ARCHITECTU	IRAL SYMBOLS			
ROOM NAME	ROOM NAME ROOM NUMBER	X SIM	SECTION	
(10)	DOOR NUMBER OF TYPE			
À	REVISION	F.E.	FIRE EXTINGUISHER SEE IBC 906 FOR PLACEMENT REQUIREMENTS	
xx>	WINDOW TYPE	$\mathbf{\mathbf{\Theta}}$	EXIT SIGNAGE	
⊗ ⊗	WALL TYPE		EMERGENCY LIGHTING	
××××××	BUILDING ELEVATION	REF X X X X X X		
		REF		
			WOOD BLOCKING	Reserve at South Ridge
			PLYWOOD	
			STUD PARTITION	
	CONCRETE MASONRY UNIT		GLASS - SMALL SCALE	
	BRICK		BATT INSULATION	
			RIGID INSULATION	
	STEEL - LARGE SCALE		CERAMIC TILE	to the second
	ALL METALS - SMALL SCALE		PLASTER OR STUCCO	
	SHINGLES		PARTICLE BOARD	
	WOOD - FINISH			Start Star

### ABBREVIATIONS

AB	ANCHOR BOLT	FLR	FLOOR
ADA	AMERICAN W/ DISABILITIES ACT	FND	FOUNDAT
AFF	ABOVE FINISHED FLOOR	FOC	FACE OF
ALUM	ALUMINUM	FOF	FACE OF
ASF	ABOVE SUBFLOOR	FOM	FACE OF
		FOS	FACE OF
BIDG	BUILDING	FT	FEET/FOO
BIK	BLOCK	ETG	ECOTING
	BLOCKING	F 1C4	
	BELOW	FY	
	Below	<b>C</b> A	CAUCE
501		GA	GAUGE
Br	BEARING FOINT	GALV	GALVAN
<u> </u>		GC	GENERA
		GLB	
CF		GPM	GALLONS
CFM	CUBIC FEET PER MINUTE	GRD	GRADE
CIR	CIRCLE	GYP BI	GTPSUM
CJ	CONTROL JOINT		
CL	CLOSET	HC	HOLLOW
CLG	CEILING	HCP	HANDICA
CLR	CLEAR	ΗDW	HARDWA
CMU	CONCRETE MASONRY UNIT	ΗМ	HOLLOW
COL	COLUMN	HOR	HORIZON
CONC	CONCRETE	HR	HOUR
CONST	CONSTRUCTION	HVAC	HEATING
	CONTINUOUS		CONDITIC
	CONTRACTOR	нωн	HOT WAT
		ID	
		IN	
<b>DE</b> +			
		IGTO	IOIGT
DIA	DIAMETER	JS15	
DIM	DIMENSION	51	JOINT
DL	DEAD LOAD	1 1 1	
DO	DITTO	<u>∟.</u>	
DS	DOWNSPOUT	L.L.	
DW	DISHWASHER	LAM	LAMINAT
DWG	DRAWING	LAV	LAVATO
DWGS	DRAWINGS	LBS	POUNDS
		LIN.	LINEN
E	EAST	LLH	LONG LE
EA	EACH	LLV	LONG LE
EIFS	E.	1 11	LINTEL
	EXT. INGUL. & FINIGH SYSTEM		
EJ	EXT. INSUL. FINISH SYSTEM EXPANSION JOINT		LAMINAT
EJ ELEC	EXT. INSUL. \$ FINISH SYSTEM EXPANSION JOINT ELECTRICAL	LVL LW.	
	EXT. INGUL. \$ FINIGH SYGTEM EXPANSION JOINT ELECTRICAL ELEVATION	LVL LW.	
	EXT. INSUL. \$ FINISH SYSTEM EXPANSION JOINT ELECTRICAL ELEVATION ENCLOSURE	LVL LW. MAS	
EJ ELEC ELEV ENCL	EXT. INSUL. \$ FINISH SYSTEM EXPANSION JOINT ELECTRICAL ELEVATION ENCLOSURE EXPANDED BOLYSTYPENE	LVL LW. MAS	LAMINAT LIGHTWEI MASONR
EJ ELEC ELEV ENCL EPS	EXT. INSUL. \$ FINISH SYSTEM EXPANSION JOINT ELECTRICAL ELEVATION ENCLOSURE EXPANDED POLYSTYRENE EQUAL	LVL LW. MAS MAX	
EJ ELEC ELEV ENCL EPS EQ	EXT. INSUL. \$ FINISH SYSTEM EXPANSION JOINT ELECTRICAL ELEVATION ENCLOSURE EXPANDED POLYSTYRENE EQUAL EXPLANAT	LVL LW. MAS MAX MECH	LAMINAT LIGHTWEI MASONR MAXIMUN MECHAN
EJ ELEC ELEV ENCL EPS EQ EXH	EXT. INSUL. \$ FINISH SYSTEM EXPANSION JOINT ELECTRICAL ELEVATION ENCLOSURE EXPANDED POLYSTYRENE EQUAL EXHAUST EXHAUST	LVL LW. MAS MAX MECH MFR	LAMINAT LIGHTWEI MASONR MAXIMUN MECHAN MANUFAC
EJ ELEC ELEV ENCL EPS EQ EXH EXIST	EXT. INSUL. \$ FINISH SYSTEM EXPANSION JOINT ELECTRICAL ELEVATION ENCLOSURE EXPANDED POLYSTYRENE EQUAL EXHAUST EXISTING EXISTING	LVL LW. MAS MAX MECH MFR MIX	LAMINAT LIGHTWEI MASONR MAXIMUN MECHAN MANUFAC MINIMUM
EJ ELEC ENCL EPS EQ EXH EXI9T EXP	EXT. INSUL. \$ FINISH SYSTEM EXPANSION JOINT ELECTRICAL ELEVATION ENCLOSURE EXPANDED POLYSTYRENE EQUAL EXHAUST EXISTING EXPANSION	LVL LW. MAS MAX MECH MFR MIN MISC	LAMINAT LIGHTWEI MASONR MAXIMUN MECHAN MANUFAC MINIMUM MISCELL
