BETHLEHEM CENTER

K4 PROGRAM FACILITY

SPARTANBURG, SC

Issue Date/ Description: 01/04/20 OWNER REQUESTED CHANGES
MPS Project No:
Agency Review ID:

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OWNER

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DRAWING LIST

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SITE MAP

VICINITY MAP

BUILDING CODE SUMMARY

NAME OF PROJECT : BETHLEHEM CENTER K4 PROGRAM FACILTY
ADDRESS: 400 HIGHLAND AVENUE, SPARTANBURG, SC 29306
PROPOSED USE: RENOVATION OF AN EXISTING BUILDING FOR A K-4 PROGRAM FACILITY

SCOPE OF WORK: THE PROPOSED WORK INCLUDES THE RENOVATION OF AN EXISTING BUILDING TO ACCOMODATE A K-4 PROGRAM FOR THE BETHLEHEM CENTER. THE PROJECT INCLUDES 3 CLASSROOM TYPE SPACES, AN OFFICE, A WARMING KITCHEN, RESTROOMS AND SUPPORT ROOMS WITHIN EXISTING SPACES

OWNED BY: ☐ CITY/COUNTY ■ PRIVATE ☐ STATE
CODE ENFORCEMENT JURISDICTION: ■ CITY ☐ COUNTY ☐ STATE

APPLICABLE CODES:

2018 INTERNATIONAL EXISTING BUILDING CODE (IEBC) WITH SC AMENDMENTS
2018 INTERNATIONAL BUILDING CODE (IBC) WITH SC AMENDMENTS
2009 INTERNATIONAL ENERGY CONSERVATION CODE (IECC) - FOR NEW CONSTRUCTION ELEMENTS ONLY
2018 INTERNATIONAL FIRE CODE (IFC) WITH SC AMENDMENTS
2018 INTERNATIONAL PLUMBING CODE (IPC) WITH SC AMENDMENTS
2018 INTERNATIONAL MECHANICAL CODE (IMC) WITH SC AMENDMENTS
2018 INTERNATIONAL FUEL GAS CODE (IFGC) WITH SC AMENDMENTS
2014 NATIONAL ELECTRIC CODE (NEC/NFPA 70) WITH SC AMENDMENTS
2017 ANSI A117.1 ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES

☐ NEW CONSTRUCTION
■ ALTERATION
☐ UPFIT
■ RENOVATION
☐ ADDITION
☐ REPAIR

BASIC BUILDING DATA:

IBC CHAPTER 3: USE AND OCCUPANCY CLASSIFICATION:
PROPOSED: EDUCATION GROUP E, DAY CARE FACILITIES (per IBC 305.2)

IBC CHAPTER 6: TYPE OF CONSTRUCTION:
CONSTRUCTION CLASSIFICATION: V-B
IBC CHAPTER 9: FIRE PROTECTION SYSTEMS:
NOT SPRINKLERED

AREA PER FLOOR:

LEVEL 1	3,485 SF

IBC

SECTION 504 BUILDING HEIGHT AND NUMBER OF STORIES
Table 504.3 Allowable building height in feet above grade plane
E occupancy, non sprinklered, type V A: allowable building height=50'
Table 504.4 Allowable number of stories above grade plane
E occupancy: Allowable number of stories= 1
Table 506.2 Allowable area factor
E occupancy: Allowable area factor= 18,500

SECTION 903 AUTOMATIC SPRINKLER SYSTEMS
903.2 Where required:
903.2.3 Group E. An automatic sprinkler system shall be provided for Group E occupancies as follows:
1. Throughout all Group E fire areas greater than 12,000 square feet (1115 m2) in area. *This building area is 3,485SF*
2. The Group E fire area is located on a floor other than a level of exit discharge serving such occupancies. N/A
3. The Group E fire area has an occupant load of 300 or more. Occupant load of this building is <300.

SECTION 1004 OCCUPANT LOAD
per table 1004.1.2

LEVEL 1	93

SECTION 1005 MEANS OF EGRESS SIZING
1005.5 Required capacity based on occupant load
1005.3.1 Stairways: 0.3 inch per occupant
1005.3.2 Other egress components: 0.2 inch per occupant

SECTION 2902 MINIMUM PLUMBING FACILITIES:
TABLE 2902.1 Minimum number of required plumbing fixtures

OCCUPANCY	WATER CLOSETS		WC SUBST. BY URINALS	LAVATORIES		BATHTUBS / SHOWERS	DRINKING FOUNTAINS	OTHER
	FEMALE	MALE		FEMALE	MALE			
E (93)	1 PER 50	1 PER 50		1 PER 50	1 PER 50		1 PER 100	
REQUIRED (47 M, 47 F)	0.94	0.94		0.94	0.94		0.94	
TOTAL PROVIDED	2	2		2	2		2	1 SERVICE SINK

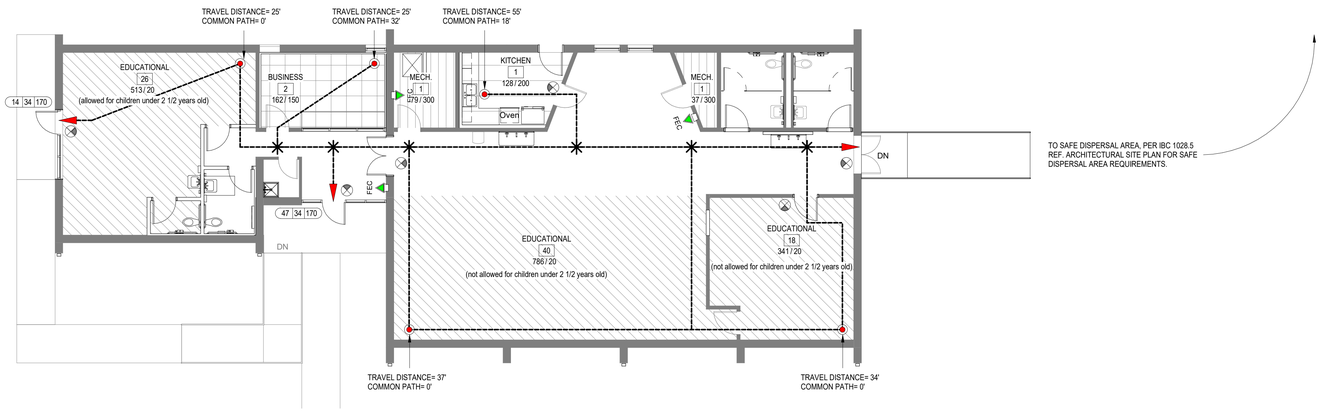
ADD ALTERNATES LIST:

ALTERNATE 1:
ARMSTRONG DIAMOND 10 NATURAL CREATIONS IN ROOMS 102, 107, 108, 112

ALTERNATE 2:
ADA CAST IN PLACE CONCRETE RAMP AND STEEL RAILING TO MATCH EXISTING ON SIDE YARD ENTRANCE. REF A300 / EXTERIOR ELEVATIONS.

ALTERNATE 3:
REPLACE EXISTING DOUBLE DOOR (ASSUMED 60" X 80") WITH ALUMINUM STOREFRONT DOOR WITH EXIT DEVICE AND SIDELIGHT. GC TO VERIFY DIMENSIONS IN FIELD

ALTERNATE 4:
SOYSTEP EPOXY FLOORING AND COVE BASE IN ROOMS 103, 104.



1 G001 **LIFE SAFETY PLAN**
1/8" = 1'-0"

mcmillan pazdan smith ARCHITECTURE

CONSULTANT LOGO

SEALS

STATE OF SOUTH CAROLINA — McMILLAN PAZDAN SMITH, LLC — GREENVILLE, SC — 100573 — REGISTERED ARCHITECTS

STATE OF SOUTH CAROLINA — Richard Lindwick — Spartanburg, SC — No. AR-6717 — 1-5-21 — REGISTERED ARCHITECT

BETHLEHEM CENTER
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A	10/27/20	ISSUE FOR PERMIT	
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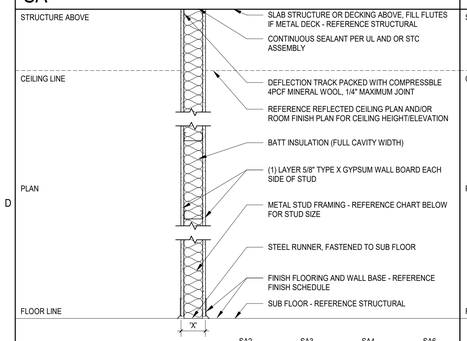
PRINCIPAL IN CHARGE: Principal
PROJECT ARCHITECT: Architect
DRAWN BY: Author

SHEET TITLE:
COVER SHEET

SHEET NO. PROJ. NO.

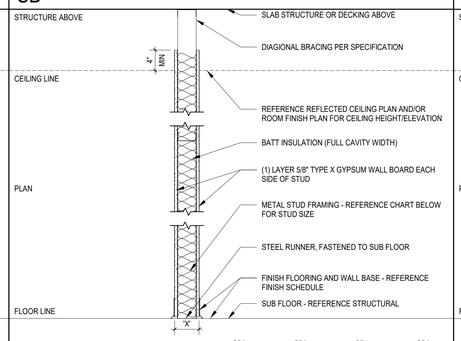
G001

SA



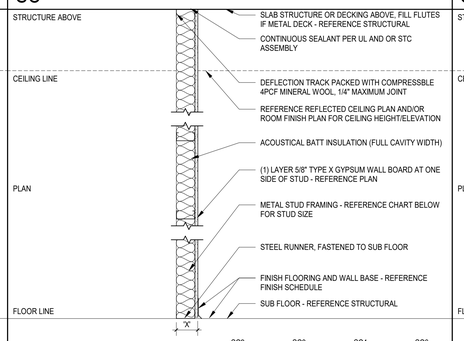
	SA2	SA3	SA4	SA6
STUD SIZE	2 1/2"	3 5/8"	4	6
ACTUAL DIMENSION 'X'	3 3/4"	4 7/8"	5 1/4"	7 1/4"
FIRE RESISTANCE AND DESIGN NUMBER (SEE LIFE SAFETY FOR RATED ASSEMBLY LOCATIONS)	- -	- -	- -	- -
ACOUSTICAL RATING	-	-	-	-

SB



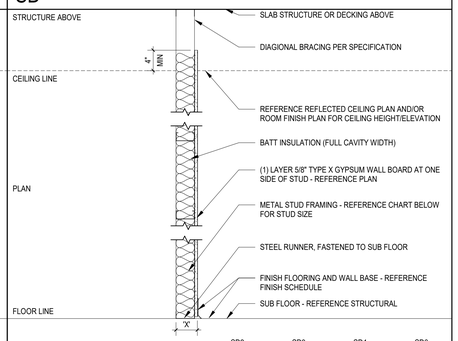
	SB2	SB3	SB4	SB6
STUD SIZE	2 1/2"	3 5/8"	4"	6
ACTUAL DIMENSION 'X'	3 3/4"	4 7/8"	5 1/4"	7 1/4"
FIRE RESISTANCE AND DESIGN NUMBER (SEE LIFE SAFETY FOR RATED ASSEMBLY LOCATIONS)	- -	- -	- -	- -
ACOUSTICAL RATING	-	-	-	-

SC



	SC2	SC3	SC4	SC6
STUD SIZE	2 1/2"	3 5/8"	4"	6
ACTUAL DIMENSION 'X'	3 1/8"	4 1/4"	4 5/8"	6 5/8"
FIRE RESISTANCE AND DESIGN NUMBER (SEE LIFE SAFETY FOR RATED ASSEMBLY LOCATIONS)	- -	- -	- -	- -
ACOUSTICAL RATING	-	-	-	-

SD



	SD2	SD3	SD4	SD6
STUD SIZE	2 1/2"	3 5/8"	4"	6
ACTUAL DIMENSION 'X'	3 1/8"	4 1/4"	4 5/8"	6 5/8"
FIRE RESISTANCE AND DESIGN NUMBER (SEE LIFE SAFETY FOR RATED ASSEMBLY LOCATIONS)	- -	- -	- -	- -
ACOUSTICAL RATING	-	-	-	-

WALL TAG LEGEND

FURRING	STEEL STUD	WOOD STUD	SHAFT WALL	MASONRY
L - LAMINATED	1 - 1 5/8" STUD	2 - 1 1/2" NAILER	2 - 2 1/2" CH STUD	4 - 4" CMU
0 - 7/8" HAT	2 - 2 1/2" STUD	4 - 1 3/4" x 3 1/2" STUD	4 - 4" CH STUD	6 - 6" CMU
1 - 1 1/2" HAT	3 - 3 5/8" STUD	6 - 1 3/4" x 5 1/2" STUD	6 - 6" CH STUD	8 - 8" CMU
	4 - 4" STUD	8 - 1 3/4" x 7 1/2" STUD		
	6 - 6" STUD	12 - 1 3/4" x 11 1/4" STUD		
	8 - 8" STUD			

WALL FRAMING PRIORITY

A. PARTITIONS SHALL BE PRIORITIZED BASED ON FIRE AND SMOKE RATING.
B. PARTITIONS SHALL BE CONSTRUCTED SUCH THAT HIGHER PRIORITY IS FRAMED BEFORE LOWER PRIORITY.
C. LOWER PRIORITY PARTITIONS SHALL BE FRAMED TIGHT TO, BUT NOT INTERRUPT HIGHER PRIORITY CONSTRUCTION. (SEE THE EXAMPLE BELOW)

2 HOUR FIRE RATED WITH SMOKE BARRIER	PRIORITY 1 (HIGHEST)
2 HOUR FIRE RATED	PRIORITY 2
1 HOUR FIRE RATED WITH SMOKE BARRIER	PRIORITY 3
1 HOUR FIRE RATED	PRIORITY 4
NONE RATED	PRIORITY 5 (LOWEST)

GENERAL PARTITION NOTES

A. PLAN DIMENSIONS ARE FACE OF STUD, CMU OR FINISH FACE OF EXISTING WALL CONSTRUCTION UNLESS SPECIFICALLY NOTED OTHERWISE
B. GYPSUM WALL BOARD LAYERS ON RATED WALLS SHALL BE CONTINUOUS THROUGH ALL INTERSECTIONS WITH NON-RATED WALLS. REFER TO FIRE WALL PRIORITY DIAGRAM.
C. REFERENCE ALL FLOOR PLANS AND LIFE SAFETY PLANS FOR RATED WALL LOCATIONS AND RATINGS.
D. PROVIDE TYPE X, MOLD AND MOISTURE RESISTANT GYPSUM WALL BOARD IN ALL TOILET AND JANITOR ROOMS.
E. PROVIDE CEMENT BOARD IN ALL WET SHOWER AREA WALLS WITH TILE FINISH.
F. PROVIDE IMPACT RESISTANT GYPSUM WALL BOARD UP TO 4'-0" IN ALL LOBBIES, CORRIDORS, AND STAIRWELLS.
G. AT ALL JOINTS AT TOP OF ALL FIRE RATED PARTITIONS: PROVIDE COMPLETE UL LISTED FIRE RESISTIVE JOINT SYSTEM TO MATCH FIRE RESISTANCE OF WALL ASSEMBLY AND THAT IS ALSO COMPATIBLE WITH JOINT SUBSTRATES.
H. ANY PORTION OF GYPSUM WALL BOARD THAT BECOMES WET OR SHOWS SIGNS OF MOISTURE DAMAGE, EITHER BEFORE OR AFTER INSTALLATION, IS TO BE REMOVED IMMEDIATELY AND REPLACED WITH NEW DRY GYPSUM WALL BOARD.
I. INTERIOR PARTITIONS MAY HAVE ADDITIONAL FINISHES. REFERENCE FINISH SCHEDULE AND DETAIL SHEETS FOR ADDITIONAL INFORMATION.
J. PROVIDE PROJECT SPECIFIC DELGATED DESIGN DATA INCLUDING STUD SPACING, STUD GAUGE,BRACING AND DEFLECTION.
K. SOUND ATTENUATION BLANKET IS REQUIRED AT ALL INTERIOR PARTITIONS AND SHALL RUN FULL HEIGHT OF PARTITION UNLESS NOTED OTHERWISE. SOUND ATTENUATION BATT SHALL BE AS FOLLOWS:
   a. FIRE RESISTANT PARTITIONS: MINERAL WOOL SOUND ATTENUATION FIRE BLANKET (SAFB) - FULL STUD DEPTH
   b. NON-RATED PARTITIONS: UNFACED FIBERLASS SOUND ATTENUATION BATTS (SAB) - FULL STUD DEPTH
L. MINOR WALLS OR OTHER WALLS NOT TAGGED WILL BE OF THE SAME WALL TYPE AS ADJACENT WALLS (UNLESS OTHERWISE NOTED).
M. COORDINATE AND PROVIDE ALL REQUIRED BLOCKING WITHIN THE WALLS. THIS INCLUDES BUT IS NOT LIMITED TO, ALL MILLWORK, CASEWORK, GRAB BARS, LCD MONITORS, AND TOILET PARTITIONS.
N. INSTALL GYPSUM WALL BOARD ON INTERIOR PARTITIONS WITH A MINIMUM 1/4" GAP BETWEEN THE GYPSUM WALL BOARD AND THE FINISHED FLOOR.

CONTROL JOINT NOTES

GYPSUM WALL BOARD:

LOCATE CONTROL JOISTS AS FOLLOWS:

A. PROVIDE CONTROL JOINTS IN WIDTHS NO GREATER THAN 30'-0" OC, BUT NO LESS THAN 16'-0".

B. INSTALL CONTROL JOINTS ACCORDING TO ASTM C 840 AND IN SPECIFIC LOCATIONS APPROVED BY ARCHITECT FOR VISUAL EFFECT.

C. SUBMIT CONTROL JOINT LOCATION PLAN TO ARCHITECT FOR REVIEW PRIOR TO INSTALLATION.

D. PROVIDE CONTROL JOINTS ABOVE DOOR JAMBS WHENEVER POSSIBLE.

E. STAGGER JOINTS FOR ALL RATED WALLS WITH MULTIPLE LAYERS OF GYPSUM WALL BOARD.

mcmillan pazdan smith
ARCHITECT

CONSULTANT LOGO

SEALS

STATE OF SOUTH CAROLINA — MCMILLAN PAZDAN SMITH, LLC — GREENVILLE, SC — 100573 — REGISTERED ARCHITECTS

STATE OF SOUTH CAROLINA — Randy Ludwick — Greenville, SC — No. AR-6717 — 1-5-21 — REGISTERED ARCHITECT

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PRINCIPAL IN CHARGE: Principal
PROJECT ARCHITECT: Architect
DRAWN BY: Author

SHEET TITLE:

PARTITION TYPES - METAL STUD

SHEET NO. A003

PROJ. NO.

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ABBREVIATION NOTES:

1. ABBREVIATIONS LISTED BELOW APPLY TO THE ARCHITECTURAL DRAWINGS ONLY, REFER TO CONSTRUCTION DOCUMENTS PREPARED BY MPS CONSULTANTS FOR ABBREVIATIONS USED.
2. REFER TO FINISH SCHEDULE FOR FINISH MATERIAL ABBREVAITIONS NOT SHOWN.

A/C	AIR CONDITION
A/E	ARCHITECT/ENGINEER
ABAN	ABANDON
ABRSV	ABRASIVE
ACC	ACCESSIBLE
ACST INSUL	ACOUSTICAL INSULATION
ACST PNL	ACOUSTICAL PANEL
ACP	AUTOMATIC CONTROL PANEL
ACST	ACOUSTIC
ACT	ACOUSTICAL CEILING TILE
AD	AREA DRAIN
ADJ	ADJACENT or ADJUSTABLE
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AFS	ABOVE FINISHED SLAB
AHJ	AUTHORITY HAVING JURISDICTION
ALT	ALTERNATE
ALUM	ALUMINUM
APPROX	APPROXIMATE
ARCH	ARCHITECT
ASB	ASBESTOS
ASC	ABOVE SUSPENDED CEILING
ASD	AUTOMATIC SPRINKLER DRAIN
ASI	ARCHITECT'S SUPPLEMENTAL INSTRUCTION
ASSN	ASSOCIATION
AVG	AVERAGE
BAT	BATTEN
BD	BOARD
BD FT	BOARD FEET (FOOT)
BDRY	BOUNDARY
BF	BOTH FACES
BFF	BELOW FINISH FLOOR
BLDG	BUILDING
BLKHD	BULKHEAD
BLKT	BLANKET
BN	BULLNOSE
B/STL	BOTTOM OF STEEL
BOT	BOTTOM
BSMT	BASEMENT
BTWN	BETWEEN
BYP	BY PASS
CAB	CABINET
CANTIL	CANTILEVER
CB	CORNER BEAD
CCTV	CLOSED CIRCUIT TELEVISION
CF	CONTRACTOR FURNISHED
CF/CI	CONTRACTOR FURNISHED/CONTRACTOR INSTALLED
CF/OI	CONTRACTOR FURNISHED/OWNER INSTALLED
CFE	CONTRACTOR FURNISHED EQUIPMENT
CFMF	COLD-FORMED METAL FRAMING
CG	CORNER GUARD
CH BD	CHALKBOARD
CIP	CAST-IN-PLACE
CJ	CONSTRUCTION JOINT\ CONTROL JOINT
C/L	CENTER LINE
CLDG	CLADDING
CLG	CEILING
CLR	CLEAR
CLT	CLEAT
CMPST	COMPOSITE
CMU	CONCRETE MASONRY UNIT
CNCL	CONCEALED
CO	CLEANOUT
COL	COLUMN
CONC	CONCRETE
COND	CONDITION
CONF	CONFERENCE
COORD	COORDINATE
CORR	CORRIDOR
CP	CONTROL PANEL
CSB	CONCRETE SPLASH BLOCK

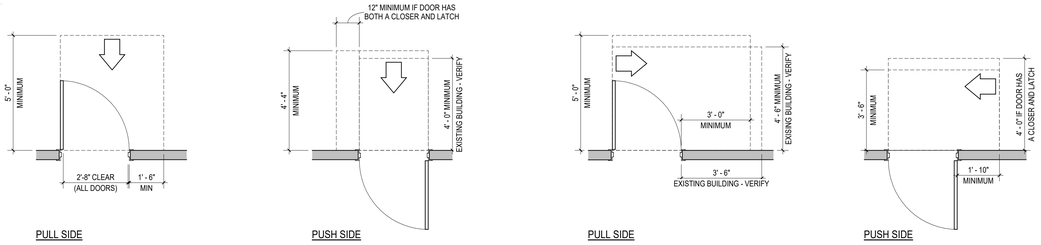
DBL	DOUBLE
DEMO	DEMOLITION/DEMOLISH
DEPT	DEPARTMENT
DF	DRINKING FOUNTAIN
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DISP	DISPENSER
DIST	DISTANCE
DMPF	DAMPPROOFING
DPTN	DEMOUNTABLE PARTITION
DS	DOWNSPOUT
DSP	DRY STANDPIPE
DSPL	DISPOSAL
DW	DISHWASHER
EA	EACH
EC	EDGE OF CURB
EFS	EXTERIOR FINISH SYSTEM
EG	EDGE GRAIN
EGB	EXTERIOR GYPSUM WALL BOARD
EIFS	EXTERIOR INSULATION AND FINISH SYSTEM
EFG	ENTRANCE FLOOR GRILLE
EJ	EXPANSION JOINT
EL	ELEVATION
ELAST	ELASTOMERIC
ELEC	ELECTRIC
ELEM	ELEMENTARY
ELEV	ELEVATOR
EMER	EMERGENCY
EMER SHR	EMERGENCY SHOWER
ENAM	ENAMEL
ENCL	ENCLOSURE
ENTR	ENTRANCE
EOS	EDGE OF SLAB
EP	EXPOXY PAINT
EPS	EXPANDED POLYSTYRENE BOARD (INSULATION)
EPX	EPOXY
EQ	EQUAL
EQUIP	EQUIPMENT
EQUIV	EQUIVALENT
ERD	EXISTING ROOF DRAIN
ESCAL	ESCALATOR
EWH	ELECTRIC WATER HEATER
EWS	EYE WASH STATION
EXIST	EXISTING
EXP	EXPOSED
EXT	EXTERIOR
FA	FIRE ALARM
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
FDC	FIRE DEPARTMENT CONNECTION
FDCC	FIRE DEPARTMENT CONNECTION CABINET
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FF&E	FURNITURE, FIXTURE, AND EQUIPMENT
FH	FIRE HOSE/ FIRE HYDRANT
FIN	FINISH
FIN GR	FINISH GRADE
FIXT	FIXTURE
FL	FLOORLINE
FO	FINISHED OPENING
FOC	FACE OF CONCRETE/ FACE OF CURB
FOF	FACE OF FINISH
FOM	FACE OF MASONRY
FOS	FACE OF STUD
FOW	FACE OF WALL
FRG	FIBER REINFORCED GYPSUM
FURN	FURNITURE

GALV	GALVANIZED
GB	GRAB BAR
GC	GENERAL CONTRACTOR
GDR	GUARD RAIL
GFRC	GLASS-FIBER-REINFORCED CONCRETE
GFRG	GLASS-FIBER-REINFORCED GYPSUM
GFRP	GLASS-FIBER-REINFORCED PLASTER
GFRP	GLASS-FIBER-REINFORCED PLASTIC
GL	GLASS/GLAZING
GMP	GUARANTEED MAXIMUM PRICE
GR	GROUT
GRAN	GRANITE
GT	GREASE TRAP
GYP BD	GYPSUM WALL BOARD
HB	HOSE BIBB
HC	HOLLOW CORE
HCP	HANDICAPPED
HCWD	HOLLOW CORE WOOD DOOR
HDW	HARDWARE
HDWD	HARDWOOD
HM	HOLLOW METAL
ID	INSIDE DIAMETER/ INSIDE DIMENSION
INSUL	INSULATION
INSUL PNL	INSULATED METAL PANEL
JAN	JANITOR
JT	JOINT
KD	KNOCKED DOWN
KPL	KICKPLATE
LAM	LAMINATE
LAM GL	LAMINATED GLASS
LAV	LAVATORY
LCD	LINEAR CEILING DIFFUSER
LCMU	LIGHTWEIGHT CONCRETE MASONRY UNIT
LDG	LANDING
LDR	LEADER
LF	LINEAR FEET (FOOT)
LOS	LINE OF SIGHT
LVDR	LOUVER DOOR
LVR	LOUVER
LWC	LIGHTWEIGHT CONCRETE
MAINT	MAINTENANCE
MAX	MAXIMUM
MC	METAL-CLAD
MCB	METAL CORNER BEAD
MED	MEDICAL
MEL	MELAMINE
MEZZ	MEZZANINE
MF	MILL FINISH
MID	MIDDLE
MIN	MINIMUM
MIRR	MIRROR
MISC	MISCELLANEOUS
MLDG	MOLDING (MOULDING)
MLWK	MILLWORK
MOD BIT	MODIFIED BITUMEN
MOPR	MOP RACK
MR	MOISTURE RESISTANT
MTL	METAL
MW	MICROWAVE
MWP	MEMBRANE WATERPROOFING
N/A	NOT APPLICABLE
NCOMBL	NONCOMBUSTIBLE
NIC	NOT IN CONTRACT
NLB	NONLOADBEARING
NO	NUMBER
NOM	NOMINAL
NTP	NOTICE TO PROCEED

OA	OVERALL
OC	ON CENTER
OD	OUTSIDE DIAMETER
OF	OVERFLOW
OF/CI	OWNER FURNISHED/CONTRACTOR INSTALLED
OFD	OVERFLOW DRAIN
OF/OI	OWNER FURNISHED/OWNER INSTALLED
OFS	OUTSIDE FACE OF STUDS
OPNG	OPENING
OPP	OPPOSITE
OPR	OPERABLE
PAT	PATTERN
PBD	PARTICLEBOARD
PERF	PERFORATED
PERM	PERMANENT
PERP	PERPENDICULAR
PGBD	PEGBOARD
PJ	PANEL JOINT
PLAM	PLASTIC LAMINATE
PLBG	PLUMBING
PLYWD	PLYWOOD
POL	POLISHED
PORC	PORCELAIN
PREFAB	PREFABRICATE
PREFIN	PREFINISH
PT	PRESSURE TREATED
PTD	PAINT
R	RADIUS
RADN	RADIATION
RB	RESILIENT BASE
RBR	RUBBER
RCP	REFLECTED CEILING PLAN
RD	ROOF DRAIN
REBAR	REINFORCING STEEL BARS
REF	REFERENCE
REINF	REINFORCE
REQD	REQUIRED
RESIL	RESILIENT
RESP	RESIN PANEL
RFG	ROOFING
RH	ROOF HATCH
RLG	RAILING
RM	ROOM
RO	ROUGH OPENING
RTF	RUBBER TILE FLOOR
RTU	ROOF TOP UNIT
RV	ROOF VENT
RVL	REVEAL
SB	SPLASH BLOCK
SBSTR	SUBSTRATE
SCHED	SCHEDULE
SCRN	SCREEN
SD	SMOKE DETECTOR
SHR	SHOWER
SHRD	SHOWER DRAIN
SIM	SIMILAR
SP	STANDPIPE
SPEC	SPECIFICATION(S)
SPKLR	SPRINKLER
SPKR	SPEAKER
SQ FT	SQUARE FOOT
SS	SOLID SURFACE
SST	STAINLESS STEEL
ST	STAIR(S)
STC	SOUND TRANSMISSION CLASS
STOR	STORAGE
STN	STAIN
SUSP CLG	SUSPENDED CEILING
SYMM	SYMMETRICAL

TBD	TO BE DETERMINED
T&G	TONGUE AND GROOVE
TD	TRENCH DRAIN
TEMP	TEMPORARY
TFA	TO FLOOR ABOVE
TFB	TO FLOOR BELOW
THRU	THROUGH
TLT	TOILET
T/	TOP OF ___
TOM	TOP OF MASONRY
TOP	TOP OF PARAPET
TOS	TOP OF SLAB\ TOP OF STEEL
TOW	TOP OF WALL
TP	TOILET PARTITION
TRS (or TR)	TRANSITION STRIP
UNFIN	UNFINISHED
UNO	UNLESS NOTED OTHERWISE
VCT	VINYL COMPOSITION TILE
VERT	VERTICAL
VEST	VESTIBULE
VIF	VERIFY IN FIELD
VNR	VENEER
W/	WITH
W/O	WITHOUT
WB	WOOD BASE
WC	WATER CLOSET
WD	WOOD
WF	WASH FOUNTAIN
WH	WATER HEATER
WHSE	WAREHOUSE
WP	WALL PROTECTION
WSCT	WAINSCOT
WWF	WELDED WIRE FABRIC
WWM	WELDED WIRE MESH
XPS	EXTRUDED POLYSTYRENE BOARD (INSULATION)

ABBREVIATIONS LIST

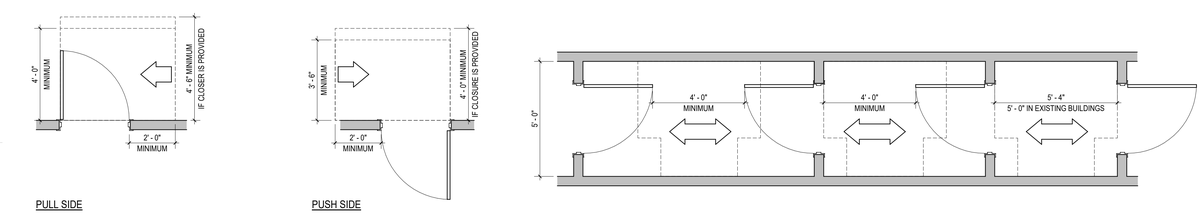


NOTE:

1. ALL DIMENSIONS SHOWN ARE MINIMUMS.
2. DIMENSIONS AND CLEARANCES SHOWN MUST BE PROVIDED AT ALL DOORS.CONTRACTOR SHALL REVIEW FIELD LAYOUT AND CONFIRM THAT ALL OF THE APPROPRIATE CLEARANCES ARE PROVIDED. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ARCHITECT'S ATTENTION. ANY REMEDIAL WORK THAT SHOULD HAVE BEEN AVOIDED BY BRINGING DISCREPANCIES TO THE ARCHITECT'S ATTENTION SHALL BE AT THE CONTRACTORS EXPENSE.

