETAILS FOR UNIT DIMENSIONAL REQUIREMENTS & MOUNTING DIMENSIONS). PUSH-BAR ACTIVATION, STAINLESS STEELC OOLER TOP, INLET STRAINER, AUTOMATIC STREAM HEIGHT REGULATOR, CAPABLE OF PROVIDING MIN. OF 7 GPH OF 50° F WATER, MEETING ANSI/NSF 61 AND THE SAFE DRINKING WATER ACT AND ARI STANDARD 1010.	⅜"	-	1 ¼"	0.25	-	0.25	0.25	1	0.2500	-	0.2500	0.2500
GCO	GRADE CLEANOUT	HEAVY-DUTY, ADJUSTABLE TO FINISHED GRADE, HEAVY-BRASS GAS AND WATER TIGHT TAPPERED-THREAD PLUG, W/ 'C.O.' CAST IN NICKEL-BRONZE SCORIATED CAST TOP. INSTALL LEVEL, AT FINISHED GRADE. GCO TOP TO BE CENTER SET IN MIN. 12" X 12" X 4" THICK 4000 PSI CONCRETE.	-	-	-	-	-	-	0	1	-	-	-	0.0
LAV-1	WALL-HUNG LAV W/ METERING FAUCET	KOHLER K-2007 LAV AND MEETERING FAUCET; TO MEET NCBC ACCESSIBILITY CODE. SEE ARCH. DETAILS FOR MOUNTING DIM. PROVIDE EXPOSED PIPING PROTECTION AS REQUIRED TO MEET NCBC ACCESSIBILITY CODE.	½"	½"	1 ½"	1.5	1.5	2	2	2	3.0000	3.0000	4.0	4.0
SNK-1	DROP-IN SINK W/ FAUCET	25 x 22 x 5 STAINLESS STEEL, DROP-IN, SINGLE BASIN SINK MEETING NCBC ACCESSIBILITY CODE. W/ CONTOURED RECT. BASIN, 2-4" CENTERSET 1 ⅛" FAUCET HOLES & 1 SPRAYER HOLE, PROVIDE 2-HOLE 8" FAUCET, STRAINER, HIGH-TEMP. LIMIT STOP, CHROME FINISH, SOLID BRASS BODY, 7-7/16" MIN. SPOUT, 2.2 GPM VANDAL RESISTANT AERATOR, SINGLE LEVER OR TWO HANDLE, IF TWO HANDLE, HANDLES TO BE WRIST BLADE TYPE W/ 1/3-TURN STOPS & SPRAYER. FAUCET TO MEET NCBC ACCESSIBILITY CODE. SEE ARCH. DETAILS FOR MINIMUM DIMENSIONS. SEE PLUMBING DETAILS FOR EXPOSED PIPING PROTECTION REQUIREMENTS.	½"	½"	1 ½"	2	2	3	2	1	2.0000	2.0000	3.0000	2.0000
SNK-2	WALL MTD SERVICE SINK & FAUCET	22" x 16" x 10" WALL HUNG UTILITY SINK WITH FAUCET W/HOSE & HOSE HOLDER; MUSTEE MODEL 16 UTILITUB (ALTERNATE: AMERICAN STD AKRON 7695.00) WITH MUSTEE 63.00A & 65.7000.	½"	½"	1 ½"	2	2	3	2	1	2.0	2.0	3.0	2.0
WC-1	ADA WATER CLOSET, FLOOR MTD.	KOHLER MODEL K-3754 COMBINATION TANK & BOWL, 1.6 GPF, ELONGATED RIM, 2 ⅛" MIN. TRAPWAY, FLUSH VALVE WITH BACKFLOW PREVENTER AND TRIP LEVER, SEAT HEIGHT AND TRIP LEVER TO MEET NCBC ACCESSIBILITY CODE. SEE ARCH. DETAILS. PROVIDE SOLID PLASTIC SEAT WITH OPEN FRONT, MATCH COLOR TO WATER CLOSET WITH NON-CORROSIVE HARDWARE, INTERGRALLY MOLDED BUMPERS.	½"	½"	4"	5	-	5	4	2	10.0000	-	10.0	8.0
													20.3	16.3



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

PLAN NOTES:

1. SEE ARCHITECTURAL PLAN(S) FOR WALL CONSTRUCTION DETAILS.
2. SEE ARCHITECTURAL FOR KEYPLAN OF BUILDING.
3. THE DEMAND WATER HEATERS IN THE MEN'S ROOM AND THE SERVICE CLOSET ARE TO BE IN WALL BOXES WITH HINGED ACCESS COVERS. PC TO PROVIDE AND INSTALL, COORDINATE WITH EC TO PROVIDE ADEQUATE SPACE FOR RECEPTACLE. THE DEMAND WATER HEATER IN THE PASSAGE AREA IS INSIDE THE CABINET.
4. PIPE SIZE IS 1/2" U.O.N.
5. PIPE IS ROUTED IN CRAWL SPACE U.O.N.

