

CUSTOMER DISPLAY LIGHTING - ALTERNATE E-1

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

Notes on Wiring

OS Control Link
The OS control link has a tree wiring topology (daisy chain, 1 tap, etc.). The system wiring illustrated by this drawing has been laid out to ensure appropriate power to each device. If, for any reason, the system is to be wired differently than what is shown, please confirm all device power requirements are met (Please refer to "OS Link Power Requirements" for individual device power requirements).
For total OS control wire lengths of less than 500ft (153 m), use Luton cable GRX-CBL-3463 (4 Conductor Non-Plenum) or GRX-PCBL-3463 (4 Conductor Plenum). Otherwise use 2116 AWG (1.0 sq mm) and 1' Belden Panel. For total OS control wire lengths of up to 2,000 ft, use GRX-CBL-461L. Total OS control wire length MUST NOT exceed 2,000 ft (609 m).

Panel Link Rules

Panels are daisy chained on one of the configurable links per Luton's drawing, however they do not have to be in the order shown. DO NOT home-run or 1 tap this wiring link. All circuits need to be landed in those panels per Luton's Panel Schedules. The maximum wire length of a panel link is 2,000 ft (609m). An MX-RPT is used to extend the length of a link by another 2,000 ft (609m). A maximum of (3) MX-RPTs may be used per link for maximum length of 6,000 ft (1829 m) per link. If panel is moved to another link, or the loads are not wired as shown in Luton's panel schedules, Luton must be notified. This information is important for programming the system. LT-1 link terminations are needed on each end of the link.
Use Luton cable GRX-CBL-461L (5 conductor non-plenum) or GRX-PCBL-461L (5 conductor plenum shield). Otherwise use 2116 AWG (4 sq mm) or 2,000 AWG (6.5 sq mm) twisted and shielded, and between panels add 1/18 AWG (1.0 sq sq mm) for emergency sensing cable by others.

DMX Cable

DMX Link wiring requires one Belden #9729 (Non-Plenum) or one Belden #99729 (Plenum) or Dura Flex 224 2W cable.

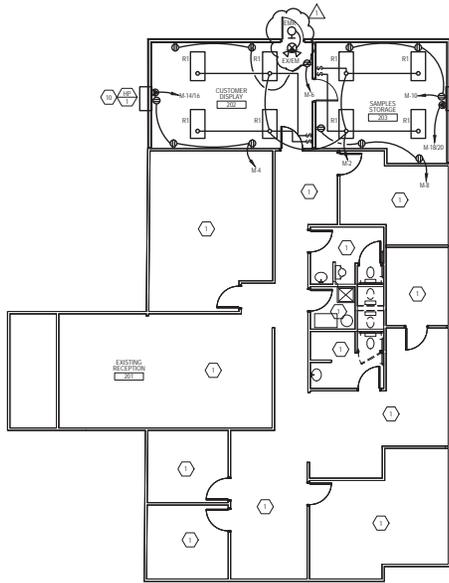
EcoSystem Bus/Loop

This is a topology free and polarity free wiring (daisy-chain, 1 tap, home-run etc.). Keep all the ballasts/modules in one room in the same loop whenever possible. EcoSystem loops are shown on the lighting plans. If there is a discrepancy, and if rooms are wired on a different loop than the one shown, Luton needs to be notified. This information is important for programming the system.
Use Luton cable C-CBL-216-DR1 (2/16 Conductor Non-Plenum) or C-PCBL-216-CL1 (2/16 Conductor Plenum Rated). Otherwise use 2116 AWG (1.0 sq sq mm) by others. Loop length is limited by wire gauge usage for E1 and E2 as follows:

Wire Gauge	Max Loop Length
#16 AWG (1.0 sq mm)	550 ft (167m)
#18 AWG (0.8 sq mm)	800 ft (244m)
#14 AWG (2.0 sq mm)	1,400 ft (427m)
#12 AWG (4 sq mm)	2,200 ft (670m)

EXISTING ELECTRICAL NOTES

- 1 NO WORK IN THIS AREA UNLESS NOTED
- 2 EXISTING RECEPTACLE TO REMAIN, PROVIDE MINIMUM COVER
- 3 EXISTING LIGHT TO BE REMOVED
- 4 EXISTING RECEPTACLE TO BE REMOVED, SWITCH TO BE RELOCATED, EXTENDING EXISTING CIRCUIT AS REQUIRED TO NEW LOCATION
- 5 EXISTING RECEPTACLE TO BE REMOVED, MAINTAIN EXISTING PORTION OF CIRCUIT TO REMAIN
- 6 EXISTING AIR COMPRESSOR RECEPTACLE TO BE RELOCATED, RUN 2 #6 & #10 GND IN 3/4" TO 40A 2P BREAKER
- 7 EXISTING WELDING RECEPTACLE TO BE REMOVED, REMOVE OLD CONDUIT, WIRE A 40A 2P BREAKER FROM PANEL "B"
- 8 NEW LEFT RECEPTACLE, VERIFY NEMA CONFIGURATION, RUN 2 #6 & #10 GND IN 3/4" TO 40A 2P BREAKER
- 9 HANDICAP LIFT, 120V, 20A, RUN 2 #12 & #10 GND IN 1/2" TO A NEW 20A 2P BREAKER IN PANEL "B", VERIFY LOCATION FOR ROUGH-IN, MAKE ALL FINAL CONNECTIONS
- 10 HP 1, 530V, 24V, 10, RUN 2 #10 & #10 GND IN 1/2" FROM A NEMA 4-20R RECEPTACLE TO A 20A 2P BREAKER, MAKE ALL FINAL CONNECTIONS, (TOP OF HP)
- 11 200A 2P ENCLOSED BREAKER, SEE ONE LINE DIAGRAM
- 12 RELOCATE EXISTING TELEPHONE SERVICE TO LOCATION ON NEW EXTERIOR WALL, FIELD COORDINATE EXACT LOCATION



SECOND FLOOR ELECTRICAL PLAN

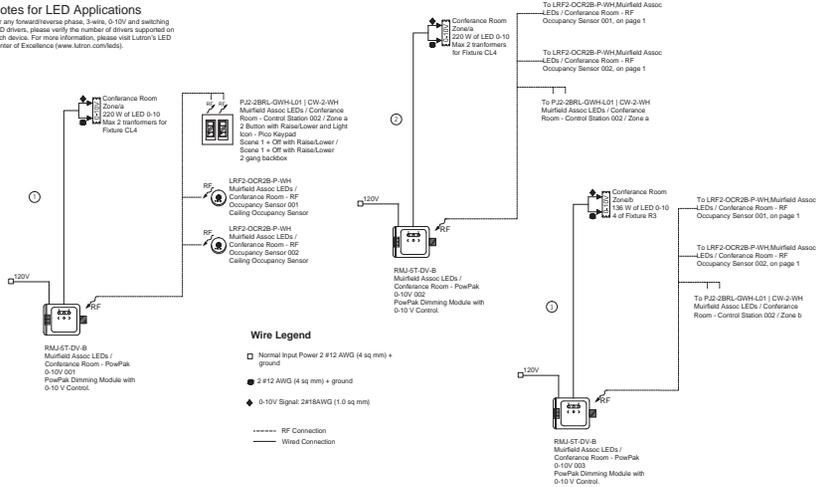
SCALE: 1/8" = 1'-0"

QS Link Power Requirements

Devices - Power Supply	(PDU)
GRAFIK Eye QS	3
ESN (EcoSystem)	30
ESN (Switching)	14
ESN (DALI)	3
ESN (Addressive)	3
ESN (Master Module)	0
Flights Power Supply	8
ESN (Non-Plenum)	22
Quantum Lighting Hub	33 to each link
Devices - Power Draw	(PDU)
OSDM (without wired inputs)	3
OSDM (with wired inputs)	3 + add PDU's for each sensor in the PDU column
Wired On/Off Sensor on OSDM	2
Wired photo sensor, (dual IR) receiver and Occupancy keypad on OSDM	0.5 each
Digital IO Control Interface	3
OSDM Control Interface	2
DMX-512 Interface	2
ESN Programming Interface	2
Use Touch QS	1

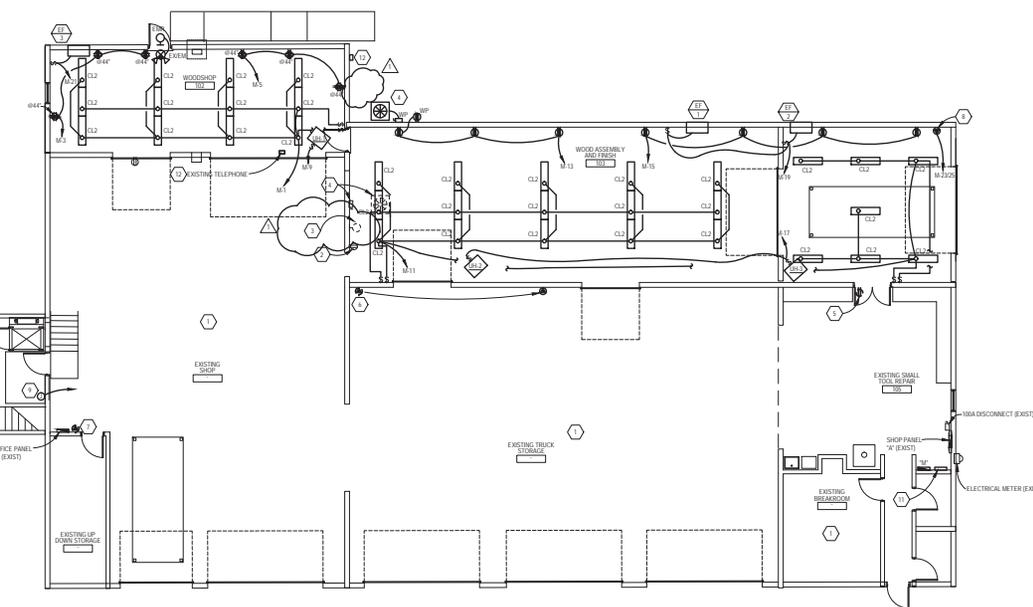
Notes for LED Applications

For any forward/reverse phase, 3-wire, 0-10V and switching LED drivers, please verify the number of drivers supported on each device. For more information, please visit Luton's LED Center of Excellence (www.luton.com/led).



LIGHTING WIRING DIAGRAMS - ALTERNATE E-1

N.T.S.