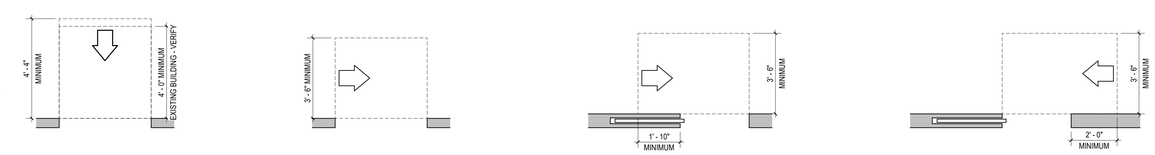
FRONT APPROACHES

HINGE SIDE APPROACHES



LATCH SIDE APPROACHES

DOORS IN A SERIES



DOORWAY W/O DOORS, SLIDING DOORS, AND FOLDING DOORS

MPS MANEUVERING CLEARANCES AT DOORS (ICC/ANSI-2017)

LINE TYPES

BEYOND

CENTERLINE

DEMOLISHED

HIDDEN

OVERHEAD

ANNOTATIONS

FACE DIMENSION

CENTERLINE DIMENSION

COLUMN GRID TAG - NEW

COLUMN GRID TAG - EXISTING

ALIGN — ALIGN FACE OF SURFACES

0'-0" — SPOT ELEVATION

Name Elevation — LEVEL / ELEVATION HEIGHT

REVISION TAG AND CLOUD

ANNOTATIONS

NORTH — NORTH (PROJECT OR TRUE)

PROJECT NORTH

TRUE NORTH

WINDOW / CURTAIN WALL TAG

LOUVER TAG

WALL TAG

DEMOLITION KEYNOTE

KEYNOTE

ACCESSORY TAG

FURNITURE TAG

EQUIPMENT TAG

SIGNAGE TAG

CEILING TAG

CEILING TYPE (IF / WHEN INDICATED)

CEILING HEIGHT

ROOM TAG(S):

ROOM NAME 150 SF — ROOM TAG WITH AREA (NO ROOM #)

DEPT/ PHASE — DEPARTMENT OR PHASE (IF SHOWN)

ROOM NAME — ROOM NAME

00999 — ROOM # = 2 OR 3 DIGITS

FLOOR # = 1 OR 2 DIGITS

ROOM NAME 00999 150 SF — AREA (IF SHOWN)

150 SF — AREA ONLY

DOOR TAG:

FLOOR # = 1 OR 2 DIGITS

ROOM # = 2 OR 3 DIGITS

DOOR SEQUENCE (ALPHABETIC)

122A 45 MIN — DOOR RATING (IF SHOWN)

VIEW REFERENCE

1/ A610 — PHOTO REFERENCE TAG

PLAN VIEW TITLE REFERENCE

PLAN NUMBER

A1 VIEW NAME A101 1/8" = 1'-0"

VIEW SCALE

CURRENT SHEET

DETAIL VIEW TITLE REFERENCE

DETAIL NUMBER

A1 VIEW NAME A101 1/8" = 1'-0"

VIEW SCALE

CURRENT SHEET

PLAN / DETAIL CALLOUT

1 SIM A103 — REFERENCED SHEET

BUILDING SECTION CALLOUT

1 SIM A610 — 1 SIM A610 — REFERENCED SHEET

WALL SECTION CALLOUT

SIM A5 A610 — REFERENCED SHEET

DETAIL SECTION CALLOUT

1 SIM A601 — REFERENCED SHEET

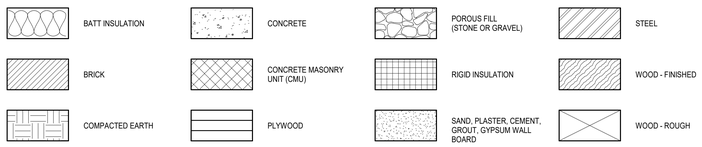
EXTERIOR ELEVATION CALLOUT

1 Ref — 1 Ref A510 1 Ref — 1 Ref

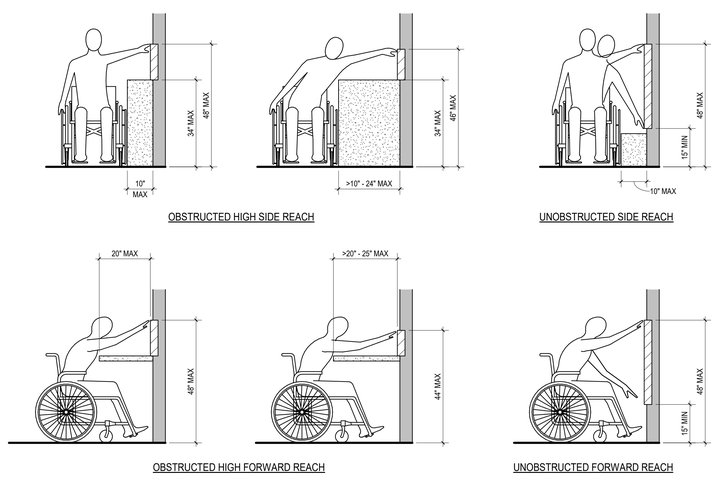
INTERIOR ELEVATION CALLOUT

A1 Ref — A1 Ref A1011 A1 Ref — A1 Ref

STANDARD GRAPHICS AND SYMBOLS



TYPICAL MATERIALS



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STATE OF SOUTH CAROLINA — Brandon L. Ludwick — Spartanburg, SC — No. AR-6717 — 1-5-21 — REGISTERED ARCHITECT

BETHLEHEM CENTER

K4 PROGRAM FACILITY

SPARTANBURG, SC

SHEET ISSUE:

NO.	DATE	DESCRIPTION	BY
A	10/27/20	ISSUE FOR PERMIT	
0	12/18/20	ISSUE FOR PERMIT & CONSTRUCTION	
1	01/04/20	OWNER REQUESTED CHANGES	

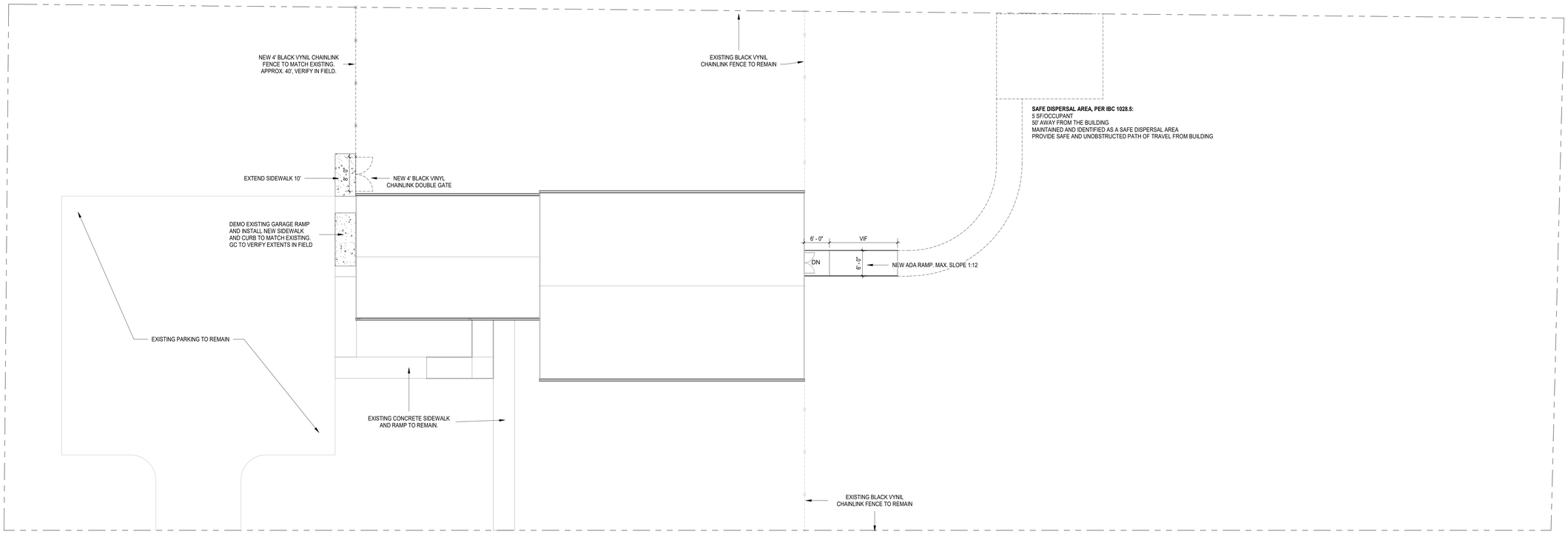
PRINCIPAL IN CHARGE: Principal
PROJECT ARCHITECT: Architect
DRAWN BY: Author

SHEET TITLE:

ABBREVIATION, SYMBOLS AND LEGENDS

SHEET NO. A001

PROJ. NO.



C1
A010

ARCHITECTURAL SITE PLAN

3/32" = 1'-0"

10/20/21 9:42:49 AM BIM 360 (010110.0) Bethlehem Center K4 Program Facility(010110.0) - Bethlehem Ctr. K4 Program Facility.rvt
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1-5-21
REGISTERED ARCHITECT

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K4 PROGRAM FACILITY

SPARTANBURG, SC

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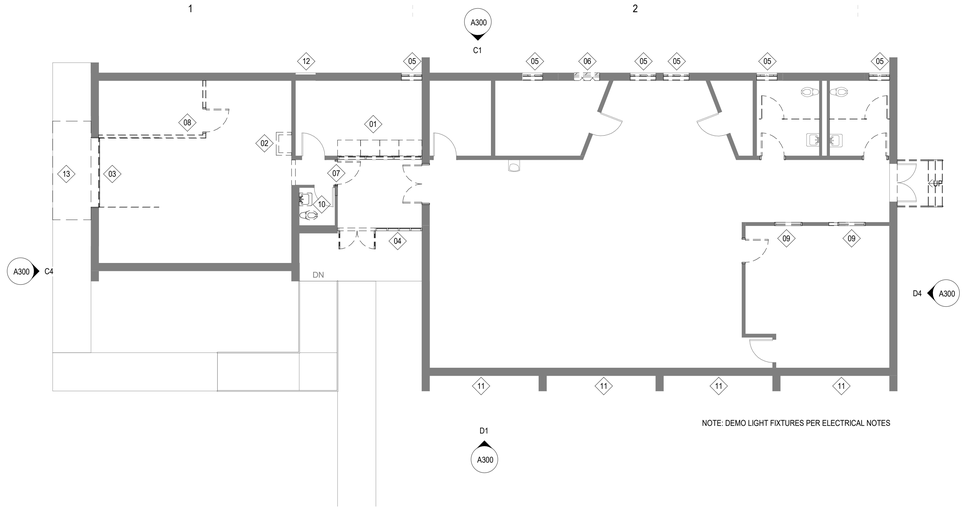
PRINCIPAL IN CHARGE: Principal
PROJECT ARCHITECT: Architect
DRAWN BY: Author

SHEET TITLE:

ARCHITECTURAL SITE PLAN

SHEET NO. PROJ. NO.

A010



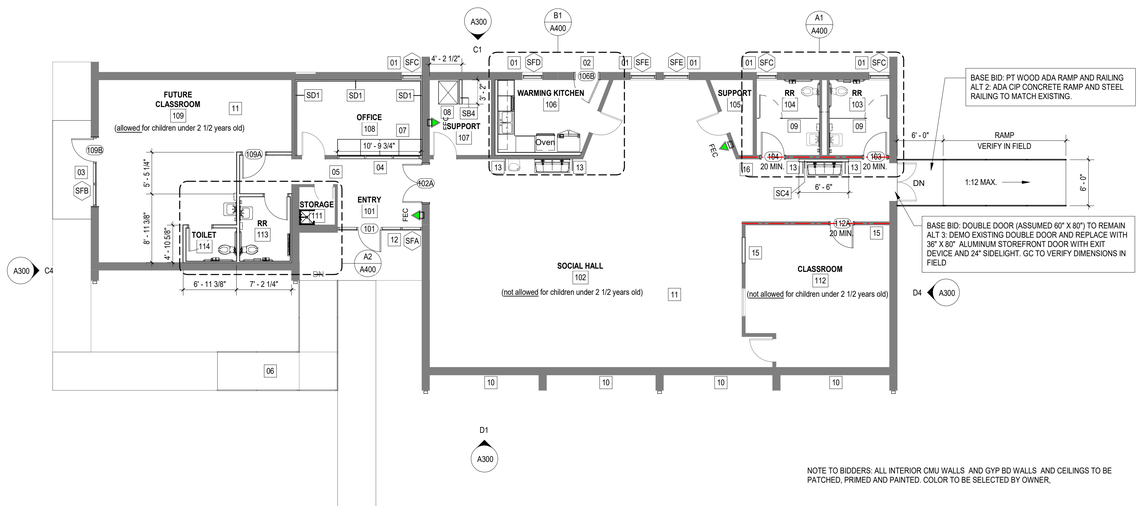
NOTE: DEMO LIGHT FIXTURES PER ELECTRICAL NOTES

DEMO PLAN - FIRST FLOOR

C1 A100 1/8" = 1'-0"

DEMO KEYNOTES

01	CASEWORK, GLAZING AND FRAME TO BE DEMOLISHED
02	BUILT-IN SAFE TO BE DEMOLISHED. PATCH WALL TO MATCH EXISTING WALL ASSEMBLY.
03	OVERHEAD DOOR TO BE DEMOLISHED. PREPARE OPENING TO RECEIVE NEW STOREFRONT.
04	STOREFRONT TO BE DEMOLISHED. PREPARE OPENING TO RECEIVE NEW STOREFRONT
05	INFILL MATERIAL TO BE DEMOLISHED. PREPARE OPENING TO RECEIVE NEW WINDOW.
06	INFILL MATERIAL TO BE DEMOLISHED. PREPARE OPENING TO RECEIVE NEW DOOR.
07	DOOR TO BE DEMOLISHED.
08	WALL TO BE DEMOLISHED. PATCH SURFACES TO REMAIN AS NEEDED.
09	DEMO GLAZING IF REQUIRED TO ACHIEVE 1 HR FIRE RATING
10	DEMO PLUMBING FIXTURES AND CAP AS REQUIRED
11	WINDOWS TO BE DEMOLISHED. PREPARE OPENING TO RECEIVE NEW STOREFRONT
12	INFILL MATERIAL TO BE DEMOLISHED. PREPARE OPENING NEW DUCTS. REF MECHANICAL DRAWINGS
13	DEMO EXISTING GARAGE RAMP AND INSTALL NEW SIDEWALK AND CURB TO MATCH EXISTING. GC TO VERIFY EXTENTS IN FIELD



BASE BID: PT WOOD ADA RAMP AND RAILING
ALT 2: ADA CIP CONCRETE RAMP AND STEEL RAILING TO MATCH EXISTING.

BASE BID: DOUBLE DOOR (ASSUMED 60" X 80") TO REMAIN
ALT 3: DEMO EXISTING DOUBLE DOOR AND REPLACE WITH 36" X 80" ALUMINUM STOREFRONT DOOR WITH EXIT DEVICE AND 24" SIDELIGHT. GC TO VERIFY DIMENSIONS IN FIELD

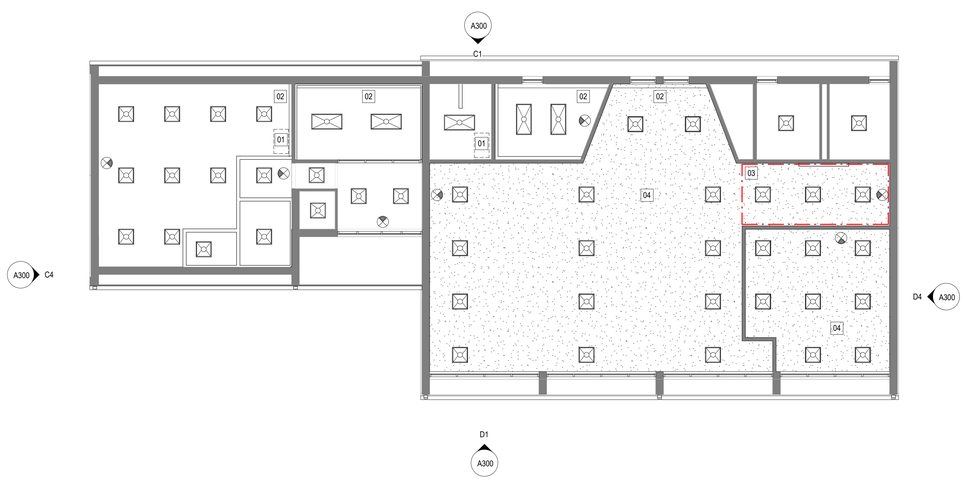
NOTE TO BIDDERS: ALL INTERIOR CMU WALLS AND GYP BD WALLS AND CEILINGS TO BE PATCHED, PRIMED AND PAINTED. COLOR TO BE SELECTED BY OWNER.

FLOOR PLAN - FIRST FLOOR

B1 A100 1/8" = 1'-0"

SHEET KEYNOTES

01	NEW WINDOW IN EXISTING INFILLED OPENING
02	NEW DOOR IN EXISTING INFILLED OPENING
03	NEW STOREFRONT IN EXISTING OVERHEAD DOOR OPENING
04	NEW SLIDING GLASS RECEPTION WINDOW TO REPLACE EXISTING. GC TO VERIFY DIMENSION
05	NEW CASED OPENING TO REPLACE EXISTING DOOR
06	NEW BOTTOM RAIL TO MATCH EXISTING AT 4" AFF MAX. EDGE PROTECTION PER ANSI A117.01 (2017)
07	NEW CASEWORK TO REPLACE EXISTING
08	PROVIDE PLUMBING AND ELECTRICAL CONNECTIONS FOR STACKED WASHER AND DRYER
09	NEW PHENOLIC TOILET PARTITION
10	NEW ALUMINUM AND GLASS STOREFRONT TO REPLACE EXISTING WINDOWS.
11	NEW FLOORING. BASIS OF DESIGN ARMSTRONG DIAMOND 10 NATURAL CREATIONS. FINISH TO BE SELECTED BY OWNER
12	NEW STOREFRONT TO REPLACE EXISTING
13	CANE DETECTION RAIL
15	
16	MODIFY EXISTING CMU AS REQUIRED TO ACHIEVE 1 HR FIRE RATING



REFLECTED CEILING PLAN - FIRST FLOOR

A1 A100 1/8" = 1'-0"

SHEET KEYNOTES

01	EXISTING HATCH FOR ATTIC ACCESS TO REMAIN
02	GYP BD SOFFIT TO CONCEAL NEW WATER LINES
03	ADD 5/8" TYPE X GYP BD TO ACHIEVE 1 HR FIRE RATING IN CORRIDOR CEILING (DASHED)
04	ADD 5/8" TYPE X GYP BD

GENERAL NOTES

GENERAL NOTES:

1. ALL WORK SHALL MEET THE MINIMUM REQUIREMENTS OF THE LATEST ADOPTED EDITIONS OF THE APPLICABLE CODES, AS INDICTED ON THIS SHEET AND ALL OTHER LOCAL, STATE OR FEDERAL CODES OR REGULATIONS HAVING JURISDICTION.
2. DO NOT SCALE DRAWINGS. CLARIFY ANY DIMENSIONAL DISCREPANCIES WITH THE ARCHITECT PRIOR TO CONTINUING WITH THE WORK.
3. CLARIFY ANY COORDINATION DISCREPANCIES BETWEEN ENGINEER DRAWINGS AND ARCHITECTURAL DRAWINGS WITH THE ARCHITECT PRIOR TO CONTINUING WITH THE WORK.
4. ALL WORK LISTED, SHOWN OR IMPLIED ON THE CONSTRUCTION DOCUMENTS SHALL BE SUPPLIED AND INSTALLED BY THE GENERAL CONTRACTOR EXCEPT WHERE OTHERWISE NOTED.

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SEALS

STATE OF SOUTH CAROLINA
McMILLAN PAZDAN SMITH, LLC
GREENVILLE, SC
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Spartanburg, SC
No. AR-5717
1-5-21
REGISTERED ARCHITECT

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K4 PROGRAM FACILITY

SPARTANBURG, SC

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1	01/04/20	OWNER REQUESTED CHANGES	

PRINCIPAL IN CHARGE: Principal
PROJECT ARCHITECT: Architect
DRAWN BY: Author

SHEET TITLE:

DEMOLITION PLAN, FLOOR PLAN, RCP

SHEET NO. PROJ. NO.

A100

10/30/01 9:47:28 AM BIM ME 09/01/15 K:\Architecture Group - M-P\Project Folders\K4 Program Facility.rvt
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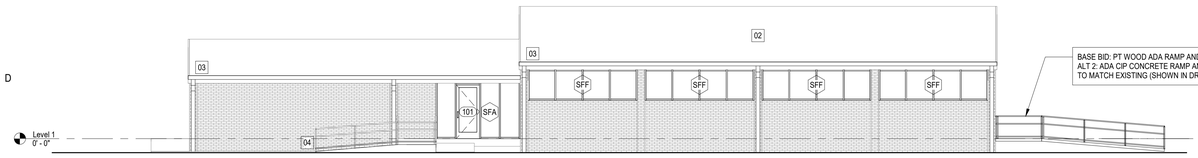
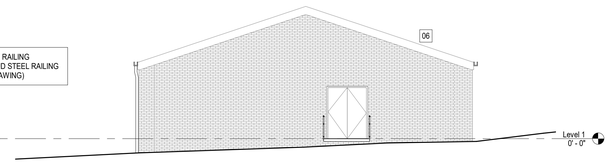


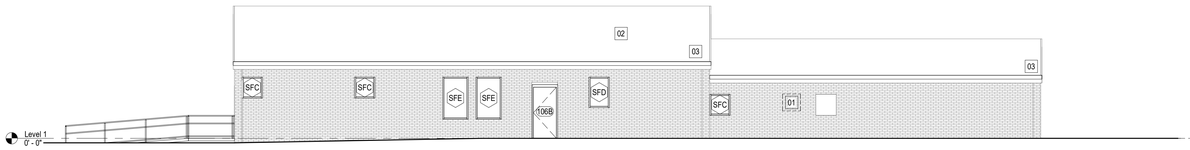
D1 A300 **EAST ELEVATION**

1/8" = 1'-0"



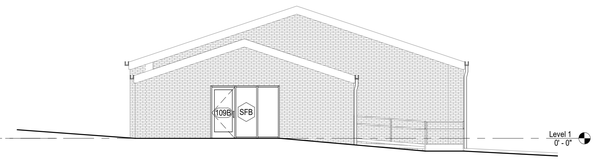
D4 A300 **NORTH ELEVATION**

1/8" = 1'-0"



C1 A300 **WEST ELEVATION**

1/8" = 1'-0"



C4 A300 **SOUTH ELEVATION**

1/8" = 1'-0"

SHEET KEYNOTES

01	INFILL EXISTING OPENING WITH BRICK TO MATCH EXISTING.
02	NEW 30 YEAR ARCHITECTURAL SHINGLES ROOF. NEW RIDGE VENT AND DRIP EDGE. COLOR TO BE APPROVED BY ARCHITECT.
03	NEW ALUMINUM GUTTER AND DOWNSPOUTS. COLOR TO BE APPROVED BY ARCHITECT.
04	NEW BOTTOM RAIL TO MATCH EXISTING AT 4" AFF MAX. EDGE PROTECTION PER ANSI A117.01 (2017)
06	NEW ALUMINUM FASCIA TO MATCH GUTTER AND DOWNSPOUTS. COLOR TO BE APPROVED BY ARCHITECT.

10/27/2021 9:42:37 AM BIM 360 (03/13/13) Bethlehem Center, K4 Program Facility.rvt
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PRINCIPAL IN CHARGE: Principal
PROJECT ARCHITECT: Architect
DRAWN BY: Author

SHEET TITLE:

EXTERIOR ELEVATIONS

SHEET NO. PROJ. NO.

A300

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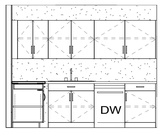
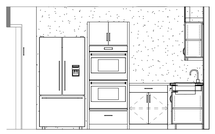
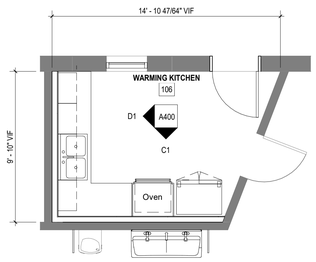


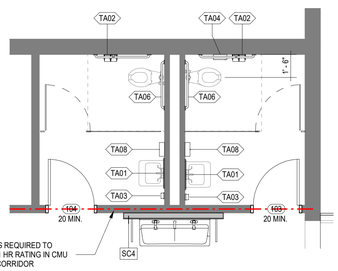
D1 / A400 **106 KITCHEN - SOUTH WALL**
1/4" = 1'-0"



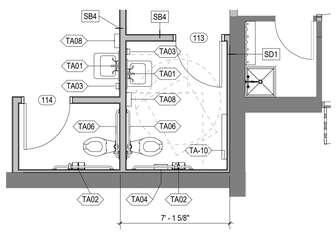
C1 / A400 **106 KITCHEN - EAST WALL**
1/4" = 1'-0"



B1 / A400 **106 KITCHEN - ENLARGED FLOOR PLAN**
1/4" = 1'-0"



A1 / A400 **103/104 RR - ENLARGED FLOOR PLAN1**
1/4" = 1'-0"



A2 / A400 **110 RR - ENLARGED FLOOR PLAN**
1/4" = 1'-0"

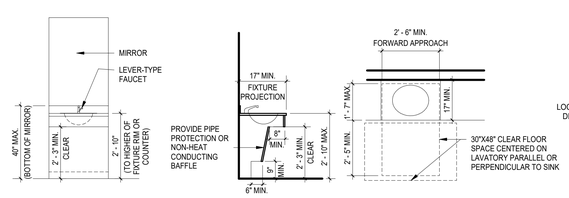
ROOM FINISH SCHEDULE

ROOM NO.	ROOM NAME	FLOOR FINISH	FLOOR BASE	WALLS N	WALLS E	WALLS S	WALLS W	CEILING MATERIAL	CEILING FINISH	MILLWORK COUNTERTOPS	MILLWORK CABINETS	COMMENTS
Level 1												
101	ENTRY	LVT-1	RB-1	PT-1	PT-1	PT-1	PT-1		PT-2			
102	SOCIAL HALL	EXISTING VCT**	RB-1	PT-1	PT-1	PT-1	PT-1		PT-2			
103	RR	EXISTING TILE*	EXISTING	PT-1	PT-1	PT-1	PT-1		PT-2			
104	RR	EXISTING TILE*	EXISTING	PT-1	PT-1	PT-1	PT-1		PT-2			
105	SUPPORT	EXISTING	RB-1	-	-	-	-					
106	WARMING KITCHEN	LVT-1	RB-1	PT-1	PT-1	PT-1	PT-1		PT-2	PL-1	PL-1	
107	SUPPORT	EXISTING VCT**	RB-1	PT-1	PT-1	PT-1	PT-1		PT-2			
108	OFFICE	EXISTING VCT**	RB-1	PT-1	PT-1	PT-1	PT-1		PT-2	PL-1	PL-1	
109	FUTURE CLASSROOM	LVT-1	RB-1	PT-1	PT-1	PT-1	PT-1		PT-2			
111	STORAGE	LVT-1	RB-1	PT-1	PT-1	PT-1	PT-1		PT-2			
112	CLASSROOM	EXISTING VCT**	RB-1	PT-1	PT-1	PT-1	PT-1		PT-2			
113	RR	EPOXY	EPOXY	PT-1	PT-1	PT-1	PT-1		PT-2			
114	TOILET	EPOXY	EPOXY	PT-1	PT-1	PT-1	PT-1		PT-2			

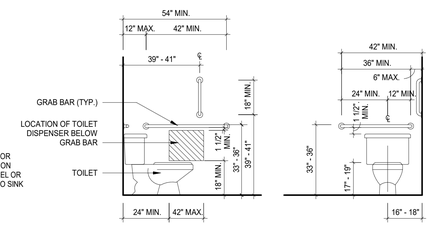
* BASE BID: EXISTING TILE TO BE CLEANED AND SEALED. ALT 4: EPOXY, SEE FINISHES LEGEND.
**BASE BID: EXISTING VCT TO BE CLEANED, STRIPPED AND SEALED. ALT 1: LVT-1, SEE FINISHES LEGEND

FINISHES LEGEND

LVT-1	ARMSTRONG DIAMOND 10 NATURAL CREATIONS. COLOR TO BE SELECTED BY OWNER
EPOXY	SOYSTEP EPOXY FLOORING AND COVE BASE. COLOR TO BE SELECTED BY OWNER
RB-1	JOHNSONITE TRADITIONAL 4" RUBBER COVE BASE. COLOR TO BE SELECTED BY OWNER
PT-1	SHERWIN WILLIAMS - EGGSHELL. COLOR TO BE SELECTED BY OWNER
PT-2	SHERWIN WILLIAMS - FLAT. CEILING WHITE
PT-3	SHERWIN WILLIAMS - SEMI-GLOSS. COLOR TO BE SELECTED BY OWNER
PL-1	WILSONART PREMIUM LAMINATE. COLOR TO BE SELECTED BY OWNER



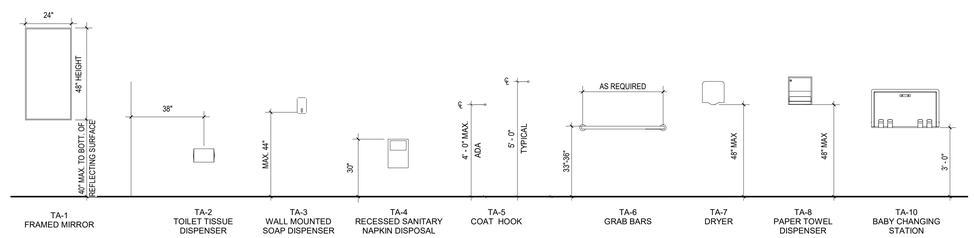
LAVATORY



WATER CLOSET

NOTES:
1. MOUNTING HEIGHTS ARE BASED ON OBSTRUCTED AND UNOBSTRUCTED REACH REQUIREMENTS AS OUTLINED IN ANSI 117.1-2017
2. MOUNTING HEIGHTS SHOWN HEREIN ARE FOR ALL OPERABLE PARTS, CONTROLS, DEVICES, ETC. WHICH REQUIRE THE USE OF A SINGLE HAND TO ACCESS/OPERATE .
3) HEIGHT REQUIREMENTS SHOWN HEREIN DO NOT APPLY TO SPECIAL EQUIPMENT OR ELECTRICAL/ COMMUNICATION SYSTEM RECEPTACLES NOT NORMALLY INTENDED FOR USE BY OCCUPANTS.
4) OPERABLE PARTS SHALL BE OPERABLE WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING OR TWISTING OF THE WRIST.

DIMENSIONAL NOTES ON CONSTRUCTION TOLERANCES:
- MINIMUM DIMENSIONS: NO TOLERANCES BELOW
- MAXIMUM DIMENSIONS: NO TOLERANCES ABOVE
- DIMENSIONS LISTED AS X - X: TOLERANCES ARE BETWEEN THOSE DIMENSIONS AND NOT OUTSIDE OF THIS RANGE



TA01 FRAMED MIRROR 24" x 48"

TA02 TOILET TISSUE DISPENSER; BASIS OF DESIGN: AMERICAN SPECIALTIES, INC. 0264-1 WITH VANDAL-RESISTANT HOOD 0266. SATIN STAINLESS STEEL FINISH.

TA03 SURFACE MOUNTED AUTOMATIC LIQUID SOAP DISPENSER; BASIS OF DESIGN: AMERICAN SPECIALTIES, INC. 0360 STAINLESS STEEL

TA04 SURFACE MOUNTED SANITARY NAPKIN DISPOSAL; BASIS OF DESIGN: AMERICAN SPECIALTIES, INC. 0473-A SATIN STAINLESS STEEL FINISH

TA05 COAT HOOK AND BUMPER; BASIS OF DESIGN: AMERICAN SPECIALTIES, INC. 0714 SATIN CHROME FINISH. CENTER ON DOOR UNLESS OTHERWISE NOTED.

TA06 GRAB BARS ; BASIS OF DESIGN: AMERICAN SPECIALTIES, INC. 3400 SATIN STAINLESS STEEL WITH PEENED GRIPPING SURFACE FINISH. SUPPLY IN LENGTHS AND CONFIGURATIONS AS INDICATED

TA07 HAND DRYER (NOT USED)

TA08 PAPER TOWEL DISPENSER; BASIS OF DESIGN: AMERICAN SPECIALTIES, INC. 0210 SATIN STAINLESS STEEL FINISH

TA09 SHELVES / UTILITY HOOK & MOP STRIP; BASIS OF DESIGN: AMERICAN SPECIALTIES, INC. 1308-3 SATIN STAINLESS STEEL FINISH

TA10 BABY CHANGING STATION; BASIS OF DESIGN: AMERICAN SPECIALTIES, INC. 9012 HORIZONTAL, PLASTIC, SURFACE MOUNTED.

ACCESSIBLE CLEARANCE AT FIXTURES AND APPLIANCES

ACCESIBLE TOILET FIXTURES AND ACCESSORIES PER ANSI A117.1 2017
3/8" = 1'-0"

mcmillan pazdan smith ARCHITECTURE

CONSULTANT LOGO

SEALS

STATE OF SOUTH CAROLINA — McMILLAN PAZDAN SMITH, LLC — GREENVILLE, SC — 100573 — REGISTERED ARCHITECTS

STATE OF SOUTH CAROLINA — Kirk Hardwick — Spartanburg, SC — No. AR-6717 — 1-5-21 — REGISTERED ARCHITECT

BETHLEHEM CENTER

K4 PROGRAM FACILITY

SPARTANBURG, SC

SHEET ISSUE:

NO.	DATE	DESCRIPTION	BY
A	10/27/20	ISSUE FOR PERMIT	
0	12/18/20	ISSUE FOR PERMIT & CONSTRUCTION	
1	01/04/20	OWNER REQUESTED CHANGES	

PRINCIPAL IN CHARGE: Principal
PROJECT ARCHITECT: Architect
DRAWN BY: Author

SHEET TITLE:

ENLARGED PLANS. FINISH SCHEDULE

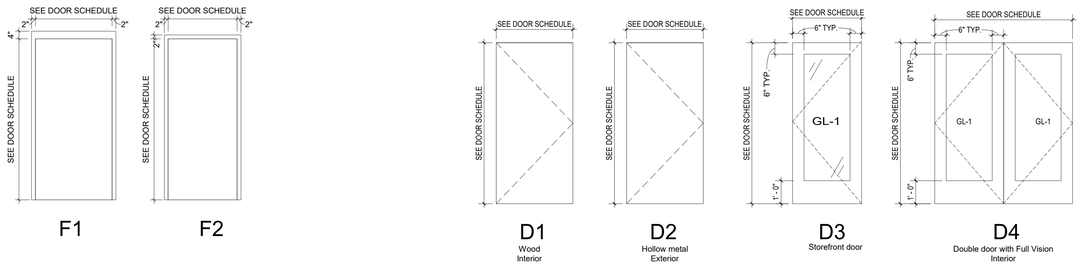
SHEET NO. A400

PROJ. NO.