EJ ELEC ELEV ENCL EPS EQ EXH EXIST EXP EXT	EXT. INSUL. \$ FINISH SYSTEM EXPANSION JOINT ELECTRICAL ELEVATION ENCLOSURE EXPANDED POLYSTYRENE EQUAL EXHAUST EXISTING EXPANSION EXTERIOR	LVL LW. MAS MAX MECH MFR MIN MISC MO	LAMINAT LIGHTWEI MASONR MAXIMUN MECHAN MANUFAQ MINIMUM MISCELL MASONR
EJ ELEC ENCL EPS EQ EXH EXI9T EXP EXT	EXT. INSUL. \$ FINISH SYSTEM EXPANSION JOINT ELECTRICAL ELEVATION ENCLOSURE EXPANDED POLYSTYRENE EQUAL EXHAUST EXISTING EXPANSION EXTERIOR	LVL LW. MAS MAX MECH MFR MIN MISC MO MTL	LAMINAT LIGHTWEI MASONR MAXIMUN MECHAN MANUFAG MINIMUM MISCELL, MASONR METAL
EJ ELEC ELEV ENCL EPS EQ EXH EXIST EXP EXT FBD	EXT. INSUL. \$ FINISH SYSTEM EXPANSION JOINT ELECTRICAL ELEVATION ENCLOSURE EXPANDED POLYSTYRENE EQUAL EXHAUST EXISTING EXPANSION EXTERIOR FIBERBOARD	LVL LW. MAS MAX MECH MFR MIN MISC MO MTL	LAMINAT LIGHTWEI MASONR MAXIMUN MECHAN MANUFAG MINIMUM MISCELL MASONR METAL
EJ ELEC ELEV ENCL EP3 EQ EXH EXIST EXP EXT FBD FBO	EXT. INSUL. \$ FINISH SYSTEM EXPANSION JOINT ELECTRICAL ELEVATION ENCLOSURE EXPANDED POLYSTYRENE EQUAL EXHAUST EXISTING EXPANSION EXTERIOR FIBERBOARD FURNISHED BY OTHERS	LYL LW. MAS MAX MECH MFR MIN MISC MO MTL	LAMINAT LIGHTWEI MASONR MAXIMUN MECHAN MANUFAQ MINIMUM MISCELLA MASONR METAL
EJ ELEC ELEV ENCL EPS EQ EXH EXIST EXP EXT FBD FBO FD	EXT. INSUL. \$ FINISH SYSTEM EXPANSION JOINT ELECTRICAL ELEVATION ENCLOSURE EXPANDED POLYSTYRENE EQUAL EXHAUST EXISTING EXPANSION EXTERIOR FIBERBOARD FURNISHED BY OTHERS FLOOR DRAIN	LYL LW. MAS MAX MECH MFR MIS MO MTL NC	LAMINAT LIGHTWEI MASONR MAXIMUN MECHAN MANUFAO MINIMUM MISCELLA MASONR METAL
EJ ELEC ELEV ENCL EPS EQ EXH EXIST EXP EXT FBD FBO FD FE	EXT. INSUL. \$ FINISH SYSTEM EXPANSION JOINT ELECTRICAL ELEVATION ENCLOSURE EXPANDED POLYSTYRENE EQUAL EXHAUST EXISTING EXPANSION EXTERIOR FIBERBOARD FURNISHED BY OTHERS FLOOR DRAIN FIRE EXTINGUISHER	LVL LW. MAS MAX MECH MFR MISC MO MTL N N C N N C	LAMINAT LIGHTWEI MASONR MAXIMUN MECHAN MECHAN MANUFAQ MINIMUM MISCELLA MASONR METAL NORTH NOT IN C NUMBER
EJ ELEC ELEY ENCL EPS EQ EXH EXT EXP EXT FBD FBO FD FE FF	EXT. INSUL. ♥ FINISH SYSTEM EXPANSION JOINT ELECTRICAL ELEVATION ENCLOSURE EXPANDED POLYSTYRENE EQUAL EXHAUST EXISTING EXPANSION EXTERIOR FIBERBOARD FURNISHED BY OTHERS FLOOR DRAIN FIRE EXTINGUISHER FINISHED FLOOR	LVL LW. MAS MAX MECH MFR MISC MO MTL N NO NTL N NO NO NO NO	LAMINAT LIGHTWEI MASONR MAXIMUN MECHAN MECHAN MANUFAQ MINIMUM MISCELLA MASONR METAL NORTH NOT IN C NUMBER NOMINAL
EJ ELEC ELEY ENCL EPS EQ EXH EXH EXP EXT EXP EXT FBD FD FE FE FG	EXT. INSUL. \$ FINISH SYSTEM EXPANSION JOINT ELECTRICAL ELEVATION ENCLOSURE EXPANDED POLYSTYRENE EQUAL EXHAUST EXISTING EXPANSION EXTERIOR FIBERBOARD FURNISHED BY OTHERS FLOOR DRAIN FIRE EXTINGUISHER FINISHED FLOOR FIBERGLASS	LYL LW. MAS MAX MECH MFR MISC MTL NC NC NC NC NC NC NC	LAMINAT LIGHTWEI MASONR MAXIMUN MECHAN MECHAN MANUFAC MINIMUM MISCELLA MASONR METAL NORTH NOT IN C NUMBER NOMINAL NOT REG