FIRST FLOOR ELECTRICAL PLAN

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

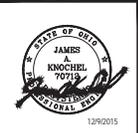
project title
**Alterations for
The Muirfield
Association Office
Dublin, OH 43017**
for
Muirfield Assoc. Board

ELECTRICAL PLANS
@ 1/8" = 1'-0"

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Architecture Space Planning



date	revisions
07 15	PERMIT
12 17	REVISION

project number
01-015
sheet number
E1.01
date 07-15-15

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ELECTRICAL SPECIFICATIONS

- THE REQUIREMENTS AS SET FORTH UNDER GENERAL CONDITIONS, INSTRUCTIONS TO BIDDERS AND GENERAL REQUIREMENTS ARE A PART OF THIS CONTRACT. BIDS SHALL BE BASED ON A COMPLETE LIST OF DRAWINGS. CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF WORK WITH WORK PERFORMED BY OTHER TRADES.
- CONTRACTOR SHALL VISIT SITE PRIOR TO BIDDING. BIDS SHALL BE BASED ON EVIDENCE OF KNOWLEDGE OF EXISTING CONDITIONS. FIELD VERIFY ALL EXISTING ELECTRICAL LOCATIONS, CONDITIONS, ETC. FAILURE TO VISIT THE SITE SHALL NOT RELIEVE THE CONTRACTOR FROM ANY RESPONSIBILITY IN THE PERFORMANCE OF THE ELECTRICAL WORK. BEGINNING OF WORK INDICATES ACCEPTANCE OF EXISTING CONDITIONS.
- CHANGE EQUIPMENT, TESTING, EQUIPMENT, INCIDENTALS AND TOOLS TO PERFORM ELECTRICAL WORK SHOWN, NOTED OR SCHEDULED FOR A COMPLETE AND PROPER INSTALLATION. MATERIALS, PRODUCTS AND EQUIPMENT, INCLUDING ALL COMPONENTS THEREOF, SHALL BE NEW AND SUFFICIENT TO MEET THE REQUIREMENTS. LABORATORIES LIST OF APPROVED TESTS AND SHALL BE IN FULL CONFORMITY WITH REQUIREMENTS OF THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE AND OTHER APPLICABLE CODES, WHICHEVER ARE MORE STRINGENT.
- ALL WORK TO BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NEC AND ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES. ALL ELECTRICAL EQUIPMENT & MATERIALS SHALL BE UL LISTED AND LISTED PER NEC 120 VOLT.
- SECURE AND PAY FOR ALL REQUIRED PERMITS, FEES, ASSESSMENTS AND INSPECTION CERTIFICATES THAT RELATE TO THE ELECTRICAL CONTRACT. FURNISH APPROVED CERTIFICATE OF FINAL INSPECTION, AND TURN OVER TO OWNER AT COMPLETION OF PROJECT.
- THESE ELECTRICAL PLANS ARE DIAGRAMMATIC, NOT SHOWING EVERY ITEM IN EXACT LOCATION ON DETAIL. DIMENSIONS AND LOCATIONS MUST BE FIELD VERIFIED AND COORDINATED WITH ARCHITECTURAL, PLUMBING, HVAC, FIRE PROTECTION, STRUCTURAL AND OTHER BUILDING CONDITIONS.
- THE ELECTRICAL CONTRACTOR SHALL FURNISH (A) COPIES OF SHOP DRAWINGS, REVIEWED AND STAMPED APPROVED BY THE CONTRACTOR, FOR APPROVAL BY THE ARCHITECT AND ENGINEER, PRIOR TO ORDERING EQUIPMENT SUCH AS LIGHT FIXTURES AND DISTRIBUTION EQUIPMENT.
- CONDUIT SHALL BE STANDARD STEEL RIGID OR EMT (2" MIN WALL) ACCORDING TO LOCAL CODES. SWITCHES, CONDUIT SHALL BE CONCEALED IN FINISHED AREAS, EXCEPT AS OTHERWISE APPROVED BY THE ARCHITECT. THE USE OF SURFACE RACEWAY EXCEPT AS CALLED FOR OR IN DRINKING SINKS REQUIRES APPROVAL OF THE ARCHITECT. EMT CONNECTIONS SHALL BE COMPRESSION OR SET-SCREW TYPE. FLEXIBLE CONDUIT OR TYPIC MC CABLE SHALL BE APPROVED FOR CONCEALED BRANCH CIRCUITING AND FOR TRUNK CONNECTIONS TO LIGHT FIXTURES, MOTORS AND VIBRATING EQUIPMENT AND WHERE CONDUIT TO BE GROUNDED WITH A SEPARATE FULL SIZE GREEN GROUNDING CONDUCTOR. EXCEPT FAN TYPE AND FLEX CONNECTIONS SHALL BE LIMITED TO 4" IF BLUE/BLACK. ARRANGE CIRCUITS TO AVOID THE USE OF JUNCTION BOXES ABOVE OR BELOW CEILING AREAS. JUNCTION BOXES LOCATED ABOVE LAV IN CEILING ARE ACCEPTABLE.
- MINIMUM SIZES OF CONDUITS SHALL BE 1/2"
- PROVIDE ALL CUTTING AND PATCHING REQUIRED FOR INSTALLATION OF ELECTRICAL WORK, ALL CORE DRILLING OR CUTTING OF FIRE RATED FLOORS, SHIFTS AND WALLS SHALL BE FIRE STOPPED PRIOR TO NIGHT PATCHING. ALL PATCHES SHALL BE THE SEALED TO MATCH THE FIRE RATING OF THE FLOOR, SHIRT OR WALL PENETRATED.
- WIRE SHALL BE SINGLE CONDUCTOR COPPER WITH AN VOLT INSULATION. MINIMUM WIRE SIZE SHALL BE #12 AWG. ALL WIRE AND CABLE SHALL BE NEW AND SHALL BE BROUGHT TO THE SITE IN UNBROKEN PACKAGES. INCREASE CONDUCTOR BY ONE SIZE FOR EVERY 150' INCREMENT OF DISTANCE FROM THE PANEL BOARD FOR 120 VOLT CIRCUITS. GENERAL WIRING SHALL BE THIN, THIN, THIN, THIN OR FAN ALUMINUM CONDUCTORS ARE NOT PERMITTED.
- FURNISH AND INSTALL A COMPLETE WIRED GROUNDING SYSTEM FOR ELECTRICAL EQUIPMENT AND CIRCUITS AS SHOWN ON THE DRAWINGS AND REQUIRED PER N.E.C. ARTICLE 250. ALL GROUNDING CONDUCTORS SHALL BE GREEN, WHERE EXPOSED IN PANEL, OUTLETS, BOXES, ETC.
- RECEPTACLES SHALL BE 20 AMP, 3 WIRE GROUNDING TYPE EQUAL TO HUBBELL 5302. WALL SWITCHES SHALL BE 20 AMP SPECIFICATION GRADE, RATED AT 120 VOLT AS REQUIRED. ALL DEVICES COVERPLATES SHALL BE PABS AND SETMOUR OR EQUAL.
- PROVIDE BRANCH CIRCUIT PANELS WHICH SHALL BE OF THE BOLTED CIRCUIT BREAKER TYPE WITH SOLID COPPER BUSSES FULL SIZE NEUTRAL, 25% GROUNDING RIGID OVERALL UNGROUNDED COVER AND TWENTY SEVEN (27) CIRCUIT BREAKER. LOAD BALANCE ALL ELECTRICAL PHASES AT PANEL. TWO AND THREE POLE BREAKERS SHALL BE COMMON TRIP TYPE. SQUARE D OR EQUAL BY LEXON, CUTLER HAMMER, OR GENERAL ELECTRIC.
- PROVIDE SAFETY AND DISCONNECT SWITCHES, FUSES OR NONFUSES, AS CALLED FOR ON DRAWINGS AND AS REQUIRED BY CODE. FUSES AS MANUFACTURED BY BUSBMAN OR EQUAL. DISCONNECT SWITCHES THAT ARE INSTALLED AT AIR CONDITIONING EQUIPMENT, HEAT PUMPS, ETC. SHALL BE FUSED IN ACCORDANCE WITH THE EQUIPMENT'S MANUFACTURER'S PER N.E.C. 400.2.4 & 110.30. SWITCHES SHALL BE HEAVY DUTY, QUICK MAKE/QUICK BREAK TYPE, FUSED OR NON FUSED. LOAD AND FUSE POWER RATED AS MANUFACTURED BY SQUARE D, LEXON, CUTLER HAMMER, OR GENERAL ELECTRIC, WEATHERPROOF WHERE APPLICABLE.
- PROVIDE ARC-FLASH HAZARD WARNING LABELS ON ALL ELECTRICAL EQUIPMENT INCLUDING SWITCHBOARDS, PANELBOARDS, MOTOR CONTROLLERS, AND ANY OTHER EQUIPMENT LIKELY TO REQUIRE EXAMINATION, ADJUSTMENT, SERVICING OR MAINTENANCE WHEN ENERGIZED. THE LABELS SHALL BE LOCATED SO AS TO BE CLEAR, VISIBLE TO QUALIFIED PERSONS BEFORE EXAMINATION.
- OUTLET BOXES AND COVERS SHALL BE GALVANIZED. ONE PRICE PREPRESSED STEEL ABOUTHOUT, JUNCTION, PULL BOXES AND COVERS SHALL BE GALVANIZED STEEL, COKE GAUGE SIZE. INSTALL BOXES RIGIDLY ON BUILDING STRUCTURE AND SUPPORT INDEPENDENTLY BY THE CONDUIT SYSTEM. ALSO PROVIDE APPROPRIATE BOX EXTENSIONS TO EXTEND BOXES TO FINISHED FACES OF WALLS ETC. ALL OUTLET BOXES TO HAVE SUITABLE BLOCKING BEHIND THEM TO MINIMIZE THE DEFLECTION THAT OCCURS WHEN PLUGGING OR UNPLUGGING W/TO THESE DEVICES.
- ELECTRICAL CONTRACTOR SHALL PROVIDE TEMPORARY SERVICE AND PROVIDE LIGHTING, POWER AND WIRING AS REQUIRED TO FACILITATE APPLICABLE TEMPORARY NEEDS FOR ALL TRADES. HE SHALL FURNISH EXTENSION CODES FOR HIS OWN USE, ALL TEMPORARY WIRING, FUSES, ETC. SHALL BE REMOVED UPON COMPLETION OF THE PROJECT. PROVIDE GROUND FANT PROTECTION AS REQUIRED BY N.E.C. AND LOCAL CODES.
- ALL ELECTRIC WORK SHALL BE INSTALLED SO AS TO BE READILY ACCESSIBLE FOR OPERATING, SERVICING, MAINTAINING AND REPAIRING. HANGERS SHALL INCLUDE ALL MISCELLANEOUS STEEL SUCH AS CHANNELS, RODS, ETC. NOT NECESSARY FOR THE INSTALLATION OF WIRE AND SHALL BE FASTENED TO BUILDING STEEL, CONCRETE OR MASONRY, BUT NOT PERMITTED ON DUCTWORK. ALL CONDUIT SHALL BE CONCEALED WHERE VER POSSIBLE. CONDUITS SHALL BE IN STRAIGHT LINES PARALLEL WITH OR AT RIGHT ANGLES TO COLUMN LINES OR BEAMS AND SEPARATED AT LEAST 3" FROM WATER LINES WHETHER THEY BE ABOVE OR ACROSS SUCH LINES. ALL CONDUCTORS SHALL BE IN CONDUIT, DUCTS OR OTHER CODE APPROVED RACEWAYS.
- PANELBOARDS AND DISCONNECT SWITCHES SHALL BE IDENTIFIED WITH ENGRAVED BALLTITE NAMEPLATES SUCH AS DESIGNATION AND VOLTAGE.
- MATERIALS, EQUIPMENT AND INSTALLATION SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR FROM DATE OF ACCEPTANCE. DEFECTS APPEARING IN THAT PERIOD SHALL BE CORRECTED AT THE ELECTRICAL CONTRACTOR'S EXPENSE. FOR THE SAME PERIOD, ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO PREMISES CAUSED BY DEFECTS IN WORKMANSHIP OR IN THE WORK OR EQUIPMENT FURNISHED AND/OR INSTALLED BY THE ELECTRICAL CONTRACTOR.
- IT IS THE INTENT THAT THE FOREGOING WORK SHALL BE COMPLETE IN EVERY RESPECT AND THAT ANY MATERIAL OR WORK NOT SPECIFICALLY RESTRICTION OR SHOWN ON THE DRAWINGS, BUT NECESSARY TO FULLY COMPLETE THE WORK SHALL BE FURNISHED.