DOOR SCHEDULE

FLOOR	DOOR NO.	ROOM NO.	DOOR WIDTH	DOOR HEIGHT	DOOR THK.	DOOR TYPE	DOOR RATING	DOOR MATERIAL	DOOR HARDWARE TYPE	FRAME TYPE	FRAME MATERIAL	DETAILS HEAD	DETAILS JAMB	REMARKS
Level 1	101	101	3' - 0"	7' - 0"		D3		ALUM	HW-1 + EXIT DEVICE	-	ALUM	-	-	
Level 1	102A	102	5' - 0"	6' - 8"	0' - 1 3/4"	D4		WD	HW-3 + EXIT DEVICE	-	EXISTING	-	-	
Level 1	103	103	3' - 0"	6' - 8"	0' - 1 3/4"	D1	20 MIN.	WD	HW-4	-	EXISTING	-	-	
Level 1	104	104	3' - 0"	6' - 8"	0' - 1 3/4"	D1	20 MIN.	WD	HW-4	-	EXISTING	-	-	
Level 1	106B	106	3' - 0"	6' - 8"	0' - 1 3/4"	D2		HM	HW-1	F1	HM	H1	J1	
Level 1	109A	109	3' - 0"	6' - 8"	0' - 1 3/4"	D1		WD	HW-3	F2	HM	H2	J2	
Level 1	109B	109	3' - 0"	6' - 8"		D3		ALUM	HW-1	-	ALUM	-	-	
Level 1	112A	112	3' - 0"	6' - 8"	0' - 1 3/4"	D1	20 MIN.	WD	HW-3	F2	HM	H2	J2	
Level 1	113	113	3' - 0"	6' - 8"	0' - 1 3/4"	D1		WD	HW-2	F2	HM	H2	J2	
Level 1	114	114	3' - 0"	6' - 8"	0' - 1 3/4"	D1		WD	HW-2	F2	HM	H2	J2	

NOTE: CONTRACTOR TO VERIFY DIMENSIONS OF EXISTING OPENINGS FOR DOORS TO BE INSTALLED IN EXISTING OPENINGS.



DOOR FRAMES
3/8" = 1'-0"

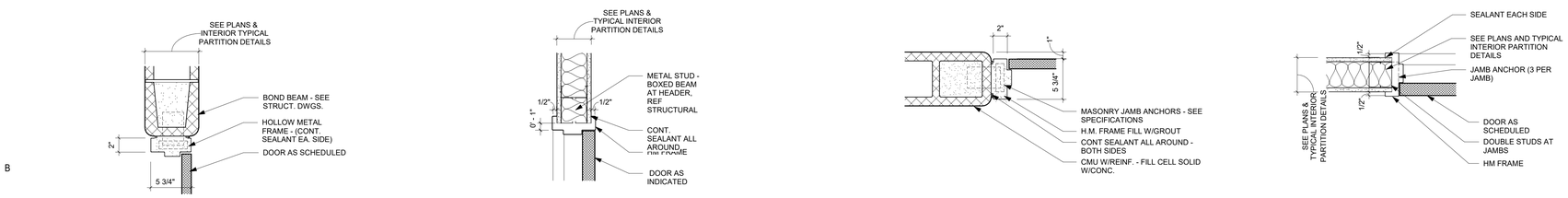
DOOR LEGEND
3/8" = 1'-0"

GENERAL DOOR NOTES

1. PRIOR TO SUBMITTING DOOR AND FRAME SHOP DRAWINGS, CONTRACTOR SHALL VERIFY DIMENSIONS, CONDITIONS AND HARDWARE AT EACH EXISTING DOOR TO REMAIN OR TO BE REUSED, AND UTILIZE THIS INFORMATION TO PREPARE SHOP DRAWINGS.
2. ALL THRESHOLDS SHALL CONFORM TO HANDICAP ACCESS REQUIREMENTS.
3. WEATHER-STRIPPING SHALL BE PROVIDED AT HEAD AND JAMBS OF ALL EXTERIOR DOORS.
4. ALL DOORS INSTALLED NEAR A WALL CORNER TO BE OFFSET 4" FROM ADJACENT WALL, UNLESS NOTED OTHERWISE.
5. INTERIOR HM FRAMES SHALL BE 16 GA. SHOP PRIMED STEEL.
6. EXTERIOR HM FRAMES SHALL BE 14 GA. GALVANIZED SHOP PRIMED STEEL.
7. ALL CORNERS OF EXTERIOR HM FRAMES SHALL BE SHOP (FULL) WELDED AND GROUND SMOOTH.
8. FLOOR ANCHORS ARE REQUIRED AT EACH HM FRAME.
9. TWO HEAD ANCHORS PER HEAD FOR FRAMES MORE THAN 42 INCHES WIDE AND MOUNTED IN STUD PARTITIONS.
10. HARDWARE PREPARATION: FACTORY PREPARE HOLLOW-METAL WORK TO RECEIVE TEMPLATED MORTISED HARDWARE; INCLUDE CUTOUTS, REINFORCEMENT, MORTISING, DRILLING, AND TAPPING ACCORDING TO SDI A250.6, THE DOOR HARDWARE SCHEDULE, AND TEMPLATES.

HW1	A) LOCKSET - ENTRY FUNCTION B) DOOR CLOSER C) SILENCER G) WEATHERSTRIPPING H) SWEEP STRIP I) ADA COMPLIANT THRESHOLD
HW2	A) LOCKSET - RESTROOM FUNCTION W/ "OCCUPIED" INDICATOR B) DOOR CLOSER C) SILENCER I) ADA COMPLIANT THRESHOLD
HW3	A) LOCKSET - CLASSROOM FUNCTION B) DOOR CLOSER C) SILENCER D) KICK PLATE
HW4	A) LOCKSET - PASSAGE FUNCTION B) DOOR CLOSER C) SILENCER D) KICK PLATE

HARDWARE LEGEND
12" = 1'-0"



B1 / A800 **H1 - INTERIOR H.M. HEAD - CMU**
1 1/2" = 1'-0"

B2 / A800 **H2 -INTERIOR H.M. HEAD - METAL STUD**
1 1/2" = 1'-0"

B3 / A800 **J1 - INTERIOR H.M. JAMB - CMU**
1 1/2" = 1'-0"

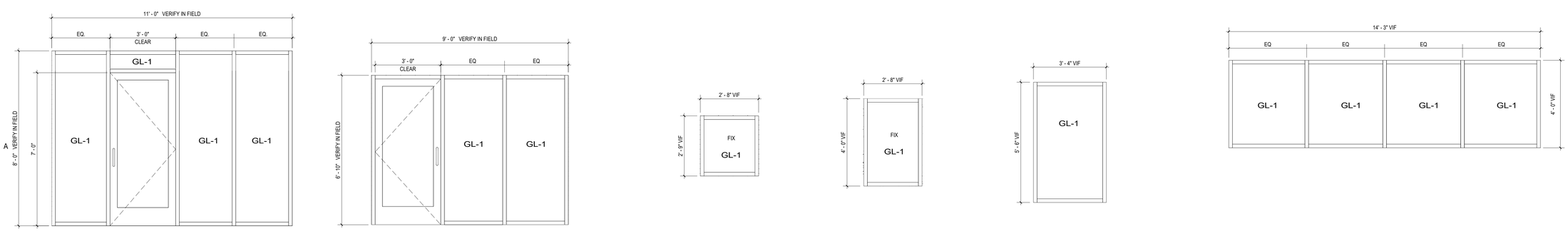
B4 / A800 **J2 - INTERIOR H.M. JAMB - METAL STUD**
1 1/2" = 1'-0"

GENERAL WINDOW NOTES

1. TEMPERED GLAZING SHALL BE PROVIDED IN ALL LOCATIONS WHERE WINDOWS OR GLAZING ARE LOCATED WITHIN 4' 0" OF INTERIOR OR EXTERIOR DOORS AND BELOW DOOR HEAD HEIGHT.
2. SEE WINDOW ELEVATIONS FOR GLAZING TYPES
3. SECTIONS THROUGH WINDOW MEMBERS ARE SHOWN SCHEMATICALLY. ACTUAL CONFIGURATIONS MAY VARY PER APPROVED MANUFACTURERS.
4. ROUGH OPENINGS ARE SHOWN ON WINDOW ELEVATIONS. ACTUAL WINDOW UNITS SHOULD BE CONSTRUCTED TO MEET TOLERANCES NECESSARY OF PROPER HORIZONTAL AND VERTICAL ALIGNMENT OF SYSTEMS AND CONFORMANCE WITH DETAILS AND SPECIFICATIONS OF THE CONSTRUCTION DOCUMENTS.
5. FIELD VERIFY ALL DIMENSIONS PRIOR TO FABRICATIONS.
6. WINDOW MANUFACTURER SHALL BE RESPONSIBLE FOR PROVIDING ANY ADDITIONAL MULLION REINFORCEMENT NECESSARY TO MEET ALL SPECIFIED LOADING CRITERIA.

GLAZING LEGEND

GL-1 LOW - 'E' COATED, CLEAR INSULATED, FULLY TEMPERED, CAT. II



A1 / A800 **SFA**
1/2" = 1'-0"

A2 / A800 **SFB**
1/2" = 1'-0"

A31 / A800 **SFC**
1/2" = 1'-0"

A32 / A800 **SFD**
1/2" = 1'-0"

A4 / A800 **SFE**
1/2" = 1'-0"

A5 / A800 **SFF**
1/2" = 1'-0"

1/5/2021 4:37:28 AM - BIM ME 2019 R3 D: Bethlehem Center K4 Project Europe_R19.rvt
ALL DRAWINGS, SPECIFICATIONS AND COPIES THEREOF FURNISHED BY MCMILLAN PAZDAN SMITH ARCHITECTURE ARE AND SHALL REMAIN THE PROPERTY OF MCMILLAN PAZDAN SMITH ARCHITECTURE. THESE MATERIALS ARE TO BE USED ONLY WITH RESPECT TO THIS PROJECT AND ARE NOT TO BE LOANED, COPIED OR REPRODUCED IN WHOLE OR IN PART WITHOUT THE WRITTEN CONSENT OF MCMILLAN PAZDAN SMITH ARCHITECTURE. ALL REPRODUCTIONS, COPIES OR SUBMITTALS MUST CONTAIN THIS NOTICE AND BE SIGNED BY MCMILLAN PAZDAN SMITH ARCHITECTURE. ALL DRAWINGS, SPECIFICATIONS AND COPIES THEREOF FURNISHED BY MCMILLAN PAZDAN SMITH ARCHITECTURE ARE AND SHALL REMAIN THE PROPERTY OF MCMILLAN PAZDAN SMITH ARCHITECTURE. THESE MATERIALS ARE TO BE USED ONLY WITH RESPECT TO THIS PROJECT AND ARE NOT TO BE LOANED, COPIED OR REPRODUCED IN WHOLE OR IN PART WITHOUT THE WRITTEN CONSENT OF MCMILLAN PAZDAN SMITH ARCHITECTURE. ALL REPRODUCTIONS, COPIES OR SUBMITTALS MUST CONTAIN THIS NOTICE AND BE SIGNED BY MCMILLAN PAZDAN SMITH ARCHITECTURE. ALL RIGHTS RESERVED

mcmillan pazdan smith ARCHITECTURE

CONSULTANT LOGO

SEALS

STATE OF SOUTH CAROLINA
McMILLAN PAZDAN SMITH, LLC
GREENVILLE, SC
100573
REGISTERED ARCHITECTS

STATE OF SOUTH CAROLINA
CHRISTOPHER LUDWICK
Spartanburg, SC
No. AR-6717
1-5-21
REGISTERED ARCHITECT

BETHLEHEM CENTER

K4 PROGRAM FACILITY

SPARTANBURG, SC

SHEET ISSUE:

NO.	DATE	DESCRIPTION	BY
A	10/27/20	ISSUE FOR PERMIT	
0	12/18/20	ISSUE FOR PERMIT & CONSTRUCTION	
1	01/04/20	OWNER REQUESTED CHANGES	

PRINCIPAL IN CHARGE: Principal
PROJECT ARCHITECT: Architect
DRAWN BY: Author

SHEET TITLE:
DOOR, WINDOW SCHEDULE

SHEET NO. A800

PROJ. NO.

DUCT CONSTRUCTION NOTES

NOTE *: MOUNT AND REINFORCE DUCT PER SMACNA STANDARDS **& 2015 EDITION OF IMC**.
NOTE *: REFER TO DRAWINGS AND DETAILS FOR APPLICATION. REFER TO ARCH DRAWINGS OR MECHANICAL CONSTRUCTION KEY NOTES FOR CENTERLINE
NOTE *: ROUND ELBOWS IN DUCT SYSTEMS SHALL BE FULL RADIUS (CENTERLINE RADIUS = 1.5 TIMES DUCT WIDTH), WHERE LIMITED CLEARANCE OCCURS, PROVIDE SHORT RADIUS ELBOW WITH FULL-LENGTH SPLITTER VANES PER SMACNA STANDARDS.
NOTE *: SQUARE ELBOWS, TEES AND WYES SHALL BE PROVIDED WITH FULL LENGTH SPLITTER VANES PER SMACNA STANDARDS.
NOTE *: PROVIDE NEOPRENE FLEXIBLE CONNECTIONS AT SUPPLY AND RETURN DUCT CONNECTIONS ON ALL AIR HANDLING EQUIPMENT.
NOTE *: ALL DUCT INSULATION, AND INSTALLATION MATERIALS SHALL HAVE A FLAME SPREAD RATING OF 25 OR LESS AND A SMOKE DEVELOPED RATING OF 50 OR LESS IN ACCORDANCE WITH ASTM E84, AND SHALL COMPLY WITH UL181A & UL181B.

DUCT MATERIAL & INSULATION SCHEDULE

MARK	DUCT MATERIAL SPECIFICATION	INSULATION	CFM / VELOCITY	BUILDING LOCATIONS	NOTES
A	26 GAUGE GALVANIZED SHEET METAL. (MINIMUM).	NOTE (8 OR 9),10	AHU <2000 CFM	INTERIOR, EXTERIOR, CONCEALED	1,4
B	24 GAUGE GALVANIZED SHEET METAL (MINIMUM).	NOTE (8 OR 9),10	AHU >2000 CFM	INTERIOR, EXTERIOR, CONCEALED	2,4
C	ROUND SPIRAL, DUAL WALL, CORRUGATED, PERFORATED STEEL INTERIOR SHELL, PAINT GRADE STEEL.	INTERNAL 1" THICK 1LB./CUFT (MIN) OF R-4	ALL	INTERIOR, EXPOSED	2
D	FLEXIBLE DUCT, METAL FLEX CLASS 1 TYPE 500 AIR DUCT, UL LISTED.	NOTE 5	N/A	INTERIOR, CONCEALED	3,5,6
E	24 GAUGE GALVANIZED SHEET METAL, RECTANGULAR, SINGLE WALL AND INTERIOR LINER.	NOTE 10	N/A	INTERIOR, RETURN, CONCEALED	2
F	FABRIC DUCT (DUCT SOX)	N/A	PER DWGs	INTERIOR, EXPOSED	7
G	DUCT BY AQC INDUSTRIES. RIGID FOAM WITH ALUMINUM SANDWICH LAYERS.	R-12 DOUBLE PANEL 2.5" CLOSED CELL PHENOLIC INSULATION	ALL	EXTERIOR	9,13,14

NOTE 1: SHALL BE FABRICATED IN ACCORDANCE WITH SMACNA STANDARDS FOR 1" W.G. PRESSURE DUCT WORK.
NOTE 2: SHALL BE FABRICATED IN ACCORDANCE WITH SMACNA STANDARDS FOR 2" W.G. PRESSURE DUCT WORK.
NOTE 3: ALL FLEXIBLE DUCTS SHALL BE CONNECTED TO TRUNK TAKE OFFS, BRANCH DUCT TAKE OFFS, SPIRAL DUCT TAKE OFFS, AS WELL AS DIFFUSERS OR GRILLES WITH A MINIMUM OF THREE SHEET METAL SCREWS AT EACH CONNECTION AND A POLYMER TIE BAND AND BE TAPED TO PROVIDE AN AIR-TIGHT SEAL.
NOTE 4: ALL JOINTS IN CONCEALED DUCTWORK WITH MASTIC TYPE DUCT SEALANT TO PROVIDE AN AIRTIGHT SYSTEM PER SMACNA STANDARDS. SEALANTS AND DUCT SEALING SYSTEM SHALL CORRESPOND TO THE DUCT SYSTEM PRESSURE CLASSIFICATION. TAPE IS NOT TO BE UTILIZED AS A DUCT SEALANT. DO NOT USE MASTIC IN FIRE DAMPER INSTALLATIONS UNLESS REQUIRED BY MANUFACTURER'S INSTRUCTIONS. DO NOT USE MASTIC SEALANT ON EXPOSED SPIRAL DUCT WORK.
NOTE 5: 2" THICK EXTERIOR DUCTWORK FIBERGLASS INSULATION (MIN R-8), ENCASED IN A VAPOR BARRIER OF SEAMLESS, NON-COMBUSTIBLE, CO-POLYMER PLASTIC.
NOTE 6: MAXIMUM LENGTH OF FLEXIBLE DUCT SHALL BE 6 FEET.
NOTE 7: EXPOSED FABRIC DUCT SHALL BE INSTALLED IN ACCORDANCE WITH DETAILS AND MANUFACTURER'S LISTING.
NOTE 8: ALL SUPPLY, RETURN, OUTSIDE AIR DUCTS AND PLENUMS W/O INTERIOR LINERS, CONCEALED INSIDE THE BUILDING OR OUTSIDE OF CONDITIONED SPACE, SHALL BE INSULATED EXTERNALLY WITH 2" THICK FIBERGLASS OF MIN. DENSITY 3/4 POUNDS PER CUBIC FOOT (MIN. R VALUE R-8) AND BE COMPLETE WITH VAPOR BARRIER JACKET. EXHAUST DUCT DOES NOT REQUIRE INSULATION UNLESS OTHERWISE NOTED.
NOTE 9: ALL DUCT OR VENTS EXTENDING THROUGH THE EXTERIOR WALLS SHALL BE FLASHED AND COUNTER FLASHED IN A WATERPROOF MANNER AND PROVIDED WITH EXTERNALLY MOUNTED KNAUF FIBER GLASS INSULATION BOARD (6.0LBS. PER CUBIC FOOT) (MIN R-VALUE R-8) OR EQUIV. W/ FINISH OF OUTDOOR WEATHERABLE PVC. ALL JOINTS SHALL BE POSITIONED SO AS TO SHED WATER; W/ A MINIMUM 3" OVERLAP, AND COMPLETELY WEATHER SEALED. COORDINATE EXACT GRILL OR LOUVER LOCATIONS WITH ARCHITECTURAL PLANS, ELEVATIONS & GC.
NOTE 10: ALL RECTANGULAR RETURN AIR DUCTS AND PLENUMS TERMINATING IN A SIDEWALL APPLICATION SHALL INCLUDE INTERIOR LINERS WITH 1.6 LB/CUFT DENSITY, 2" AND R-8 VALUE BY KNAUF (INSULATING BOARD WITH ECOSE OR APPROVED EQUAL) FOR FIRST 12'-0" OF RETURN DUCT FROM REGISTER. LINER SHALL INCLUDE SMOOTH INTERIOR SURFACE. LINER SHALL EXTEND A MINIMUM OF THE FIRST 20 FEET OF RETURN DUCT FOLLOWING RETURN PLENUM FOR SOUND ATTENUATION.
NOTE 13: SHALL BE FABRICATED IN ACCORDANCE WITH SMACNA STANDARDS FOR 3" W.G. PRESSURE DUCT WORK.
NOTE 14: CLOSED CELL PHEMOLIC RIGID FOAM & SANDWICH LAYERS OF ALUMINUM. INCLUDE SLOPED ROOF UNISTRUT ROOF SUPPORT MOUNTS WITH WIND BRACING AS REQUIRED. MC MAY PROVIDE ALTERNATE OUTDOOR DUCTWORK AND INSULATION OPTION WITH SUBMITTAL FOR REVIEW.

ENERGY REQUIREMENTS FOR

Bethlehem Center K4

Spartanburg, South Carolina

CLIMATE ZONE 3A

THE PROJECT ARCHITECT HAS DESIGNED THE FACILITY'S THERMAL ENVELOPE TO ADHERE TO THE ASHRAE 90.1-2007 PRESCRIPTIVE METHOD OF COMPLIANCE.

MINIMUM BUILDING ENVELOPE REQUIREMENTS

ELEMENT	TYPE	VALUE	
SKYLIGHTS	N/A	N/A	
SLAB OR BELOW GRADE WALL	N/A	0	
WINDOWS AND GLASS DOORS	PF < 0.25	SHGC: 0.33	U-0.65
ROOF ASSEMBLIES	ATTIC	38	
FLOORS ABV GRADE	UNHEATED SLAB	NULL	
ABOVE GRADE WALLS	MASSONRY	7.6	

NOTE: REFER TO ARCHITECTURAL PLANS FOR EXACT APPLICATION METHODS FOR ABOVE LISTED MINIMUM REQUIRED INSULATION TYPES AND VALUES.
NOTE: ARCHITECTIGC TO PROVIDE UPGRADEED ATTIC INSULATION TO MINIMUM SHOWN.

MECHANICAL SYSTEMS AND EQUIPMENT:

BUILDING DESIGN CONDITIONS-ASHRAE STANDARDS		WINTER	SUMMER
DRY BULB	INDOOR °F	70	74
	OUTDOOR °F	18	94
WET BULB	INDOOR °F	--	64
	OUTDOOR °F	--	78
BUILDING HEATING LOAD MBH		109	--
BUILDING COOLING MBH *		--	119

NOTE 1. PLEASE REFER TO EQUIPMENT SCHEDULES FOR FURTHER INFORMATION & EFFICIENCIES.
NOTE 2. * LOADS ARE INDICATED FOR OCCUPIED FINISHED CONDITIONED SPACES.

AIR QUALITY EQUIPMENT SCHEDULE

MARK	SERVICE	(EXT.) AIRFLOW	MIN ION DENSITY (IONS/CC)	PRESSURE DROP (IN WG)	BRANCH CIRCUIT ELEC CHAR 60 HZ	BRANCH CIRCUIT MIN CIR AMPS	DESIGN BASED ON MANUFACTURER	DESIGN BASED ON MODEL	REMARKS
AQ-1A &1B	PKG-1&2	–	200 MILLION	0.05	MVOLT	1	GLOBAL PLASMA SOLUTIONS	GPS-FC48-AC	1,2,3,4

NOTE 1: BI-POLAR ION GENERATOR TO INCLUDE INTEGRAL SELF CLEANING SYSTEM.
NOTE 2: MC TO INSTALL DEVICE IN AIRSTREAM PER MANUFACTURER'S INSTRUCTIONS.
NOTE 3: BI-POLAR IONIZATION SYSTEMS REQUIRING PERISHABLE GLASS TUBES ARE NOT ACCEPTABLE.
NOTE 4: UNIT TO BE MULTI-VOLT FOR CONNECTION TO UNIT'S MAIN POWER SUPPLY. MC TO PROVIDE ELECTRICAL SUB-CONTRACTOR FOR POWER SUPPLY INSTALLATION.

GENERAL NOTES (MECHANICAL)

A THE MECHANICAL DRAWINGS ARE DIAGRAMMATIC, DETERMINE EXACT LOCATIONS OF SYSTEM COMPONENTS IN THE FIELD. REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS. REFER TO ARCHITECTURAL ELEVATIONS FOR COMPLETE UNDERSTANDING OF SYSTEMS AND STRUCTURAL COORDINATION. REFER TO MANUFACTURER'S CERTIFIED DRAWINGS FOR EQUIPMENT DIMENSIONS.

B THE MECHANICAL CONTRACTOR IS RESPONSIBLE TO REVIEW ALL DRAWINGS (INCLUDING ARCHITECTURAL & STRUCTURAL) TO BECOME FAMILIAR WITH THE DESIGN INTENT AND SPECIFICS OF THE SYSTEMS TO BE INSTALLED AND THEIR INTEGRATION INTO THE NEW OR RENOVATED FACILITY. MC SHALL VISIT PROJECT SITE TO VERIFY EXISTING CONDITIONS PRIOR TO PLACING A BID.

C ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND AS SPECIFIED OR SHALL BE A VERIFABLE EQUIVALENT. MC SHALL VERIFY CORRECTNESS AND ACCURACY OF MODEL NUMBERS SPECIFIED FOR SUITABILITY TO ACCOMPLISH DESIGN INTENT AS OUTLINED IN NOTE B ABOVE, WITH MANUFACTURER'S REPRESENTATIVES BEFORE PURCHASE OR INSTALLATION OF EQUIPMENT.

D ALL WORK SHALL BE PERFORMED BY A SOUTH CAROLINA LICENSED MECHANICAL CONTRACTOR (MC) UTILIZING EXPERIENCED MECHANICS. ALL SYSTEMS SHALL BE COMPLETE AND OPERATIONAL COMPLYING WITH DESIGN DOCUMENTS. ALL WORK TO COMPLY WITH THE ICC 2018 INTERNATIONAL SERIES OF CODES WITH STATE AMENDMENTS INCLUDING THE MECHANICAL BUILDING, FUEL GAS, FIRE AND ENERGY CONSERVATION CODES AS WELL AS APPLICABLE NFPA REQUIREMENTS. MC SHALL ALSO BE RESPONSIBLE FOR COORDINATING WITH LOCAL JURISDICTION HAVING AUTHORITY TO DETERMINE IF ADDITIONAL REQUIREMENTS MAY APPLY.

E MECHANICAL CONTRACTOR (MC) SHALL PAY ALL FEES REQUIRED FOR PERMITS, LICENSES AND UTILITY CONNECTIONS FOR THE COMPLETION OF THE WORK ASSOCIATED WITH THE DESIGN DOCUMENTS.

F MC TO VERIFY AND COMPLY WITH ALL EQUIPMENT CONNECTIONS, DETAILS AND INSTALLATION PROCEDURES WITH MANUFACTURER'S CERTIFIED DRAWINGS. THE MC MUST COMMUNICATE TO THE ENGINEER, ARCHITECT, OWNER ANY COORDINATION DISCREPANCY BETWEEN THE DESIGN DOCUMENTS AND THE MANUFACTURER'S EQUIPMENT BEFORE PURCHASE OR INSTALLATION. CONFIRM APPLICABILITY OF EQUIPMENT WITH THE MANUFACTURER'S REPRESENTATIVES. ANY WORK REQUIRING REMOVAL AND RE-INSTALLATION DUE TO LACK OF COORDINATION SHALL BE THE RESPONSIBILITY OF THE CONTRACTORS WITH NO ADDITIONAL COST TO THE ENGINEER, ARCHITECT OR OWNER.

G IT IS THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR (MC) TO VERIFY ALL CLEARANCES AND COORDINATE WITH OTHER DISCIPLINES BEFORE PURCHASING OR INSTALLING ANY EQUIPMENT, INSTALLING ANY PIPING, OR FABRICATING AND INSTALLING ANY DUCTWORK. ALL AREAS, SYSTEMS AND FINISHES DISTURBED BY COMPLETING THE WORK TO BE RESTORED TO THE SATISFACTION OF THE ARCHITECT, ENGINEER AND OWNER. NOTIFY GC AND ENGINEER OF ANY POTENTIAL INTERFERENCE OR OMISSION PRIOR TO PURCHASING OR INSTALLING ANY EQUIPMENT OR DEVICES. ANY WORK REQUIRING REMOVAL AND RE-INSTALLATION DUE TO LACK OF COORDINATION SHALL BE THE RESPONSIBILITY OF THE CONTRACTORS WITH NO ADDITIONAL COST TO THE ENGINEER, ARCHITECT OR OWNER.

H INSTALL AND MAKE ALL NECESSARY CONNECTIONS REQUIRED FOR THE COMPLETE SUPPLY, RECIRCULATION, OUTSIDE AIR, AND EXHAUST SYSTEMS INDICATED ON THE DRAWINGS, DETAILS AND SPECIFICATIONS INCLUDING ALL DUCTWORK, GRILLE COLLARS, DAMPERS, ACTUATORS, CONTROL WIRING, INTAKE HOUSING, FILTER BOXES, FILTERS, CONNECTIONS, FASTENERS, HANGERS, SEISMIC & CABLE RESTRAINTS, SEISMIC & VIBRATION ISOLATORS, SUPPORTS, STANDS, EQUIPMENT PADS, PIPING, INSULATION, AND OTHER ITEMS REQUIRED.

I WHEREVER STRUCTURAL OBSTRUCTIONS REQUIRE A CHANGE IN DUCT SHAPE MAINTAIN THE EQUIVALENT AREAS (NOT TO EXCEED A 4 TO 1 RATIO), ALL DUCT AND PIPE SIZES SHOWN ON THE DRAWINGS ARE INSIDE FREE AREA DIMENSIONS.

J COORDINATE EXACT LOCATION OF ALL CEILING DIFFUSERS, GRILLES AND EXHAUST FANS WITH ARCHITECTURAL REFLECTED CEILING PLANS, LIGHTING LAYOUT, ELECTRICAL CONTRACTOR (EC) AND GENERAL CONTRACTOR (GC).

K COORDINATE ALL ELECTRICAL EQUIPMENT WITH ELECTRICAL CONTRACTOR. THE MC SHALL PROVIDE ALL CONTROL WIRING, DEVICES, RELAYS AND CONTACTORS FOR EQUIPMENT UNDER 50 VOLTS FOR THE COMPLETION OF THE WORK. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL POWER WIRING. ALL LOW VOLTAGE ELECTRICAL WORK SHALL CONFORM TO THE NATIONAL ELECTRIC CODE SECTIONS **720 & 725**, 2017 EDITION AND ANY OTHER APPLICABLE SECTIONS. MECHANICAL CONTRACTOR'S CONTROL VENDOR WILL COORDINATE REQUIRED LOCATIONS FOR TELEPHONE CONNECTIONS WHICH ARE TO BE SUPPLIED BY OTHERS. DUCTWORK & EQUIPMENT SHALL NOT OBSTRUCT OR BE INSTALLED ABOVE ELECTRICAL PANELS. PIPING SHALL NOT BE INSTALLED ABOVE ELECTRICAL PANELS. ALL ELECTRICAL EQUIPMENT SHALL BE U.L. LISTED & APPROVED. ALL CONTROL SYSTEMS TO COMPLY WITH UL 916. NOTIFY ENGINEER OF ANY POTENTIAL INTERFERENCE OR OMISSION PRIOR TO PURCHASING OR INSTALLING ANY EQUIPMENT OR DEVICES. MC SHALL ENSURE COMPLETE INSTALLATION WIRING FOR MECHANICAL EQUIPMENT OPERATION. EC SHALL PROVIDE POWER WIRING FROM NEC DISCONNECT TO EQUIPMENT. POWER WIRING BETWEEN EQUIPMENT BY MC BY LICENSED ELECTRICIAN PER NEC 2017.

L MECHANICAL CONTRACTOR (MC) SHALL PROVIDE TWO COMPLETE SETS OF MAINTENANCE, INSTALLATION, OPERATING INSTRUCTIONS, AND DIAGRAMS BOUND IN HEAVY-DUTY COVERS AND SHALL BE AVAILABLE AT JOBSITE FOR FINAL INSPECTION. MC TO COORDINATE OTHER CLOSEOUT DOCUMENTS WITH THE ARCHITECT'S SPECIFICATIONS. MC SHALL INSTALL NEW MANUFACTURERS RECOMMENDED AIR FILTERS OR AIR FILTERS REQUIRED BY THE DESIGN DOCUMENTS IN ALL HVAC EQUIPMENT AND SUPPLY AN ADDITIONAL COMPLETE SET OF AIR FILTERS TO OWNER UPON PROJECT COMPLETION. MC SHALL PROVIDE THREE HOURS OF TRAINING TO THE OWNER COVERING SYSTEM OPERATION, CONTROL AND MAINTENANCE FOLLOWING BUILDING COMMISSIONING, FINAL PUNCH OBSERVATION AND FINAL TEST AND BALANCE. ALL EQUIPMENT, FILTERS AND DUCTWORK TO BE CLEANED UPON COMPLETION OF PROJECT.

M THE MECHANICAL CONTRACTOR SHALL GUARANTEE ALL EQUIPMENT, CONTROLS, MATERIALS AND WORKMANSHIP PERFORMED ON THIS PROJECT FOR ONE YEAR FROM DATE OF SUBSTANTIAL COMPLETION. COMPRESSORS FOR AIR CONDITIONING EQUIPMENT SHALL HAVE A MINIMUM 5 YEAR PARTS AND LABOR WARRANTY. ANY PORTION OF THE WORK PROVING DEFECTIVE DURING THE ONE YEAR GUARANTEE PERIOD SHALL BE REPAIRED OR REPLACED BY THE MECHANICAL CONTRACTOR. ACCEPTANCE OF REPAIRS AND REPLACEMENTS SHALL BE SUBJECT TO THE APPROVAL OF THE OWNER OR HIS REPRESENTATIVES.

N AS DESIGNED BY THE ARCHITECT THIS PROJECT DOES NOT HAVE FIRE RATED DUCT PENETRATIONS OR PIPING PENETRATIONS. REFER TO ARCHITECTURAL PLANS & LIFE SAFETY PLANS FOR EXACT WALL AND CEILING FIRE RATINGS.