FND	FOUNDATION
FOC	
FOF	
FOM	FACE OF MASONRY
FOS	FACE OF STUD
ET	
FTG	FOOTING
FV	FIELD VERIFY
	1
G A	GAUGE
GA	GAUGE
GALV	GALVANIZED
GC	GENERAL CONTRACT(OR)
GLB	GLUE LAMINATED BEAM
GPM	
GIN	
GRD	GRADE
GYP BD	GTPSUM
	1
HC	HOLLOW CORE
HCP	HANDICAPPED
ΗDΨ	HARDWARE
НМ	HOLLOW METAL
HUR	HORIZONTAL
HR	HOUR
HVAC	HEATING/VENTILATION & AIR
	CONDITIONING
님따님	HOT WATER HEATER
ID	
IN	INCH/INCHES
INSUL	INGULATION
	I
JSTS	JOIST
JT	JOINT
• I	
• 1	
<u>-</u>	
L.H.	
L.H. L.L.	LEFT HAND
L.H. L.L. LAM	LEFT HAND LIVE LOAD LAMINATED
L.H. L.L. LAM	LEFT HAND LIVE LOAD LAMINATED
L.H. L.L. LAM LAV	LEFT HAND LIVE LOAD LAMINATED LAVATORY
L.H. L.L. LAM LAV LB9	LEFT HAND LIVE LOAD LAMINATED LAVATORY POUNDS
L.H. L.L. LAM LAV LB9 LN.	LEFT HAND LIVE LOAD LAMINATED LAVATORY POUNDS LINEN
L.H. L.L. LAM LAV LB9 LIN. LLH	LEFT HAND LIVE LOAD LAMINATED LAVATORY POUNDS LINEN LONG LEG HORIZONTAL
L.H. L.L. LAM LAV LB9 LIN. LLH LLV	LEFT HAND LIVE LOAD LAMINATED LAVATORY POUNDS LINEN LONG LEG HORIZONTAL LONG LEG VERTICAL
L.H. L.L. LAM LAV LB9 LIN. LLH LLY	LEFT HAND LIVE LOAD LAMINATED LAVATORY POUNDS LINEN LONG LEG HORIZONTAL LONG LEG VERTICAL
L.H. L.AM LAV LBS LIN. LLH LLV LTL	LEFT HAND LIVE LOAD LAMINATED LAVATORY POUNDS LINEN LONG LEG HORIZONTAL LONG LEG VERTICAL LINTEL
L.H. L.AM LAV LBS LIN. LLH LLV LTL LVL	LEFT HAND LIVE LOAD LAMINATED LAVATORY POUNDS LINEN LONG LEG HORIZONTAL LONG LEG VERTICAL LINTEL LAMINATED VENEER LUMBER
L.H. L.AM LAV LBS LIN. LLH LLV LTL LVL LW.	LEFT HAND LIVE LOAD LAMINATED LAVATORY POUNDS LINEN LONG LEG HORIZONTAL LONG LEG VERTICAL LINTEL LAMINATED VENEER LUMBER LIGHTWEIGHT
L.H. L.AM LAV LBS LIN. LLH LLV LTL LVL LW.	LEFT HAND LIVE LOAD LAMINATED LAVATORY POUNDS LINEN LONG LEG HORIZONTAL LONG LEG VERTICAL LINTEL LAMINATED VENEER LUMBER LIGHTWEIGHT
L.H. L.AM LAV LBS LIN. LLH LLV LTL LVL LW.	LEFT HAND LIVE LOAD LAMINATED LAVATORY POUNDS LINEN LONG LEG HORIZONTAL LONG LEG VERTICAL LINTEL LAMINATED VENEER LUMBER LIGHTWEIGHT
L.H. L.AM LAV LBS LIN. LLH LLV LTL LVL LW. MAS	LEFT HAND LIVE LOAD LAMINATED LAVATORY POUNDS LINEN LONG LEG HORIZONTAL LONG LEG VERTICAL LINTEL LAMINATED VENEER LUMBER LIGHTWEIGHT
L.H. L.AM LAV LBS LIN. LLH LLV LTL LVL LW. MAS MAX	LEFT HAND LIVE LOAD LAMINATED LAVATORY POUNDS LINEN LONG LEG HORIZONTAL LONG LEG VERTICAL LINTEL LAMINATED VENEER LUMBER LIGHTWEIGHT MASONRY MAXIMUM
L.H. L.AM LAV LBS LIN. LLH LLV LTL LVL LW. MAS MAX MECH	LEFT HAND LIVE LOAD LAMINATED LAVATORY POUNDS LINEN LONG LEG HORIZONTAL LONG LEG VERTICAL LINTEL LAMINATED VENEER LUMBER LIGHTWEIGHT MASONRY MAXIMUM MECHANICAL
L.H. L.AM LAV LBS LIN. LLH LLV LTL LVL LW. MAS MAX MECH MFR	LEFT HAND LIVE LOAD LAMINATED LAVATORY POUNDS LINEN LONG LEG HORIZONTAL LONG LEG VERTICAL LINTEL LAMINATED VENEER LUMBER LIGHTWEIGHT MASONRY MAXIMUM MECHANICAL MANUFACTURER
L.H. L.AM LAV LBS LIN. LLH LLV LTL LVL LW. MAS MAX MECH MFR MIN	LEFT HAND LIVE LOAD LAMINATED LAVATORY POUNDS LINEN LONG LEG HORIZONTAL LONG LEG VERTICAL LINTEL LAMINATED VENEER LUMBER LIGHTWEIGHT MASONRY MAXIMUM MECHANICAL MANUFACTURER
L.H. L.AM LAV LBS LIN. LLH LLV LTL LVL LW. MAS MAX MECH MFR MIN	LEFT HAND LIVE LOAD LAMINATED LAVATORY POUNDS LINEN LONG LEG HORIZONTAL LONG LEG VERTICAL LINTEL LAMINATED VENEER LUMBER LIGHTWEIGHT MASONRY MAXIMUM MECHANICAL MANUFACTURER MINIMUM