LIGHTING FIXTURE SCHEDULE						
MARK	DESCRIPTION	VOLT	LAMP	NO. OF	MANUFACTURER	
R1	24" X 48" FLOW LINE W/120' ACRYLIC PRISMATIC LENS	120	25 T12 W	RECESSED	JPHONSA 2599.332 A12125.AMVL2	
CL2	4" W/40' ROUND FLUORESCENT	120	25 T12 W	SURFACE	JPHONSA 8-252.MVLT	
R3	3" LED DIMMABLE RECESSED CAN W/1000 LUMEN LAMP & 90 CRI	120	1000 LUMEN LED 4000K	RECESSED	COOPER 32M55.D017E.ERM2410.H0.4LM1.WWF	
CL4	1" BAR LED, 4" LONG, LOW VOLTAGE - DIMMABLE	120	LED	SURFACE	BLI TECH TSL-1R4-CH-D-U-W	
EX	SELF CONTAINED EMERGENCY LED EXIT LIGHT, WHITE HOUSING	120	LED	UNIVERSAL	JPHONSA 2085.5.R	
EXEM	SELF CONTAINED EMERGENCY LED EXIT COMBO WHITE HOUSING, REMOTE CAPACITY W/RE REQUIRED	120	LED/CMC	UNIVERSAL	JPHONSA JH2M.S.W.R.H0	
EM	SELF CONTAINED EMERGENCY EGRESS LIGHT, WHITE HOUSING	120	FURN. W/INT	WALL @ 90°	JPHONSA 83M	
EMR	EXIT DISCHARGE EMERGENCY REMOTE HEAD W/O LAMPS	9V	FURN. W/INT	1/2" HALL ABOVE DOOR	JPHONSA ELA-T.NM.49006	

NOTES:
 1. CONNECT ALL EXIT & EMERGENCY LIGHTS TO LOCAL AREA LIGHTING CIRCUIT AND/ OR ANY SWITCHING.
 2. PROVIDE BATTERY DISCONNECT WALL UNLESS FLOORING LIGHT FIXTURES PER 2011 N.E.C. 410.10(C)
 3. EQUAL FIXTURES BY COOPER, HUBBELL, US, PHILIPS OR ULTRONA.

PANEL "A" EAST WALL SURFACE MOUNTING		VOLTAGE: 120/240V, 3Ø W		MARS: 200 AMP BREAKER		LOAD DESCRIPTION		
LOAD DESCRIPTION	VA	CBP	NO. PH	NO.	CBP	NO.	LOAD DESCRIPTION	
WOODSHOP LIGHTS	708	201	1	A	2	201	SPR	OFFICE ADO. LIGHTS
WOODSHOP RECEIPTS	1080	201	3	B	4	201	540	OFFICE ADO. RECEIPTS
WOODSHOP RECEIPTS	1080	201	5	A	6	201	540	OFFICE ADO. RECEIPTS
ST4	406	201	7	B	8	201	540	OFFICE ADO. RECEIPTS
SH1	200	201	9	A	10	201	540	OFFICE ADO. RECEIPTS
FRESH LIGHTS	1780	201	11	B	12	201	540	OFFICE ADO. RECEIPTS
FRESH RECEIPTS	720	201	13	A	14	201	540	OFFICE ADO. RECEIPTS
FRESH RECEIPTS	720	201	15	B	16	201	540	OFFICE ADO. RECEIPTS
ZJLMS	400	201	17	A	18	201	540	OFFICE ADO. RECEIPTS
ST1 & ST2	1740	201	19	A	20	201	540	OFFICE ADO. RECEIPTS
ST3	406	201	21	A	22	201	540	OFFICE ADO. RECEIPTS
VEHICLE LFT	1440	201	23	B	24	201	540	OFFICE ADO. RECEIPTS
SPARE	1440	201	25	A	26	201	540	OFFICE ADO. RECEIPTS
SPARE	720	201	27	B	28	201	540	OFFICE ADO. RECEIPTS
SPARE	720	201	29	A	30	201	540	OFFICE ADO. RECEIPTS
SPARE	720	201	31	B	32	201	540	OFFICE ADO. RECEIPTS
SPARE	720	201	33	A	34	201	540	OFFICE ADO. RECEIPTS
SPARE	720	201	35	B	36	201	540	OFFICE ADO. RECEIPTS
SPARE	720	201	37	A	38	201	540	OFFICE ADO. RECEIPTS
SPARE	720	201	39	B	40	201	540	OFFICE ADO. RECEIPTS

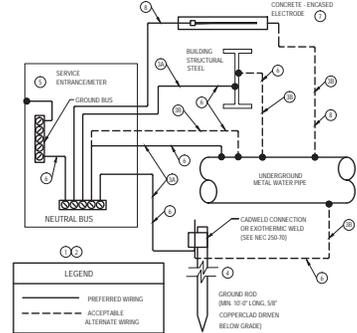
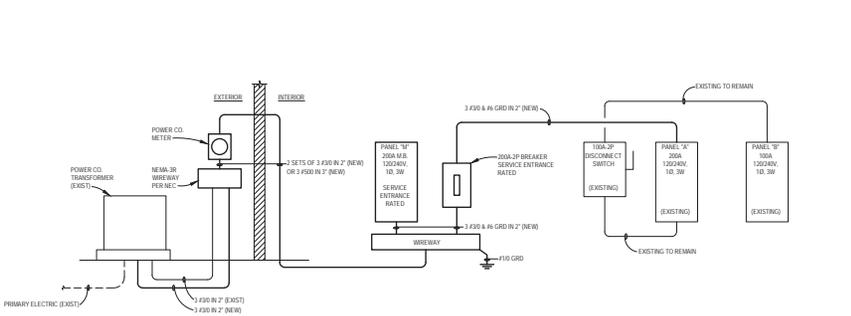
DEMAND LOAD: 22310 / 240 - 93.6A @ 1.25 = 116.2 AMPS
 TOTAL CONNECTED LOAD: PHASE A 10812 W, PHASE B 11488 W, 22310 W

ELECTRICAL LEGEND			
LIGHTING		POWER	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
⊞	WALL SWITCH @ 48" A.F.F., 20A, 120V	⊞	DUPLEX RECEPTACLE @ 20" A.F.F., 20A, 120V
⊞	THREE-WAY SWITCH @ 48" A.F.F., 20A, 120V	⊞	DUPLEX RECEPTACLE WITH GROUND FAULT CIRCUIT INTERRUPTER @ 20" A.F.F., 20A, 120V
⊞	FLUORESCENT LIGHTING OUTLET RECESSED OR SURFACE MOUNTED PER FIXTURE SCHEDULE	⊞	DUPLEX RECEPTACLE WITH WEATHERPROOF W/ILE IN USE COVER WITH A.F.F. OR A.C. 20A
⊞	FLUORESCENT LIGHTING OUTLET RECESSED OR SURFACE MOUNTED PER FIXTURE SCHEDULE	⊞	SPECIAL RECEPTACLE AMPERAGE, @ 20" A.F.F. COORDINATE NEMA CONFIG. WITH EQUIPMENT USED
⊞	CEILING LIGHTING OUTLET RECESSED OR SURFACE MOUNTED PER FIXTURE SCHEDULE	⊞	FUNCTIONS MOUNTED AS NOTED
⊞	WALL LIGHTING OUTLET @ HIGHEST PER FIXTURE SCHEDULE OR ARCHITECTURAL ELEVATIONS	⊞	SAFETY DISCONNECT SWITCH @ 4" A.F.F. TO TOP
⊞	EMERGENCY EXIT LIGHT, SINGLE FACE, CLG. MOUNTED	⊞	PANELBOARD, SURFACE MOUNTED @ 4" A.F.F. TO TOP
⊞	EMERGENCY EXIT LIGHT, SINGLE FACE, WALL MOUNTED	⊞	PANELBOARD, FLUSH MOUNTED @ 4" A.F.F. TO TOP
⊞	COMBINATION EMERGENCY EXIT/EGRESS LIGHT, SINGLE FACE, CLG. MOUNTED	⊞	F 5/2 BOX W/IG PLASTER RING @ 20" A.F.F. FOR TELEPHONE OUTLET COVER/PLATE W/IRING A TERMINATION BY OWNER W/4" 3/4" FROM BOX UP IN WALL TO ABOVE ACCESSIBLE CEILING
⊞	EMERGENCY EGRESS LIGHT @ 4" A.F.F. WALL MOUNTED	⊞	
⊞	EMERGENCY REMOTE HEAD FOR EXIT DISCHARGE	⊞	CEILING MOUNTED OCCUPANCY SENSOR

ELECTRICAL LOAD SUMMARY			
LOAD DESCRIPTION	CONNECTED WATTS	DEMAND FACTOR	DEMAND WATTS
LIGHTING	2702	100%	2702
RECEPTACLES	5740	80% @ 100%	5740
MISC. EQUIPMENT	2480	80%	2480
HVAC	10948	100%	10948
EMT. SERVICE HUBEST RECORDED	21400	100%	21400
TOTAL	43344		43344

43344 / 240 = 180.6 A @ 1.25 = 225.75 AMPS

ONE-LINE DIAGRAM
N.T.S.



- CODED NOTES:**
- ALL GROUNDING AND BONDING MUST COMPLY WITH NEC ARTICLE 250 AND/OR LOCAL ORDINANCES.
 - USE NEC TABLE 250-66 TO SIZE BONDING CONDUCTORS/SUMPS. BONDING SUMPS MUST BE INSTALLED IN ACCORDANCE WITH NEC ARTICLE 250-66.
 - UNDERGROUND ROD, METAL WATER PIPE, BUILDING STEEL OR METAL BONDING EFFECTIVELY GROUNDING AND CONCRETE ENCASED ELECTRODE (SEE CODED NOTE 7) CONNECTION TO METAL WATER PIPE SHALL BE MADE WITHIN 5 FEET OF POINT OF ENTRANCE OF PIPE PER NEC 250-52 (A) (1).
 - ALTERNATE BONDING SCHEME: BOND GROUND ROD, BUILDING STEEL OR METAL BONDING EFFECTIVELY GROUNDING AND CONCRETE ENCASED ELECTRODE (SEE CODED NOTE 7) TO METAL WATER PIPE CONNECTIONS TO METAL WATER PIPE SHALL BE MADE WITHIN 5 FEET OF POINT OF ENTRANCE OF PIPE PER NEC 250-52 (A) (1).
 - LOCATE GROUND ROD OUTSIDE BUILDING WALL NEAR SERVICE ENTRANCE.
 - PROTECT GROUNDING AND BONDING CONDUITS WHERE THEY PENETRATE CONCRETE FOUNDATIONS.
 - SIZE CONDUCTOR PER NEC TABLE 250-66 AND NEC ARTICLE 250-64.
 - CONCRETE ENCASED ELECTRODE ENCASED WITHIN AT LEAST 2 INCHES OF CONCRETE, LOCATED WITHIN AND NEAR THE BOTTOM OF A CONCRETE FOUNDATION AND FOOTING, IN DIRECT CONTACT WITH THE EARTH, MINIMUM 48 INCH (4 FT) OF ELECTRICALLY CONDUCTIVE MATERIAL. SEE NEC 250-52 (A) (3).
 - MINIMUM SIZE #10 AWG COPPER. SEE NEC 250-52 (A) (3).