O THE SPLIT SYSTEM AIR CONDITIONING AND HEAT PUMP UNITS AND AIR HANDLERS SHALL BE SUBJECT TO REQUIREMENTS OF THE DESIGN DOCUMENTS INCLUDING THE GENERAL NOTES AND SHALL BE RATED IN ACCORDANCE WITH ARI STANDARD 210/240 OR 340/360.

P R-410A IS SPECIFIED AS THE REFRIGERANTS FOR ALL AIR CONDITIONING EQUIPMENT. OTHER REFRIGERANT ALTERNATIVES ARE ACCEPTABLE WITH PRE-APPROVAL OF THE OWNER AND PROJECT DESIGN TEAM.

Q CONDENSING UNIT OR HEAT PUMP MANUFACTURER TO SUPPLY ALL REQUIRED REFRIGERANT SPECIALTIES SUITED FOR THE SPECIFIED OR ALTERNATE EQUIPMENT AND THE DESIGNED INSTALLATION CONDITIONS INCLUDING REFRIGERANT SYSTEM PIPING DISTANCES AND ELEVATION CHANGES. INSTALL AND MOUNT ALL REFRIGERANT LINES ACCORDING TO MANUFACTURER'S LISTING AS REQUIRED FOR PIPING DISTANCES, ELEVATIONS, AND MOUNTING.

R MECHANICAL CONTRACTOR (MC) TO PROVIDE CONCRETE OR POLYMER SUPPORT OR HOUSEKEEPING PADS FOR ALL GROUND MOUNTED CONDENSING UNITS (CU) OR HEAT PUMPS (HP). PADS TO BE MINIMUM OF 4" LARGER THAN EQUIPMENT.

S MECHANICAL CONTRACTOR (MC) TO PROVIDE AND INSTALL SEISMIC & VIBRATION RESTRAINTS FOR ALL AIR HANDLING UNITS (AHU) PER ATTACHED SCHEDULE AND SPECIFICATION REQUIREMENTS. REVIEW STRUCTURAL PLANS FOR PROPER MOUNTING PLATFORMS AND HANGER LOCATIONS.

T MC SHALL ENSURE THAT ALL SUPPLY REGISTERS AND RETURN GRILLES ARE SIZED FOR THE NECK TO MATCH THE ATTACHING DUCT. GRILLES AND REGISTERS TO BE AS SPECIFIED OR VERIFIABLE EQUAL. REFER TO GENERAL NOTES ABOVE REGARDING REFERENCES IN THESE DRAWINGS TO MODEL NUMBERS. REGISTERS AND GRILLS WILL ALSO BE CHOSEN AND SIZED TO ENSURE THAT THE NOISE LEVELS (NC) ARE NEGLIGIBLE (BELOW 30) ACCORDING TO THE MANUFACTURER'S TESTED AND PUBLISHED DATA.

U FURNISH ALL AIR CONDITIONING EQUIPMENT WITH MATCHING 7 DAY PROGRAMMABLE ELECTRONIC THERMOSTATS ACCORDING TO SPECIFICATIONS WITH 3 HOUR OVERRIDE AS INDICATED AND REQUIRED BY IECC 2009 SECTION 503.2.4.3.2. HONEYWELL, OR APPROVED EQUIVALENT. DUAL REFRIGERANT CIRCUIT EQUIPMENT SHALL BE CAPABLE OF INDIVIDUAL TEMPERATURE, SET POINTS, AND CONDENSING UNIT (OR HEAT PUMP) OPERATION. COORDINATE EXACT THERMOSTAT, SENSOR AND CONTROL DEVISE LOCATIONS WITH DRAWINGS, ADA REQUIREMENTS, FIELD CONDITIONS, SEQUENCE OF OPERATIONS, AND ARCHITECT / OWNER.

V RESTROOM EXHAUST FAN OUTLETS TO HAVE FLEXIBLE DUCT CONNECTIONS. RESTROOM EXHAUST SYSTEMS TO BE MOUNTED TO STRUCTURE USING VIBRATION & SEISMIC ISOLATORS AS SPECIFIED. INTERLOCK EXHAUST SYSTEMS WITH RESTROOM LIGHTS.

W MECHANICAL CONTRACTOR TO INSTALL LOW VOLTAGE WIRING FROM EACH HVAC FAN TO THE FIRE ALARM CONTROL PANEL RELAY INSTALLED AND PROVIDED BY THE EC TO ENABLE HVAC EQUIPMENT WITH AUTOMATIC FAN SHUTDOWN CONTROL IN THE EVENT OF THE BUILDING FIRE ALARM OR AREA SMOKE DETECTOR ACTIVATION, PER ICC MECHANICAL CODE 606.2.1 EXCEPTION 1, AND 606.4.1. FOR ALL AIR HANDLING UNITS (AHU) AREA SMOKE DETECTORS SHUT DOWN OF HVAC EQUIPMENT SHALL BE INTEGRATED INTO THE BUILDING FIRE ALARM SYSTEMS. MC IS RESPONSIBLE TO COORDINATE WITH EC, FIRE ALARM SUBCONTRACTOR, GC, FIRE MARSHAL AND LOCAL BUILDING OFFICIALS.

X MECHANICAL CONTRACTOR SHALL BALANCE H.V.A.C. SYSTEM TO AIR QUANTITIES INDICATED ON DRAWINGS. MC SHALL PROVIDE A SIGNED, SELF-GENERATED TEST AND BALANCE REPORT ON ITS COMPANY LETTERHEAD. THIS INTERNALLY PRODUCED REPORT SHALL PROVIDE A COMPARISON OF DESIGN AIR QUANTITIES AND FINAL AS BUILT AIR QUANTITIES WITH DIAGRAMS. MC MAY BE ASKED TO RETEST AND SPOT VERIFY OR ADJUST THESE FINDINGS DURING THE FIRST YEAR OF THE BUILDINGS OPERATION AT THE OWNERS REQUEST AND THE MC'S EXPENSE, AS AN ALTERNATE TO THE SELF GENERATED TEST, MC MAY PROVIDE A TEST AND BALANCE REPORT FROM A CERTIFIED TEST AND BALANCE SUBCONTRACTOR. THIS REPORT SHOULD BE SUPPLIED TO THE ENGINEER PRIOR TO THE FINAL SITE OBSERVATION MEETING. PERMANENTLY MARK CORRECT SETTINGS ON ALL BALANCING DAMPERS. PROVIDE INSTRUMENT TEST HOLES IN EACH SUPPLY, RETURN AND OUTSIDE AIR DUCT.

Y HVAC SYSTEMS SHALL NOT BE OPERATED DURING HEAVY CONSTRUCTION INCLUDING CYPSUM WALL OR ANY ACTIVITIES CREATING AIRBORNE PARTICLES OR DEBRIS. ALL SYSTEMS SHALL BE PROTECTED WITH COVERS OR FILM TO BE KEPT CLEAN FROM CONSTRUCTION DEBRIS, DIRT AND DUST. MC SHALL PERFORM UNIT/COIL/DUCT CLEANING IF REQUIRED. ANY EQUIPMENT OPERATING DURING CONSTRUCTION SHALL USE FINAL FILTER MEDIA.

Z MC TO PROVIDE ALL GAS PIPING FOR HVAC EQUIPMENT, COMPLETE WITH ALL REQUIRED FITTINGS, STRAPS, HANGERS, SUPPORTS AND OTHER ITEMS REQUIRED. MC TO OBTAIN ALL REQUIRED INSPECTIONS AND APPROVALS. ALL GAS PIPING INTERIOR TO THE BUILDING SHALL BE SCHEDULE 40 BLACK IRON AND SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF NFPA, ICC 2018 FUEL GAS CODE AND ANY APPLICABLE STATE OR LOCAL CODES.

AA MC SHALL COORDINATE INSTALLATION OF NEW GAS METER WITH LOCAL GAS COMPANY AND GENERAL CONTRACTOR. DETERMINE LOCAL GAS COMPANY REQUIREMENTS PRIOR TO INSTALLATION. REFER TO CIVIL / SITE DRAWINGS FOR UTILITY GAS PIPING ROUTING AND LOCATIONS.

BB MC TO MAKE FINAL CONNECTION TO ALL GAS FIRED HEATING EQUIPMENT; PROVIDE MEDIUM PRESSURE REGULATOR(S), OVER PRESSURE DEVICE(S), GAS SHUT OFF VALVE(S), DUAL DIRT LEGS AT EACH CONNECTION, UNION AND FLEXIBLE CONNECTOR TO FINAL EQUIPMENT. ALL GAS PIPING FINAL CONNECTION DEVICES TO BE PROPERLY SUPPORTED FROM STRUCTURE/FLOOR. PER IFGC SECTION 140.

CC INSTALL GAS APPLIANCE VENTING SYSTEMS IN STRICT ACCORDANCE WITH THE MANUFACTURER'S LISTING – INCLUDING PROPER SIZE AND CONFIGURATION. UTILIZE MANUFACTURE'S VENTING ACCESSORIES. ADHERE TO ALL HORIZONTAL AND/OR VERTICAL LENGTH AND HEIGHT LIMITATIONS, MIN. CLEARANCES TO COMBUSTIBLES, OR SPECIFICATIONS FOR USE OF ELBOWS, TEES, & DRAIN TEES. DO NOT CONNECT MULTIPLE CATEGORY II, III, OR IV APPLIANCES INTO THE SAME VENT SYSTEM OR COMBINE WITH ANY CATEGORY I (NATURAL DRAFT) APPLIANCE. ADHERE TO REQUIREMENTS OF THE ICC 2018 MECHANICAL CODE AND FUEL GAS CODE AND IN ACCORDANCE WITH NFPA 54 OR NFPA 211. CONFIRM ROOF OR SIDEWALL VENTING PENETRATION LOCATIONS WITH THE ARCHITECT'S PLANS AND THE GC.

EXHAUST FAN SCHEDULE

MARK	SERVICE	TYPE	FAN DATA MIN AIR VOL CFM	FAN DATA STATIC PRESS. WG	FAN DATA RPM	MOTOR DATA FLA	MOTOR DATA RPM	MOTOR DATA ELEC CHAR 60 Hz	DESIGN BASED ON MANUFACTURER	DESIGN BASED ON MODEL	REMARKS
EF-1	–	CEILING MOUNTED	100	0.5	950	1.14	950	115v/1ø	GREENHECK	SP-B110	1,2,4
EF-2	–	CEILING MOUNTED	150	0.625	1050	1.7	1050	115v/1ø	GREENHECK	SP-B150	1,2,3

NOTE 1: INCLUDE MANUFACTURER'S FACTORY MOUNTED MATCHING SPEED CONTROLLER MOUNTED ABOVE IN ACCESSIBLE LOCATION FOR SYSTEM BALANCING.
NOTE 2: MOUNT FAN TO STRUCTURE UTILIZING VIBRATION SOLATORS AS SPECIFIED.
NOTE 3: FAN TO BE SWITCHED SEPARATELY FROM LIGHTS WITH MOTOR RATED SWITCH 54" AFF.
NOTE 4: FAN IN RESTROOMS TO BE SWICHED BY LIGHTING CIRCUIT OCCUPANCY SENSOR.

PACKAGE HORIZONTAL AIR CONDITIONER SCHEDULE (NATURAL GAS)

MARK	SERVICE	SUPPLY FAN TOTAL CFM	SUPPLY FAN OA CFM	SUPPLY FAN MAX BHP	SUPPLY FAN FAN HP	EVAPORATOR COIL TOTAL MBH	EVAPORATOR COIL SENS MBH	EVAPORATOR COIL ENT AIR °F DB	EVAPORATOR COIL ENT AIR °F WB	EVAPORATOR COIL LVG AIR °F DB	EVAPORATOR COIL LVG AIR °F WB	EVAPORATOR COIL MAX VEL FPM	COMPRESSOR NO. COMP	COMPRESSOR FLA (EA)	COMPRESSOR LRA (EA)	COMPRESSOR HP (EA)	COMPRESSOR MAX RPM	CONDENSER NO. MTRS	CONDENSER FLA (EA)	CONDENSER LRA (EA)	CONDENSER DESIGN AMB °F	CONDENSER OPERATE AMB °F	HEATING GAS INPUT MPH	HEATING GAS OUTPUT MBH	HEATING GAS STAGES	BRANCH CIRCUIT ELEC CHAR 60HZ	BRANCH CIRCUIT MIN CIRCUIT AMPS	BRANCH CIRCUIT MAX OCP AMPS	WEIGHT LBS.	EFFICIENCY COOLING	EFFICIENCY HEATING	DESIGN BASED ON MANUFACTURER	DESIGN BASED ON MODEL	REMARKS
PKG-1	101,107-111	1460	260	0.6	.75	48	32	–	–	–	–	–	1	20	99	–	3150	1	1.7	–	95	40	65	52	1	208v1ø	33	50	700	14 SEER	81 AFUE	ALLIED	KGB048S4ES1P	ALL NOTES
PKG-2	102-106,112	2100	420	0.8	1	60	43	–	–	–	–	–	1	22	125	–	3500	1	1.7	–	95	40	65	52	1	208v1ø	37	60	800	14 SEER	81 AFUE	ALLIED	KGB060S4ES1P	ALL NOTES

NOTE 1: MC TO PLACE CONDENSATE IN STORM DRAIN. STORM DRAIN ENTRANCE TO BE PROVIDED BY GC.
NOTE 2: PACKAGE UNITS TO INCLUDE HIGH PRESSURE CUTOUT SENSOR AND ANTI-SHORT CYCLE TIMER.
NOTE 3: PACKAGE UNITS TO INCLUDE LOW AMBIENT COOLING ACCESSORIES.
NOTE 4: UNIT TO INCLUDE MOTORIZED MULTI-POSITION OUTDOOR AIR DAMPER. SEE SEQUENCE OF OPERATION.
NOTE 5: HORIZONTAL DISCHARGE ORIENTATION.
NOTE 6: MC TO CONFIRM EQUIPMENT MOCP WITH EC BEFORE PURCHASE OF EQUIPMENT. MC TO SEE SEQUENCE OF OPERATION FOR REQUIREMENTS TO OPERATE OUTSIDE AIR DAMPERS INDEPENDENT OF SYSTEM FAN.

** REFER TO GENERAL NOTES A, C & F FOR APPLICABILITY & LIMITATIONS OF LISTED MODEL NUMBERS.

EQUIPMENT SEISMIC & VIBRATION ISOLATION SCHEDULE

EQUIPMENT	SIZE & MOUNTING TYPE	CRITICAL (35'-50' SPAN) ISOLATOR/ RESTRAINT TYPE(S)	CRITICAL MINIMUM DEFLECTION (IN.)	NOTES	UPPER STORY (20'-35' SPAN) ISOLATOR/ RESTRAINT TYPE(S)	UPPER STORY MINIMUM DEFLECTION (IN.)	NOTES	GRADE ISOLATOR/ RESTRAINT TYPE(S)	GRADE MINIMUM DEFLECTION (IN.)	NOTES
AIR HANDLING UNITS & ENERGY RECOVERY UNITS	FLOOR / ROOF MOUNTED TO 2 HP	7 OR 8	1.0	2	7 OR 8	0.5	2	1 & 9 OR 10	0.25	2
	FLOOR / ROOF MOUNTED 2 TO 15 HP	7 OR 8	1.5	2	7 OR 8	0.75	2	7 OR 8	0.75	2
	SUSPENDED TO 15 Hp	2	1.75	1	2	1.0	1	2	.075	1
CABINET & UTILITY FANS	FLOOR / ROOF MOUNTED TO 2 HP	7	1.5	2	7	0.75	2	1 & 9 OR 10	0.25	2
	FLOOR / ROOF MOUNTED 2 TO 15 HP	7	1.5	2	7	0.75	2	7	0.75	2
	SUSPENDED INLINE ALL SIZES	2	1.75	1	2	1.0	1	2	0.75	1
PUMPS	FLOOR MOUNTED 1/4 TO 15 HP	7 OR 8	0.75	

LEGEND

ABBREVIATIONS DESCRIPTIONS

AAV	AIR ADMITTANCE VALVE
AHU	AIR HANDLING UNIT
AFF	ABOVE FINISHED FLOOR
BFF	BELOW FINISHED FLOOR
BG	BELOW GRADE
CFM	CUBIC FEET PER MINUTE
CO	CLEAN OUT
COND	CONDENSATE
CONN.	CONNECTION
CONTR	CONTRACTOR
CU	CONDENSING UNIT
DN	DOWN
DEG. or °	DEGREE
DIFF. or Δ	DIFFERENCE OR DELTA
Dia OR ø	DIAMETER
DWG.	DRAWING
EA	EXHAUST AIR
ED	EQUIPMENT DRAIN
EF	EXHAUST FAN
EL.	ELEVATION
ESP	EXTERNAL STATIC PRESSURE (IN. WG.)
EUH	ELECTRIC UNIT HEATER
EXT	EXISTING
FCO	FLOOR CLEAN OUT
FD	FIRE DAMPER
F.F. ELEV.	FINISHED FLOOR ELEVATION
FP	FIRE PROTECTION
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
GAL	GALLONS
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
HD	HEAD
HP	HORSEPOWER
HSW	HIGH SIDE WALL
ID	INSIDE DIAMETER
KES	KITCHEN EXHAUST SYSTEM
KSF	KITCHEN SUPPLY FAN
LSW	LOW SIDE WALL
NO	NUMBER
NPT	NOMINAL PIPE THREAD
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OD	OUTSIDE DIAMETER
R	THERMAL RESISTANCE
RA	RETURN AIR
RAFG	RETURN AIR FILTER GRILL
RH	RELATIVE HUMIDITY
RTU	ROOF TOP UNIT
SA	SUPPLY AIR
SAN	SANITARY SEWER
SD	SMOKE DETECTOR
SS	SANITARY SEWER
SP	STATIC PRESSURE
SPEC	SPECIFICATION
ST	STORM SEWER (OR CONDENSATE)
TYP	TYPICAL
V	VENT
VAV	VARIABLE AIR VOLUME

PIPE LABELS, FITTINGS, & VALVES

COND	CONDENSATE LINE (COND)
CW	COLD WATER LINE (DOMESTIC)
CWS	CHILLED WATER SUPPLY LINE
CWR	CHILLED WATER RETURN LINE
F	FIRE PROTECTION WATER SUPPLY (F)
HW	HOT WATER LINE (DOMESTIC)
HWS	HOT WATER RETURN LINE
HWR	HOT WATER RETURN LINE
NG	NATURAL GAS LINE (NG)
SAN	SANITARY WASTE LINE (SAN,SS)
SD	STORM DRAIN, RAINWATER DRAIN (SD,ST)
	RISER DOWN (ELBOW)
	RISER UP (ELBOW)
	RISER OR DROP
	BRANCH–TOP CONNECTION
	BRANCH–BOTTOM CONNECTION
	CAP ON END OF PIPE
	ELBOW
	TEE
	UNION
	STRAINER
CKV	GAS COCK, GAS STOP
	PLUG VALVE (PV)
	STRAINER

DUCT WORK

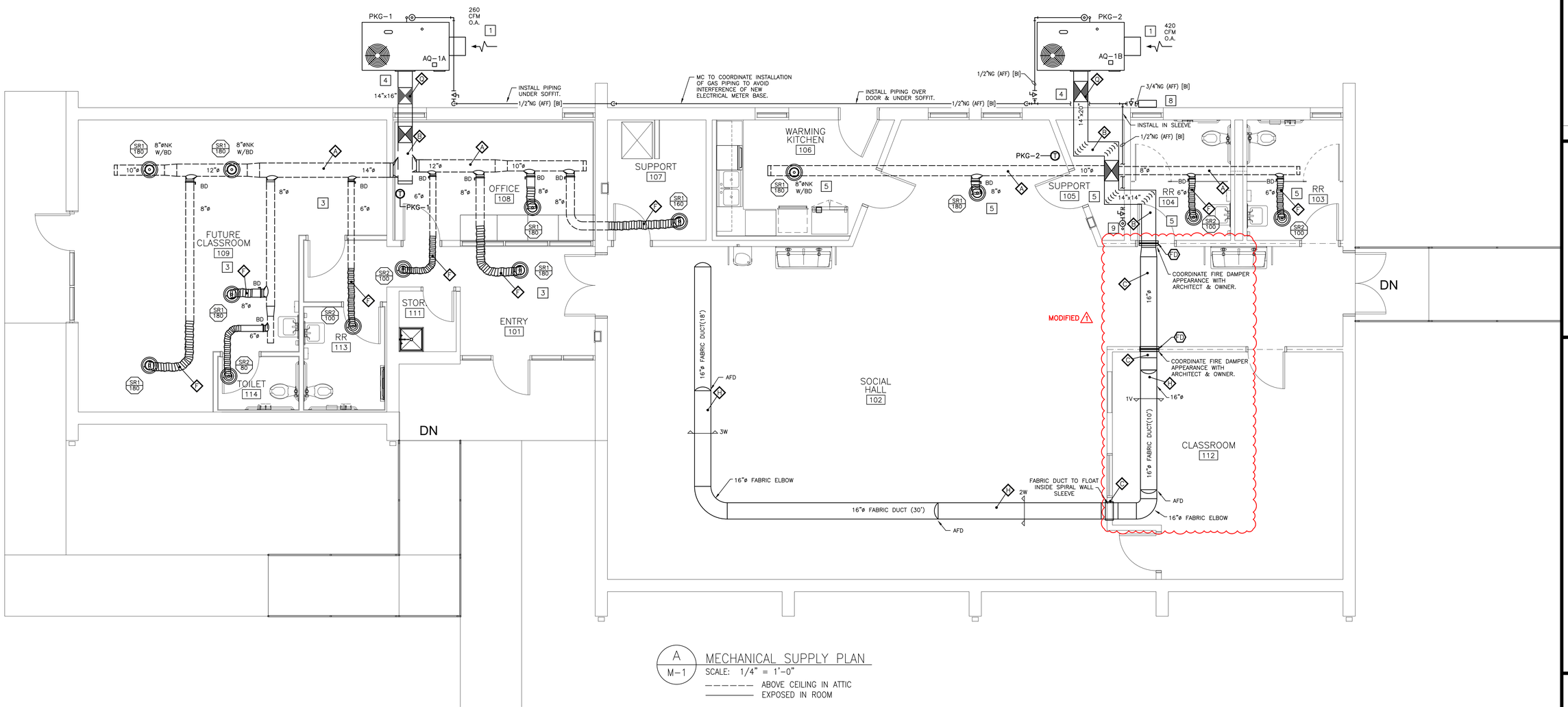
SUPPLY AIR DUCT UP
SUPPLY AIR DUCT DOWN
EXHAUST/RETURN/OUTSIDE AIR UP
EXHAUST/RETURN/OUTSIDE AIR DOWN
CEILING SUPPLY DIFFUSER
CEILING RETURN DIFFUSER
EXHAUST / SUPPLY FAN
SIDEWALL AIR DIFFUSER / DOOR GRILLE
HORIZONTAL DUCT WORK
RECT. TO ROUND DUCT SIZE TRANSITION
DUCT SIZE TRANSITION
TRANSITION AND FLEXIBLE DUCT
BOOT WITH BALANCING DAMPER
AIR DEVICE TAG/ CFM

SYMBOLS

FD	FIRE DAMPER
	FIRE PENETRATION. DETAIL NUMBER REFERENCE
FSD	COMBINATION FIRE & SMOKE DAMPER
ZD	ZONE DAMPER
#	INDICATES KEY NOTES
CP	CONDENSATE PUMP – LITTLE GIANT
MD	MOTORIZED BALANCING DAMPER
SD	SMOKE DETECTOR w/ FAN SHUTDOWN
	DUCT CONSTRUCTION TYPE
T S D C	THERMOSTAT/SENSOR – "C" STEEL COVER.
	AIRFLOW ARROW
FD	FLOOR DRAIN SQUARE STRAINER (FD)
ED	EQUIPMENT DRAIN (ED)
	POINT OF CONNECTION
UNIT F SF	LOW VOLTAGE SMOKE DETECTOR ANNUNCIATOR

MECHANICAL KEY NOTES

1. OUTDOOR AIR VENTILATION IS DESIGNED IN COMPLIANCE WITH IMC 2018 CHAPTER 4 AND ASHRAE 62.4–2014.
2. MOUNTING HEIGHT OF BOTTOM OF RETURN REGISTER TO BE 1'–0" AFF.
3. MC TO GET PERMISSION FROM GC FOR EACH CEILING PENETRATION TO AVOID DISTURBING EXISTING ASBESTOS DRYWALL MUD.
4. GC TO SUPPLY OPENING FOR DUCTWORK AS REQUIRED. COORDINATE WITH SITE CONDITIONS AND MC.
5. MC TO UTILIZE EXISTING OPENINGS IN GYPSUM CEILING FOR PENETRATIONS. COORDINATE WITH GC.
6. MC TO COORDINATE FINAL PLENUM SIZE WITH SITE CONDITIONS. MOUNT AT 8" AFF. COORDINATE WITH ARCHITECT FOR FUR OUT REQUIREMENTS.
7. RETURN AIR PLENUM TO BE SIZED FOR RETURN GRILLE PLUS 2" EACH SIDE AND MINIMUM 12" DEEP. COORDINATE WITH SITE CONDITIONS.
8. MC TO INSTALL NEW 2LB 500 CUFT/HR GAS METER. COORDINATE WITH GAS UTILITY FOR FINAL LOCATION REQUIREMENTS.
9. MC TO MAKE FINAL CONNECTION TO EXISTING GAS WATER HEATER. MC TO PROVIDE REGULATOR, DIRT LEGS & ALL REQUIRED FITTINGS TO MAKE FINAL CONNECTION TO GAS WATER HEATER.



A / M–1 MECHANICAL SUPPLY PLAN

SCALE: 1/4" = 1'–0"

– – – – – – ABOVE CEILING IN ATTIC

———— EXPOSED IN ROOM

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REVISIONS

NO.	DESCRIPTION	DATE	BY
1	OWNER REQUESTED CHANGES	01–04–2020	
0	ISSUED FOR PERMITTING & CONSTRUCTION	12–18–2020	
A	ISSUED FOR OWNER REVIEW	10–21–2020	

DRAWN BY | CHECKED BY

M.E. & P. Incorporated No. C03128

A RENOVATION FOR

THE BETHLEHEM CENTER K4

400 HIGHLAND AVENUE SPARTANBURG, SC 29306

MECHANICAL PLAN

DRAWING NUMBER

M–1

Project No. ---

LEGEND

ABBREVIATIONS DESCRIPTIONS

AAV	AIR ADMITTANCE VALVE
AHU	AIR HANDLING UNIT
AFF	ABOVE FINISHED FLOOR
BFF	BELOW FINISHED FLOOR
BG	BELOW GRADE
CFM	CUBIC FEET PER MINUTE
CO	CLEAN OUT
COND	CONDENSATE
CONN.	CONNECTION
CONTR	CONTRACTOR
CU	CONDENSING UNIT
DN	DOWN
DEG. or °	DEGREE
DIFF. or Δ	DIFFERENCE OR DELTA
DIA OR Ø	DIAMETER
DWG.	DRAWING
EA	EXHAUST AIR
ED	EQUIPMENT DRAIN
EF	EXHAUST FAN
EL.	ELEVATION
ESP	EXTERNAL STATIC PRESSURE (IN. WG.)
EUH	ELECTRIC UNIT HEATER
EXT	EXISTING
FCO	FLOOR CLEAN OUT
FD	FIRE DAMPER
F.F. ELEV.	FINISHED FLOOR ELEVATION
FP	FIRE PROTECTION
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
GAL	GALLONS
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
HD	HEAD
HP	HORSEPOWER
HSW	HIGH SIDE WALL
ID	INSIDE DIAMETER
KES	KITCHEN EXHAUST SYSTEM
KSF	KITCHEN SUPPLY FAN
LSW	LOW SIDE WALL
NO	NUMBER
NPT	NATIONAL PIPE THREAD
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OD	OUTSIDE DIAMETER
R	THERMAL RESISTANCE
RA	RETURN AIR
RAFG	RETURN AIR FILTER GRILL
RH	RELATIVE HUMIDITY
RTU	ROOF TOP UNIT
SA	SUPPLY AIR
SAN	SANITARY SEWER
SD	SMOKE DETECTOR
SS	SANITARY SEWER
SP	STATIC PRESSURE
SPEC	SPECIFICATION
ST	STORM SEWER (OR CONDENSATE)
TYP	TYPICAL
V	VENT
VAV	VARIABLE AIR VOLUME

PIPE LABELS, FITTINGS, & VALVES

COND	CONDENSATE LINE (COND)
CW	COLD WATER LINE (DOMESTIC)
CWS	CHILLED WATER SUPPLY LINE
CWR	CHILLED WATER RETURN LINE
F	FIRE PROTECTION WATER SUPPLY (F)
HW	HOT WATER LINE (DOMESTIC)
HWS	HOT WATER RETURN LINE
HWR	HOT WATER SUPPLY LINE
NG	NATURAL GAS LINE (GAS)
SAN	SANITARY WASTE LINE (SAN,SS)
SD	STORM DRAIN, RAINWATER DRAIN (SD,ST)
	RISER DOWN (ELBOW)
	RISER UP (ELBOW)
	RISER OR DROP
	BRANCH–TOP CONNECTION
	BRANCH–BOTTOM CONNECTION
	CAP ON END OF PIPE
	ELBOW
	TEE
	UNION
	STRAINER
GC	GAS COCK, GAS STOP
	PLUG VALVE (PV)
	STRAINER

DUCT WORK

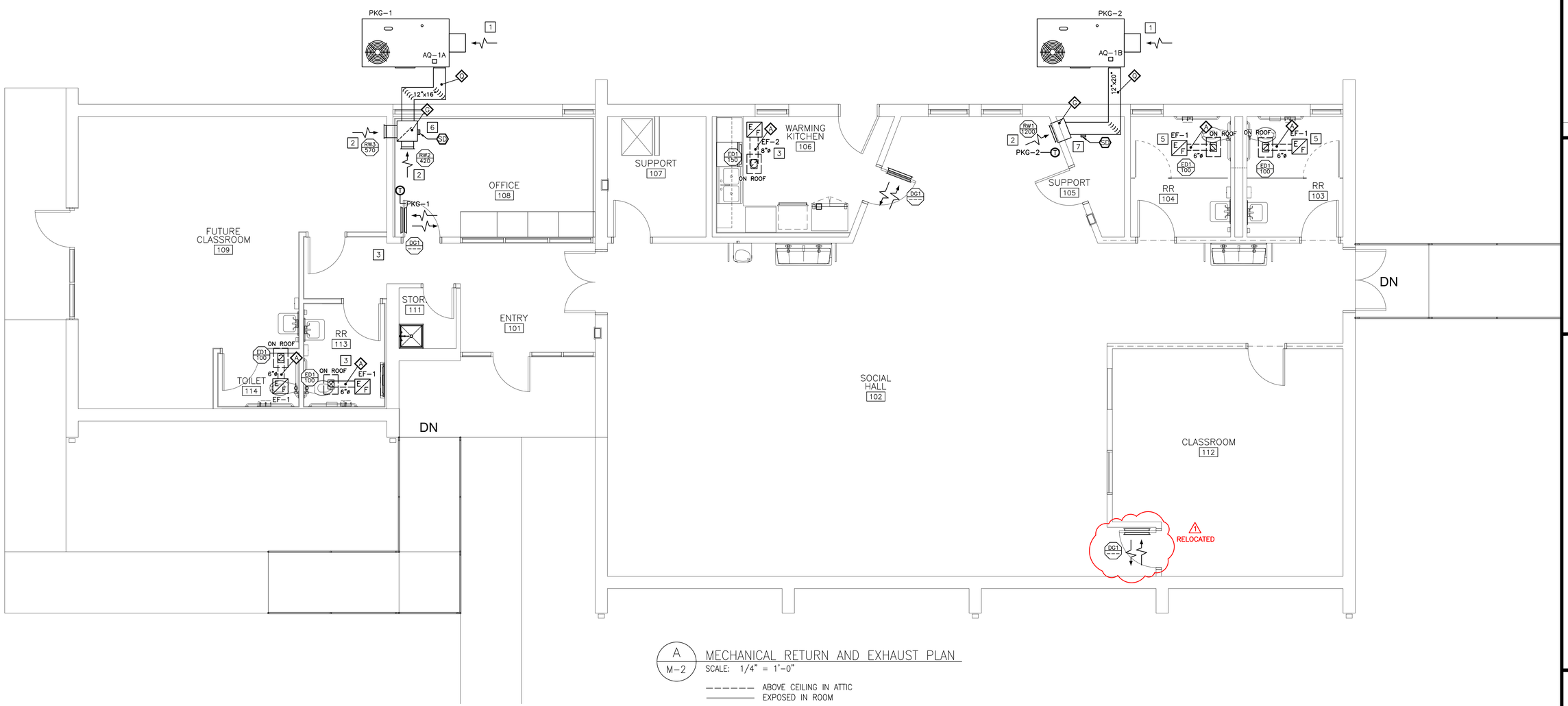
SUPPLY AIR DUCT UP
SUPPLY AIR DUCT DOWN
EXHAUST/RETURN/OUTSIDE AIR UP
EXHAUST/RETURN/OUTSIDE AIR DOWN
CEILING SUPPLY DIFFUSER
CEILING RETURN DIFFUSER
EXHAUST / SUPPLY FAN
SIDEWALL AIR DIFFUSER / DOOR GRILLE
HORIZONTAL DUCT WORK
RECT. TO ROUND DUCT SIZE TRANSITION
DUCT SIZE TRANSITION
TRANSITION AND FLEXIBLE DUCT
BOOT WITH BALANCING DAMPER
AIR DEVICE TAG/ CFM

SYMBOLS

FD	FIRE DAMPER
	FIRE PENETRATION. DETAIL NUMBER REFERENCE
	COMBINATION FIRE & SMOKE DAMPER
	ZONE DAMPER
	INDICATES KEY NOTES
CP	CONDENSATE PUMP – LITTLE GIANT
MD	MOTORIZED BALANCING DAMPER
	SMOKE DETECTOR w/ FAN SHUTDOWN
	DUCT CONSTRUCTION TYPE
	THERMOSTAT/SENSOR – "C" STEEL COVER.
	AIRFLOW ARROW
FD	FLOOR DRAIN SQUARE STRAINER (FD)
ED	EQUIPMENT DRAIN (ED)
	POINT OF CONNECTION
UNIT # EF	LOW VOLTAGE SMOKE DETECTOR ANNUNCIATOR

MECHANICAL KEY NOTES

1. OUTDOOR AIR VENTILATION IS DESIGNED IN COMPLIANCE WITH IMC 2018 CHAPTER 4 AND ASHRAE 62.4–2014.
2. MOUNTING HEIGHT OF BOTTOM OF RETURN REGISTER TO BE 1'–0" AFF.
3. MC TO GET PERMISSION FROM GC FOR EACH CEILING PENETRATION TO AVOID DISTURBING EXISTING ASBESTOS DRYWALL MUD.
4. GC TO SUPPLY OPENING FOR DUCTWORK AS REQUIRED. COORDINATE WITH SITE CONDITIONS AND MC.
5. MC TO UTILIZE EXISTING OPENINGS IN GYPSUM CEILING FOR PENETRATIONS. COORDINATE WITH GC.
6. MC TO COORDINATE FINAL PLENUM SIZE WITH SITE CONDITIONS. MOUNT AT 8" AFF. COORDINATE WITH ARCHITECT FOR FUR OUT REQUIREMENTS.
7. RETURN AIR PLENUM TO BE SIZED FOR RETURN GRILLE PLUS 2" EACH SIDE AND MINIMUM 12" DEEP. COORDINATE WITH SITE CONDITIONS.
8. MC TO INSTALL NEW 2LB 500 CUFT/HR GAS METER. COORDINATE WITH GAS UTILITY FOR FINAL LOCATION REQUIREMENTS.
9. MC TO MAKE FINAL CONNECTION TO EXISTING GAS WATER HEATER. MC TO PROVIDE REGULATOR, DIRT LEGS & ALL REQUIRED FITTINGS TO MAKE FINAL CONNECTION TO GAS WATER HEATER.