L.H. L.AM LAV LBS LIN. LLH LLV LTL LVL LW. MAS MAX MECH MFR MIN MISC	LEFT HAND LIVE LOAD LAMINATED LAVATORY POUNDS LINEN LONG LEG HORIZONTAL LONG LEG VERTICAL LINTEL LAMINATED VENEER LUMBER LIGHTWEIGHT MASONRY MAXIMUM MECHANICAL MANUFACTURER MINIMUM MISCELLANEOUS
L.H. L.H. LAM LAV LB9 LIN. LLH LLV LTL LVL LW. MAS MAX MECH MFR MIN MISC MO	LEFT HAND LIVE LOAD LAMINATED LAVATORY POUNDS LINEN LONG LEG HORIZONTAL LONG LEG VERTICAL LINTEL LAMINATED VENEER LUMBER LIGHTWEIGHT MASONRY MAXIMUM MECHANICAL MANUFACTURER MINIMUM MISCELLANEOUS MASONRY OPENING
L.H. L.AM LAV LBS LIN. LLH LLV LTL LVL LW. MAS MAX MECH MFR MIN MISC MO MTL	LEFT HAND LIVE LOAD LAMINATED LAVATORY POUNDS LINEN LONG LEG HORIZONTAL LONG LEG VERTICAL LINTEL LAMINATED VENEER LUMBER LIGHTWEIGHT MASONRY MAXIMUM MECHANICAL MANUFACTURER MINIMUM MISCELLANEOUS MASONRY OPENING METAL
L.H. LAM LAV LBS LIN. LLH LLV LTL LVL LVL LW. MAS MECH MFR MIN MISC MO MTL	LEFT HAND LIVE LOAD LAMINATED LAVATORY POUNDS LINEN LONG LEG HORIZONTAL LONG LEG VERTICAL LINTEL LAMINATED VENEER LUMBER LIGHTWEIGHT MASONRY MAXIMUM MECHANICAL MANUFACTURER MINIMUM MISCELLANEOUS MASONRY OPENING METAL
L.H. L.H. LAM LAV LB9 LIN. LLH LLV LTL LVL LW. MAS MAX MECH MFR MIN MISC MO MTL	LEFT HAND LIVE LOAD LAMINATED LAVATORY POUNDS LINEN LONG LEG HORIZONTAL LONG LEG VERTICAL LINTEL LAMINATED VENEER LUMBER LIGHTWEIGHT MASONRY MAXIMUM MECHANICAL MANUFACTURER MINIMUM MISCELLANEOUS MASONRY OPENING METAL
L.H. L.H. LAM LAV LB9 LIN. LLH LLV LTL LVL LW. MAS MAS MECH MFR MIN MISC MO MTL N	LEFT HAND LIVE LOAD LAMINATED LAVATORY POUNDS LINEN LONG LEG HORIZONTAL LONG LEG VERTICAL LINTEL LAMINATED VENEER LUMBER LIGHTWEIGHT MASONRY MAXIMUM MECHANICAL MANUFACTURER MINIMUM MISCELLANEOUS MASONRY OPENING METAL
L.H. L.H. LAM LAV LB9 LIN. LLH LLY LTL LVL LW. MAS MAS MECH MFR MIN MISC MO MTL N NIC	LEFT HAND LIVE LOAD LAMINATED LAVATORY POUNDS LINEN LONG LEG HORIZONTAL LONG LEG VERTICAL LINTEL LAMINATED VENEER LUMBER LIGHTWEIGHT MASONRY MAXIMUM MECHANICAL MANUFACTURER MINIMUM MISCELLANEOUS MASONRY OPENING METAL NORTH NOT IN CONTRACT
L.H. L.H. LAM LAV LB9 LIN. LLH LLV LTL LVL LVL LW. MAS MAS MECH MFR MIN MISC MO MTL N NIC NQ	LEFT HAND LIVE LOAD LAMINATED LAVATORY POUNDS LINEN LONG LEG HORIZONTAL LONG LEG VERTICAL LINTEL LAMINATED VENEER LUMBER LIGHTWEIGHT MASONRY MAXIMUM MECHANICAL MANUFACTURER MINIMUM MISCELLANEOUS MASONRY OPENING METAL NORTH NOT IN CONTRACT NUMBER
L.H. L.AM LAV LBS LIN. LLH LLV LTL LVL LVL LW. MAS MAX MECH MFR MIN MISC MO MTL NIC NO	LEFT HAND LIVE LOAD LAMINATED LAVATORY POUNDS LINEN LONG LEG HORIZONTAL LONG LEG VERTICAL LINTEL LAMINATED VENEER LUMBER LIGHTWEIGHT MASONRY MAXIMUM MECHANICAL MANUFACTURER MINIMUM MISCELLANEOUS MASONRY OPENING METAL NORTH NOT IN CONTRACT NUMBER
L.H. L.H. LAM LAV LBS LIN. LLH LLY LTL LVL LVL LW. MAS MAS MECH MFR MIN MISC MO MTL NIC NO NOM	LEFT HAND LIVE LOAD LAMINATED LAVATORY POUNDS LINEN LONG LEG HORIZONTAL LONG LEG VERTICAL LINTEL LAMINATED VENEER LUMBER LIGHTWEIGHT MASONRY MAXIMUM MECHANICAL MANUFACTURER MINIMUM MISCELLANEOUS MASONRY OPENING METAL NORTH NOT IN CONTRACT NUMBER NOMINAL
L.H. LAM LAV LBS LIN. LLH LLV LTL LVL LVL LVL LVL LW. MAS MAX MECH MFR MIN MISC MO MTL N NIC NO NO NO NR	LEFT HAND LIVE LOAD LAMINATED LAVATORY POUNDS LINEN LONG LEG HORIZONTAL LONG LEG VERTICAL LINTEL LAMINATED VENEER LUMBER LIGHTWEIGHT MASONRY MAXIMUM MECHANICAL MANUFACTURER MINIMUM MISCELLANEOUS MASONRY OPENING METAL NORTH NOT IN CONTRACT NUMBER NOMINAL NOT REQUIRED