SERVICE ENTRANCE GROUNDING DETAIL
NO SCALE

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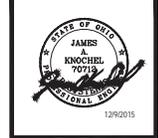
project title
Alterations for The Muirfield Association Office
 Dublin, OH 43017
 for
 Muirfield Assoc. Board

ELECTRICAL SCHEDULES & SPECIFICATIONS

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Architecture Space Planning



date	revisions
07 15	PERMIT
12 17	REVISION

project number
01-015
 sheet number
E2.01
 date 07-15-15

MECHANICAL GENERAL NOTES:

- THE MECHANICAL CONTRACTORS SHALL BE HELD TO HAVE REVIEWED ALL SHEETS OF THESE CONTRACT DOCUMENTS AND WILL BE RESPONSIBLE FOR PERFORMING ALL WORK INDICATED ON ANY SHEET. THE MECHANICAL CONTRACTORS WILL BE RESPONSIBLE FOR COORDINATING THEIR WORK WITH THE WORK OF OTHERS.
- THE MECHANICAL CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO STARTING WORK AND ADJUST DUCTWORK, EQUIPMENT LOCATIONS, ETC., TO CORRESPOND TO THE EXISTING CONDITIONS.
- MECHANICAL CONTRACTOR SHALL FURNISH TWO (2) COPIES OF A CERTIFIED INDEPENDENT TEST & BALANCE REPORT BY A LICENSED IAQC OR NIBB CONTRACTOR TO THE ARCHITECT.
- EQUIPMENT SHALL BE INSTALLED PER THE OHIO BUILDING CODE AND THE EQUIPMENT MANUFACTURER'S INSTALLATION INSTRUCTIONS. THE MORE STRICT REQUIREMENT SHALL APPLY.
- MECHANICAL CONTRACTOR TO COORDINATE WITH ELECTRICAL CONTRACTOR FOR ALL POWER AND VOLTAGE REQUIREMENTS.
- ALL WALL CUTTING, PATCHING, AND FLASHING REQUIRED TO INSTALL THE MECHANICAL SYSTEMS SHALL BE MADE BY THE GENERAL CONTRACTOR.
- ALL OUTSIDE AIR INTAKES FOR MECHANICAL EQUIPMENT SHALL BE LOCATED A MINIMUM OF 10 FEET FROM EXHAUST OUTLETS OF VENTILATION SYSTEMS, COMBUSTION EQUIPMENT STACKS, PLUMBING VENT AND PROPERTY LINES.
- MOUNT THERMOSTATS AT 4'-6" AFF OR AS DIRECTED BY ARCHITECT.
- EXISTING EQUIPMENT, DUCTWORK, PIPING, ETC., SHOWN ON THE DRAWINGS WERE DERIVED FROM LIMITED FIELD OBSERVATIONS. THE MECHANICAL CONTRACTOR IS STILL RESPONSIBLE TO FIELD VISIT SITE TO DETERMINE EXISTING CONDITIONS.

MECHANICAL CODED NOTES:

- EXISTING SPLIT SYSTEM CONDENSING UNIT TO BE RELOCATED ALONG WITH CONDENSING UNIT DISCONNECT. DISCONNECT EXISTING REFRIGERANT LINES AND PREPARE FOR RECONNECTION AT NEW LOCATION SHOWN. CONDENSING UNIT TO BE MOUNTED ON A THICK CONCRETE HOUSEKEEPING PAD. PAD TO EXTEND 4' PAST EXISTING UNIT FOOTPRINT. COORDINATE DISCONNECT RELOCATION WITH ELECTRICAL CONTRACTOR.
- EXISTING CONDENSING UNIT NEW LOCATION. COORDINATE EXACT LOCATION WITH GENERAL CONTRACTOR PRIOR TO POURING CONCRETE PAD.
- NEW GAS FIRED UNIT HEATER TO BE SUSPENDED FROM STRUCTURE ABOVE. PROVIDE UNI-STRUT AND THREADED RODS WITH NEOPRENE VIBRATION ISOLATORS FOR SUPPORTING THE UNIT. SEE PLUMBING PLAN FOR NATURAL GAS REQUIREMENTS.
- SUSPENDED UNIT HEATER THERMOSTAT TO BE INSTALLED 5' ABOVE FINISHED FLOOR. PROVIDE THERMOSTAT CAPABLE OF ADJUSTING TEMPERATURE - AUTOGUOFF.
- EXISTING COMBUSTIBLES CABINET TO BE RELOCATED AS SHOWN ON THIS DRAWING. COORDINATE VENT PENETRATION WITH GENERAL CONTRACTOR PRIOR TO COMMENCEMENT OF HVAC WORK.
- COMBUSTIBLES CABINET VENT PIPE. VENT TO BE CONNECTED TO CABINET AND EXIT BUILDING NO LESS THAN 7'-0" ABOVE FINISHED GRADE.
- MECHANICAL CONTRACTOR TO ROUTE EXISTING REFRIGERATION LINES AND RECONNECT TO RELOCATED CONDENSING UNIT PER MANUFACTURER'S RECOMMENDATIONS AND GUIDELINES. SEAL WALL PENETRATIONS WEATHER TIGHT. PROVIDE NEW PIPING INSULATION ON REFRIGERATION PIPING.

THRU-THE-WALL HEAT PUMP SCHEDULE										
TAG	MANUFACTURER & MODEL NUMBER	CFM	OUTSIDE AIR	COOLING CAPACITY (BTU/H)	COOLING WATTS	SEER	ELECTRIC HEATER CAPACITY (KW)	VOLTAGE	CIRCUIT PROTECTION	REMARKS
HP-1	AMANA PTH-09B	240	40	9000	795	11.5	3.5	230V/1PH	20 AMP	15% ICA ELECTRIC HEATING
HP-2	AMANA PTH-09B	240	30	9000	795	11.5	3.5	230V/1PH	20 AMP	15% ICA ELECTRIC HEATING

NOTES: PROVIDE COMPLETE WITH HEAT EXCHANGER, CONDENSER, SLIDE OUT CHASSIS, ROTARY COMPRESSOR, INTEGRAL THERMOSTAT, ROOM SIDE AND EXTERIOR GRILLES.
SIMILAR MANUFACTURERS: CARRIER & GENERAL ELECTRIC

FAN SCHEDULE											
TAG	MANUFACTURER & MODEL NUMBER	AREA SERVED	SERVICE	CFM	ESP	MOTOR HP & VOLTAGE	FAN RPM	FAN TYPE	MAX. SOUND LEVEL	WEIGHT (LBS)	REMARKS
F-1	GREENECK SBE-100-4	EQUIPMENT STORAGE	EXHAUST	400	0.2	1/4 115V/60T	649	WALL	8.8	40	NOTES 1 & 5
F-2	GREENECK SBE-100-4	EQUIPMENT STORAGE	EXHAUST	400	0.2	1/4 115V/60T	649	WALL	8.8	40	NOTES 1 & 4 & 6
F-3	GREENECK SBE-100-4	WOODSHOP	EXHAUST	400	0.2	1/4 115V/60T	649	WALL	8.8	40	NOTES 1 & 4 & 6

NOTES: PROVIDE WITH THE FOLLOWING ITEMS:
1. WALL HOODING KIT
2. DISCONNECT SWITCH
3. GRAVITY BACK CHECK DAMPER
4. BIRD SCREEN
5. DIAL FANER SWITCH UP TO 60 MINUTES
6. WALL SWITCH

VENTILATION AIR REQUIREMENT												
W/UC UNIT	ZONE DESCRIPTION	ZONE FLOOR AREA (SQ. FT.)	AREA OUTDOOR AIR RATE (CFM/SQ. FT.)	PEOPLE OUTDOOR AIR RATE (CFM/PERSON)	ZONE POPULATION	BREATHING ZONE OUTDOOR AIR FLOW (CFM)	ZONE AIR DISTRIBUTION EFFECTIVENESS (E)	ZONE OUTDOOR AIR FLOW (CFM)	SYSTEM VENTILATION EFFICIENCY (Ev)	MINIMUM OUTDOOR AIR FLOW (CFM)	DESIGN OUTDOOR AIR INTAKE FLOW (CFM)	REMARKS
Zone 1	Customer Display	327	0.96	5	2	29.62	0.8	37.625	1	37.625	49	
	Samples Storage	283	0.96	5	2	26.88	0.8	33.725	1	33.725	35	
ZONE 1 TOTALS		283			4	56.6		70.75		70.75	75	

NOTES: VENTILATION RATES ARE BASED ON IAQ 2012, ASHRAE 62.1-2013.
ASHRAE 62.1-2013 ITEM 6.2.2.3 BREATHING ZONE OUTDOOR AIR FLOW (CFM) $V_{bz} = R_p P_z + R_a A_z \times 1.00$
WHERE: A_z = ZONE FLOOR AREA P_z = POPULATION R_p = TABLE 6.1 OUTDOOR AIR PER PERSON R_a = TABLE 6.1 OUTDOOR AIR PER AREA

GAS UNIT HEATER SCHEDULE									
TAG	MANUFACTURER & MODEL NUMBER	TYPE	INPUT MBH	OUTPUT MBH	CFM	MOTOR HP & VOLTAGE	VENT	REMARKS	
H-1	REZNOR UDAP-60	GAS FIRED FAN TYPE	60	49.8	769	FRACTIONAL 0/6 115V, 1/0	4" ROUND	NOTES 1,2,3,4,5	
H-2	REZNOR UDAP-60	GAS FIRED FAN TYPE	60	49.8	769	FRACTIONAL 0/6 115V, 1/0	4" ROUND	NOTES 1,2,3,4,5	
H-3	REZNOR UDAP-60	GAS FIRED FAN TYPE	60	49.8	769	FRACTIONAL 0/6 115V, 1/0	4" ROUND	NOTES 1,2,3,4,5	