A / M–2 MECHANICAL RETURN AND EXHAUST PLAN

SCALE: 1/4" = 1'–0"

– – – – – – ABOVE CEILING IN ATTIC

———— EXPOSED IN ROOM

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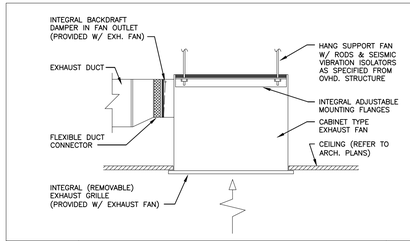
MECHANICAL PLAN

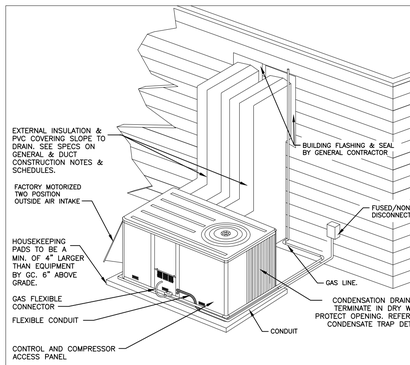
DRAWING NUMBER

M–2

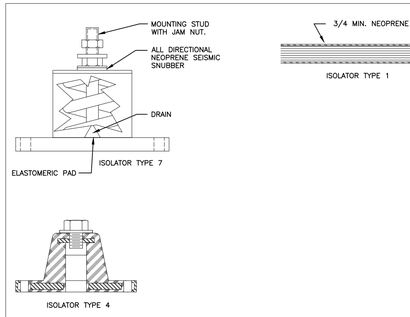
Project No. ---



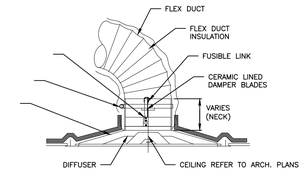
M-FAN-01 | CEILING TYPE EXHAUST FAN DETAIL | NOT TO SCALE



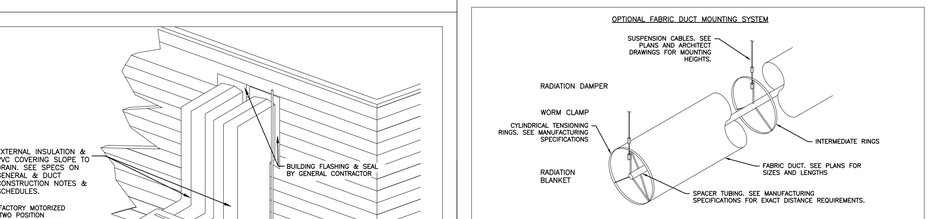
M-PACK-03 | TYPICAL HORIZONTAL GAS PACKAGED UNIT DETAIL | NOT TO SCALE



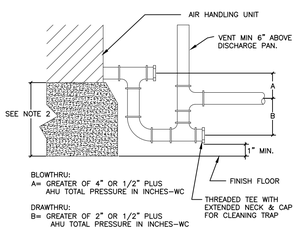
M-SEISMIC-03 | SEISMIC & VIBRATION ISOLATION MOUNTING TYPES | NOT TO SCALE



M-DIFF-02 | DIFFUSER W/ CEILING FIRE DAMPER | NOT TO SCALE



M-DSX-03 | DUCTSOX SKELECORE DETAIL | NOT TO SCALE

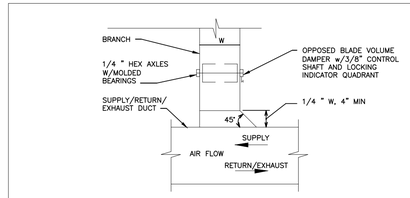


NOTES:

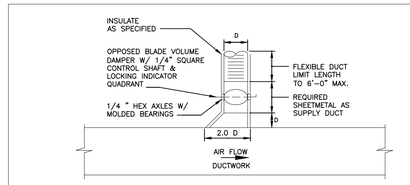
1. 1" MIN. PIPE SIZE OR SIZE PER DRAIN TAP IN AHU. INSULATE FOR CONDENSATE CONTROL AS REQUIRED.

2. PAD OR PLATFORM HEIGHT DETERMINED BY SPACE REQUIRED TO INSTALL TRAP AND VIBRATION ISOLATORS.

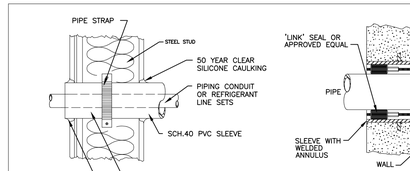
M-PIPE-01 | CONDENSATE DRAIN TRAP | NOT TO SCALE



M-DUCT-01 | RECTANGULAR DUCT TYPICAL BRANCH TAP DETAIL | NOT TO SCALE

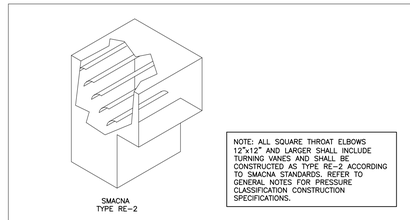


M-DUCT-02 | CIRCULAR BRANCH 45° TEE CONNECTION TO SINGLE OUTLET | NOT TO SCALE



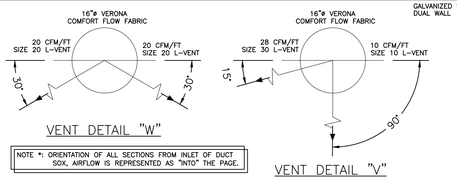
NOTE: ARCHITECTURAL FINISHES ARE DIAGRAMATIC REFER TO ARCHITECTUAL DRAWINGS FOR DETAILS.

M-DUCT-03 | SLEEVE DETAIL THRU EXTERIOR STUD & WATERPROOF WALLS | NOT TO SCALE



NOTE: ALL SQUARE THROAT ELBOWS 12"x12" AND LARGER SHALL INCLUDE TURNING VANES AND SHALL BE CONSTRUCTED AS TYPE RE-2 ACCORDING TO SMACNA STANDARDS. REFER TO GENERAL NOTES FOR PRESSURE CLASSIFICATION CONSTRUCTION SPECIFICATIONS.

M-DUCT-04 | SQUARE THROAT ELBOW WITH VANES | NOT TO SCALE



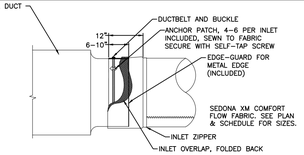
VENT DETAIL "W"

VENT DETAIL "V"

NOTE *: ORIENTATION OF ALL SECTIONS FROM INLET OF DUCT SOX, AIRFLOW IS REPRESENTED AS "INTO" THE PAGE.

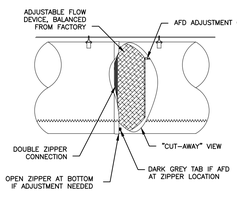
SERVING UNIT	SECTION	TOTAL CFM	DIAMETER	APPROX. LENGTH	FABRIC	COLOR	VENT DETAIL
PKG-2	1V	380	16"	10'-0"	VERONA	NOTE 1	V
PKG-2	2W	640	16"	32'-0"	VERONA	NOTE 1	W
PKG-2	3W	360	16"	18'-0"	VERONA	NOTE 1	W

NOTE *: NOTE: SEE HVAC PLAN AND DETAILS FOR MORE INFORMATION. WWW.DUCTSOX.COM 1-866-382-8769
NOTE **: NOTE: CFM LISTED INCLUDES FABRIC POROSITY. VENT DETAILS DO NOT INCLUDE POROSITY AIR FLOW/FOOT.
NOTE 1: MC TO CONSULT WITH ARCHITECT AND OWNER FOR COLOR SELECTION FROM MANUFACTURERS STANDARD RANGE OF SPECIFIED FABRIC.
NOTE 2: ALL DUCT SYSTEMS ARE TO BE INSTALLED IN EXISTING FACILITY. MC TO CONFIRM ALL MEASURMENTS FOR LENGTHS WITH FIELD CONDITIONS AND GC.



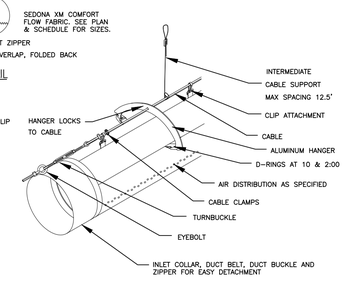
INLET ATTACHMENT DETAIL

NOTE: SEE MANUFACTURERS SPECIFICATIONS FOR INSTALLATION. INSTRUCTIONS & FURTHER DETAILS WWW.DUCTSOX.COM.



ADJUSTABLE FLOW DEVICE (AFD)

INSTALLED AT ZIPPER LOCATION AT INLET OR AS SPECIFIED IN OTHER LOCAITONS. ZIPPER TO ZIPPER CONNECTION AS SHOWN. EXTERNAL LABEL IDENTIFIES LOCATION



SUSPENSION DETAIL

SUSPENSION, CABLE AT 12 O'CLOCK MOUNTED AT EACH TENSIONING RING. FABRIC DUCT SUPPORTED BY TENSION RINGS AT THE ENDS AND INTERNAL RINGS EVERY 6'.
COORDINATE MOUNTING HEIGHT WITH ARCHITECT & REFLECTED CEILING PLAN.

M-DSX-01 | DUCTSOX DETAILS | NOT TO SCALE

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M.E. & P. Incorporated
No. C08128
CERTIFICATE OF AUTHORIZATION
SOUTH CAROLINA
Jan 4 2021

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MECHANICAL DETAILS

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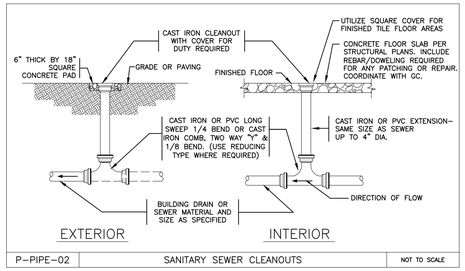
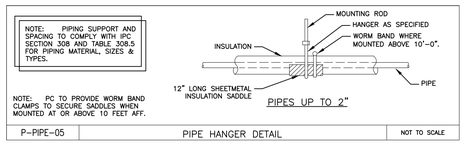
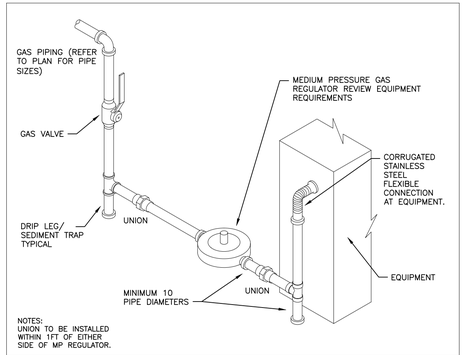


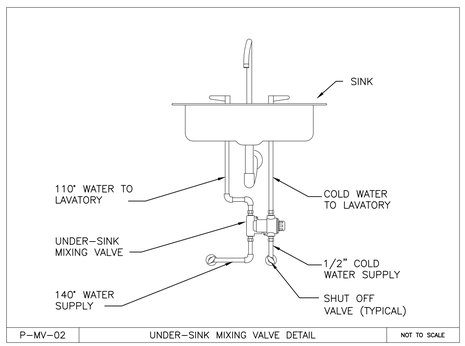
P–PIPE–02 | SANITARY SEWER CLEANOUTS | NOT TO SCALE



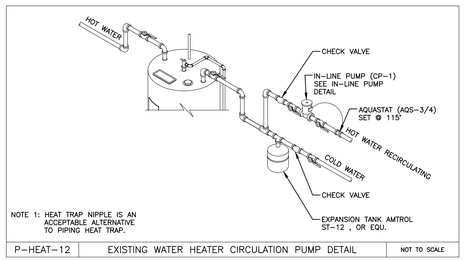
P–PIPE–05 | PIPE HANGER DETAIL | NOT TO SCALE



P–GAS–04 | EQUIPMENT GAS CONNECTION DETAIL | NOT TO SCALE



P–MV–02 | UNDER–SINK MIXING VALVE DETAIL | NOT TO SCALE



P–HEAT–12 | EXISTING WATER HEATER CIRCULATION PUMP DETAIL | NOT TO SCALE

PLUMBING FIXTURE SCHEDULE

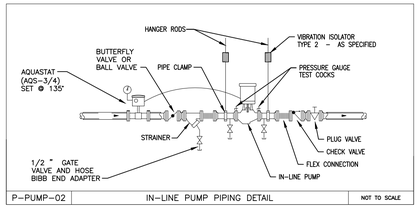
MARK	MANUFACTURER	MODEL	REMARKS
WC–1	AMERICAN STANDARD	215CA.004	WATER CLOSET: (TANK TYPE) FLOOR MOUNTED 15"AFF, 1.6 GPF SIPHON JET, 3" FLUSH TANK, 2 1/2" TRAP SEAL, ELONGATED–RIM, WHITE VITREOUS CHINA. PC TO ORDER LEFT/RIGHT HANDED FLUSH BASED UPON APPLICATION. (ADA COMPLIANT FOR CHILDREN)
	BEMIS	1955C	SEAT: (OPEN FRONT) LESS COVER/COMMERCIAL PLASTIC – WHITE
	McGUIRE	H185	SWEAT SINK SUPPLY WITH 1–1/2" EXTENSION, BRASS STEM, & CHROME FINISH. MOUNT SUPPLY 9" MIN ABOVE SUB FLOOR.
WC–2	AMERICAN STANDARD	215AA.004	WATER CLOSET: (TANK TYPE) FLOOR MOUNTED 17"AFF, 1.6 GPF SIPHON JET, 3" FLUSH TANK, 2 1/2" TRAP SEAL, ELONGATED–RIM, WHITE VITREOUS CHINA. PC TO ORDER LEFT/RIGHT HANDED FLUSH BASED UPON ADA APPLICATION. (ADA COMPLIANT)
	BEMIS	1955C	SEAT: (OPEN FRONT) LESS COVER/COMMERCIAL PLASTIC – WHITE
	McGUIRE	H185	SWEAT SINK SUPPLY WITH 1–1/2" EXTENSION, BRASS STEM, & CHROME FINISH. MOUNT SUPPLY 9" MIN ABOVE SUB FLOOR.
WC–3	AMERICAN STANDARD	2234.001	WATER CLOSET: (FLUSH VALVE) FLOOR MOUNTED, 15"AFF, 1.6 GPF SIPHON JET ACTION, WHITE VITREOUS CHINA, ELONGATED BOWL WITH 1–1/2" TOP SPUD
	AMERICAN STANDARD	6047.161.002	FLUSHOMETER: 1.6 GPF (1–1/2" TOP SPUD) PISTON TYPE, NON–HOLD–OPEN HANDLE. PC TO INSTALL LEFT/RIGHT HANDED FLUSH BASED UPON APPLICATION.
	BEMIS	1955C	SEAT: (OPEN FRONT) LESS COVER/COMMERCIAL PLASTIC – WHITE
L–2	AMERICAN STANDARD	355.012	LAVATORY: (WALL–HUNG) 20"x18" VITREOUS CHINA, PROVIDED WITH WALL HANGER FOR CONCEALED ARM CARRIER, 4" INTEGRAL BACKSPLASH AND 4" CENTERS FOR FAUCET, FRONT OVERFLOW, WHITE (ADA COMPLIANT)
	T&S BRASS	B–2711	FAUCET: (SINGLE HANDLE) DECKMOUNT, 4" CENTERSET, LESS POP–UP W/ TEMPERATURE LIMIT STOP SET AT 110°F, AND CERAMIC CARTRIDGE.
	McGUIRE	H170	SWEAT SINK SUPPLY: 5" EXTENSION – W/ BRASS STEM, CHROME FINISH
	McGUIRE	HD155WC	GRID DRAIN: (CAST BRASS CHROME PLATED) WITH CAST BRASS FOLLOWER, 1–1/4" X 17 GAUGE SEAMLESS BRASS TAILPIECE AND CAST BRASS LOCKNUT AND OVERFLOW. (ADA COMPLIANT)
	McGUIRE	8872	P–TRAP: 1–1/4" X 1–1/4" CAST BRASS BODY–17 GAUGE WITH CLEANOUT.
	TRUEBRO	402	PIPING COVERS: FLEXIBLE WASTE AND SUPPLY COVERS TO ALLOW FOR EASY INSTALLATION AND SATISFY ADA COMPLIANCE REQUIREMENTS.
	WATTS	LFUSG–B	MIXING VALVE: TAMPER RESISTANT LOCKING CAP AND INTEGRAL STRAINER SET AT 110°F.
S–1	T&S BRASS	B–2730	FAUCET: (SINGLE LEVER) 4" CENTERS, SINGLE LEVER DECK MOUNT FAUCET W/ 9" SWIVEL SPOUT, FLEXIBLE SUPPLIES, TEMPERATURE LIMIT STOP & 48" SIDESPRAY.
	McGUIRE	8912	P–TRAP: 1–1/2" X 1–1/2" CAST BRASS BODY–17 GAUGE WITH CLEANOUT.
	McGUIRE	H170	SWEAT SINK SUPPLY: 5" EXTENSION – W/ BRASS STEM, CHROME FINISH
	ELKAY	LRQ3321	SINK: (DOUBLE WELL) 33" x 21–1/4" x 7–7/8" DEEP, REAR & SIDE LEDGE, WITH SEAMLESS DIE–DRAWN CONSTRUCTION OF TYPE 304, 18–8 STAINLESS STEEL & A FULLY COATED UNDERSIDE.
	WATTS	LFUSG–B	MIXING VALVE: TAMPER RESISTANT LOCKING CAP AND INTEGRAL STRAINER SET AT 110°F.
S–2	BRADLEY	ELX–2	LAVATORY: (WALL–HUNG) ONE OR TWO USER, INTEGRAL AUTOMATIC FAUCET (0.5 GPM), HANDS FREE SOAP DISPENSER. COLOR BY ARCHITECT/OWNER.
	McGUIRE	H170	SWEAT SINK SUPPLY: 5" EXTENSION – W/ BRASS STEM, CHROME FINISH
	WATTS	LFUSG–B	MIXING VALVE: TAMPER RESISTANT LOCKING CAP AND INTEGRAL STRAINER SET AT 110°F.
	McGUIRE	8872	P–TRAP: 1–1/4" X 1–1/4" CAST BRASS BODY–17 GAUGE WITH CLEANOUT.
MS–1	FIAT	SF–1–F	MOP SINK: (ACRYLIC) 20" x 23" x 14" DEEP, RAISED, FLOOR MOUNTED WITH LEGS.
	T&S BRASS	B–0665–BSTP	SERVICE SINK FAUCET: (WALL MOUNT) BUILT IN STOPS, VACUUM BREAKER, LEVER HANDLES, ABOVE WALL BRACE AND CHROME FINISH.
	McGUIRE	8912	P–TRAP: 1–1/2" X 1–1/2" CAST BRASS BODY–17 GAUGE WITH CLEANOUT.
EWC–1	ELKAY	EZS4	WATER COOLER: (SINGLE UNIT) SELF–CONTAINED, WITH FRONT AND SIDE PUSH BAR (5 GPH OF 50° WATER @ 80° INLET & 70° AMBIENT) ADA COMPLIANT
	McGUIRE	LF175	SWEAT SINK SUPPLY: W/ BRASS STEM, CHROME FINISH
	McGUIRE	8912	P–TRAP: 1–1/2" X 1–1/2" CAST BRASS BODY–17 GAUGE WITH CLEANOUT.
HB–1	MIFAB	MHY–20	HOSE BIBB: (NON FREEZE) ANTI–SIPHON VACUUM BREAKER. FLUSH MOUNTING WALL BOX WITH LOOSE KEY.
WCO	MIFAB	C1430–RD–6	WALL CLEAN OUT: COMPLETE WITH 6" ROUND,SMOOTH STAINLESS STEEL ACCESS COVER AND 3 1/2" LONG BRASS ANCHOR SCREW.
FCO	MIFAB	C1100C	FLOOR CLEAN OUT: (ROUND COVER) LACQUERED CAST IRON CLEANOUT, THREADED BRONZE PLUG AND STANDARD REINFORCED SATIN FINISHED NICKEL BRONZE ADJUSTABLE TOP ASSEMBLY.
YCO	–	–	INSTALL CENTERED IN 16" SQ., 4" DEEP, CONCRETE PAD.
FD	MIFAB	F1100	FLOOR DRAIN: (ROUND STRAINER) LACQUERED CAST IRON, ADJUSTABLE STAINLESS STEEL STRAINER, (FOR MEMBRANE FLOORS, ADD MEMBRANE CLAMP). SEE DETAIL FOR APPLICATION OF TRAP PRIMERS. COORDINATE EXACT LOCATION WITH ARCHITECTURAL PLANS.
WB–1	OATEY	38681	ICE MAKER OUTLET BOX: CHROME 1/4 TURN ADAPTER BALL VALVE, 1/2" SWEAT CONNECTION.
WB–2	OATEY	38995	WASHING MACHINE SUPPLY WALL BOX: REVERSIBLE 2 CHROME 1/4 TURN ADAPTER BALL VALVES, 1/2" SWEAT CONNECTION & 2" HUB DRAIN WITH CW/HW WATER HAMMER ARRESTORS. INDIVIDUAL TRAP WITH STANDPIPE BETWEEN 20" AND 40" ABOVE WEIR.

NOTE **: PC TO CONFIRM ALL FIXTURE TYPES AND STYLES WITH ARCHITECT/OWNER BEFORE PURCHASE OR INSTALLATION.

PLUMBING FIXTURE CONNECTION SCHEDULE

MARK	SERVICE	FIXTURE	CW	HW	WASTE	VENT	REMARKS
WC–1	RESTROOM	WATER CLOSET	1/2"	–	3"	2"	TANK TYPE FLOOR MOUNT (CHILD ADA)
WC–2	RESTROOM	WATER CLOSET	1/2"	–	3"	2"	TANK TYPE FLOOR MOUNT (ADA)
WC–3	RESTROOM	WATER CLOSET	1"	–	3"	2"	FLUSH VALVE FLOOR MOUNT
L–2	RESTROOM	LAVATORY	1/2"	1/2"	2"	2"	COORD HEIGHT WITH OWNER. LIMITS SET AT 110°F
S–1	–	PANTRY SINK	1/2"	1/2"	2"	2"	S.S. DOUBLE BOWL (COUNTER MOUNTED)
S–2	RESTROOM	DUAL LAVATORY	1/2"	1/2"	2"	2"	WALL HUNG. LIMITS SET AT 110°F
MS–1	–	MOP SINK	1/2"	1/2"	3"	2"	RAISED FLOOR MOUNT MOP SINK WITH LEGS
EWC–1	–	ELECTRIC WATER COOLER	1/2"	–	2"	2"	SINGLE UNIT (ADA COMPLIANT)
HB–1	–	HOSE BIB	1/2"	–	–	–	(FREEZELESS) COORD. LOCATION W/ARCH
WCO	–	WALL CLEAN OUT	–	–	VARIES	–	INSTALL AT BOTTOM OF ALL VERTICAL STACKS
FCO	–	FLOOR CLEAN OUT	–	–	VARIES	–	INSTALL FLUSH W/ FINISH FLOOR, SQUARE HOUSING
YCO	–	YARD CLEAN OUT	–	–	VARIES	–	INSTALL FLUSH TO GRADE
FD	–	FLOOR DRAIN	–	–	3"	–	ROUND, FLUSH W/ F.F., STRAINER
WB–1	–	ICE MACHINE WALL BOX	1/2"	–	–	–	COORD. HEIGHT WITH EQUIPMENT
WB–2	–	WSH MACHINE WALL BOX	1/2"	1/2"	–	–	COORD. HEIGHT WITH EQUIPMENT

NOTE **: PC TO CONFIRM ALL FIXTURE TYPES AND STYLES WITH ARCHITECT/OWNER BEFORE PURCHASE OR INSTALLATION.



P–PUMP–02 | IN–LINE PUMP PIPING DETAIL | NOT TO SCALE

GENERAL NOTES (PLUMBING)

A THE PLUMBING DRAWINGS ARE DIAGRAMMATIC; VERIFY EXACT SIZES, LOCATIONS, INVERTS AND ELEVATIONS OF SYSTEMS AND COMPONENTS IN THE FIELD PRIOR TO RUNNING ANY PIPING. REFER TO ARCHITECTURAL DRAWINGS AND ELEVATIONS FOR DIMENSIONS AND FOR EXACT LOCATIONS OF FIXTURES AND EQUIPMENT. REFER TO CIVIL SITE DRAWINGS AND/OR SURVEYS FOR DIMENSIONS AND FOR EXACT LOCATIONS OF ALL UTILITIES AND EXTERIOR EQUIPMENT.

B THE PLUMBING CONTRACTOR IS RESPONSIBLE TO REVIEW ALL DRAWINGS (INCLUDING ARCHITECTURAL, CIVIL & STRUCTURAL) TO BECOME FAMILIAR WITH THE DESIGN INTENT AND SPECIFICS OF THE SYSTEMS TO BE INSTALLED AND THEIR INTERGRATION INTO THE NEW OR RENOVATED FACILITY. PC SHALL VISIT PROJECT SITE TO VERIFY EXISTING CONDITIONS PRIOR TO PLACING A BID.

C PLUMBING FIXTURES, DEVICES, & EQUIPMENT SHALL BE NEW AND AS SPECIFIED OR SHALL BE A VERIFIABLE EQUIVALENT. ANY PROPOSED ALTERNATIVES TO BE APPROVED BY ARCHITECT AND/OR OWNER. PC SHALL VERIFY CORRECTNESS AND ACCURACY OF MODEL NUMBERS SPECIFIED FOR SUITABILITY TO ACCOMPLISH DESIGN INTENT AS OUTLINED IN NOTE B ABOVE, WITH MANUFACTURER'S REPRESENTATIVES BEFORE PURCHASE OR INSTALLATION OF EQUIPMENT.

D ALL WORK SHALL BE PERFORMED BY A **SOUTH CAROLINA** LICENSED PLUMBING CONTRACTOR (PC) UTILIZING EXPERIENCED MECHANICS. ALL SYSTEMS SHALL BE COMPLETE AND OPERATIONAL COMPLYING WITH DESIGN DOCUMENTS. ALL WORK TO COMPLY WITH THE ICC **2018 INTERNATIONAL SERIES OF CODES WITH STATE AMENDMENTS** INCLUDING THE PLUMBING, BUILDING, FUEL GAS, MECHANICAL, FIRE AND ENERGY CONSERVATION CODES AS WELL AS APPLICABLE **NFPA** REQUIREMENTS. PC SHALL ALSO BE RESPONSIBLE FOR COORDINATING WITH LOCAL JURISDICTION HAVING AUTHORITY TO DETERMINE IF ADDITIONAL REQUIREMENTS MAY APPLY.

E PLUMBING CONTRACTOR (PC) SHALL APPLY AND PAY FOR ALL REQUIRED FEES, PERMITS AND INSPECTIONS & LICENSES REQUIRED FOR THE INSTALLATION AND COMPLETION OF THE WORK ASSOCIATED WITH THE DESIGN DOCUMENTS. OWNER TO PAY FOR REQUIRED UTILITY CONNECTION FEES.

F PC TO VERIFY ALL EQUIPMENT CONNECTIONS, DETAILS AND COMPLY WITH INSTALLATION PROCEDURES FROM MANUFACTURER'S CERTIFIED DRAWINGS. PC TO VERIFY COMPATIBILITY OF FIXTURES, MOUNTING SURFACES AND CONTROLS WITH MANUFACTURER'S REPRESENTATIVE. THE PC MUST COMMUNICATE TO THE ENGINEER ANY COORDINATION DISCREPANCY BETWEEN THE DESIGN DOCUMENTS AND THE MANUFACTURER'S EQUIPMENT BEFORE PURCHASE OR INSTALLATION. MANUFACTURER'S MODEL NUMBERS ARE SPECIFIED ONLY TO ASSIST IN ESTABLISHING STANDARDS OF QUALITY FOR PERFORMANCE AND MATERIALS. PC TO INSTALL ALL EQUIPMENT ACCORDING TO MANUFACTURER'S LISTING. ANY WORK REQUIRING REMOVAL AND RE–INSTALLATION DUE TO LACK OF COORDINATION SHALL BE THE RESPONSIBILITY OF THE CONTRACTORS WITH NO ADDITIONAL COST TO THE ENGINEER, ARCHITECT OR OWNER.

G COORDINATE EXACT LOCATION AND MOUNTING HEIGHTS OF ALL PLUMBING FIXTURES WITH ARCHITECTURAL PLANS AND ELEVATIONS AND WITH THE GENERAL CONTRACTOR (GC).

H PC SHALL COORDINATE AND PAY FOR FEES ASSOCIATED WITH THE INSTALLATION OF ANY LOCAL WATER AND SEWER UTILITY'S FEES. PC SHALL DETERMINE LOCAL UTILITY REQUIREMENTS PRIOR TO INSTALLATIONS OR ORDERING EQUIPMENT. REFER TO CIVIL PLANS, ARCHITECTURAL SITE PLANS & GENERAL CONTRACTOR FOR EXACT LOCATION.

I THE PLUMBING CONTRACTOR SHALL GUARANTEE ALL EQUIPMENT, MATERIALS AND WORKMANSHIP PERFORMED ON THIS PROJECT FOR ONE YEAR FROM DATE OF SUBSTANTIAL COMPLETION. TANKS FOR WATER HEATERS SHALL HAVE A MINIMUM 10 YEAR PARTS WARRANTY. ANY PORTION OF THE WORK PROVING DEFECTIVE DURING THE ONE YEAR GUARANTEE PERIOD SHALL BE REPAIRED OR REPLACED BY THE PLUMBING CONTRACTOR AT NO ADDITIONAL EXPENSE. ACCEPTANCE OF REPAIRS AND REPLACEMENTS SHALL BE SUBJECT TO THE APPROVAL OF THE OWNER OR HIS REPRESENTATIVES.

K INSTALL AND MAKE ALL NECESSARY CONNECTIONS REQUIRED FOR THE COMPLETE SUPPLY, RECIRCULATION, WASTE, GREASE AND VENT SYSTEMS INDICATED ON THE DRAWINGS, DETAILS AND SPECIFICATIONS INCLUDING ALL PIPING, FITTINGS, VALVES, FLEXIBLE CONNECTIONS, ARRESTORS, INSULATION, SLEEVES, FASTENERS, HANGERS, CABLE RESTRAINTS, VIBRATION ISOLATORS, SUPPORTS AND OTHER ITEMS REQUIRED.

L IT IS THE RESPONSIBILITY OF THE PLUMBING CONTRACTOR (PC) TO VERIFY ALL CLEARANCES, LOCATIONS AND INVERTS OF FACILITIES, AS WELL AS NEW OR EXISTING UTILITIES AND COORDINATING WITH OTHER DISCIPLINES BEFORE PURCHASING ANY EQUIPMENT OR THE START OF CONSTRUCTION OR INSTALLING ANY EQUIPMENT AND PIPING. COORDINATE LOCATIONS OF BELOW GRADE PIPING WITH ARCHITECTURAL, STRUCTURAL AND CIVIL / SITE PLANS AS WELL AS WITH THE GENERAL CONTRACTOR (GC). ANY WORK REQUIRING REMOVAL AND RE–INSTALLATION DUE TO LACK OF COORDINATION SHALL BE THE RESPONSIBILITY OF THE CONTRACTORS WITH NO ADDITIONAL COST TO THE ENGINEER, ARCHITECT OR OWNER.