DA	OUTSIDE AIR
	ON CENTER
D	
ж	OVERHEAD
PNG	OPENING
PP	OPPOSITE
SB	ORIENTED STRAND BOARD
Σ	OUNCE
°.L.	PROPERTY LINE
°AR	PARALLEL
ър	PARTICLE BOARD
°CF	POUNDS PER CUBIC FOOT
기 기	
_ 이 =	POUNDS PER LINEAR FOOT
	POINDA PER COLLARE FOOT
	POUNDS FER SQUARE FOOT
5	FOUNDS FER SQUARE INCH
'9L	MARALLEL STRAND LUMBER
2 <b>T</b>	PRESSURE TREATED
°VC	POLYVINYL CHLORIDE
°∨MT_	PAVEMENT
νW	PLYWOOD
2	RADIUS/RISER
RA .	RETURN AIR
	RADIUS
B	REGILIENT BASE
BR	RUBBER
	REFLECTED CEILING PLAN
201	
	REFRIGERATOR
REG	REGISTER
REINF	REINFORCED REINFORCING
REINF	REINFORCED
2EL	RELOCATE
REM	REMOVABLE
EOOM	RECOMMENDED
REQ	REQUIRE/REQUIRED
EQD	REQUIRED
ESIL	REGILIENT
REV	
2M	ROOM
20	
	RAIN WATER LEAVER
-	
C	SOLID CORE
D	STORM DRAIN
EC	SECTION
F	SQUARE FEET/FOOT
ΗT	SHEET
M	SIMILAR
PEC	SPECIFICATION
S	STAINLESS STEEL