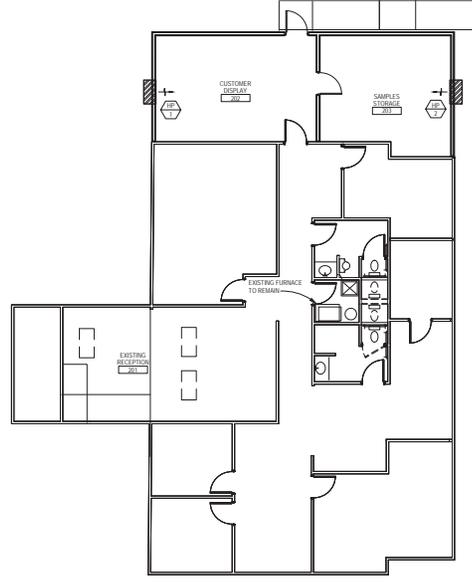
NOTES: PROVIDE WITH THE FOLLOWING ITEMS:
1. VIBRATION ISOLATORS
2. SINGLE STAGE GAS VALVE
3. 115V/0/60V/1 CONTROL TRANSFORMER
4. REZNOR MODEL PCCI VENT CAP
5. BUILT IN DISCONNECT SWITCH
SIMILAR MFG'S: STERLING & TRANE

WOODSHOP 102	
NATURAL VENTILATION FRESH AIR CALCULATIONS	
DOORS	21.00 SQ.FT.
OPERABLE WINDOWS	4.86 SQ.FT.
1"8" x 2"11"	2.96 SQ.FT.
TOTAL SQUARE FEET	28.82 SQ.FT.
UNIT SQUARE FOOTAGE:	58.4 x 4.9 = 23.36 SQ.FT. NEEDED

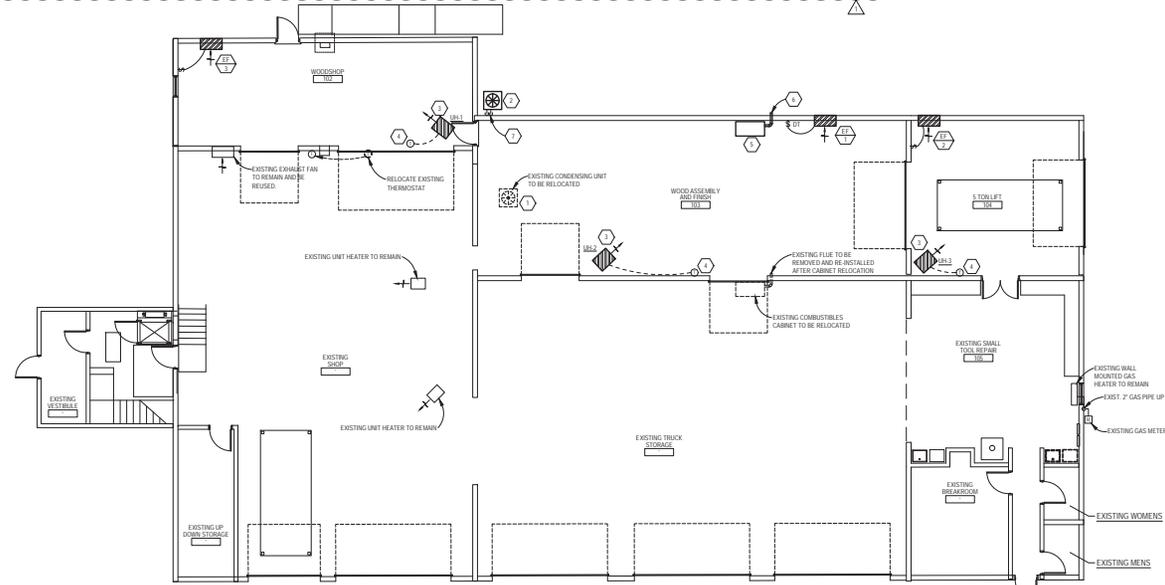
WOOD ASSEMBLY AND FINISH 103	
NATURAL VENTILATION FRESH AIR CALCULATIONS	
DOORS	120.00 SQ.FT.
12" x 10"	120.00 SQ.FT.
TOTAL SQUARE FEET	120.00 SQ.FT.
UNIT SQUARE FOOTAGE:	50.1 x 4.9 = 31.24 SQ.FT. NEEDED

5 TON LIFT 104	
NATURAL VENTILATION FRESH AIR CALCULATIONS	
DOORS	120.00 SQ.FT.
12" x 10"	120.00 SQ.FT.
TOTAL SQUARE FEET	120.00 SQ.FT.
UNIT SQUARE FOOTAGE:	50.1 x 4.9 = 24.04 SQ.FT. NEEDED

MECHANICAL LEGEND	
SYMBOL	DESCRIPTION
— C —	GAS PIPING
— S —	SHUT OFF VALVE IN RISER
— S —	SHUT OFF VALVE
— S —	RISER DOWN (ELBOW)
— S —	RISER UP (ELBOW)
— S —	BRANCH TOP CONNECTION
— S —	BRANCH BOTTOM CONNECTION
— S —	TIE
— S —	ELBOW
— S —	SWITCH (BY E.C.)
— S —	45 MINUTE OIL THER
— S —	REFRIGERATION LOAD
— S —	REFRIGERATION SUCTION
— S —	CONDENSATE DRAIN
— S —	EVAPORATOR UNIT
— S —	CONDENSING UNIT
— S —	THERMOSTAT (ELECTRIC)
— S —	UNIT HEATER
— S —	EVAPORATOR CON. UNIT
— S —	CONDENSING UNIT
— S —	MECHANICAL CONTRACTOR
— S —	ELECTRICAL CONTRACTOR



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



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

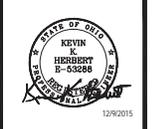
project title
Alterations for
The Muirfield
Association Office
Dublin, OH 43017
for
Muirfield Assoc. Board

MECHANICAL PLANS
@ 1/8" = 1'-0"

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Architecture Space Planning



date	revisions
07-15	PERMIT
12-17	REVISION

project number	01-015
sheet number	M1.01
date	07-15-15

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MECHANICAL GENERAL

- A. CONTRACTOR ALSO REFERRED TO ALL ARCHITECTURAL, STRUCTURAL, ELECTRICAL AND OTHER OWNER DRAWINGS PERTAINING TO PROJECT. ALL OF ABOVE MENTIONED DRAWINGS, AS WELL AS THEIR RESPECTIVE SPECIFICATIONS, ARE A PART OF CONTRACT DOCUMENTS.
- B. MECHANICAL DRAWINGS AND SPECIFICATIONS ARE INTENDED TO SUPPLEMENT EACH OTHER. FURNISH ANY MATERIAL OR LABOR CALLED FOR IN ONE EVEN THOUGH NOT SPECIFICALLY MENTIONED IN BOTH.
- C. INSTALL AND CONNECT EQUIPMENT, SERVICES AND MATERIALS IN ACCORDANCE WITH BEST ENGINEERING PRACTICE AND ACCORDANCE WITH VARIOUS MANUFACTURER'S WRITTEN INSTRUCTIONS AND RECOMMENDATIONS. FURNISH AND INSTALL COMPLETE AUXILIARY PIPING, VALVES, WATER SEALS, ELECTRICAL CONNECTIONS, ETC., RECOMMENDED BY MANUFACTURER OR REQUIRED FOR AS-OPERATION.
- D. FURNISH MATERIAL OR LABOR WHICH IS NEITHER SHOWN ON DRAWINGS OR CALLED FOR IN SPECIFICATIONS BUT WHICH IS OBVIOUSLY A COMPONENT PART OF AND NECESSARY TO COMPLETE WORK OF SIMILAR CHARACTER.
- E. THIS CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS OR LICENSES REQUIRED TO CARRY OUT THIS WORK. HE SHALL PAY FOR ALL CHARGES MADE BY INSPECTION. NOTE: ALL CONTRACTORS SHALL BE LICENSED IN THE COUNTY, CITY, ETC. TO PERFORM ALL NEW WORK.
- F. THIS CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES, ORDINANCES AND ALL LOCAL LEGAL REQUIREMENTS. ALL LAWS, RULES AND REGULATIONS OF STATE AND LOCAL GOVERNING AGENCIES SHALL BE CONSIDERED A PART OF THESE SPECIFICATIONS AS FULLY AS IF WRITTEN HEREIN. NO EXTRA COMPENSATION WILL BE ALLOWED FOR ANY CHANGES NECESSARY FOR CODE COMPLIANCE REGARDLESS OF THE METHOD OF INSTALLATION SHOWN ON THE DRAWINGS OR SPECIFIED.
- G. THIS CONTRACTOR SHALL TAKE OUT PERMIT WITH PROVISIONS OF INSPECTION BEFORE STARTING ANY WORK. FEE FOR SAME SHALL BE PART OF THIS CONTRACT.
- H. WHEN WORK IS COMPLETED, THIS CONTRACTOR SHALL FURNISH TO THE ARCHITECT CERTIFICATES OF APPROVAL FROM THE RESPONSIBLE INSPECTION AGENCIES BEFORE FINAL PAYMENT OF CONTRACT WILL BE ALLOWED.
- I. TESTING OF ALL WORK UNDER THIS CONTRACT SHALL BE DONE BY THE CONTRACTOR IN THE PRESENCE OF THE OWNER OR HIS REPRESENTATIVE. ALL APPARATUS, EQUIPMENT, FIXTURES, ETC., SHALL FULLY MEET THE REQUIREMENTS OF THESE SPECIFICATIONS AND DRAWINGS.
- J. THE BID SHALL CONTEMPLATE THE FURNISHING AND INSTALLING OF MATERIAL AND EQUIPMENT, EXACTLY AS SPECIFIED OR SHOWN AS SIMILAR BY THE CONTRACT DOCUMENTS. MANUFACTURERS OF SIMILAR EQUIPMENT SHALL BE SUBMITTED FOR APPROVAL, AND THE CONTRACTOR SUBMITTING ON SIMILAR EQUIPMENT WILL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH CHANGES IN ARCHITECTURAL, STRUCTURAL OR ELECTRICAL DRAWINGS DUE TO THE SUBMITTER'S CHOICE OF EQUIPMENT CHARACTERISTICS SUBMITTED. BIDS SUBMITTED SHALL LIST ANY ITEMS OF MATERIAL OR EQUIPMENT OTHER THAN SPECIFIED SIMILAR TO THE ONES CALLED FOR SHALL BE LISTED UNDER SUBSTITUTIONS. THESE SUBSTITUTIONS SHALL BE APPROVED SEVEN WORKING DAYS BEFORE BIDS ARE SUBMITTED; OTHERWISE, THIS CONTRACTOR SHALL COMPLY WITH SPECIFICATION REQUIREMENTS.
- K. INSTALL FINAL APPLICATION OF LUBRICATION OIL, REFRIGERANT CHARGE, AND ALL OTHER SUPPLIES NECESSARY TO PLACE THE EQUIPMENT IN OPERATION.
- L. CONTRACTOR SHALL GUARANTEE HIS WORK TO BE FREE FROM DEFECTS IN WORKMANSHIP AND MATERIALS FOR A PERIOD OF ONE (1) YEAR FROM DATE OF FINAL ACCEPTANCE.
- M. ALL POWER WIRING OF MECHANICAL EQUIPMENT SHALL BE DONE BY THE ELECTRICAL CONTRACTOR. FURNISH THE ELECTRICAL CONTRACTOR WIRING DIAGRAMS FOR ALL ELECTRICALLY POWERED EQUIPMENT PROVIDED WITH THE CONTRACT WHICH SHALL INDICATE THE SERVICE REQUIRED AND ELECTRIC LOAD INVOLVED. ALL LOW VOLTAGE WIRING TO BE FLENUM RATED.
- N. THIS CONTRACTOR SHALL VISIT SITE BEFORE SUBMITTING BID AND MAKE ALL NECESSARY OBSERVATIONS, MEASUREMENTS, AND NOTE CONDITIONS UNDER WHICH HIS WORK IS TO BE PERFORMED. NO EXTRA COMPENSATION WILL BE ALLOWED FOR FAILURE TO DO SO. THIS CONTRACTOR INVOLVES REMODELING OF EXISTING BUILDING AND THEREFORE SHALL FIELD LOCATE EXISTING DUCTWORK, PIPING AND SERVICES BEFORE STARTING WORK.
- O. SUBMIT SHOP DRAWINGS, CATALOG SHEETS FOR EQUIPMENT, FIXTURES, DUCTWORK LAYOUT, WIRING DIAGRAMS, ETC., IN SIX (6) COPIES TO THE ARCHITECT FOR REVIEW. EACH CONTRACTOR IS RESPONSIBLE TO DISTRIBUTE APPROPRIATE SHOP DRAWINGS TO ALL OTHER TRADES AFFECTED BY HIS WORK, EQUIPMENT, OR COORDINATION.
- P. ASSEMBLE AND SUBMIT TO THE ARCHITECT FOR SUBSEQUENT SUBMISSION TO THE OWNER, THREE (3) COMPLETE SETS OF OPERATIONS MANUALS AND MAINTENANCE REQUIREMENTS, COPY OF FIXTURE CUTOFFS WITH MANUFACTURER'S NAME AND MODEL NUMBER, EQUIPMENT WARRANTIES, ETC., FOR EACH ITEM FURNISHED.
- Q. ALL CONTRACTORS MUST COORDINATE EACH PIECE OF EQUIPMENT WITH ALL OTHER TRADES (GENERAL CONTRACTOR, PLUMBING CONTRACTOR, MECHANICAL CONTRACTOR, ELECTRICAL CONTRACTOR, ETC.) AFFECTED BY THAT PIECE OF EQUIPMENT (ROOF DRAININGS, WEIGHTS, POWER REQUIREMENTS, VOLTAGES, ETC.) PRIOR TO ORDERING EQUIPMENT AND AGAIN PRIOR TO INSTALLATION (ROOFTOP EQUIPMENT PRIOR TO LIFTING ONTO ROOF). NO EXTRA COMPENSATION WILL BE APPROVED IF COORDINATION IS NOT PERFORMED BY EACH RESPECTIVE CONTRACTOR AND SUBCONTRACTOR.