M WHEREVER OBSTRUCTIONS REQUIRE A CHANGE IN PIPING LOCATIONS PROVIDE ALL REQUIRED FITTINGS, PIPING, INSULATION & MATERIALS FOR ALL OFFSETS AND OR CHANGES IN ELEVATION.

N PLUMBING CONTRACTOR SHALL COORDINATE CLOSELY WITH MECHANICAL, ELECTRICAL AND SITE WORK CONTRACTORS AS WELL AS GENERAL CONTRACTOR FOR WORK COMPLETED FROM THESE ENGINEERED PLANS TO AVOID INTERFERENCE AND CONFLICT BETWEEN SYSTEMS AND STRUCTURES.

O ALL WASTE AND VENT LINES SHALL BE CONCEALED IN BUILDING CONSTRUCTION. PC TO COORDINATE EXACT LOCATION OF ALL ROOF PENETRATIONS WITH ARCHITECT AND THE GENERAL CONTRACTOR (GC).

P PROVIDE SHUT OFF GATE VALVES (BRONZE, RISING STEM, 125 PSI SWP TYPE) AND UNIONS ON ALL EQUIPMENT AND STOP COCKS IN HOT AND COLD WATER PIPING TO ALL PLUMBING FIXTURES. BALL VALVES TO HAVE BRONZE BODY, STAINLESS STEEL BALL, 125 PSI, TEFLON SEATS & STUFFING BOX RING, LEVER HANDLE AND SOLDER ENDS. RELIEF VALVES TO HAVE BRONZE BODY, TEFLON SEAT, STAINLESS STEEL STEM NO SPRINGS, AUTOMATIC OPERATION DIRECT PRESSURE ACTUATED, ASME CERTIFIED AND LABELED. ALL EXPOSED PIPING TO BE CHROME PLATED. ALL VALVES TO BE IDENTIFIED PER **IPC 606.4** W/ PERMANENT BRASS OR LAMINATE TAGS

Q PC SHALL PROVIDE DI–ELECTRIC UNIONS AT ALL PIPING CONNECTIONS WHERE DISSIMILAR METALLIC PIPING IS JOINED.

R ALL CLEAN OUT PLUGS TO BE INSTALLED IN READILY ACCESSIBLE LOCATIONS AS INDICATED ON THE DRAWINGS WITH MINIMUM OF 75 FOOT INTERVALS. CLEAN OUTS SHALL BE INSTALLED FLUSH WITH FINISHED GRADE OR FINISHED FLOORS. EXTERIOR CLEAN OUTS SHALL BE INSTALLED IN 16" SQ., 4" DEEP, CONCRETE PADS. WALL CLEAN OUTS TO BE INSTALLED WHERE INDICATED AND AT THE BASE OF ANY VERTICAL WASTE STACKS.

S PC TO PROVIDE CLAMPS, OFFSETS, EXPANSION JOINTS, ANCHORS AND GUIDES AS NECESSARY TO PREVENT STRESS ON THE PIPING AND THE WEIGHT OF THE PIPING BEING PLACED ON THE EQUIPMENT OR FIXTURES. PROVIDE VENTS AT HIGH POINTS IN PIPING SYSTEMS AND DRAIN VALVES AT LOW POINTS.

T ALL PIPING PENETRATING EXTERIOR WALLS AND ROOFS SHALL BE FLASHED AND COUNTER FLASHED IN A CODE APPROVED MANNER AND SHALL BE SEALED WEATHER TIGHT. VERIFY EXACT LOCATIONS WITH ARCHITECT PLANS AND GENERAL CONTRACTOR. INSULATE ACCORDING TO DESIGN DOCUMENTS.

U ALL WATER PIPING SHALL BE HYDRO–STATICALLY TESTED AT 150% OF OPERATING PRESSURE OR 125 PSI WHICHEVER IS HIGHER FOR A PERIOD OF 24 HOURS W/O APPEARANCE OF ANY LEAKAGE. WASTE AND VENT PIPING SHALL BE HYDRO–STATICALLY TESTED AT A 10 FEET HEAD FOR A PERIOD OF 24 HOURS W/O APPEARANCE OF ANY LEAKAGE. UPON SUBSTANTIAL COMPLETION OF PROJECT, THE DOMESTIC WATER SYSTEM SHALL BE STERILIZED IN ACCORDANCE WITH **SC DHEC** AND LOCAL CODE REQUIREMENTS. PROVIDE OWNER AND AHJ WITH TEST RESULTS FROM INDEPENDENT TESTING LABORATORY PRIOR TO FINAL SITE OBSERVATION.

W PLUMBING FIXTURES FOR THE HANDICAPPED SHALL MEET THE REQUIREMENTS OF ICC/ANSI A117.1 AND THE AMERICANS WITH DISABILITIES ACT (ADA) AS WELL AS APPLICABLE STATE AND LOCAL CODES OUTLINED ABOVE. PC TO COORDINATE WITH ARCHITECT ABOUT FINAL FIXTURE SELECTIONS TO ENSURE MINIMUM REQUIRED CLEARANCES ARE MET.

X PLUMBING CONTRACTOR (PC) TO PROVIDE AND INSTALL VIBRATION RESTRAINTS FOR ALL PUMPS AND PLUMBING EQUIPMENT PER ATTACHED SCHEDULE AND SPECIFICATION REQUIREMENTS. REVIEW STRUCTURAL PLANS FOR PROPER MOUNTING PLATFORMS AND HANGER LOCATIONS.

Y PLUMBING CONTRACTOR SHALL PROVIDE TWO COMPLETE SETS OF MAINTENANCE, OPERATING INSTRUCTIONS, SUBMITTALS, DIAGRAMS AND WATER TEST RESULTS BOUND IN HEAVY–DUTY COVERS. PC TO COORDINATE OTHER CLOSEOUT DOCUMENTS WITH THE ARCHITECT'S SPECIFICATIONS. PC SHALL PROVIDE TWO HOURS OF TRAINING TO OWNER COVERING SYSTEM OPERATION, CONTROL AND MAINTENANCE FOLLOWING BUILDING COMMISSIONING, FINAL WATER SUPPLY TESTING AND FINAL SITE OBSERVATION.

Z ALL PLUMBING HOSE BIBS OR VALVES WITH THREADED CONNECTIONS SHALL BE PROVIDED WITH VACUUM BREAKERS AND APPROVED MEANS OF BACK–FLOW PREVENTION AS REQUIRED BY ABOVE REFERENCED CODES. HOSE BIBBS TO BE INSTALLED 2'–0" AFF OR GRADE. ALL HOSE BIBBS TO BE IDENTIFIED PER **IPC 606.4** W/ PERMANENT BRASS OR LAMINATE TAGS.

AA WATER HEATERS TO BE EQUIPPED WITH ASME PRESSURE AND TEMPERATURE RELIEF VALVE AND OVERFLOW PAN. PROVIDE SUPPORT STAND WHERE REQUIRED TO ALLOW PIPE TO GRAVITY DRAIN TO SERVICE SINK OR EXTERIOR TO GRADE PER **IPC 2018.**

BB COORDINATE ALL ELECTRICAL EQUIPMENT WITH ELECTRICAL CONTRACTOR (EC) BEFORE ORDERING. THE PC SHALL PROVIDE ALL CONTROL WIRING, DEVICES, BOXES AND CONDUIT FOR CIRCUITS UNDER 50 VOLTS FOR THE COMPLETION OF THE WORK. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL POWER WIRING. ALL ELECTRICAL LOW VOLTAGE ELECTRICAL WORK SHALL CONFORM TO THE **2017 NATIONAL ELECTRIC CODE** SECTIONS 720 & 725 AND ANY OTHER APPLICABLE SECTIONS. PIPING & EQUIPMENT SHALL NOT OBSTRUCT OR BE INSTALLED ABOVE ELECTRICAL PANELS. ALL ELECTRICAL EQUIPMENT SHALL BE U.L. LISTED & APPROVED.

DD COMMERCIAL KITCHEN EQUIPMENT INSTALLATIONS SHALL COMPLY WITH **SC DHEC** REQUIREMENTS FOR FIXTURE INSTALLATION INCLUDING MOUNTING METHODS AND MATERIALS. REFER TO **SC DHEC** FOOD EQUIPMENT INSTALLATION MANUAL FOR DETAILS.

1 EE AS DESIGNED BY THE ARCHITECT, THIS PROJECT CONTAINS RATED WALLS, CEILINGS OR PARTITIONS. ALL MATERIALS UTILIZED FOR FIRE RATED PENETRATIONS SHALL BE UL LISTED AND APPROVED. PC SHALL ENSURE THAT PIPING PENETRATIONS OF FIREWALLS SHALL BE IN ACCORDANCE WITH UL STANDARDS W–L–5029, W–L–1055 OR SIMILAR (REFER TO DETAILS) AND THE **ICC 2018** INTERNATIONAL SERIES OF CODES. *REFER TO THE ARCHITECTURAL DRAWINGS AND LIFE SAFETY PLANS FOR EXACT WALL, CEILING AND PARTITION ASSEMBLIES AND RATINGS.*

GG OUTLET TEMPERATURES AT LAVATORIES TO BE SET AT A MAXIMUM OF 110°F VIA TEMPERATURE LIMIT STOPS AT FAUCET PER CODE **504.3 IECC & IPC 607.1.**

HH PC TO COORDINATE WITH GC FOR ANY REQUIRED CONCRETE SAW–CUTTING. GC TO PATCH CONCRETE TO MATCH EXISTING AND PROVIDE REBAR/DOWELING REQUIRED FOR ANY PATCHING OR REPAIR.

II EXTERIOR GAS PIPING MAY BE POLYETHYLENE TUBING BY DRISCOPIPE OR OTHERS WITH CODE APPROVED BLACK IRON RISERS. POLYETHYLENE TUBING TO BE INSTALLED ACCORDING TO MANUFACTURER'S LISTING. PC TO PROVIDE DRAWINGS OF FINAL GAS PIPING LAYOUT TO OWNER AND MARK GAS PIPING WITH SIGNAGE INDICATING THE LOCATION OF THE PIPING EXTERIOR TO THE BUILDING

JJ PC TO PROVIDE ALL GAS PIPING FOR PLUMBING AND KITCHEN EQUIPMENT, COMPLETE WITH ALL REQUIRED FITTINGS, STRAPS, HANGERS, SUPPORTS, REGULATORS AND OTHER ITEMS REQUIRED. PC TO OBTAIN ALL REQUIRED PERMITS, INSPECTIONS AND APPROVALS. ALL GAS PIPING INTERIOR TO THE BUILDING SHALL BE SCHEDULE 40 BLACK IRON AND SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF NFPA, **ICC 2018 FUEL GAS CODE** AND ANY APPLICABLE STATE OR LOCAL CODES.

KK PC SHALL COORDINATE INSTALLATION OF NEW GAS METER WITH LOCAL GAS COMPANY AND GENERAL CONTRACTOR. DETERMINE LOCAL GAS COMPANY REQUIREMENTS PRIOR TO INSTALLATION. REFER TO CIVIL / SITE DRAWINGS FOR UTILITY GAS PIPING ROUTING LOCATIONS.

LL PC TO MAKE FINAL CONNECTION TO ALL GAS FIRED WATER HEATING AND KITCHEN EQUIPMENT; PROVIDE MEDIUM PRESSURE REGULATORS, OVER PRESSURE DEVICES, GAS SHUT OFF VALVE, AND DIRT LEGS AT EACH CONNECTION. REFER TO DETAILS.

MM INSTALL GAS APPLIANCE VENTING SYSTEMS IN STRICT ACCORDANCE WITH THE MANUFACTURER'S LISTING – INCLUDING PROPER SIZE AND CONFIGURATION. UTILIZE MANUFACTURE'S VENTING ACCESSORIES. ADHERE TO ALL HORIZONTAL AND/OR VERTICAL LENGTH AND HEIGHT LIMITATIONS, MIN. CLEARANCES TO COMBUSTIBLES, OR SPECIFICATIONS FOR USE OF ELBOWS, TEES, & DRAIN TEES. DO NOT CONNECT MULTIPLE CATEGORY II, III, OR IV APPLIANCES INTO THE SAME VENT SYSTEM OR COMBINE WITH ANY CATEGORY I (NATURAL DRAFT) APPLIANCE. ADHERE TO REQUIREMENTS OF THE ICC 2018 MECHANICAL CODE AND FUEL GAS CODE AND IN ACCORDANCE WITH **NFPA 54 OR NFPA 211**. CONFIRM ROOF OR SIDEWALL VENTING PENETRATION LOCATIONS WITH THE ARCHITECT'S PLANS AND THE GC.

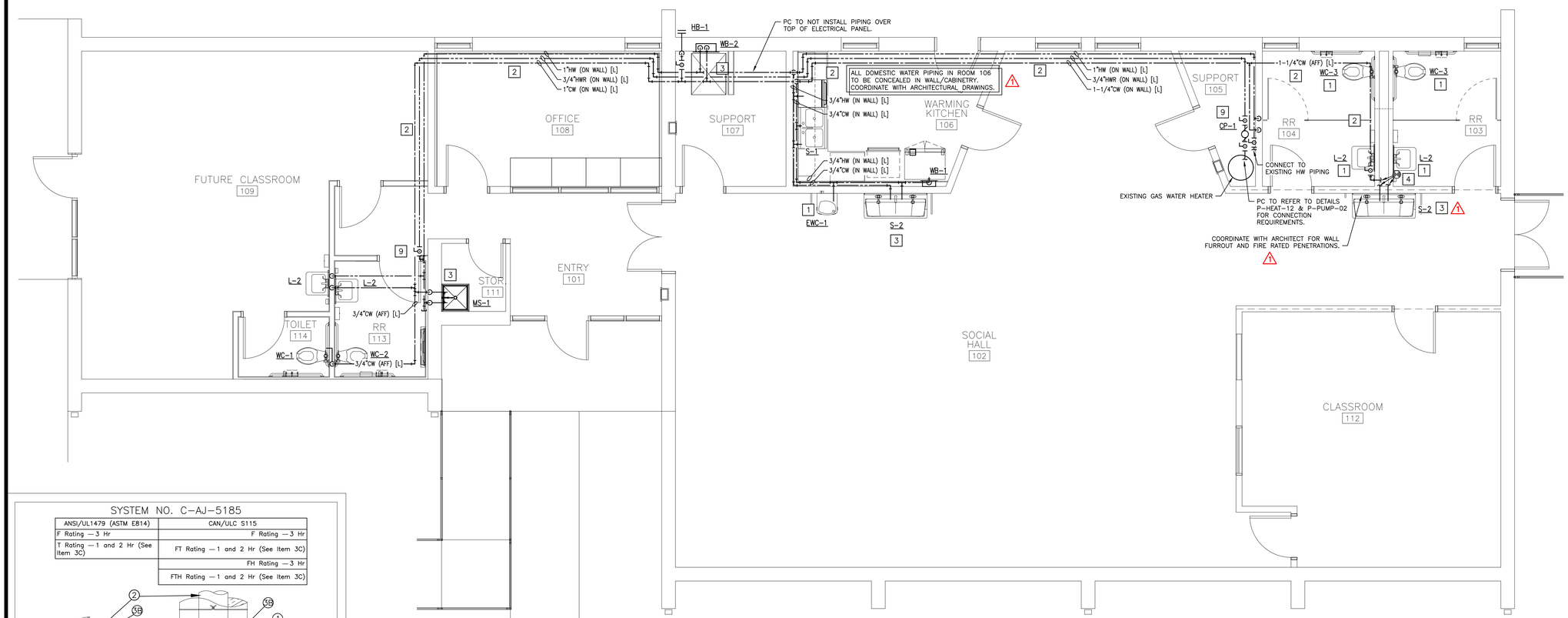
PIPING MATERIAL SCHEDULE

PIPING MARK	PIPING MATERIAL SPECIFICATION	INSULATION	BUILDING LOCATIONS	MAX HORIZONTAL HANGER SPACING	NOTES
[L]	COPPER – TYPE "L" COPPER (ASTM B88) W/ LEAD FREE SOLDER JOINTS. JOINTS OR PROPRESS FITTINGS.	NOTE 1	DOMESTIC WATER. ABOVE GRADE WITHIN THE BUILDING	≤ 1–1/4"ø = 6'–0" ≥ 1–1/2"ø = 10'–0"	1,2,4,5,7
[PVC]	PVC – SCHEDULE 40 PVC DWV PIPE AND FITTINGS WITH SOLVENT TYPE JOINTS (ASTM D–2661 OR D–2665)	NOT APPLICABLE	WASTE & VENT PIPING. NON–RATED VENT PIPES.	4'–0"	3,4,7
[BI]	BLACK STEEL PIPE SCHEDULE 40 PIPE. (ASTM A–53 TYPE E, GRADE A STANDARDS). NPT THREADS. THREADS (ANSI B1.20.1 STANDARDS).	NOT APPLICABLE	NATURAL GAS PIPING. SEE PLAN FOR LOCATIONS	12'–0"	3,4,6,7,8

NOTE 1: (BID WORK) INSTALL 1" FLEXIBLE ELASTOMERIC CLOSED CELL THERMAL INSULATION ON ALL HOT AND COLD WATER PIPING BELOW AND ABOVE GRADE (1/2" FOR INTERIOR WALL CAVITIES). UTILIZE PREFORMED INSULATION ELBOWS, TEES AND FITTINGS AND USE M

PLUMBING KEY NOTES

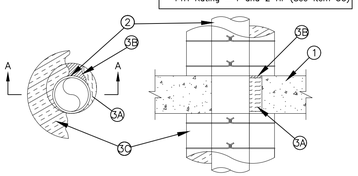
1. PC TO CONNECT NEW FIXTURE TO EXISTING CW/HW SUPPLY AND SANITARY WASTE CONNECTIONS. PC TO REPLACE ANY DAMAGED ESCUTCHEONS, STOPS & P-TRAP STUBS IN WALL AS REQUIRED. PC TO REVIEW EXISTING SITE CONDITIONS PRIOR TO START OF WORK.
2. PC TO MOUNT ALL DOMESTIC WATER SUPPLY & RETURN VERTICALLY ON WALL AS HIGH AS POSSIBLE UNDER CEILING. GC TO COORDINATE SOFFIT WITH ARCHITECT FOR CONCEALMENT OF DOMESTIC WATER PIPING AND TO COORDINATE WITH ALL DUCTWORK.
3. COORDINATE WALL FURRING FOR PLUMBING FIXTURES WITH GC. REFER TO DETAILS FOR REQUIRED WALL PENETRATIONS. (1)
4. PC TO CONNECT NEW FIXTURE TO EXISTING CW/HW SUPPLY CONNECTIONS. PC TO REVIEW EXISTING SITE CONDITIONS PRIOR TO START OF WORK.
5. EXISTING SANITARY WASTE LINE TO EXISTING SANITARY SEWER SYSTEM.
6. PC TO TIE NEW VENT INTO EXISTING VENTING SYSTEM. PC TO REVIEW EXISTING CONDITIONS FOR EXACT TIE-IN LOCATION.
7. VENT THROUGH THE ROOF (SEE PLANS FOR SIZES)
8. PC TO CONNECT NEW MOP SINK INTO DEMO'D WATER CLOSET WASTE PIPING.
9. CONTRACTOR TO FIELD BALANCE HOT WATER CIRCULATION SYSTEM TO ENSURE EQUAL FLOW THROUGH OUT THE ENTIRE SYSTEM.
10. GC TO SAW CUT SLAB FOR NEW SAN WASTE PIPING. GC TO DOWEL & PATCH CONCRETE TO MATCH EXISTING.



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

SYSTEM NO. C-AJ-5185

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Rating — 3 Hr	F Rating — 3 Hr
T Rating — 1 and 2 Hr (See Item 3C)	FT Rating — 1 and 2 Hr (See Item 3C)
	FH Rating — 3 Hr
	FTH Rating — 1 and 2 Hr (See Item 3C)



SECTION A-A

1. FLOOR OR WALL ASSEMBLY — MIN 4-1/2 IN. (114 MM) THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF OR 1600-2400 KG/M3) CONCRETE. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS*. MAX DIAM OF OPENING IS 25-7/8 IN. (657 MM).
   SEE CONCRETE BLOCKS (CAZT) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.
2. THROUGH PENETRANTS — ONE METALLIC PIPE OR TUBING TO BE INSTALLED CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. THE ANNULAR SPACE BETWEEN THE PIPE OR TUBE AND THE OPENING SHALL BE MIN 0 IN. (POINT CONTACT TO MAX 1-7/8 IN. (48 MM)) PIPE OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF THE WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES, CONDUITS OR TUBING MAY BE USED:
   A. STEEL PIPE — NOM 24 IN. (610 MM) DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.
   B. IRON PIPE — NOM 24 IN. (610 MM) DIAM (OR SMALLER) CAST OR DUCTILE IRON PIPE.
   C. COPPER TUBING — NOM 4 IN. (102 MM) DIAM (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING.
   D. COPPER PIPE — NOM 4 IN. (102 MM) DIAM (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.
3. FIRESTOP SYSTEM — THE FIRESTOP SYSTEM SHALL CONSIST OF THE FOLLOWING:
   A. PACKING MATERIAL — MIN 4 IN. (102 MM) THICKNESS OF MIN 4 PCF (64 KG/M3) MINERAL WOOL BATT INSULATION FIRMLY PACKED INTO OPENING AS A PERMANENT FORM. PACKING MATERIAL TO BE RECESSED FROM TOP SURFACE OF FLOOR OR BOTH SURFACES OF WALL TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL.
   B. FILL VOID OR CAVITY MATERIALS* — SEALANT — MIN 1/4 IN. (6 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH TOP SURFACE OF FLOOR OR BOTH SURFACES OF WALL.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE SEALANT OR FS-ONE MAX INTUMESCENT SEALANT
   C. PIPE COVERING MATERIALS* — NOM 3 IN. (76 MM) THICK UNFACED MINERAL FIBER PIPE INSULATION SIZED TO THE OUTSIDE DIAM OF PIPE OR TUBE. WHEN PIPE INSULATION EXTENDS THE ENTIRE LENGTH OF THE PIPE OR TUBE, PIPE INSULATION SECURED WITH NOM 16 AWG STEEL WIRE SPACED MAX 12 IN. (305 MM) OC. WHEN PIPE INSULATION EXTENDS ONLY 12 IN. (305 MM) BEYOND EACH SIDE OF FLOOR OR WALL, PIPE INSULATION SECURED WITH NOM 16 AWG STEEL WIRE SPACED 3 IN. (76 MM) AND 9 IN. (229 MM) BEYOND EACH SIDE OF FLOOR OR WALL. WHEN THE PIPE INSULATION EXTENDS THE ENTIRE LENGTH OF THE PIPE OR TUBE, ON EACH SIDE OF FLOOR OR WALL, THE T, FT AND FTH RATING IS 2 HR. WHEN THE PIPE INSULATION EXTENDS ONLY 12 IN. (305 MM) BEYOND EACH SIDE OF FLOOR OR WALL, THE T, FT AND FTH RATING IS 1 HR.
   IG MINWOOL L L C — HIGH TEMPERATURE PIPE INSULATION 1200, HIGH TEMPERATURE PIPE INSULATION BWT OR HIGH TEMPERATURE PIPE INSULATION THERMALOC

* INDICATES SUCH PRODUCTS SHALL BEAR THE UL OR CUL CERTIFICATION MARK FOR JURISDICTIONS EMPLOYING THE UL OR CUL CERTIFICATION (SUCH AS CANADA), RESPECTIVELY.

FP-MP-09	INSULATED METALLIC PIPE – CONCRETE FLOOR/WALL	NOT TO SCALE

(1) ADDED

LEGEND

ABBREVIATIONS DESCRIPTIONS

AFF	ABOVE FINISHED FLOOR
BFF	BELOW FINISHED FLOOR
BG	BELOW GRADE
CI	CAST IRON
CO	CLEAN OUT
COND	CONDENSATE
CONN	CONNECTION
CONTR	CONTRACTOR
CW	DOMESTIC COLD WATER
DN	DOWN
DEG. or °	DEGREE
DIFF. or Δ	DIFFERENCE OR DELTA
DIA OR ø	DIAMETER
DWG.	DRAWING
ED	EQUIPMENT DRAIN
EL.	ELEVATION
EXT	EXISTING
FCO	FLOOR CLEAN OUT
FD	FLOOR DRAIN
F.F. ELEV.	FINISHED FLOOR ELEVATION
FP	FIRE PROTECTION
FPS	FEET PER SECOND
GAL	GALLONS
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
HP	HORSEPOWER
HW	DOMESTIC HOT WATER
HWR	DOMESTIC HOT WATER RETURN
ID	INSIDE DIAMETER
NO.	NUMBER
NPT	NATIONAL PIPE THREAD
NTS	NOT TO SCALE
SAN	SANITARY SEWER
SPEC	SPECIFICATION
SS	SANITARY SEWER
ST	STORM SEWER (OR CONDENSATE)
TYP	TYPICAL
V	VENT
VTR	VENT THRU ROOF
WCO	WALL CLEAN OUT
YCO	YARD CLEAN OUT

FITTINGS

RISER DOWN (ELBOW)
RISER UP (ELBOW)
RISER TEE
BRANCH-TOP CONNECTION
BRANCH-BOTTOM CONNECTION
CAP ON END OF PIPE
ELBOW
TEE
UNION
STRAINER
WALL HYDRANT

PIPE LABELS

CW — COLD WATER LINE
CD — CONDENSATE LINE (CO)
FW — FIRE PROTECTION WATER SUPPLY (F)
FW — FILTERED WATER
HW — HOT WATER LINE
HWR — HOT WATER RETURN LINE
IW — INDIRECT WASTE (W)
LS — LAWN SPRINKLER SUPPLY (LS)
NG — NATURAL GAS LINE (NG)
PD — PUMP DISCHARGE LINE (PD)
SAN — SANITARY WASTE LINE (SAN,SS)
SD — STORM DRAIN, RAINWATER DRAIN (SD,ST)
V — SANITARY VENT LINE (V)

SYMBOLS

WATER HAMMER ARRESTER (WHA)
P-TRAP
FD — FLOOR DRAIN SQUARE STRAINER (FD)
ED — EQUIPMENT DRAIN SQUARE STRAINER (ED)
WATER METER
POINT OF CONNECTION
CO — CLEANOUT PLUG (CO)
FCO — FLOOR CLEAN OUT (FCO)
YCO — YARD CLEAN OUT (YCO)
WCO — WALL CLEAN OUT (WCO)
VTR — VENT THRU ROOF (VTR)
— PIPING CONTINUATION MARKS

VALVES

GATE VALVE (GV)
BALANCING VALVE
GAS COCK, GAS STOP
GLOBE VALVE (GLV)
PLUG VALVE (PV)
SOLENOID VALVE
CHECK VALVE or BACKWATER VALVE (CV)
TEMPERATURE-PRESSURE-RELIEF VALVE (TPV)
BALL VALVE (BV)
BUTTERFLY VALVE (BFV)
BACKFLOW PREVENTOR
DOUBLE-CHECK BACKFLOW PREVENTER (DCBP)
STRAINER
VALVE IN RISER
GAS REGULATOR

! CAUTION !

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NO.	DESCRIPTION	DATE	BY
1	OWNER REQUESTED CHANGES	01-04-2020	
0	ISSUED FOR PERMITTING & CONSTRUCTION	12-18-2020	
A	ISSUED FOR OWNER REVIEW	10-21-2020	

REVISIONS

DRAWN BY | CHECKED BY

M.E. & P. Incorporated No. C03128 — SOUTH CAROLINA — CERTIFICATE OF AUTHORIZATION

A RENOVATION FOR
THE BETHLEHEM CENTER K4
400 HIGHLAND AVENUE SPARTANBURG, SC 29306

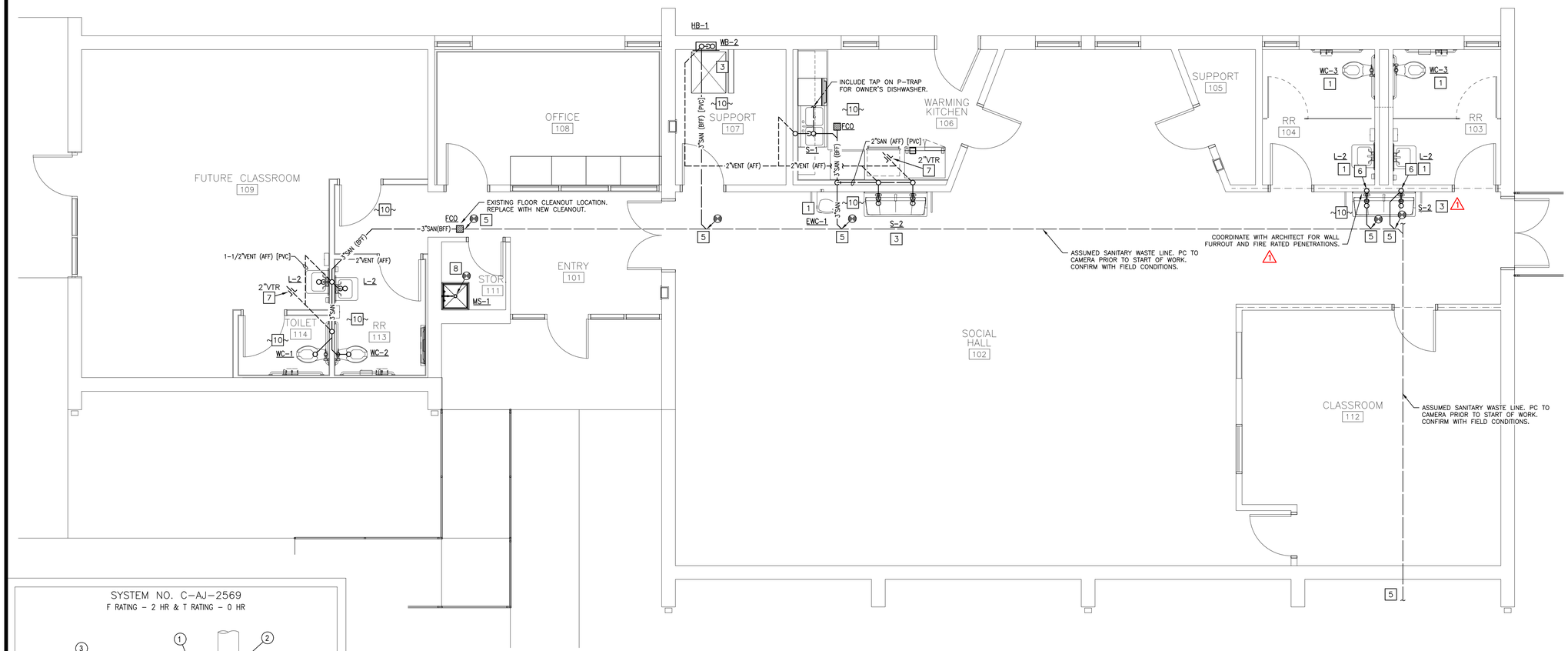
PLUMBING SUPPLY PLAN

DRAWING NUMBER
P-1

Project No. ---

PLUMBING KEY NOTES

1. PC TO CONNECT NEW FIXTURE TO EXISTING CW/HW SUPPLY AND SANITARY WASTE CONNECTIONS. PC TO REPLACE ANY DAMAGED ESCUTCHEONS, STOPS & P-TRAP STUBS IN WALL AS REQUIRED. PC TO REVIEW EXISTING SITE CONDITIONS PRIOR TO START OF WORK.
2. PC TO MOUNT ALL DOMESTIC WATER SUPPLY & RETURN VERTICALLY ON WALL AS HIGH AS POSSIBLE UNDER CEILING. GC TO COORDINATE SOFFIT WITH ARCHITECT FOR CONCEALMENT OF DOMESTIC WATER PIPING AND TO COORDINATE WITH ALL DUCTWORK.
3. COORDINATE WALL FURRING FOR PLUMBING FIXTURES WITH GC. REFER TO DETAILS FOR REQUIRED WALL PENETRATIONS. (1)
4. PC TO CONNECT NEW FIXTURE TO EXISTING CW/HW SUPPLY CONNECTIONS. PC TO REVIEW EXISTING SITE CONDITIONS PRIOR TO START OF WORK.
5. EXISTING SANITARY WASTE LINE TO EXISTING SANITARY SEWER SYSTEM.
6. PC TO TIE NEW VENT INTO EXISTING VENTING SYSTEM. PC TO REVIEW EXISTING CONDITIONS FOR EXACT TIE-IN LOCATION.
7. VENT THROUGH THE ROOF (SEE PLANS FOR SIZES)
8. PC TO CONNECT NEW MOP SINK INTO DEMO'D WATER CLOSET WASTE PIPING.
9. CONTRACTOR TO FIELD BALANCE HOT WATER CIRCULATION SYSTEM TO ENSURE EQUAL FLOW THROUGH OUT THE ENTIRE SYSTEM.
10. GC TO SAW CUT SLAB FOR NEW SAN WASTE PIPING. GC TO DOWEL & PATCH CONCRETE TO MATCH EXISTING.