KEYED NOTES:

1. WATER SUPPLY VIA NEW WELL BY OTHERS. COORDINATE WITH OWNER FOR LOCATION.

NORTH CAROLINA PROFESSIONAL CORPORATION ENGINEERING SEAL C-3367

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 15492 DAVID A. WEBB

WEBB ENGINEERING, PC
MEBANE, NC 27302

REVISIONS			
No.	DATE	DESCRIPTION	REV. BY

COORDINATOR:

DRAWN BY: WE

CHK BY:

Manns Chapel - remodeling

175 Poythress Road
Chapel Hill, NC 27516

24 X 36
1/4" = 1'-0"

06.05.2014

140401

Supply Plan & Schedule

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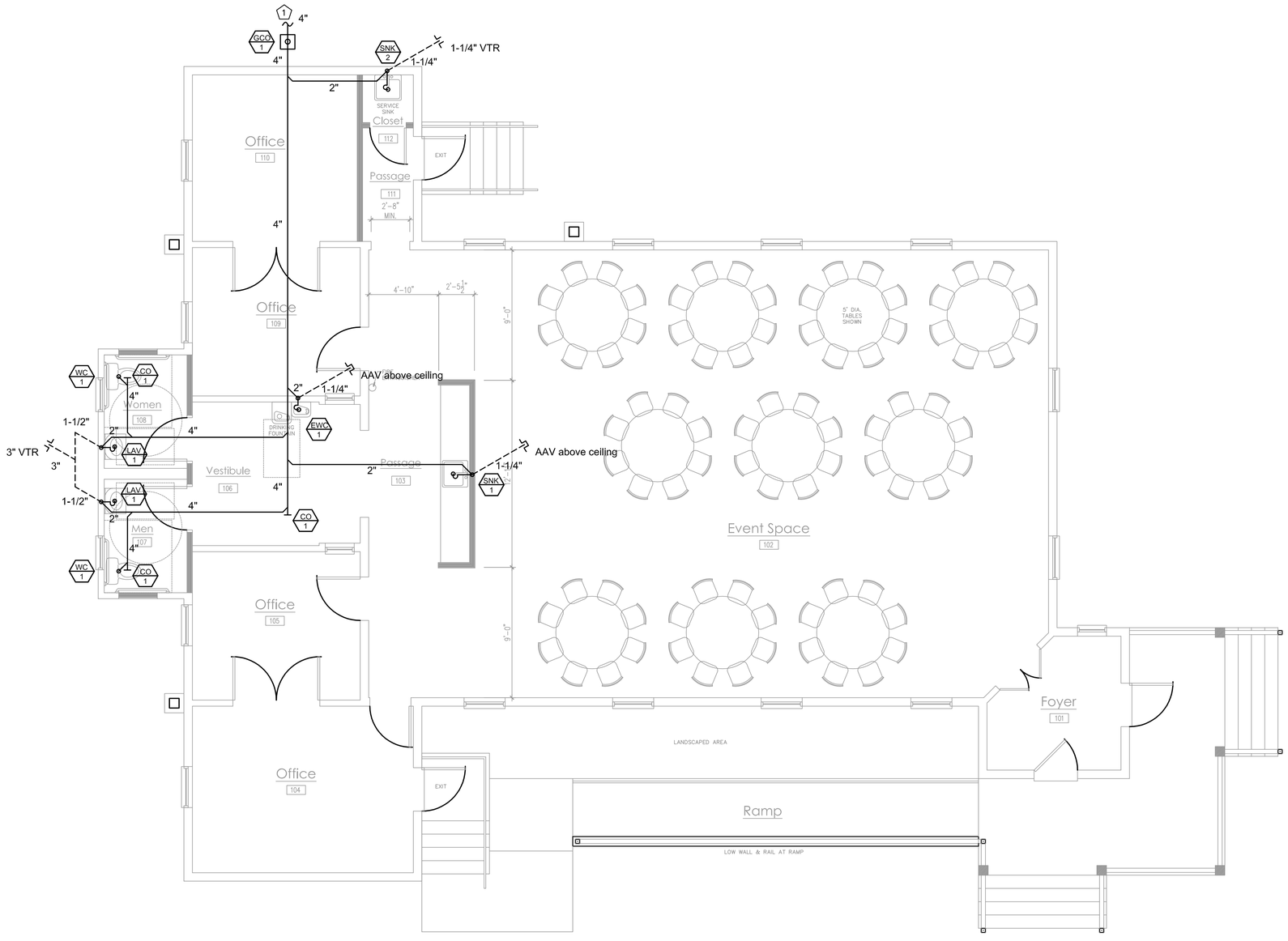
of 2



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

PLAN NOTES:

1. SEE ARCHITECTURAL PLAN(S) FOR WALL CONSTRUCTION DETAILS.
2. SEE ARCHITECTURAL FOR KEYPLAN OF BUILDING.
3. PIPING WITHIN BUILDING IS IN CRAWL SPACE U.O.N.
4. WHERE AAV (AIR ADMITTANCE VALVE) IS SHOWN, FOLLOW MFGR'S INSTRUCTIONS FOR SIZING AND INSTALLATION.

KEYED NOTES:

1. CONTINUES TO NEW SEPTIC TANK AND DRAIN FIELD BY OTHERS.

NORTH CAROLINA PROFESSIONAL CORPORATION SEAL C-3367 WEBB ENGINEERING, PC
NORTH CAROLINA PROFESSIONAL SEAL 15492 ENGINEER DAVID A. WEBB
WEBB ENGINEERING, PC
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DWV Plan & Risers

P2
of #