PLUMBING SPECIFICATIONS

- A. CONNECT SEWER, GAS, VENTS AND WATER LINES AS INDICATED ON THE PLUMBING PLANS. DETERMINE THE EXACT LOCATION OF ALL EXISTING SERVICE CONNECTIONS BEFORE STARTING THE INSTALLATION OF ANY WORK. COORDINATE ALL WORK WITH OTHER TRADES, THE GENERAL CONTRACTOR AND THE OWNER'S FIELD REPRESENTATIVE.
- B. PLUMBING WORK SHALL CONFORM TO GOOD ENGINEERING PRACTICE AND BE IN ACCORDANCE WITH THE APPLICABLE PLUMBING CODES AND OWNER'S REQUIREMENTS.
- C. SANITARY SEWERS AND VENTS INSIDE OF THE BUILDING SHALL BE SERVICE WEIGHT, CAST IRON, NO USE WITH COMPRESSION TYPE NEOPRENE JOINTS. ABS OR PVC SCHEDULE 40 PIPING SHALL BE AS APPROVED BY THE LOCAL AUTHORITY AND OWNER IN CONCEALED LOCATIONS.
- D. ALL COLD AND HOT WATER LINES SHALL BE TYPE 'L' COPPER WITH 98-2 TIN ANTIMONY SOLDER.
- E. GAS PIPING ABOVE GROUND SHALL BE SCHEDULE 40 BLACK STEEL WITH 125 POUND BLACK WALLEABLE IRON SOLDERED FITTINGS. GAS PIPING COMPOUND AT JOINTS SHALL BE FOR NFPA RULINGS #4 AND LOCAL CODES. GAS VALVES SHALL BE UL LISTED FOR GAS SERVICE. SUCH PIPE SIZES 2" AND LARGER TO BE FORGED PIPE WITH 150 LB. FORGED STEEL SLIP-ON FLANGES AND 1/16 THICK PERFORATED NEOPRENE GASKETS.
- F. INSULATE ALL NEW HOT AND COLD WATER PIPING WITH NONCOMBUSTIBLE ARMSTRONG "ARMAFLEX" TYPE II FOAM INSULATION WITH SEALED JOINTS OR WITH OWENS CORNING FIBERGLASS AGL/25L-11 HEAVY DENSITY FIBRE INSULATION WITH VAPOR BARRIER AND SEALED JOINTS. INSULATION THICKNESS SHALL BE AS FOLLOWS:
COLD WATER BRANCH PIPING UP TO 1" 1/2" THICKNESS
HOT & COLD WATER MAIN PIPING UP TO 1-1/2" 1" THICKNESS
- G. PLUMBING CONTRACTOR SHALL INSTALL SHOCK ABSORBERS IN PIPING SYSTEM TO PREVENT NOISE AND DAMAGE DUE TO WATER HAMMER, WHERE NECESSARY. BRANCH SHALL HAVE ACCESSIBLE SERVICE VALVES. PROVIDE SHUT-OFF VALVES IN THE SUPPLY PIPING TO EVERY FIXTURE.
- H. PLUMBING CONTRACTOR SHALL FURNISH AND INSTALL BACKFLOW PREVENTION DEVICES IN ACCORDANCE WITH LOCAL WATER COMPANY REQUIREMENTS.
- I. PLUMBING CONTRACTOR SHALL PROVIDE 1 SET OF "AS-BUILT" DRAWINGS TO THE OWNER.
- J. CHLORINATION OF WATER PIPING: THE DOMESTIC WATER PIPING SYSTEM SHALL BE FLUSHED WITH CLEAN POTABLE WATER UNTIL CONTAMINATED WATER DOES NOT APPEAR AT THE OUTLET AND SHALL BE FILLED WITH A SOLUTION CONTAINING 50 PARTS PER MILLION OF CHLORINE AND ALLOWED TO STAND FOR A PERIOD AS PRESCRIBED BY THE CODES BEFORE FLUSHING. THE SYSTEM SHALL BE FLUSHED COMPLETELY WITH CLEAR WATER UNTIL ALL RESIDUAL CHLORINE CONTENT IS REMOVED. CHLORINATION SHALL BE PERFORMED AFTER ALL PIPING AND FINAL CONNECTIONS AND PRESSURE TESTING HAS BEEN COMPLETED. IF, AFTER THE PIPES HAVE BEEN CHLORINATED, THE PIPES HAVE TO BE DEMANTLED, THE CHLORINATION PROCESS MUST BE REPEATED.

PLUMBING SPECIFICATIONS (CONTINUED)

- K. LABOR SHALL BE PERFORMED IN A WORKMANLIKE MANNER BY MECHANICS SKILLED IN THEIR PARTICULAR TRADE. PIPE AND EQUIPMENT SHALL BE INSTALLED SOUND AND PLUMB AND ACCESSIBLE FOR PROPER OPERATION AND SERVICE.
- L. CUTTING OR PATCHING NECESSARY TO PERMIT THE INSTALLATION OF ANY WORK UNDER THIS CONTRACT SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR.
- M. PROVIDE ANY NECESSARY EXCAVATING AND BACKFILLING FOR THE INSTALLATION OF WORK SPECIFIED IN THIS DRAWING. AFTER THE PIPE HAS BEEN INSTALLED, TESTED AND APPROVED, THE TRENCHES SHALL BE BACKFILLED AND WELL TAMPED TO GRADE WITH APPROVED MATERIAL. GENERAL CONTRACTOR TO RE-FOUR CONCRETE FLOOR TO PROPER HEIGHT.
- N. PIPING
 - 1. ALL PIPING SHALL BE RUN CONCEALED EXCEPT WHERE SHOWN OTHERWISE ON DRAWINGS.
 - 2. VALVES, TRAPS, CLEANOUTS AND OTHER APPARATUS SHALL BE INSTALLED IN AN EASILY ACCESSIBLE LOCATION.
 - 3. SOIL WASTE, VENT, OFFSETS AND HOUSE DRAIN SHALL BE INSTALLED WITH A MINIMUM UNIFORM GRADE OF 1/8" TO THE FOOT FOR 4" PIPE AND 1/4" TO THE FOOT FOR 3" AND 4".
 - 4. HOT AND COLD WATER LINES SHALL BE AT LEAST 12" APART WHERE PIPING IS
 - 5. ESCUTCHEON PLATES SHALL BE PROVIDED WHERE ALL PIPE PASSES THROUGH A FINISHED WALL.
 - 6. CONNECTIONS FROM STEEL TO COPPER PIPING SHALL BE MADE WITH DIELECTRIC TYPE UNIONS, EPOXY OR OTHER APPROVED TYPE.
 - 7. COPPER PIPING SHALL BE SUPPORTED AT INTERVALS NOT TO EXCEED 7'-0" AND AT EACH CHANGE IN HORIZONTALS OF VERTICAL. HANGERS SHALL SUPPORT PIPING AT PIPE WITH INSULATION OVER TOP OR WITH METAL SLEEVES TO PROTECT INSULATION FROM BEING CRUSHED.
 - 8. HANGER SHIELDS: HANGERS FOR PIPING SHALL BE PLACED AROUND THE OUTSIDE OF THE INSULATION AND PROTECTIVE SHIELDS SHALL BE INSTALLED AT EVERY HANGER LOCATION. SHIELD SHALL NOT BE LESS THAN 2/3 THE CIRCUMFERENCE OF THE INSULATION AND WHERE SPEED CURPS ARE USED, THE METAL SHIELD SHALL BE CONTINUOUS AROUND THE CIRCUMFERENCE OF THE PIPE INSULATION. SHIELDS SHALL BE FABRICATED OF THE FOLLOWING GAUGES:
NOMINAL PIPE SIZE METAL GAUGE
0" - 1-1/2" 20"
 - 9. AFTER THE PLUMBING PIPING HAS BEEN INSTALLED, INSPECTED AND APPROVED, THE PIPING SYSTEM SHALL BE FLUSHED TO REMOVE ANY FOREIGN MATTER FROM THE PIPES.
 - 10. ALL PARTS OF THE PLUMBING FIXTURES AND ASSOCIATED EQUIPMENT SHALL BE MAINTAINED BY THE CONTRACTOR THROUGHOUT THE GUARANTEE PERIOD OF ONE YEAR AFTER FINAL ACCEPTANCE OF THE BUILDING.
 - 11. NOTE: ALL PIPE INSULATION (HOT AND COLD PIPE INSULATION) SHALL CONFORM TO THE FIRE AND SMOKE RATES BELOW:
FLAME SPREAD - 25 OR LESS
SMOKE DEVELOPED - 50 OR LESS
- O. GENERAL REQUIREMENTS OF PLUMBING FIXTURES AND TRIM:
 - 1. PLUMBING CONTRACTOR SHALL FURNISH AND INSTALL ALL STOPS, TRAPS, ESCUTCHEONS, CONNECTIONS, ETC., AS NECESSARY FOR A COMPLETE INSTALLATION.
 - 2. TERMINATE ALL WATER ROUGH-INS WITH SHUT-OFF VALVES BEFORE CONNECTING EQUIPMENT AND FIXTURES.
 - 3. PURGE ALL WATER LINES BEFORE MAKING FINAL CONNECTIONS.
 - 4. FLASH AND COUNTERFLASH ALL DRAININGS THRU ROOFS WITH SHEET LEAD BUILT AT MINIMUM OF 10" INTO THE ROOFING IN ALL DIRECTIONS FROM THE OUTSIDE OF THE PIPE.
 - 5. WATER AND WASTE LINES TO BE ROUGHED INSIDE WALLS. EXTEND WATER AND WASTE LINES OUT OF WALLS TO EQUIPMENT AND FIXTURES.
 - 6. WHERE THE WORK "PUSHES" OR "INSTALLS" APPEARS FOR THE PLUMBING CONTRACT, IT SHALL BE INTERPRETTED TO MEAN THE PLUMBING CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, EQUIPMENT AND SUPPLIES NECESSARY TO INSTALL AND PLACE IN OPERATION.
 - 7. GENERAL WATER PRESSURE SHALL NOT EXCEED 60 PSI. PLUMBING CONTRACTOR SHALL FURNISH AND INSTALL PRESSURE REDUCING VALVES FOR WATER AS REQUIRED.
- U. PLUMBING FIXTURES SHALL BE AS INDICATED ON DRAWING P-1.