**SS** 

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4 11 :	
5	
/	0* <u>5</u> 5
	8.
STAT	
STOP	
ATPLICT	
GIP	
SUIG	
SUS	
5111 676	STITLETRICAL GYGTEM
010	STOLET
Ť	TREAD
⊺ <b>⊈</b> B	TOP AND BOTTOM
⊺\$G	TONGUE AND GROOVE
TB	
T.BAR	
TMF	
т <i>о</i>	
<u>†.00</u>	
† <u>01</u>	
T.O.L.	
1.0.5L	
T.O.STL	
T. <i>O</i> .W.	TOP OF WALL
TEL	TELEPHONE
THK	THICKNESS
THRU	THROUGH
ŤΥ	TELEVISION
ŤΥΡ	TYPICAL
U.C.	UNDERCUT DOOR 1" U.N.O.
u.n.o.	UNLESS NOTED OTHERWISE
VPS	VENEER PLASTER SYSTEM
<u>v</u> †	
V III M	
	VERTICAL
7 UL.	
ω	WEST
 W.B	
<u>ως</u>	
<u></u> . 山山	
<u></u>	
<u></u>	
wwr~i	WELVEV WIRE MESH



1611-31 LAKE SEYMOUR DRIVE, MIDDLETOWN, DE 19709

DRAWINGS ISSUED FOR BUILDING PERMIT: 1.20.2023



PROJECT TEAM

### <u>OWNER:</u>

ART HELMICK 901 N MARKET ST SUITE 105 WILMINGTON, DE, 19801 EMAIL:ARTHELMICK@GMAIL.COM

### CONTRACTOR:

GGA CONSTRUCTION MIDDLETOWN, DE, 19709 P: 302.316.6122 CONTACT: DAVID GRAYSON

# MEP. ENGINEERS: ALLEN + SHARIFF ENGINEERING 205 EAST MARKET STREET SALISBURY, MD 21801 P: 443-545-1300 CONTACT: TIM CHATTERTON

### ARCHITECT:

FIGHER ARCHITECTURE, LLC 542 RIVERGIDE DRIVE GALIGBURY, MD 21801 P: 410.142.0238 CONTACT: LAUREN WHITE

<u>CIVIL ENGINEER:</u>

### HILLCREST ASSOCIATES LANDENBERG, PA, 19350 P: 610.274.8613 CONTACT: TOM SCHREIER

<u>STRUCTURAL ENGINEER:</u> PILOTTOWN ENGINEERING 17585 NASSAU COMMONS BLVD UNIT 3 LEWES, DE, 19958 P: 302.703.1770 CONTACT: JIM BAKER

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BUILE	BUILDING CODE SUMMARY							
1.	JURISDICTION: NEW CASTLE	E COUNTY, I	DELAWARE					
2.	<ol> <li>JURISDICTION: NEW CASTLE COUNTY, DELAWARE</li> <li>APPLICABLE CODES:         <ul> <li>2018 INTERNATIONAL BUILDING CODE</li> <li>2018 INTERNATIONAL MECHANICAL CODE</li> <li>2018 INTERNATIONAL PLUMBING CODE</li> <li>2018 INTERNATIONAL FUEL GAS CODE</li> <li>2018 INTERNATIONAL ENERGY CONSERVATION CODE</li> <li>2020 NFPA 10 NATIONAL ELECTRIC CODE (NEC)</li> <li>2021 NFPA 101: LIFE SAFETY CODE</li> <li>2020 NFPA 58: NATIONAL LP GAS CODE</li> <li>2020 NFPA 58: NATIONAL LP GAS CODE</li> <li>2013 NFPA 13: INSTALLATION OF SPRINKLER SYSTEMS</li> <li>2011 ICC ANSI AII1.1 ADA STANDARDS FOR ACCESSIBLE DESIGN</li> </ul> </li> </ol>						FISHER ARCHITECTURE Fisher Architecture, LLC 542 Riverside Drive Salisbury, MD 21801 (410) 742-0238	
3.	BUILDING USE AND OCCUP USE GROUP: M	ANCY (IBC	309):					SEAL:
4.	TYPE OF CONSTRUCTION (I TYPE 5B	BC 601):						
5.			504.3, 504.4	\$ 506.2):				
			PERMITTED PE	RIBC	PF	PROVIDED		
	BUILDING HEIGHT, STORIE	9	1 STORY	STORY 1		1 STORY		
	BUILDING HEIGHT, FEET		40 FEET		26	20' - 0"		
	BUILDING AREA 9,000 S.F. PER		2 FLOOR 9,000 S.F. PER FLOOR		LOOR	PROFESSIONAL CEPTIFICATION.		
<b>6</b> . Т.	6. FIRE PROTECTION SYSTEM: AN AUTOMATIC FIRE PROTECTION SYSTEM IS NOT REQUIRED AND WILL NOT BE PROVIDED. 1. OCCUPANT LOAD (IBC 1004112): LICENSE NO.: \$5-0007610							
	TOTAL OCCUPANT LOAD 9,000 SF. / 66		Ø		150	PERSONS	THE DOCUMENTS PREPARED BY FISHER	
8.  	<ul> <li>ARCHITECTURE, LLC, ARE SOLELY FOR THE PURPOSES OF THE SPECIFIED OR AUTHORIZED FOR USE ON ANY OTHER GROUP M WITHOUT A SPRINKLER SYSTEM MAXIMUM TRAVEL DISTANCE = 200'-0" MAXIMUM COMMON PATH OF EGRESS WITHOUT A SPRINKLER SYSTEM TRAVEL DISTANCE = 15'-0" ACTUAL MAXIMUM LENGTH OF TRAVEL = 68'-4"; ACTUAL MAXIMUM COMMON PATH = 9'-0"</li> <li>MINIMUM EGRESS WIDTH PER OCCUPANT:</li> </ul>							
	AT DOORS	25 PEC	PLE / TENANT	32" CLEAR MIN.		(2) 36"		CONSULTANTS:
	EXIT PASSAGEWAYS	25 PEC	PLE / TENANT	< 50 PERSONS, MIN. 36" -				
10.	NOTE: FINAL LOCATION AND NUMBER T.B.D. BY 10 PLUMBING FIXTURES (IBC 29021): FUTURE TENANT OCCUPANCY CLASSIFICATION							
	25 OCCUPANTS/TENANT	PANTS/TENANT REQUIRED			PROVIDE	D		
			MEN	WOMEN	M	N I	WOMEN	
	WATER CLOSETS	1/500	25/54	90 = 1		1		
	LAVATORIES	1/750	25/54	9 <del>0</del> = 1		1		
	DRINKING FOUNTAINS	1/1,000	25/1,6	900 = 1		1		
	SERVICE SINKS	1		1		1		

ALL BUILDING MATERIALS AND CONSTRUCTION METHODS TO BE IN ACCORDANCE WITH IBC AND APPLICABLE OSHA REQUIREMENTS.