A / P-2 PLUMBING WASTE PLAN
SCALE: 1/4" = 1'-0"

LEGEND

ABBREVIATIONS DESCRIPTIONS

AFF	ABOVE FINISHED FLOOR
BFF	BELOW FINISHED FLOOR
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NTS	NOT TO SCALE
SAN	SANITARY SEWER
SPEC	SPECIFICATION
SS	SANITARY SEWER
ST	STORM SEWER (OR CONDENSATE)
TYP	TYPICAL
V	VENT
VTR	VENT THRU ROOF
WCO	WALL CLEAN OUT
YCO	YARD CLEAN OUT

FITTINGS

RISER DOWN (ELBOW)
RISER UP (ELBOW)
BRANCH-TOP CONNECTION
BRANCH-BOTTOM CONNECTION
CAP ON END OF PIPE
ELBOW
TEE
UNION
STRAINER
WALL HYDRANT

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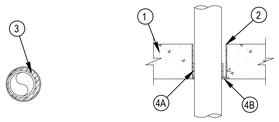
BUTTERFLY VALVE (BFV)
BACKFLOW PREVENTOR
DOUBLE-CHECK BACKFLOW PREVENTER (DCBP)
STRAINER
VALVE IN RISER
GAS REGULATOR

SYSTEM NO. C-AJ-2569

F RATING – 2 HR & T RATING – 0 HR



1. FLOOR OR WALL ASSEMBLY — MIN 4-1/2 IN. (114 MM) THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF OR 1600-2400 KG/M3) CONCRETE FLOOR OR WALL. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS. MAX DIAM OF OPENING IS 6 IN. (152 MM). SEE CONCRETE BLOCKS (CAZT) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.
2. STEEL SLEEVE — (OPTIONAL) — NOM 4 IN. (102 MM) DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL SLEEVE CAST OR GROUTED INTO FLOOR OR WALL ASSEMBLY, FLUSH WITH FLOOR OR WALL SURFACES OR EXTENDING A MAX OF 3 IN. (76 MM) ABOVE FLOOR OR BEYOND BOTH SURFACES OF WALL.
3. THROUGH PENETRANTS — ONE NONMETALLIC PIPE TO BE INSTALLED CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. ANNULAR SPACE WITHIN THE FIRESTOP SYSTEM IS DEPENDENT UPON THE MAX DIAM AND TYPE OF PENETRANT USED AS TABULATED IN ITEM 4A. PIPE TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF NONMETALLIC PIPES MAY BE USED:
   A. POLYVINYL CHLORIDE (PVC) PIPE — NOM 4 IN. (102 MM) DIAM (OR SMALLER) SCHEDULE 40 SOLID OR CELLULAR CORE PVC FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEMS.
   B. CHLORINATED POLYVINYL CHLORIDE (CPVC) PIPE — NOM 4 IN. DIAM (OR SMALLER) SDR13.5 CPVC FOR USE IN CLOSED (PROCESS OR SUPPLY) PIPING SYSTEMS.
   C. ACRYLONITRILE BUTADIENE STYRENE (ABS) PIPE — NOM 4 IN. (102 MM) DIAM (OR SMALLER) SCHEDULE 40 SOLID OR CELLULAR CORE ABS FORUSE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEMS.
4. FIRESTOP SYSTEM — THE FIRESTOP SYSTEM SHALL CONSIST OF THE FOLLOWING:
   A. FILL, VOID OR CAVITY MATERIAL* — WRAP STRIP — ONE LAYER OF INTUMESCENT WRAP STRIP IS CONTINUOUSLY WRAPPED AROUND THE PIPE WITH ENDS BUTTED AND HELD IN PLACE WITH INTEGRATED TAPE. WRAP STRIP INSTALLED RECESSED ¼ IN. (6 MM) FROM BOTTOM SURFACE OF FLOOR OR BOTH WALL SURFACES TO ACCOMMODATE FILL MATERIAL. SIZE OF WRAP STRIP FOR A GIVEN SIZE PENETRANT IS SHOWN IN THE TABLE BELOW.
   HILTI CONSTRUCTION CHEMICALS, DIV OF
   HILTI INC — CP648-S-1.5" US, CP648-S-2" US, CP648-S-3" US OR CP648-S-4" US WRAP STRIP

   B. Fill, Void or Cavity Material* — Min 1/4 in. (6 mm) thickness of fill material applied within the annulus, flush with bottom surface of floor or with both surfaces of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF
   HILTI INC — FS-One Sealant.

FP-PLP-07	PLASTIC PIPE THROUGH CONCRETE FLOOR/WALL	NOT TO SCALE

(1) ADDED

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M.E. & P. Incorporated No. C02128 — SOUTH CAROLINA — MEMBER

Jan 4, 2021

A RENOVATION FOR

THE BETHLEHEM CENTER K4

400 HIGHLAND AVENUE SPARTANBURG, SC 29306

PLUMBING WASTE PLAN

DRAWING NUMBER

P-2

Project No. ---

ABBREVIATIONS

ABV	ABOVE
AC	ABOVE COUNTER
ADO	AUTOMATIC DOOR OPENER
AFF	ABOVE FINISHED FLOOR
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLING UNIT
ARA	AREA OF RESCUE ASSISTANCE
ATS	AUTOMATIC TRANSFER SWITCH
BAS	BUILDING AUTOMATION SYSTEM
BFF	BELOW FINISHED FLOOR
BG	BELOW GRADE
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CF	COMPACT FLUORESCENT
CLG	CEILING
CP	CIRCULATION PUMP
CU	CONDENSING UNIT
DSP	DISPOSAL
DW	DISHWASHER
EC	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
EG	EQUIPMENT GROUND
ELEV	ELEVATOR
ESC	ELEVATOR SMOKE CURTAIN
EUH	ELECTRIC UNIT HEATER
EWC	ELECTRIC WATER COOLER
EXT	EXISTING
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
FLUOR	FLUORESCENT
G,GND	GROUND
GC	GENERAL CONTRACTOR
GEN	GENERATOR
GFCI	GROUND FAULT CURRENT INTERRUPTER
GFI	GROUND FAULT INTERRUPTER
HP	HEAT PUMP or HORSE POWER
INC	INCANDESCENT
JB	JUNCTION BOX
KES	KITCHEN EXHAUST SYSTEM
KEF	KITCHEN EXHAUST FAN
KHP	KITCHEN HOOD PANEL
KSF	KITCHEN SUPPLY FAN
LV	LOW VOLTAGE
MC	MECHANICAL CONTRACTOR
MCC	MOTOR CONTROL CENTER
MDP	MAIN DISTRIBUTION PANEL
MLO	MAIN LUGS ONLY
MTD	MOUNTED
MTG HGT	MOUNTING HEIGHT
NEC	NATIONAL ELECTRIC CODE
PMP	PUMP
PNL	PANEL
POS	POINT OF SALE
POD	POWER OPERATED DAMPER
PWR	POWER
RECEP	RECEPTACLE
RTU	ROOF TOP UNIT
SEC	SECURITY
SS	SAFETY SWITCH
TEL	TELEPHONE
TV	TELEVISION
TYP	TYPICAL
UH	UNIT HEATER
UNO	UNLESS NOTED OTHERWISE
V	VOLTAGE or VOLTS
VAV	VARIABLE AIR VOLUME UNIT
WP	WEATHER-PROOF
XFMR	TRANSFORMER

COMMUNICATIONS/SECURITY

WALL/CEILING MOUNTED VIDEO OUTLET, "A" = LOCATION SHOWN ON ARCHITECTURAL DWGS. RUN 3/4" EMPTY CONDUIT WITH PULL STRING TO ACCESSIBLE CEILING SPACE.

TELEPHONE TERMINAL BOARD. PROVIDE 4' X 4' X 3/4" THICK FIRE RESISTANT PLYWOOD IN LENGTHS AS SHOWN ON THE FLOOR PLANS.

WALL MOUNTED DUPLEX DATA TELEPHONE COMBINATION OUTLETS IN DOUBLE GANG BOX MOUNTED AT +18" AFF UNLESS NOTED OTHERWISE. RUN 1" EMPTY CONDUIT WITH PULL STRING TO ACCESSIBLE CEILING SPACE. "A" = LOCATION SHOWN ON ARCH. DWGS.

WALL MOUNTED TELEPHONE OUTLET IN SINGLE GANG BOX. RUN 3/4" EMPTY CONDUIT WITH PULL STRING TO ACCESSIBLE CEILING. MOUNT AT +18" AFF UNO.

W SAME AS ABOVE WITH MOUNTING AT 54" AFF.

WALL MOUNTED DATA OUTLET IN SINGLE GANG BOX. RUN 3/4" EMPTY CONDUIT WITH PULL STRING TO ACCESSIBLE CEILING. MOUNT AT 18" AFF UNO.

CR "CR" DENOTES SINGLE GANG AT 48" AFF FOR CARD READER (READER & WIRING BY OTHERS) RUN 3/4" CONDUIT WITH PULL STRING TO ACCESSIBLE CEILING.

OP "OP" DENOTES ENTRY POINT INTO OFFICE PANEL SYSTEM. PROVIDE SINGLE GANG BOX AT 6" AFF MOUNTED HORIZONTALLY WITH 1" CONDUIT AND PULL STRING TO ACCESSIBLE CEILING.

DD "DD" DENOTES DUCT DETECTOR CONTROL STATION. RUN 3/4" EMPTY CONDUIT WITH PULL STRING TO ACCESSIBLE CEILING. PROVIDE DOUBLE GANG BOX AT 42" AFF.

NOTE: ITEMS WITH ASTERISK "*", THE LOCATION SHALL BE COORDINATED WITH OWNER/ARCHITECT

POWER EQUIPMENT

DISTRIBUTION/RECEPTACLE LIGHTING PANELBOARD, MH 6'-6" AFF TO TOP. SEE PANEL SCHEDULES FOR VOLTAGE, PHASE AND MOUNTING.

?? ?—? EQUIPMENT ELECTRICAL CONNECTION. CONTRACTOR TO PROVIDE PROPER FITTINGS AND CONDUIT AS NECESSARY. EQUIPMENT IDENTIFICATION AND CIRCUIT NUMBER AS INDICATED.

*1 CONFIRM CONNECTION WITH EQUIPMENT MANUFACTURER'S REQUIREMENTS, SITE CONDITIONS AND NEC.

D1 NON-FUSED POWER DISCONNECT SWITCH. LOCATED IN ACCORDANCE WITH NEC.

S1 TWO-POLE TOGGLE SWITCH FOR POWER DISCONNECT. LOCATED IN ACCORDANCE WITH NEC.

?? ?? FUSED POWER DISCONNECT SWITCH (FUSE/SWITCH SIZE). LOCATED IN ACCORDANCE WITH NEC.

LTG – EQUIPMENT IS TO INCLUDE LIGHT.

?? CB1 CIRCUIT BREAKER DISCONNECT. LOCATED IN ACCORDANCE WITH NEC.

HOA HAND OFF AUTOMATIC DISCONNECT. LOCATED IN ACCORDANCE WITH NEC.

T DRY TYPE TRANSFORMER WITH NEMA 1 ENCLOSURE UNLESS NOTED OTHERWISE.

C* LIGHTING CONTACTOR 30A, 6 POLE, ELECTRICALLY HELD, NEMA 1 ENCLOSURE UNO. *=1,2,...ETC.

AD AUTO DOOR OPERATOR, INSTALL PER MANUFACTURERS REQUIREMENTS. PROVIDE CONDUIT, BOXES FOR PUSH PLATES, POWER AND CONTROL WIRING FOR A COMPLETE INSTALLATION.

TS ELECTRONIC TIME SWITCH, INTERMATIC ET70000 SERIES OR APPROVED EQUAL. FOUR HOUR BATTERY BACKUP REQUIRED. PROVIDE REQUIRED RELAYS, SWITCHING AND NEMA RATING FOR PROJECT REQUIREMENTS AND CONDITIONS.

CB CIRCUIT BREAKER INDIVIDUALLY MOUNTED IN NEMA 1 ENCLOSURE. RATING AS NOTED.

J C A-1 JUNCTION BOX, FLUSH MOUNTED WITH BLANK COVER PLATE SIZED PER NEC. MH TO BE COORDINATED WITH WORK AND EQUIPMENT AT LOCATION INDICATED. "WP" DENOTES WEATHERPROOF, "C" DENOTES MOUNTED ON OR ABOVE CEILING.

OP A-1 SINGLE GANG BOX 6" AFF WITH CIRCUIT NO. INDICATED. CONNECT TO POWER IN-FEED CABLE (PROVIDED BY OTHERS) OF OFFICE PANEL SYSTEM. SEE MANUFACTURER'S INSTRUCTIONS.

NOTE: ITEMS WITH ASTERISK "*", THE LOCATION SHALL BE COORDINATED WITH OWNER/ARCHITECT

FIRE ALARM

F 15 FIRE ALARM AUDIO/VISUAL ALARM, SEMI-FLUSH MOUNTED, MH 7'-6" AFF (MIN CANDELLA AS SHOWN).

F 15 FIRE ALARM VISUAL ALARM ONLY, SEMI-FLUSH MOUNTED, MH 7'-6" AFF (MIN CANDELLA AS SHOWN)

F FIRE ALARM MANUAL STATION, SEMI-FLUSH, SINGLE ACTION, MH 4'-0" AFF.

K KNOX BOX WITH ALARM SIGNAL. COORDINATE WITH FIRE MARSHAL AND ARCHITECT.

FACP FIRE ALARM CONTROL PANEL. NON-CODED ADDRESSABLE MICROPROCESSOR BASED SYSTEM WITH BACKUP POWER, NON-VOLATILE MEMORY AND COMPATIBLE WITH ALL DEVICES. SHALL BE EXPANDABLE AND HAVE 5% EXTRA CAPACITY WHEN INSTALLED.

D SMOKE DETECTOR, PHOTOELECTRIC TYPE, CEILING MOUNTED, UNLESS NOTED OTHERWISE.

D_T HEAT DETECTOR, COMBINATION FIXED-TEMPERATURE/RATE-OF-RISE, CEILING MOUNTED.

D_D SMOKE DETECTOR, DUCT MOUNTED, INSTALLED BY MECHANICAL CONTRACTOR, FURNISHED AND WIRED BY ELECTRICAL CONTRACTOR. REFER TO MECHANICAL PLANS FOR EXACT LOCATIONS.

D_D A SMOKE DETECTOR, DUCT MOUNTED, SAME AS ABOVE WITH REMOTE ALARM INDICATOR. MOUNT INDICATOR NEAR AIR HANDLING UNIT IN CONSPICUOUS LOCATION APPROVED BY ARCHITECT/ OWNER.

D_{CO} CARBON MONOXIDE DETECTOR (INTERCONNECTED), DUAL ELEMENT CEILING MOUNT WITH BATTERY BACKUP.

D FIRE ALARM MAGNETIC DOOR HOLDER, COORDINATE LOCATION AND MOUNTING HEIGHT WITH ARCHITECT AND FAC TO ENSURE LOW VOLTAGE SINGAL CUT OUT WITH ALARM ACTIVATION PER NFPA 72. EC TO PROVIDE 120 VAC CIRCUIT FOR OPERATION.

TS SPRINKLER SYSTEM TAMPER SWITCH, FURNISHED AND INSTALLED BY SPRINKLER CONTRACTOR AND CONNECTED BY ELECTRICAL CONTRACTOR.

FS SPRINKLER SYSTEM FLOW SWITCH, FURNISHED AND INSTALLED BY SPRINKLER CONTRACTOR AND CONNECTED BY ELECTRICAL CONTRACTOR.

PS SPRINKLER SYSTEM HIGH/LOW PRESSURE SWITCH, FURNISHED AND INSTALLED BY SPRINKLER CONTRACTOR AND CONNECTED BY ELECTRICAL CONTRACTOR.

FAAP REMOTE FIRE ALARM ANNUNCIATOR PANEL

FIRE WATER POST INDICATING VALVE, EXISTING OR PROVIDED BY SPRINKLER CONTRACTOR

FIRE WATER RISER, EXISTING OR PROVIDED BY SPRINKLER CONTRACTOR

I/O FIRE ALARM RELAY MODULE FOR EXTERNAL EQUIPMENT INTEGRATION. INPUT AND OR OUTPUT SIGNAL.

FASP FIRE ALARM SUB PANEL

FSD FIRE/SMOKE DAMPER, 120 VOLT, FAIL SAFE CLOSED

NOTE: ITEMS WITH ASTERISK "*", THE LOCATION SHALL BE COORDINATED WITH OWNER/ARCHITECT

EQUIPMENT SEISMIC ISOLATION SCHEDULE

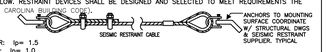
EQUIPMENT	SIZE & MOUNTING TYPE	CRITICAL (35'-50' SPAN)			UPPER STORY (20'-35' SPAN)			GRADE		
		ISOLATOR/ RESTRAINT TYPE(S)	MINIMUM DEFLECTION (IN.)	NOTES	ISOLATOR/ RESTRAINT TYPE(S)	MINIMUM DEFLECTION (IN.)	NOTE	ISOLATOR/ RESTRAINT TYPE(S)	MINIMUM DEFLECTION (IN.)	NOTE
LIGHT FIXTURES	SUSPENDED OVER 20 LBS.	2	NA	1	2	NA	1	NA	NA	1
EMERGENCY EGRESS FIXTURES	ALL	NA	NA	2	NA	NA	2	NA	NA	2

NOTE 1: INCLUDE SEISMIC RESTRAINT CABLES AS SHOWN BELOW FOR EQUIPMENT OVER 20 LBS.
NOTE 2: MUST BE SOLIDLY MOUNTED TO STRUCTURAL ELEMENTS. WALL ANCHORS CAN NOT BE USED EXCLUSIVELY.

SEISMIC RESTRAINT AND VIBRATION ISOLATION SPECIFICATIONS

ELECTRICAL EQUIPMENT SHALL BE RESTRAINED TO RESIST SEISMIC FORCES. ELECTRICAL CONTRACTOR (EC) TO REFER TO THE SEISMIC RESTRAINT SCHEDULE AND DETAIL SHOWN BELOW. RESTRAINT DEVICES SHALL BE DESIGNED AND SELECTED TO MEET REQUIREMENTS THE 2018 (INTERNATIONAL BUILDING CODE/NORTH CAROLINA BUILDING CODE)

PROJECT SEISMIC DESIGN CATEGORY: C
FACILITY IMPORTANCE FACTOR: IE= 1.0
LIFE SAFETY COMPONENT IMPORTANCE FACTOR: Ip= 1.5
ELECTRICAL COMPONENT IMPORTANCE FACTOR: Ip= 1.0



RESTRAINT DEVICES ARE NOT REQUIRED FOR CONDUIT, PIPING AND DUCTWORK ON THIS PROJECT, PROVIDED THAT SUPPORT ROD HANGERS DO NOT EXCEED 12" IN LENGTH AND HANGERS ARE NOT CONSTRUCTED IN A MANNER THAT WOULD SUBJECT THE ROD TO BENDING MOMENTS. REFER TO 2018 (IBC/NCBC) SECTION 1621.1

RESTRAINT DEVICES ARE NOT REQUIRED FOR EQUIPMENT MOUNTED 4 FEET OR LESS ABOVE A FLOOR LEVEL AND WEIGHING 400 LBS OR LESS AND INSTALLED WITH FLEXIBLE CONNECTIONS FOR DUCT WORK, PIPING AND CONDUIT. REFER TO 2018 (IBC/NCBC) SECTION 1621.1

THE EC SHALL CHOOSE A MANUFACTURER OF SEISMIC FORCE CONTROL PRODUCTS THAT SHALL DETERMINE THE SEISMIC RESTRAINT ISOLATOR SIZES AND LOCATIONS FOR THE EQUIPMENT SPECIFIED IN THIS PROJECT. PROVIDE EQUIPMENT AND SEISMIC RESTRAINTS AS SPECIFIED. AS A PART OF THE SUBMITTALS, PROVIDE INSTALLATION INSTRUCTIONS, FIELD GUIDANCE AND SHOP DRAWINGS INCLUDING ANCHORING SYSTEMS, EQUIPMENT TAGS AND CATALOGUE CUT SHEETS. PROVIDE CALCULATIONS DETERMINING RESTRAINT LOADS FROM SEISMIC FORCES THAT SHALL BECOME A PART OF THE PROJECT RECORD DRAWINGS. CALCULATIONS SHALL BE CERTIFIED BY AN EXPERIENCED STATE LICENSED ENGINEER IN THE EMPLOY OF THE MANUFACTURER.

WIRING DEVICES

S TOGGLE SWITCH, SINGLE POLE, 20A-120/277V MOUNTED @ +44" AFF UNLESS NOTED OTHERWISE. * = a,3,4,D,D3,M, OR W.
- "a" = SWITCH GROUP DESIGNATOR, SWITCH CONTROLS FIXTURES WITH MATCHING LETTER
- "3" = THREE-WAY SWITCH
- "4" = FOUR-WAY SWITCH
- "M" = MOTOR RATED SWITCH, CONTINUOUS CURRENT RATING AND NO. OF POLES AS REQUIRED.
- "W" = WEATHERPROOF BOX AND COVER
- "OS" = OCCUPANCY SENSOR, SENSOR SWITCH MODEL WSD PDT LV OR EQUAL
- "D"/"D3" = THREE-WAY DIMMER. DIMMER TYPES TO BE FULLY COMPATIBLE WITH FINAL SELECTED LAMPS AND FIXTURES WITH RESPECT TO WATTAGE, FORWARD OR REVERSE PHASE, MINIMUM LOADS AND LINEAR PERFORMANCE. EC TO PROVIDE WRITTEN DOCUMENTATION OF COMPATIBILITY.
- "P" = PILOT LIGHT RECEPTACLE OR SWITCH.

OS OCCUPANT SENSOR SWITCH, WALL OR CEILING MOUNTED, SENSOR SWITCH MODEL CM PDT 9 (FOR CEILING MOUNT) WITH LITHONIA PP20 POWER SUPPLY OR EQUAL.

SS DENOTES 2 SWITCHES OF TYPE INDICATED TO BE WIRED TO PROVIDE DUAL LEVEL SWITCHING OF ALL LIGHTS IN THE ROOM. SWITCH INDIVIDUAL BALLASTS OF MULTIPLE BALLAST FIXTURES OR INDIVIDUAL FIXTURES WHERE SINGLE BALLAST OR INCANDESCENT FIXTURES ARE INSTALLED. SWITCH IN A UNIFORM PATTERN UNO.

PE PHOTO CELL, FLUSH MOUNTED, 120V, WITH WEATHER PROOF ENCLOSURE. TORK MODEL 3010 OR EQUAL.

SPECIAL PURPOSE OUTLET, FLUSH, WALL MTD, TYPE AS NOTED.

RECEPTACLE, DUPLEX, FLUSH MTD, 20A, 125V, 1PH, 2P, 3W, NEMA 5-20R, MH 1'-6" AFF UNO. @ = A,C,F,G,IG,S,SM,W, *, P, or U.
- "A" = LOCATION SHOWN ON ARCHITECTURAL ELEVATIONS, SEE DWGS.
- "C" = MOUNTING HEIGHT 8" TO CENTER ABOVE COUNTER.
- "D" = DRINKING FOUNTAIN CONFIRM LOCATION WITH EQUIPMENT.
- "F" = ARC FAULT CIRCUIT INTERRUPTER.
- "G" = GROUND FAULT INTERRUPTER.
- "G+" = GROUND FAULT INTERRUPTER LOCATED DOWNSTREAM.
- "IG" = ISOLATED GROUND REQUIRED.
- "S" = CHILD SAFETY RECEP, TYPE APPROVED BY GOVERNING AUTHORITY.
- "SM" = SURFACE MOUNT
- "W" = WEATHER PROOF BOX AND COVER.
- "WX" = EXTRA DUTY OUTDOOR DUPLEX GFCI PROTECTED W/ THOMAS & BETTS COVER, PLATE MODEL CKMUV OR 2CKU FOR QUADRUPLEX APPLICATION. MH 1'-6" UNO.
- "*" = EXACT LOCATION TO BE COORDINATED WITH EQUIPMENT AT RECEP LOC. & OWNER.
- "P" = PILOT LIGHT RECEPTACLE OR SWITCH.
- "U" = USB RECEPTACLE.

RECEPTACLE, QUADRAPLEX, FLUSH MTD, 20A, 125V, 1PH, 2P, 3 WIRE, NEMA 5-20R, MH 1'-6" AFF UNO. @ = A,C,IG,SM,W, OR *. DENOTATIONS SAME AS ABOVE.

FLUSH MOUNTED FLOOR BOX TWO GANG ASSEMBLY. PROVIDE WITH TEL/DATA COMPARTMENT AND NEMA 5-20R DUPLEX RECEPTACLE IN SEPARATE POWER COMPARTMENT. HUBBELL B4233 WITH TWO S3825 BRUSHED BRASS COVERS. VERIFY LOCATION WITH ARCHITECTURAL PLANS.

FLUSH MOUNTED FLOOR BOX NEMA 5-20R OUTLET W/ BRUSHED BRASS COVER. PROVIDE CAST IN PLACE BOX INSTALLATION. COORDINATE EXACT LOCATION IN FIELD WITH FURNITURE LAYOUT.

CMS CONCEALED MAGNETIC SWITCH, PROVIDE RECESSED INTO DOOR AND FRAME.

DB DOOR BELL PUSHBUTTON, LIGHTED, MOUNTED 40" AFF.

CH DOOR BELL CHIME, MOUNTED AT 7' AFF. CONTRACTOR TO PROVIDE AND MOUNT TRANSFORMER TO SUPPLY CIRCUIT.

FLOOR RECEPTACLE, TOP OF BOX TO BE 5" AFF. SINGLE GANG BOX TURNED ON ITS SIDE WITH NEMA 5-20R DUPLEX RECEPTACLE

NOTE: ITEMS WITH ASTERISK "*", THE LOCATION SHALL BE COORDINATED WITH OWNER/ARCHITECT

LIGHTING FIXTURES

LIGHT FIXTURE SYMBOLS MAY CONTAIN UP TO THREE OF THE FOLLOWING INFORMATIONAL ELEMENTS:

A A-1 A
- LABEL – CORRELATES WITH FIXTURE SCHEDULE
- CIRCUIT – PANEL & NO. OF BRANCH CIRCUIT
- SWITCH GROUP – LOWER CASE LETTER MATCHING SWITCH THAT CONTROLS FIXTURE.
- (A) CONTROL ZONE GROUP. SEE LIGHTING CONTROL SPECS.

A A-1 SWITCHED LIGHT FIXTURE – LABEL, CIRCUIT, AND SWITCH GROUP AS NOTED

A A-1 UNSWITCHED LIGHT FIXTURE – LABEL & CIRCUIT AS NOTED
ONLY SINGLE LAMP TO BE ON ALL TIME IN MULTI BALLAST FIXTURES

NOTE: ITEMS WITH ASTERISK "*", THE LOCATION SHALL BE COORDINATED WITH OWNER/ARCHITECT

ENERGY REQUIREMENTS FOR PROJECT NAME, COUNTY STATE ELECTRICAL SUMMARY

ELECTRICAL SYSTEM AND EQUIPMENT

METHOD OF COMPLIANCE:

- [X] PRESCRIPTIVE
- [ ] PERFORMANCE
- [ ] ENERGY COST BUDGET
- [X] WHOLE BUILDING METHOD (_3482_SQ FT)
- [ ] SPACE BY SPACE METHOD

LIGHTING SCHEDULE

LAMP TYPE REQUIRED IN FIXTURE	SEE FIXTURE SCHEDULE
NUMBER OF LAMPS IN FIXTURE	SEE FIXTURE SCHEDULE
DRIVER TYPE USED IN THE FIXTURE	SEE FIXTURE SCHEDULE
NUMBER OF DRIVERS IN FIXTURE	SEE FIXTURE SCHEDULE
TOTAL WATTAGE PER FIXTURE	SEE FIXTURE SCHEDULE
TOTAL INTERIOR WATTAGE SPEC/ALLOWED	2016/3029
TOTAL EXTERIOR WATTAGE SPEC/ALLOWED	60 LMN/W MIN.
TOTAL INTERIOR LIGHTING AT LESS THAN 90% ALLOWED COMPLIES WITH C406.3	

EQUIPMENT SCHEDULES
(NOT USED FOR MECHANICAL SYSTEMS)

MOTOR HORSEPOWER	N/A
NUMBER OF PHASES	N/A
MINIMUM EFFICIENCY	N/A
MOTOR TYPE	N/A
# OF POLES	N/A

GENERAL NOTES (ELECTRICAL)

A THE ELECTRICAL DRAWINGS ARE DIAGRAMMATIC, DETERMINE EXACT LOCATIONS OF SYSTEM COMPONENTS IN THE FIELD. REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS. REFER TO ARCHITECTURAL ELEVATIONS AND SECTIONS FOR COMPLETE UNDERSTANDING OF SYSTEMS AND STRUCTURAL COORDINATION. REFER TO MANUFACTURER'S CERTIFIED DRAWINGS FOR EQUIPMENT DIMENSIONS.

B THE ELECTRICAL CONTRACTOR IS RESPONSIBLE TO REVIEW ALL DRAWINGS (INCLUDING ARCHITECTURAL & STRUCTURAL) TO BECOME FAMILIAR WITH THE DESIGN INTENT AND SPECIFICS OF THE SYSTEMS TO BE INSTALLED AND THEIR INTEGRATION INTO THE NEW OR RENOVATED FACILITY. EC SHALL VISIT PROJECT SITE TO VERIFY EXISTING CONDITIONS PRIOR TO PLACING A BID.

C ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND AS SPECIFIED OR SHALL BE A VERIFIABLE EQUIVALENT MEETING APPLICABLE NEMA STANDARDS. EC SHALL VERIFY CORRECTNESS AND ACCURACY OF MODEL NUMBERS SPECIFIED FOR SUITABILITY TO ACCOMPLISH DESIGN INTENT AS OUTLINED IN NOTE B ABOVE, WITH MANUFACTURER'S REPRESENTATIVES BEFORE PURCHASE OR INSTALLATION OF EQUIPMENT. EC SHALL NOTIFY THE GC AND ENGINEER OF ANY POTENTIAL INTERFERENCE OR OMISSION PRIOR TO PURCHASING OR INSTALLING ANY EQUIPMENT OR DEVICES.

D ALL WORK SHALL BE PERFORMED BY A **SOUTH CAROLINA** LICENSED ELECTRICAL CONTRACTOR (EC) UTILIZING (SC) EXPERIENCED MECHANICS. ALL SYSTEMS SHALL BE COMPLETE AND OPERATIONAL COMPLYING WITH DESIGN DOCUMENTS. ALL WORK TO COMPLY WITH THE **2017 NATIONAL ELECTRIC CODE** AND THE **ICC 2018 INTERNATIONAL SERIES OF CODES WITH STATE AMENDMENTS** INCLUDING THE MECHANICAL, BUILDING, FUEL GAS, FIRE AND ENERGY CONSERVATION CODES AS WELL AS APPLICABLE NFPA REQUIREMENTS. EC SHALL ALSO BE RESPONSIBLE FOR COORDINATING WITH LOCAL JURISDICTION HAVING AUTHORITY TO DETERMINE IF ADDITIONAL REQUIREMENTS MAY APPLY.

E ELECTRICAL CONTRACTOR (EC) SHALL PAY ALL FEES FOR PERMITS, LICENSES AND CONSTRUCTION REQUIRED FOR THE COMPLETION OF THE WORK ASSOCIATED WITH THE DESIGN DOCUMENTS.

F ELECTRICAL CONTRACTOR (EC) SHALL COORDINATE WITH THE UTILITY TO DETERMINE THE BEST METHOD OF DELIVERY TO THE PROJECT. EC SHALL PROVIDE ALL LOAD INFORMATION TO THE UTILITY FROM THE DESIGN DOCUMENTS AND SHALL PAY ALL CONNECTION FEES. FOR BID PURPOSES, THE EC SHALL PROVIDE AN ALLOWANCE OF THE FEES AND SHALL CLEARLY INDICATE SUCH TO THE OWNER.

G EC TO VERIFY ALL EQUIPMENT CONNECTIONS, DETAILS AND INSTALLATION PROCEDURES COMPLY WITH MANUFACTURER'S CERTIFIED DRAWINGS. THE EC MUST COMMUNICATE TO THE ENGINEER ANY COORDINATION DISCREPANCY BETWEEN THE DESIGN DOCUMENTS AND THE MANUFACTURER'S EQUIPMENT BEFORE PURCHASE OR INSTALLATION. CONFIRM APPLICABILITY OF EQUIPMENT WITH THE MANUFACTURER'S REPRESENTATIVES. ANY WORK REQUIRING REMOVAL AND RE-INSTALLATION DUE TO LACK OF COORDINATION SHALL BE THE RESPONSIBILITY OF THE CONTRACTORS WITH NO ADDITIONAL COST TO THE ENGINEER, ARCHITECT OR OWNER.

H IT IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR (EC) TO VERIFY ALL CLEARANCES AND COORDINATE WITH OTHER DISCIPLINES BEFORE PURCHASING OR INSTALLING ANY EQUIPMENT, INSTALLING ANY BOXES, OR FABRICATING AND INSTALLING ANY CONDUIT SYSTEMS. CONFIRM REQUIREMENTS OF ALL MECHANICAL AND PLUMBING EQUIPMENT DEPENDENT ON THE ELECTRICAL SYSTEM FOR PROPER OPERATION. ANY WORK REQUIRING REMOVAL AND RE-INSTALLATION DUE TO LACK OF COORDINATION SHALL BE THE RESPONSIBILITY OF THE CONTRACTORS WITH NO ADDITIONAL COST TO THE ENGINEER, ARCHITECT OR OWNER.

I SUSPENDED CEILINGS. CABLE ASSEMBLIES AND RACEWAYS SHALL BE SECURELY FASTENED SO AS TO PREVENT VERTICAL AND HORIZONTAL MOTION, AND SHALL NOT BE SECURED WITH SUSPENDED CEILING STRUCTURES UNLESS THE STRUCTURE TYPE IS UL LISTED TO ALLOW SUCH USE. WHERE CEILING IS PLENUM-RATED, WIRING METHODS SHALL BE NON-COMBUSTIBLE AND COMPLY WITH NEC 300.22(C). ALSO WHERE CEILING IS SUSPENDED OR PLENUM-RATED, CABLE TYPES MC, MI, IMC, AND NMS SHALL NOT BE PERMITTED.