- NOTE: OTHER SIMILAR MANUFACTURERS:
 - JOSAM, WASTE, ZURN, AMCON, WATTS, WIFAB - CLEANOUTS, FLOOR DRAINS, FLOOR SINKS, AMERICAN STANDARD, KOHLER, TOTO, ELBER - WATER CLOSERS, LAVS, URINALS
 - MITROL, WATTS - EXPANSION TANKS
 - JOSAM, ZURN, J.R. SMITH - GREASE INTERCEPTORS

HEATING, VENTILATING & AIR CONDITIONING SPECIFICATIONS

- A. IN RESPECT TO ALL MATERIALS REQUIRED, THE CONTRACTOR SHALL FURNISH MATERIALS MEETING AEE, NEMA, NELA, ASME AND ASTM SPECIFICATIONS. THE INSTALLATION OF ALL WORK SHALL CONFORM TO ASHRAE GUIDE AND SHEET METAL PROMOTION PLAN STANDARDS.
- B. MATERIALS SHALL BE NEW AND IN PERFECT CONDITION WHEN INSTALLED, AND SHALL BE PROTECTED FROM ALL INJURY UNTIL FINAL ACCEPTANCE OF THE SYSTEM.
- C. THIS CONTRACTOR SHALL REMOVE ALL TOOLS, SURPLUS MATERIALS AND DEBRIS OF ALL KINDS FROM HIS WORK AND LEAVE ALL IN A CLEAN, PERFECT CONDITION, FULLY SATISFACTORY TO THE ARCHITECT.
- D. CONTRACTOR SHALL PROVIDE OWNER WITH TWO (2) SETS OF "AS-BUILT" DRAWINGS.
- E. FURNISH ALL MATERIALS, TRANSPORTATION, RIGGING, HOISTING, ETC. TO PROVIDE A COMPLETE AND OPERABLE HEATING AND VENTILATING SYSTEM.
- F. ALL EQUIPMENT IS TO BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER, ACCORDING TO MANUFACTURERS RECOMMENDATIONS AND GOOD PRACTICES. COORDINATE ALL WORK WITH OTHER TRADES AND WITH THE GENERAL CONTRACTOR.
- G. ALL TEMPERATURE CONTROL WIRING SHALL BE DONE BY THE MECHANICAL CONTRACTOR. THIS CONTRACTOR SHALL FURNISH ALL REQUIRED CONTROLS AND WIRING DIAGRAMS AND SHALL SUPERVISE INSTALLATION. ALL ASSOCIATED MECHANICAL AND WIRING TO BE PLENUM RATED.
- H. SYSTEM IS TO BE AIR BALANCED BY AN INDEPENDENT BALANCE COMPANY, TO INCLUDE HVAC UNIT SUPPLY, RETURN AND OUTSIDE AIR CFM, EXHAUST FAN CFM, AIR DISTRIBUTION DEVICE SUPPLY AND RETURN CFM & TOILET EXHAUST CFM WITH THREE (3) REPORTS SUBMITTED TO THE OWNER AND THREE (3) MAINTENANCE MANUALS TURNED OVER TO OWNER BEFORE FINAL ACCEPTANCE. ALL SYSTEMS AND EQUIPMENT ARE TO BE GUARANTEED FOR PARTS AND LABOR FOR ONE YEAR (EXCEPT AIR CONDITIONING COMPRESSOR SHALL HAVE FIVE (5) YEAR WARRANTY).
- I. DUCTWORK AND PLenums SHALL BE AS SCHEDULED ON THE DRAWINGS PER SMACNA "DUCT CONSTRUCTION" CLASSIFICATION.
- J. HVAC EQUIPMENT SHALL BE AS SCHEDULED ON THE DRAWINGS.

HVAC GENERAL NOTES:

- 1. THE MECHANICAL CONTRACTOR SHALL ALSO ARRANGE THE FINAL INSPECTIONS BY THE BUILDING AUTHORITIES.
 - 2. ALL ROOFTOP EQUIPMENT SHALL BE CONVEYED VIA A CRANE TO THE PROPER LOCATION. ANY OTHER METHOD MUST BE APPROVED BY THE PROJECT MANAGER.
 - 3. NO PIPING, HANGERS, DUCTWORK, ETC., SHALL BE SUSPENDED FROM ROOF DECK. ALL ITEMS SHALL BE SUSPENDED FROM STRUCTURE.
 - 4. MECHANICAL CONTRACTOR TO MAINTAIN MINIMUM 10 FEET BETWEEN EXHAUST VENTS, FANS, ETC., AND OUTSIDE AIR INTAKES.
 - 5. MECHANICAL CONTRACTOR SHALL VERIFY VOLTAGES WITH ELECTRICAL CONTRACTOR PRIOR TO ORDERING OF ANY AND ALL MECHANICAL EQUIPMENT.
- REFRIGERANT PIPING NOTES:
- 1. A/C CONDENSATE DRAIN PIPING SHALL BE TYPE 'L' HARD DRAIN COPPER TUBING (ASTM B-88 LATEST REVISION) WITH WROUGHT COPPER FITTING AND SOLDERED JOINTS WITH 95-5 TIN ANTIMONY OR PVC SCHEDULE 40 PIPING AND FITTINGS AT CONTRACTOR'S OPTION.
 - 2. CONNECTION BETWEEN COPPER PIPING AND FERROUS PIPING OR EQUIPMENT SHALL BE MADE WITH DIELECTRIC UNIONS.
 - 3. REFRIGERANT PIPING SHALL BE TYPE 'L' HARD DRAIN COPPER (REFRIGERATION GRADE AND), WROUGHT COPPER FITTINGS (LONG RADIUS ELBOWS). COPPER TO BRASS OR STEEL JOINTS SHALL BE MADE USING A 40% SILVER ALLOY SUCH AS "EASY-FLUX" WITH FLUX. INERT NITROGEN SHALL BE PASSED THROUGH THE PIPING DURING BRAZING OPERATIONS TO PREVENT OXIDATIONS. PIPING SHALL BE CUT USING TUBING CUTTER ONLY; HACKSAW CUTS ARE PROHIBITED.
 - 4. AFTER THE INSTALLATION IS COMPLETE, LEAK TEST THE COMPLETE SYSTEM USING A MIXTURE OF NITROGEN AND SYSTEM REFRIGERANT PRESSURIZED TO 75 PSIG.
 - 5. AFTER LEAK TESTING, THE ENTIRE PIPING SYSTEM SHALL BE EVACUATED TO 1500 MICRONS.
 - 6. AFTER EVACUATION, THE SYSTEM SHALL BE CHARGED WITH THE PROPER AMOUNT OF REFRIGERANT FOR DESIGNED OPERATION.
 - 7. THE REFRIGERANT LINES MAY BE PRE-ENGINEERED SYSTEM BY UNIT MANUFACTURER INSTEAD OF MATERIAL LISTED ABOVE.
 - 8. PIPING INSULATION: REFRIGERANT PIPING SUCTION LINE TO BE INSULATED WITH 1" THICK ARMAFLEX PIPE INSULATION.
 - 9. CONDENSATE DRAIN PIPING FROM COIL TO BE INSULATED WITH 1" ARMAFLEX PIPE INSULATION.

project title
**Alterations for
 The Muirfield
 Association Office**
 Dublin, OH 43017
 for
 Muirfield Assoc. Board

**MECHANICAL
 SPECIFICATIONS**

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Architecture Space Planning



date	revisions
07 15	PERMIT
12 17	REVISION Δ

project number
 01-015
 sheet number
M2.01
 date 07-15-15

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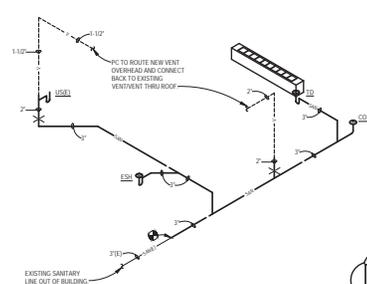
ADDITIONAL GAS DEMAND

UNIT HEATER (EXISTING)	60.0 CFH
UNIT HEATER (EXISTING)	60.0 CFH
UNIT HEATER (EXISTING)	60.0 CFH
FURNACE (EXISTING)	100.0 CFH
UNIT HEATER (UH-1 NEW)	60.0 CFH
UNIT HEATER (UH-2 NEW)	60.0 CFH
UNIT HEATER (UH-3 NEW)	60.0 CFH
TOTAL	460.0 CFH

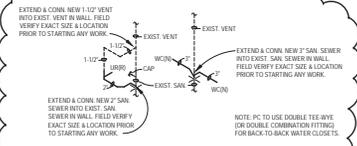
- NOTES**
1. GAS PRESSURE AFTER METER SHALL BE 7" WC.
 2. PROVIDE NEW PIPING AS REQUIRED. VERIFY ALL ROUTING PRIOR TO INSTALLATION.
 3. THE PLUMBING CONTRACTOR SHALL VERIFY IN WRITING WITH LOCAL GAS COMPANY WHETHER THE EXISTING GAS SERVICE LINE & METER ARE ADEQUATE FOR THE NEW GAS DEMAND. IF INADEQUATE FOR THE NEW GAS THE PLUMBING CONTRACTOR SHALL NOTIFY THE ARCHITECT AND ENGINEER IN WRITING.