12. PROVIDE FIRE EXTINGUISHERS PER LOCATION(S) ON PLAN AND PER LOCAL CODES. AT MINIMUM (I) FIRE EXTINGUISHER TO BE PROVIDED FOR EVERY 3,000 S.F. AND NOT MORE THAN 15 FEET FROM THE FURTHEST OCCUPANT. AT MINIMUM (I) FIRE EXTINGUISHER TO BE PROVIDED FOR EACH TENANT SPACE. PORTABLE FIRE EXTINGUISHERS SHALL BE SELECTED, INSTALLED, INSPECTED, AND MAINTAINED IN ACCORDANCE WITH NEPA 10, STANDARDS FOR PORTABLE FIRE EXTINGUISHERS. GENERAL CONTRACTOR TO VERIFY WITH LOCAL FIRE MARSHAL THE NUMBER AND LOCATIONS OF PROPOSED FIRE EXTINGUISHERS ARE COMPLIANT; FIRE MARSHAL TO HAVE FINAL APPROVAL AND AUTHORITY.

<b>FOFESSIONAL CER</b> CERTIFY THAT THESE DO REPARED RAPPROVED JULY LICENSED ARCHITY FITHE STATE OF DELAWA LICENSE NO.: XPIRATION IN HE DOCUMENTS PH RICHITECTURE, LLA FOR OFFICE TO THE AT ALAKES NO REPRESE UTHORIZED FOR U ROJECT. FISHER AT ALAKES NO REPRESE FILE SUITABILITY LICHTECTURE, LLA FOR FORFESSIONAL SE FOR THE ARCHITE	THECATION: CUMENTS WERE BY ME, AND THAT I AM SCT UNDER THE LAWS RE. S5-0007610 VO.: 01.31.2023
CONSULTANTS:	IGII-31 LAKE SEYMOUR DRIVE MDDLETOWN, DELAWARE 19109
v   KEV DATE         DESC           TE:         202           OJECT NO.         202           ALE:         12"           OJ MGR:         L. W	2.01.20 2159 = 1'-0" /hite
AWN BY:  L.S HEET NUMBER: GS	-01

# 101.286 - MIDDLETOWN SHOPPING CENTER 2





# PROJECT TITLE

DRAWING	SYMBOLS
SYMBOL	DESCRIPTION
	MOMENT CONNECTION - BEAM TO BEAM OR BEAM TO COLUMN - SEE PLAN FOR REQUIRED CONNECTION MOMENT CAPACITY, IF NO LOAD SHOWN, PROVIDE FULL CAPACITY OF BEAM IN ADDITION TO FULL DEPTH SHEAR CONNECTION
	FLEXIBLE MOMENT CONNECTION (FMC) - BEAM TO COLUMN CONNECTION. SEE PLAN FOR REQUIRED CONNECTION MOMENT. IF NO LOAD SHOWN, SEE TYPICAL DETAILS.
•	SLIDING CONNECTION @ EXPANSION JOINT
<u>}</u>	CRIPPLE POINT IN STEEL MEMBER - SEE TYPICAL DETAIL FOR ADDITIONAL INFORMATION.
	CHANGE IN SLAB ELEVATION
	SPOT ELEVATION LOCATION
S_/ D_	SLAB/ DECK CONSTRUCTION TAG - SEE SCHEDULE ON DRAWING FOR ADDITIONAL INFORMATION
) <b> /</b>	UTILITY LINE - COORDINATE SIZE & INVERT w/ UTILITY DRAWINGS
<u>}</u>	SLAB CONTROL/ CONSTRUCTION JOINT - SEE TYPICAL DETAILS FOR ADDITIONAL INFORMATION
FD	FLOOR DRAIN - COORDINATE SIZE & LOCATION w/ ARCHITECTURAL & PLUMBING DRAWINGS
	TRENCH DRAIN - COORDINATE SIZE & LOCATION w/ ARCHITECTURAL & PLUMBING DRAWINGS
	SLOPE OF FLOOR/ ROOF/ SLAB
I AIOI	SECTION MARK
	BUILDING ELEVATION
AlOI	DETAIL/ ENLARGED PLAN CALLOUT
	MECHANICAL UNIT ID & WEIGHT
H	WALL TAG
	LEVEL DESIGNATION
<ul> <li>○</li> </ul>	STRUCTURAL GRID DESIGNATION
	EXISTING STRUCTURAL GRID DESIGNATION