J RACEWAYS SHALL BE MC CABLE FOR BRANCH CIRCUITS, EMT FOR INTERIOR EXPOSED BRANCH CIRCUITS AND ABOVE GROUND INDOOR FEEDERS, PVC SCHEDULE 80 FOR UNDERGROUND FEEDERS, AND IMC FOR STUB-UPS IN KITCHEN FLOORS AND FOR FIRE SUPPRESSION EQUIPMENT. RACEWAYS INSTALLED WITHIN CORROSIVE ENVIRONMENTS SHALL BE EITHER IMC, SCHEDULE 80 PVC OR RTRC.

K ALL CONDUCTORS SHALL BE COPPER, TYPE THHN-THWN, MINIMUM SIZE #12 AWG UNLESS OTHERWISE NOTED. EC SHALL PROVIDE NEUTRALS FOR EACH ORIGINATING CIRCUIT. NEUTRALS SHALL NOT BE "SHARED". MINIMUM CONDUIT SIZE 1/2". CONDUCTORS INSTALLED IN UNDERGROUND RACEWAYS MUST BE RATED FOR WET LOCATIONS (NEC 300.5B).

L CLEAN ALL FIXTURES AND DEVICES UPON COMPLETION OF PROJECT.

M THE ELECTRICAL SYSTEM SHALL BE GROUNDED IN ACCORDANCE WITH THE REQUIREMENTS OF THE NEC PER NOTE D ABOVE.

N CONDUIT RUNS ARE SHOWN SCHEMATICALLY. BUILDING CONDITIONS WILL DETERMINE THE ACTUAL CONDUIT RUN. COORDINATE WITH ALL TRADES, ARCHITECT AND REQUIRED FIRE PENETRATION DETAILS.

O COLOR CODE AND IDENTIFY ALL WIRES.

P THE CONTRACTOR SHALL RESTORE ALL AREAS, SYSTEMS AND FINISHES DISTURBED BY COMPLETING THE WORK TO THE SATISFACTION OF THE ARCHITECT, ENGINEER AND OWNER.

Q EC SHALL REVIEW BRANCH CIRCUIT AND FEEDER LENGTHS FOR COMPLIANCE WITH NEC ARTICLES 210.19(a)(1)FPN4 AND 215.2(a)(3)FPN2 VOLTAGE DROPS REQUIREMENTS. ALL 20 AMP BRANCH CIRCUITS 250 FEET OR LONGER SHALL BE A MINIMUM OF #10 AWG AND 400 FEET OR LONGER SHALL BE A MINIMUM OF #8 AWG.

R ALL EMPTY CONDUITS SHALL BE INSTALLED WITH PULL STRINGS.

S PANELBOARDS & CIRCUIT BREAKERS – DOORS SHALL BE EQUIPPED WITH DIRECTORY CARDS, HOLDERS AND TRANSPARENT DIRECTORY CARD COVERS, AND FLASH PROTECTION WARNING LABELS. LOCKS SHALL BE KEYED ALIKE AND TWO KEYS FURNISHED WITH EACH PANEL LOCK. TWO AND THREE POLE BREAKERS SHALL BE COMMON TRIP. ALL BREAKERS SHALL BE OF THE AUTOMATIC TYPE QUICK-MAKE, QUICK-BREAK WITH THERMAL MAGNETIC TRIP. ALL PANELBOARD CIRCUITS SHALL BE CLEARLY IDENTIFIED BY TYPEWRITTEN CARDS PLACED IN THE DIRECTORY HOLDER. ALL PANELS SHALL BE CLEARLY IDENTIFIED WITH NAMEPLATES. ALL CIRCUIT BREAKERS SHALL BE THE **BOLT-ON** TYPE. PANELBOARDS MANUFACTURED BY CUTLER-HAMMER, SQUARE D, SIEMENS, AND GENERAL ELECTRIC WILL BE ACCEPTED. EC TO ENSURE PANELS WILL FIT IN SPECIFIED LOCATIONS BEFORE PURCHASE OF EQUIPMENT.

T PULL BOXES SHALL BE INSTALLED IN ACCORDANCE WITH THE NEC AT ALL NECESSARY POINTS, WHETHER OR NOT INDICATED ON THE DRAWINGS, TO PREVENT INJURY TO THE INSULATION OR OTHER DAMAGE THAT MIGHT RESULT FROM PULLING RESISTANCE OR OTHER REASONS DURING INSTALLATION. MINIMUM DIMENSIONS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.

U OUTLET AND JUNCTION BOXES SHALL BE OF ONE PIECE GALVANIZED CONSTRUCTION OF A TYPE AND SIZE APPLICABLE FOR USE IN THE LOCATIONS SHOWN ON THE DRAWINGS AND AS REQUIRED BY LOCAL APPLICABLE CODES. SPECIAL CARE SHALL BE EXERCISED IN THE LOCATION OF OUTLET AND JUNCTION BOXES IN ORDER THAT THE HANGING OF FIXTURES WILL NOT BE OBSTRUCTED BY PIPES OR DUCTS INSTALLED BY THE OTHER TRADES. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH THESE TRADES WITH RESPECT TO THE LOCATION OF PIPES, DUCTS, ETC., AND THE PLACEMENT OF OUTLET BOXES TO CLEAR SAME.

V SAFETY SWITCHES SHALL BE GENERAL DUTY, UN-FUSED OR FUSED AS INDICATED, OF CAPACITY AND POLES INDICATED IN NEMA TYPE 1 ENCLOSURE. EXTERIOR AND POOL EQUIPMENT ROOM SAFETY SWITCHES SHALL BE IN A NEMA TYPE 4, NEMA 4X OR NEMA 3R ENCLOSURE UNLESS NOTED OTHERWISE.

W LOCATE ALL ELECTRICAL CEILING ELEMENTS (LIGHT FIXTURES, SPEAKERS, ETC.) AS INDICATED ON THE ARCHITECTURAL REFLECTED CEILING PLANS. EC TO VERIFY MOUNTING HEIGHTS AND FIXTURE LOCATIONS FOR ALL WALL AND GROUND MOUNTED LIGHTING. VERIFY EXACT LOCATIONS, MOUNTING HEIGHTS AND COLORS OF RECEPTACLES, SWITCHES AND COVER PLATES WITH ARCHITECT.

X FOR EXACT LOCATION OF MECHANICAL EQUIPMENT, REFER TO ARCHITECTURAL AND MECHANICAL DRAWINGS.

Y ALL FIRE ALARM CONDUITS AND JUNCTION BOXES SHALL BE IDENTIFIED WITH RED PAINT.

Z MAXIMUM OF FOUR 90 DEGREE BENDS ARE ALLOWED ON TELEPHONE AND FIRE ALARM CONDUITS. WHEN MORE THAN FOUR BENDS OCCUR, PULL BOXES SHALL BE PROVIDED.

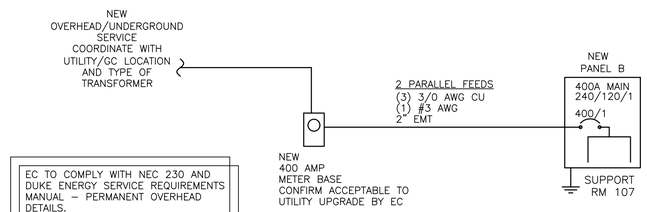
AA LIGHT SWITCH LOCATED IN ROOM CONTROLS ALL THE LIGHT FIXTURES IN THAT ROOM UNLESS NOTED OTHERWISE. ALL SWITCHING MUST COMPLY WITH ICC ENERGY CONSERVATION CODE. REFER TO E-0 FOR SWITCHING, SENSORS, PHOTOCELL, & TIMER DESIGNATIONS AND REQUIREMENTS.

BB EC SHALL ENSURE THAT PENETRATIONS OF RATED FIREWALLS AND ASSEMBLIES SHALL BE COMPLETED IN ACCORDANCE WITH UL STANDARDS FOR EACH APPLICATION. REFER TO ARCHITECTURAL PLANS AND LIFE SAFETY PLANS FOR EXACT WALL, FLOOR, CEILING AND CHASE ASSEMBLIES AND RATING

ELECTRICAL COMPONENT LABELING REQUIREMENTS

EC TO PROVIDE PLASTIC LAMINATE TAGS (RED BACKGROUND WHITE LETTERS) AT 3/4" TEXT FOR ALL PANELS AND ONE LINE COMPONENTS.

ALL ELECTRICAL MATERIALS, APPLIANCES, DEVICES AND EQUIPMENT SHALL BE LISTED BY AN AHJ APPROVED THIRD PARTY TESTING AGENCY.

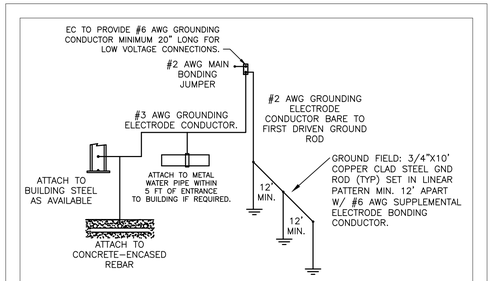


EC TO COMPLY WITH NEC 230 AND DUKE ENERGY SERVICE REQUIREMENTS MANUAL – PERMANENT OVERHEAD DETAILS.

A / E–1 240/120 VOLT SERVICE
BETHLEHEM CENTER K4

---------- EXISTING

NEW
SERVICE ENTRANCE
GROUNDING LOCATION
NEW INSTALLATION
SEE DETAIL E–GRND–07



NOTE 1: SIZE GROUNDING ELECTRODE CONDUCTOR PER NEC TABLE 250.66 & 250.63(E).
NOTE 2: GROUNDED METERS CAN SHARE SERVICE ENTRANCE GROUNDING ATTACHMENT PER NEC.
NOTE 3: SEE ONE LINE FOR GROUNDING CONDUCTOR SIZES.
NOTE 4: EC TO PROVIDE AS–BUILT LOCATIONS FOR ALL GROUNDING ELECTRODES INSTALLED.

E–GRND–07 | SERVICE ENTRANCE GROUNDING ELECTRODE CONDUCTOR DETAIL | NOT TO SCALE

THIS DETAIL IS REPRESENTED BY THIS SYMBOL ON THE ONE–LINE DIAGRAM BELOW.

PANEL B - 107 SUPPORT — NEMA1 SURFACE MOUNTED ENCLOSURE
22,000 AMPS RMS. SYS. I.C. INTEGRATED EQUIPMENT RATING
240Y/120 VOLTS, 1 PHASE, 3 WIRE, 400 AMP, MAIN BREAKER

SERVES	WIRE SIZE	CIR. LOAD	CIR. NO.	AMPS	BRKR SIZE	A	B	C	BRKR SIZE	AMPS	CIR. NO.	CIR. LOAD	WIRE SIZE	SERVES
LIGHTS - 102,112	12	9	1	20	1P	22			1P	20	2	13	12	LIGHT - 101,103-111
LIGHTS - OUTSIDE	12	2	3	20	1P			8	1P	20	4	6	12	RECEP - 101,108
RECEP - 108	12	5	5	20	1P	11			1P	20	6	6	12	RECEP - 102
RECEP - 102	12	9	7	20	1P			15	1P	20	8	6	12	RECEP - 112
RECEP - 112	12	5	9	20	1P	8			1P	20	10	3	12	RECEP - 106
RECEP - 106	12	5	11	20	1P			13	1P	20	12	8	12	RECEP - REFRIGERATOR
RECEP - OVEN	6	32	13	50	2P	64			2P	50	14	32	6	RECEP - OVEN
		32	15					64			16	32		
RECEP - DISHWASHER	12	7	17	20	1P	12			1P	20	18	5	12	CP-1
RECEP - 107	12	3	19	20	1P			8	1P	20	20	5	12	RECEP - 109
RECEP - OUTSIDE	12	3	21	20	1P	8			1P	20	22	5	12	EWC-1
RECEP - MICROWAVE	12	10	23	20	1P			20	1P	20	24	10	12	RECEP - MICROWAVE
EXISTING GAS WATER HEATER	12	5	25	20	1P	29			2P	30	26	24	10	DRYER
WASHER	12	10	27	20	1P			34			28	24		
		0	29			0					30	0		
		0	31					0			32	0		
		0	33			0					34	0		
		0	35					0			36	0		
		0	37			33			2P	50	38	33	6	PKG-1
PKG-2	4	37	39	60	2P			70			40	33		
		37	41			39			1P	20	42	2	12	FACP
	PHASE A TOTAL AMPS		226	KVA	27									
									TOTAL PANEL AMPS			229		
	PHASE C TOTAL AMPS		232	KVA	28				TOTAL PANEL KVA			55		

NOTE: (GFCI) BREAKER TO BE GROUND FAULT CIRCUIT INTERUPTOR TYPE.

MEP ENGINEERING
P.O. Drawer 739
Campobello, SC 29322
864.472.4596
www.MEPeng.net

REVISIONS

NO.	DESCRIPTION	DATE	BY
1	OWNER REQUESTED CHANGES	01–04–2020	
0	ISSUED FOR PERMITTING & CONSTRUCTION	12–18–2020	
A	ISSUED FOR OWNER REVIEW	10–21–2020	

DRAWN BY | CHECKED BY

M.E. & P. Incorporated No. C02128

Jan 1 2021

A RENOVATION FOR
THE BETHLEHEM CENTER K4
400 HIGHLAND AVENUE SPARTANBURG, SC 29306

ELECTRICAL PANELS & ONE–LINE

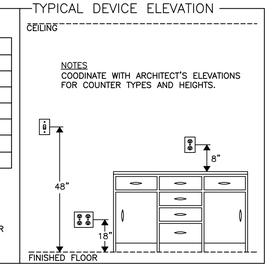
DRAWING NUMBER
E–1
Project No. ---

DEVICE/COVER PLATE SCHEDULE

EQUIPMENT TYPE	COLOR/MATERIAL	NOTES
SWITCH – STANDARD	IVORY OR WHITE	1,2
SWITCH – DIMMER	–	2,3
RECEP – STANDARD	IVORY OR WHITE	1,2
RECEP – KITCHEN	STAINLESS STEEL	1,2
RECEP – ISOLATED GROUND	ORANGE	–
PHONE/DATA	IVORY OR WHITE	1,2
RECEP – GENERATOR	RED	1

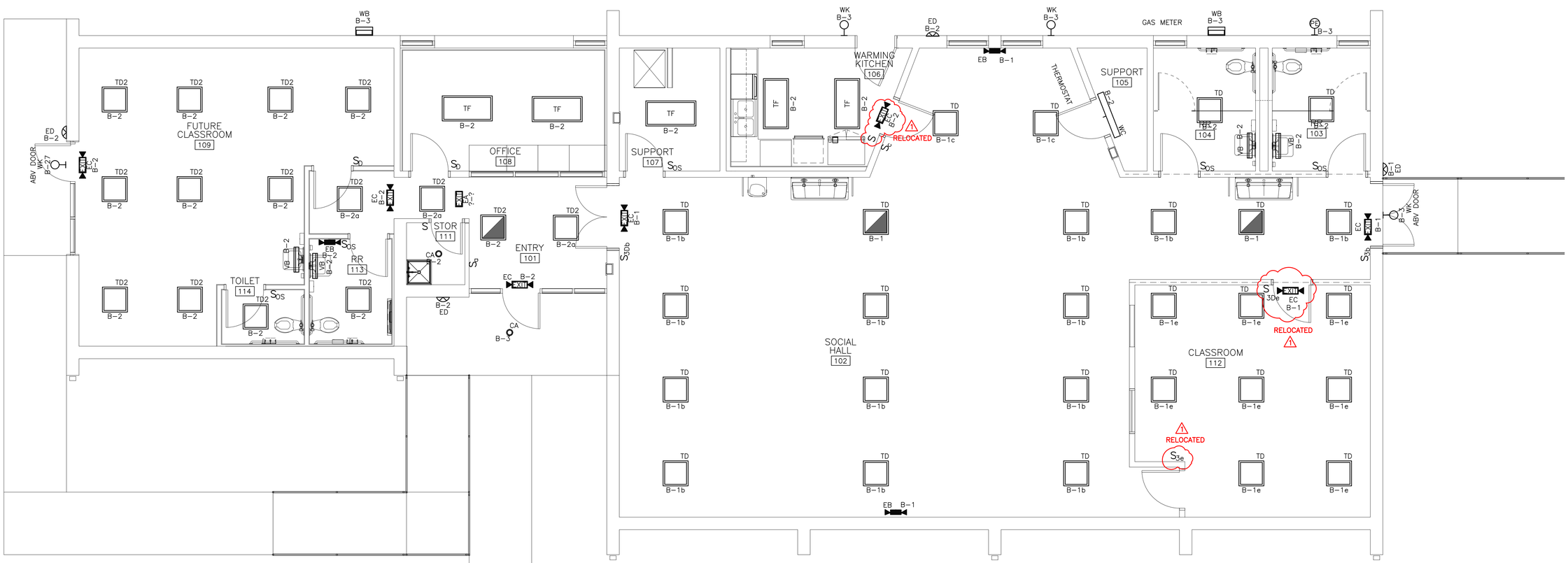
NOTES
1. COVER PLATES IN SAME ROOM/AREA SHOULD BE OF SAME COLOR AND STYLE, UNLESS ON A GENERATOR CIRCUIT.
2. CONSULT ARCHITECT/OWNER FOR FINAL COLOR/MATERIAL CHOICE.
3. COVER PLATE SHOULD BE PURCHASED FROM SAME COMPANY AS DIMMER TO ENSURE PROPER FIT/COLOR.

TYPICAL DEVICE ELEVATION



ELECTRICAL KEY NOTES

1. EC TO REMOVE RECEPTACLE AND WIRE AND PROVIDE BLANK COVER PLATE AT THIS LOCATION.



A / E-2 ELECTRICAL LIGHTING PLAN
SCALE: 1/4" = 1'-0"

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Campobello, SC 29322
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NO.	DESCRIPTION	DATE	BY
1	OWNER REQUESTED CHANGES	01-04-2020	
0	ISSUED FOR PERMITTING & CONSTRUCTION	12-18-2020	
A	ISSUED FOR OWNER REVIEW	10-21-2020	

REVISIONS

DRAWN BY | CHECKED BY

M.E. & P. Incorporated No. C08128

A RENOVATION FOR
THE BETHLEHEM CENTER K4
400 HIGHLAND AVENUE SPARTANBURG, SC 29306

ELECTRICAL LIGHTING PLAN

DRAWING NUMBER
E-2

Project No. ---

DEVICE/COVER PLATE SCHEDULE

EQUIPMENT TYPE	COLOR/MATERIAL	NOTES
SWITCH – STANDARD	IVORY OR WHITE	1,2
SWITCH – DIMMER	–	2,3
RECEP – STANDARD	IVORY OR WHITE	1,2
RECEP – KITCHEN	STAINLESS STEEL	1,2
RECEP – ISOLATED GROUND	ORANGE	–
PHONE/DATA	IVORY OR WHITE	1,2
RECEP – GENERATOR	RED	1

NOTES
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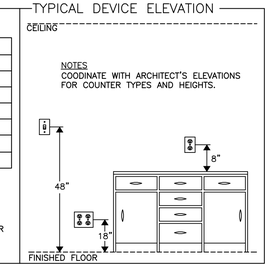
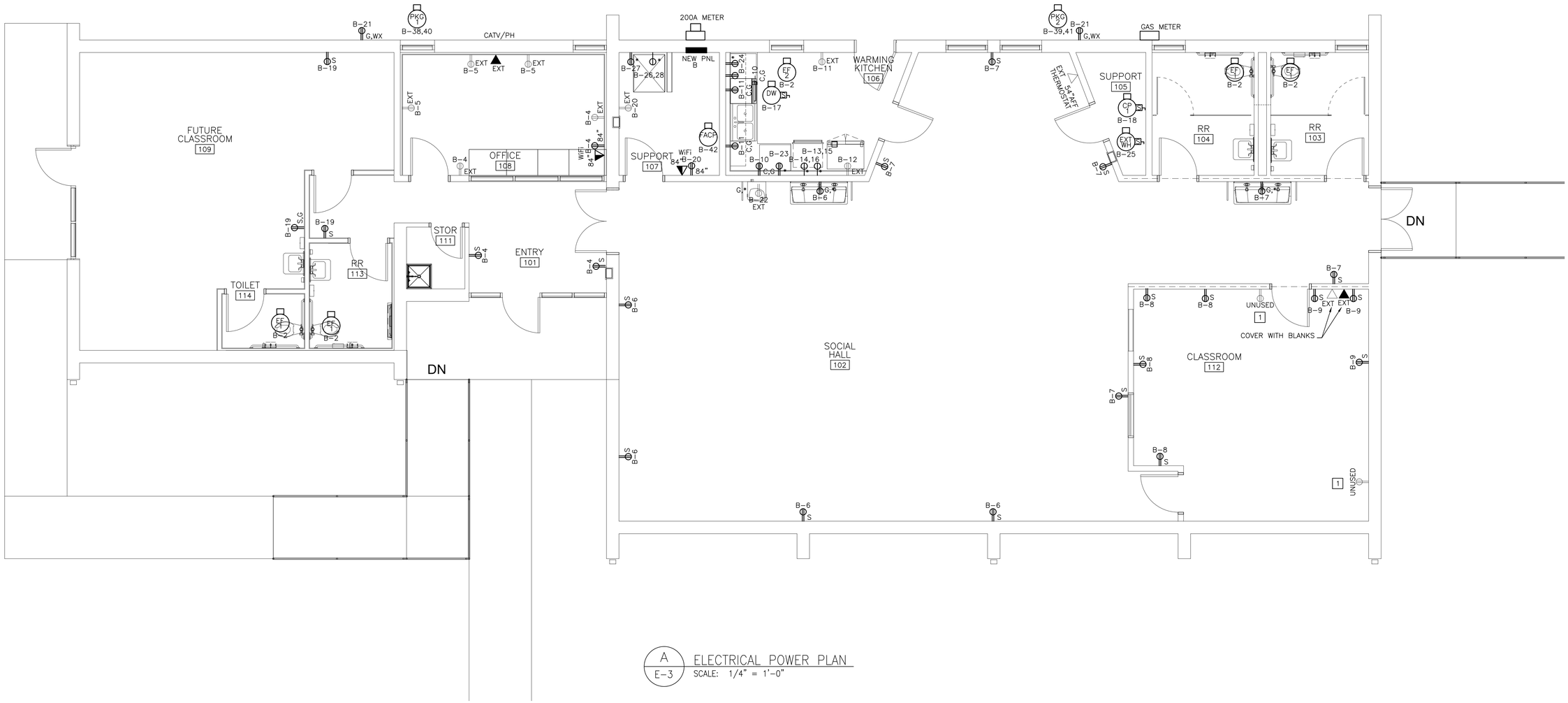
3. COVER PLATE SHOULD BE PURCHASED FROM SAME COMPANY AS DIMMER TO ENSURE PROPER FIT/COLOR.

TYPICAL DEVICE ELEVATION



ELECTRICAL KEY NOTES

1. EC TO REMOVE RECEPTACLE AND WIRE AND PROVIDE BLANK COVER PLATE AT THIS LOCATION.



A / E-3 ELECTRICAL POWER PLAN
SCALE: 1/4" = 1'-0"

MEP ENGINEERING
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Campobello, SC 29322
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NO.	DESCRIPTION	DATE	BY
1	OWNER REQUESTED CHANGES	01-04-2020	
0	ISSUED FOR PERMITTING & CONSTRUCTION	12-18-2020	
A	ISSUED FOR OWNER REVIEW	10-21-2020	

REVISIONS

DRAWN BY | CHECKED BY

M.E. & P. Incorporated No. C03128

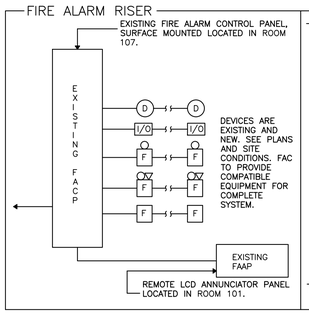
A RENOVATION FOR
THE BETHLEHEM CENTER K4
400 HIGHLAND AVENUE SPARTANBURG, SC 29306

ELECTRICAL POWER PLAN

DRAWING NUMBER
E-3

Project No. ---

FIRE ALARM RISER



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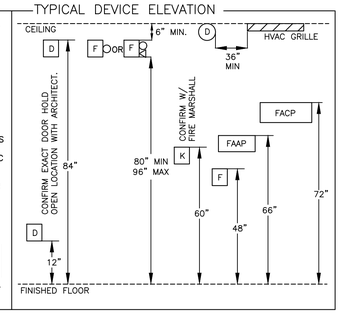
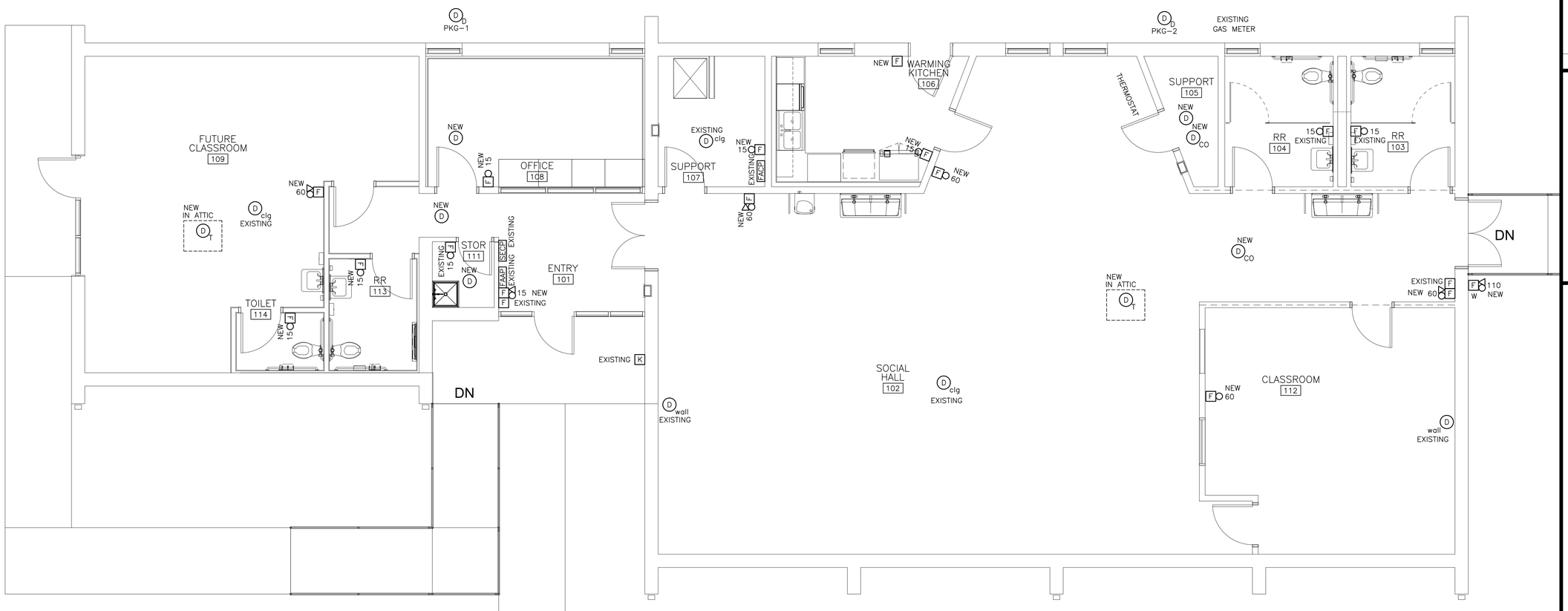


FIRE ALARM NOTES

1. ALL FIRE ALARM NOTES AND INSTALLATION ARE SUBJECT TO ELECTRICAL GENERAL NOTES ON DRAWING E–0 FOR THIS PROJECT. FIRE ALARM CONTRACTOR (FAC) TO COMPLY WITH ARCHITECTS REQUIREMENTS.
2. FIRE ALARM CONTRACTOR SHALL MEET THE REQUIREMENTS OF NFPA 72 AND PROVIDE ALL DOCUMENTATION AND CALCULATIONS AS REQUIRED.
3. FIRE ALARM PLANS ARE SCHEMATIC IN NATURE. CONTRACTOR IS RESPONSIBLE FOR CORRECT MOUNTING HEIGHTS AND LOCATIONS OF ALL DEVICES PER NFPA 72.
4. THE RISER REPRESENTS A TYPICAL SYSTEM AND IS NOT INTENDED FOR INSTALLATION. SYSTEM SUPPLIER SHALL PROVIDE INSTALLATION DRAWINGS AND WIRING DIAGRAMS. EXACT SYSTEM REQUIREMENTS SHALL BE COORDINATED WITH THE SYSTEM SUPPLIER.
5. CONTRACTOR SHALL GET APPROVAL FROM LOCAL AUTHORITY HAVING JURISDICTION AND INCORPORATE ALL REQUIREMENTS OF AUTHORITY HAVING JURISDICTION. ANY REVISIONS SHALL BE DONE BY THE CONTRACTOR WITHOUT ADDITIONAL COST TO OWNER, ENGINEER AND ARCHITECT.
6. FIRE ALARM CONTRACTOR SHALL SUPPLY DUCT MOUNTED SMOKE DETECTORS COMPATIBLE WITH THE FIRE ALARM SYSTEM AND PROVIDE ALL LOW VOLTAGE WIRING AND INSTALLATION FOR A COMPLETE SYSTEM. FA CONTRACTOR SHALL WIRE AND TEST THE SYSTEM TO ENSURE THAT AN ALARM AT THE SMOKE DETECTOR TRIGGERS A GENERAL ALARM AND THAT THE HVAC SYSTEMS SHUT DOWN PER IBC AND NFPA CODES.
7. FIRE ALARM CONTRACTOR TO COORDINATE WITH MC AND INSTALL DUCT MOUNTED SMOKE DETECTORS IN RETURN DUCT BEFORE INFLUENCE OF OUTSIDE AIR AS INDICATED AND REQUIRED BY IBC AND IMC CODES. CONTRACTOR SHALL PROVIDE REMOTE STATUS INDICATORS AND TEST BUTTONS INSTALLED IN A CONSPICUOUS LOCATION WHETHER INDICATED ON THE DRAWINGS OR NOT. COORDINATE LOCATIONS WITH GC & OWNER.
8. SYSTEM DESIGN INFORMATION:
   1) SYSTEM IS A POWER LIMITED TYPE (PLF) AND INSTALLER SHALL USE APPROPRIATE WIRING TYPE PER NEC 760 AND RUN WIRE IN A RECTILINEAR FASHION WITH PROPER SUPPORT
   2) DETECTOR COVERAGE DESIGN CONFORMS TO THE NON–REQUIRED COVERAGE OF NFPA 72 SECTION 5.5.2.3
   3) ALARM SYSTEM SHALL BE MONITORED BY A REMOTE SUPERVISING STATION
   4) SYSTEM IS DESIGNED FOR EXPANSION OF EXISTING FA PANEL IN PLANNED BUILD OUT. EC TO ENSURE MASTER PANEL HAS ADEQUATE EXPANSION CAPACITY. USE COMPATIBLE DEVICES.
9. FIRE ALARM CONTRACTOR TO COORDINATE WITH MECHANICAL CONTRACTOR TO ENSURE MINIMUM SPACING OF 3' FROM SMOKE DETECTORS TO DIFFUSERS IS ACHIEVED IN ALL LOCATIONS PER NFPA 72 5.7.4.1.
10. LOCATION OF NOTIFICATION APPLIANCES IN THE EXISTING BUILDING MUST BE COORDINATED WITH ARCHITECT AND OWNER TO AVOID ANY INTERFERENCE WITH WALL CONSTRUCTION AND RENOVATIONS. CONSULT WITH GC.
11. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR INSTALLING ELECTRICAL BOXES AND CONDUIT FOR THE FIRE ALARM SYSTEM AND ALL NECESSARY 120V OR HIGHER CIRCUITS TO POWER EQUIPMENT OR DEVICES. COORDINATE NUMBER AND LOCATION WITH FIRE ALARM CONTRACTOR.
12. FIRE ALARM CONTRACTOR TO INSTALL ALL LOW VOLTAGE WIRING FOR DUCT MOUNTED SMOKE DETECTORS, FIRE/SMOKE DAMPERS AND TO COMMISSION SUCCESSFUL OPERATION.
13. ELECTRICAL CONTRACTOR TO SUPPLY 120 VOLT POWER TO EACH DUCT MOUNTED SMOKE DETECTOR DEVICE & FIRE/SMOKE DAMPER AS NEEDED.
14. FIRE ALARM CONTRACTOR TO CONFIRM LOCATIONS OF ALL I/O RELAYS FOR EQUIPMENT AS REQUIRED BY CODE OR AS NOTED.
15. ONE SET OF INSTALLATION/"AS BUILT" RECORDS FOR FIRE PROTECTION SHALL BE INSTALLED AT THE PREMISES UPON COMPLETION OF THE PROJECT PER IFC. THE RECORDS SHALL BE PLACED WITHIN A BINDER OR PLAN TUBE, LABELED 'FIRE PROTECTION PLANS – DO NOT REMOVE", AND MOUNTED NEAR THE SPRINKLER RISER, FIRE ALARM PANEL, OR OTHER APPROVED AREA.



A / E–4 FIRE ALARM PLAN
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Jan 4 2021

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FIRE ALARM PLAN

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