- GENERAL NOTES:**
1. THE LOCATIONS OF PIPING AND EQUIPMENT AS SHOWN ON THE DRAWING ARE GENERAL ONLY. THE PLUMBING CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF ALL PIPING AND EQUIPMENT IN THE FIELD PRIOR TO EXECUTING HIS WORK.
 2. PLUMBING CONTRACTOR SHALL COORDINATE EXACT LOCATION OF SERVICES IN BUILDING PRIOR TO STARTING ANY WORK.
 3. ALL ITEMS PROJECTING THROUGH THE ROOF SHALL BE FLASHED A MINIMUM OF 12" ABOVE THE ROOF. ALL VENTS SHALL BE A MINIMUM OF 10'-0" FROM ANY OUTSIDE AIR INTAKE.
 4. ALL WATER PIPING TO RUN ON WARM SIDE OF THE BUILDING INSULATION. PLUMBING CONTRACTOR TO COORDINATE WITH GENERAL CONTRACTOR.
 5. THE PLUMBING CONTRACTOR TO COORDINATE ALL CUTTING OF ROOF WALLS AND FLOORS WITH THE GENERAL CONTRACTOR PRIOR TO EXECUTING HIS WORK.
 6. SEAL PENETRATIONS THROUGH FIRE RATED WALLS WITH THE PROPER FIRE STOPPING MATERIAL TO MAINTAIN FIRE RATING.
 7. PLUMBING CONTRACTOR SHALL COORDINATE HIS WORK WITH ALL OTHER TRADES (MECHANICAL, FIRE PROTECTION, ELECTRICAL, ETC.)
 8. REFER TO DWG. M-2 FOR SPECIFICATIONS.

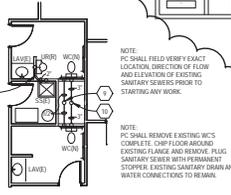
- PLUMBING CODED NOTES:**
1. PLUMBING CONTRACTOR (P.C.) TO CUT AND REMOVE SECTION OF COMPRESSED AIR PIPING. PREPARE EXISTING PIPING FOR RECONNECTION AND NEW ROUTING. SEE PLANS FOR EXACT CONNECTION LOCATIONS.
 2. P.C. TO INSTALL NEW COMPRESSED AIR PIPING, SAME SIZE AND TYPE OF PIPING. COMPRESSED AIR LINE TO RUN ALONG WALL AND OVERHEAD ABOVE NEW GARAGE DOORS. COORDINATE EXACT GARAGE DOOR LOCATIONS WITH ARCHITECTURAL PLANS PRIOR TO COMMENCEMENT OF WORK. AIR COMPRESSOR TO BE TEMPORARILY TAKEN OUT OF SERVICE WHILE NEW COMPRESSED AIR LINES ARE BEING INSTALLED.
 3. P.C. TO INSTALL NEW 3/4" HOT WATER LINE TO EXISTING UTILITY SINK DESIGNATED (USE). NEW LOCATION AS SHOWN ON DRAWINGS. THE INTO EXISTING HOT WATER PIPING LOCATED IN THE WATER HEATER ROOM. PROVIDE KEY STOPS AND ALL NECESSARY WATER PIPING FOR A COMPLETE INSTALLATION. COORDINATE PIPE ROUTING PRIOR TO COMMENCEMENT OF WORK.
 4. P.C. TO INSTALL NEW 1/2" COLD WATER LINE OVER TO EMERGENCY EYE WASH/SHOWER STATION. CONTINUE 3/4" COLD WATER LINE TO EXISTING UTILITY SINK NEW LOCATION AS SHOWN ON DRAWINGS. THE INTO EXISTING COLD WATER PIPING LOCATED IN THE WATER HEATER ROOM. PROVIDE KEY STOPS AND ALL NECESSARY WATER PIPING FOR A COMPLETE INSTALLATION. COORDINATE PIPE ROUTING PRIOR TO COMMENCEMENT OF WORK.
 5. P.C. SHALL EXTEND AND CONNECT GAS LINE TO UNIT HEATER COMPLETE WITH SHUT-OFF VALVE AND DIRT LEG.
 6. P.C. SHALL EXTEND AND CONNECT VENT LINE INTO EXISTING VENT SYSTEM. P.C. SHALL FIELD VERIFY EXISTING CONDITIONS, SIZES, LOCATION, ETC. PRIOR TO STARTING WORK.
 7. P.C. SHALL EXTEND 3/4" HW & CW TO THERMOSTATIC MIXING VALVE AND CONNECT TO EXISTING WATER SERVICE LINE.
 8. P.C. SHALL RELOCATE EXIST. UR COMPLETE TO NEW LOCATION SHOWN. EXISTING SANITARY DRAIN AND WATER CONNECTIONS TO REMAIN. EXTEND & CONNECT 3/4" CW & 2" SAN. SEWER INTO EXISTING WATER AND SANITARY CONNECTIONS FROM EXISTING UR. REWORK EXISTING CONNECTIONS AS REQUIRED IN WALL TO CONNECT TO EXISTING CW & SAN. SEWER. REWORK EXISTING CONNECTIONS IF NECESSARY FOR NEW WORK. FIELD VERIFY EXACT SIZE & LOCATION PRIOR TO STARTING ANY WORK.
 9. EXTEND & CONNECT NEW 1/2" CW INTO EXIST. CW FROM REMOVED WC. REWORK EXISTING CONNECTION AS NECESSARY FOR NEW WORK. FIELD VERIFY EXACT SIZE & LOCATION PRIOR TO STARTING ANY WORK.
 10. EXTEND NEW 3" SAN. SEWER INTO EXIST. SAN. SEWER FROM REMOVED WC. REWORK EXISTING CONNECTION AS NECESSARY FOR NEW WORK. FIELD VERIFY EXACT SIZE & LOCATION PRIOR TO STARTING ANY WORK.



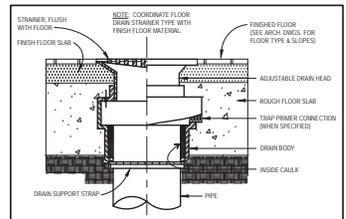
SANITARY STACK DIAGRAM - FIRST FLOOR
SCALE: N.T.S.



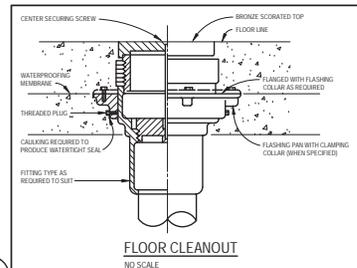
SANITARY STACK DIAGRAM - SECOND FLOOR
SCALE: N.T.S.



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



FLOOR DRAIN DETAIL
NO SCALE



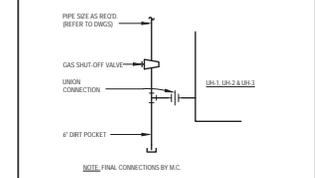
FLOOR CLEANOUT
NO SCALE

PLUMBING FIXTURE SCHEDULE

MARK	SYM	FINISH	FIXTURE	QTY	HT./WT.	CM	HW	TRAP	ASSIGNMENT
WC	WATER CLOSET	SEWER	2-032	16	12"			INTG.	NOTE 1

- NOTE:**
1. VITREOUS CHINA FLOOR MOUNTED, BACK OUTF. ELONGATED BOWL, 1.28 GPF, DUAL-FED SIPHON J.T. FINISH WITH OPEN FRONT SEAT.

- PLUMBING EQUIPMENT:**
- FLOOR DRAIN (FD) J.R. SMITH MODEL 2010A P550 DUCT CAST IRON BODY WITH FLASHING COLLAR AND ADJUSTABLE NICHEL BRONZE STRAINER HEAD AND ROUND TOP.
 - FLOOR CLEANOUT (CO) J.R. SMITH MODEL NO. 4000 DUCT CAST IRON CLEANOUT WITH ROUND ADJUSTABLE SCORATED SECURED NICHEL BRONZE TOP. NOTE: WHERE CLEANOUTS ARE INSTALLED IN CARPETED AREAS PROVIDE WITH CARPET CLAMPING FRAME (SUFTOLX).
 - EMERGENCY SHOWER (ES) SHERMAN COMPANY MODEL NO. SE-483 COMBINATION EMERGENCY EYE WASH/DELUXE SHOWER STATION. 1.1" GALVANIZED STANCHION, PULL ROD ACTIVATED DELUXE SHOWER AND HANDS FREE OPERATION ONCE SHOWER HAS BEEN ACTIVATED. HIGH VISIBILITY YELLOW PULL ROD. THIS COMBINATION EMERGENCY STATION MEETS ANSI Z358.1 COMPLIANCE ALONG WITH OSHA STANDARDS. PROVIDE MIXING VALVE BY BROOKLYN MODEL 319-2100 PIPE SET TO 87°F. INSTAL MIXING VALVE IN ACCESSIBLE LOCATION.
 - TRENCH DRAIN (TD) ZURN MODEL NO. 280 3" WIDE SHALLOW TRENCH DRAINAGE SYSTEM. MADE OF HIGH DENSITY POLYPROPYLENE. STRUCTURAL COMPOSITE DRAIN CHANNEL WITH 3" DEPTH. 40" SECTION WITH END CAP AND INTEGRAL TOP FRAME. HEAVY DUTY "DURA" COATED CAST IRON BODIES.



TYPICAL GAS CONNECTION FOR ALL GAS FIRED EQUIPMENT DETAIL
NO SCALE

PLUMBING LEGEND

SYMBOL	DESCRIPTION
---	COLD WATER PIPING
---	HOT WATER PIPING
---	SANITARY SEWER
---	FLOOR DRAIN
---	FLOOR CLEANOUT
---	HORIZONTAL CLEANOUT
---	SANITARY VENT PIPING
---	GAS PIPING
---	COMPRESSED AIR
---	CAP ON END OF PIPE
---	SHUT-OFF VALVE
---	CHECK VALVE
---	DOUBLE CHECK BACKFLOW PREVENTOR
---	WATER METER
---	SHUT-OFF VALVE IN RISER
---	GAS SHUT-OFF VALVE
---	RISER DOWN (ELBOW)
---	RISER UP (ELBOW)
---	BRANCH TOP CONNECTION
---	BRANCH BOTTOM CONNECTION
---	TEE
---	ELBOW
---	FROSTPROOF HOSE BIBB
---	HOSE BIBB
---	WATER CLOSET
---	LAVATORY
---	SERVICE SINK
---	ELECTRIC WATER COOLER
---	SHOWER
---	WASHER
---	DRYER
---	PLUMBING CONTRACTOR
---	GENERAL CONTRACTOR
---	ELECTRICAL CONTRACTOR
---	MECHANICAL CONTRACTOR
---	ABOVE FINISHED FLOOR
---	BOTTOM OF PIPE
---	CONNECT TO EXISTING
---	TRENCH DRAIN
---	EXISTING
---	NEW
---	RELOCATE EXISTING

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PLUMBING PLANS
@ 1/8" = 1'-0"

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12/2015

date	revisions
07 15	PERMIT
12 17	REVISION

project number
01-015
sheet number
P1.01
date 07-15-15

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