# DRAWING ABBREVIATIONS

ADDITIONAL	LG	LONG
ADJACENT	LL	LIVE LOAD
ABOVE FINISHED FLOOR	LLH	LONG LEG HORIZONTAL
ALTERNATE	LLV	LONG LEG VERTICAL
APPROXIMATE	LP	
AKCHITECTUKAL		
BUITUM OF BUILDING	MECH	
BEAM	MEP	MECHANICAL ELECTRICAL
BOTTOM		PLUMBING
BEARING PLATE	MFR, MANUF	MANUFACTURER
BEARING	MIN	MINIMUM
BOTH SIDES	MISC	MISCELLANEOUS
CANTILEVER	N/A	NOT AVAILABLE
CANTILEVER LEFT END	NBL	NON-BEARING LINTEL
CANTILEVER RIGHT END		NON-BEARING METAL HEADER
CONCRETE COLUMN	NIC	NOT IN CONTRACT
CAST IN PLACE	NOM	NOMINAL
JOINT	NS	NEAR SIDE
CENTER LINE	NTS	NOT TO SCALE
CLEAR	NW	NORMAL WEIGHT CONCRETE
ONCRETE MASONRY UNIT	o/c	ON CENTER
COLUMN	OD	OUTSIDE DIAMETER
CONCRETE	OPNG	OPENING
CONNECTION	OPP	OPPOSITE
CONTINUOUS	P/C	PRECAST CONCRETE
DEPTH DEEP		POUNDS PER CUBIC FOOT
DEFTR, DEEF	PREEAB	PREFABRICATED
DIAMETER	PSF	POUNDS PER SQUARE FOOT
DIMENSION	PSI	POUNDS PER SQUARE INCH
DEAD LOAD	РТ	PRESSURE TREATED
DOWN	RAD	RADIUS
DRAWING	RD	ROOF DRAIN
DOWELS	REBAR	REINFORCING BAR
EACH FACE	REF	REFER OR REFERENCE
EKIOK INSULATION FINISH SYSTEM	KEINF	KEINFOKCING
EXPANSION JOINT	REQU	POOE PAETER
ELEVATION	RW	RETAINING WALL
ELEVATOR	SF	STEPPED FOOTING
EDGE OF SLAB	SIM	SIMILAR
EQUAL	SOG	SLAB ON GRADE
EQUIPMENT	SPEC	SPECIFICATION
EACH WAY	SQ	SQUARE
EACH WAY EACH FACE	55	STAINLESS STEEL
EXISTING	STD	STANDARD
ENTERIOR FLOOR DRAIN	SIFF	STIFFENER
FINISH FLOOR	TIR	STEEL TOP & BOTTOM
FINISH	ТО	TOP OF
FLOOR	T.O.B.	TOP OF BEAM
FOUNDATION	T.O.C.	TOP OF CONCRETE
FRAMING	T.O.F.	TOP OF FOOTING
FOOT	T.O.P.	TOP OF PARAPET
GAUGE	T.O.S.	TOP OF SLAB
GALVANIZED	T.O.STL.	TOP OF STEEL
GRADE DEAM	T.O.W.	
HOIST BEAM		TURNED DOWN SLAB
ORIZONTAL EACH FACE		THICK, THICKINESS
ORIZONTAL INSIDE FACE	TSF	THICKENED SI AB FOOTING
HOOK	ТУР	TYPICAL
ZIZONTAL OUTSIDE FACE	UNO	UNLESS NOTED OTHERWISE
HORIZONTAL	VERT	VERTICAL
HIGH POINT	W	WIDTH, WIDE
HAUNCHED SLAB	w/	WITH
ATIONAL BUILDING CODE	w/o	WITHOUT
KIPS (1000lbs)	WD	WOOD
NIF 3 FER JULARE FUUT	WF	WIDE FLANGE
POINDS	WWF	WELDED WIRE FABRIC

ARCH	ARCHITECTURAL
3.0.	BOTTOM OF
BLDG	BUILDING
ЗМ	BEAM
3017	BOTTOM
20	BEAPING PLATE
SKG	BEAKING
35	BOTH SIDES
CANT	CANTILEVER
CANT LE	CANTILEVER LEFT END
CANT RE	CANTILEVER RIGHT END
<u></u>	CONCRETE COLUMN
	CAST IN PLACE
CJ	CONTROL JOINT/ CONSTRUCTION
	JOINT
CL	CENTER LINE
CLR	CLEAR
СМИ	CONCRETE MASONRY UNIT
201	COLUMN
JONN	CONNECTION
CONT	CONTINUOUS
COORD	COORDINATE
>	DEPTH. DEEP
)BI	
ЭМ	DIMENSION
)L	DEAD LOAD
>N	DOWN
DWG	DRAWING
DWL5	
-r 	EACH FACE
-IFS	EXTERIOR INSULATION FINISH
	SYSTEM
EJ	EXPANSION JOINT
EL	ELEVATION
ELEV	ELEVATOR
=0.5	FDGE OF SI AR
=0	
	EQUAL
=QUIP	EQUIPMENT
EW	EACH WAY
EWEF	EACH WAY EACH FACE
EXIST / (E)	EXISTING
 -XT	EVTEPINP
=0	
-F	FINISH FLOOR
FIN	FINISH
FLR	FLOOR
FND	FOUNDATION
FRM	EP AMING
 ST	
	FOOT
ЗA	GAUGE
GALV	GALVANIZED
яB	GRADE BEAM
ат	GIRDER TRUSS
- HB	HOICT REAM
	HUKIZUNI AL EACH FACE
HF	HORIZONTAL INSIDE FACE
-IK	HOOK
HOF	HORIZONTAL OUTSIDE FACE
HORIZ	HORIZONTAI
HP	
u 16	
15	HAUNCHED SLAB
BC	INTERNATIONAL BUILDING CODE
<	KIPS (10001bs)
<sf< td=""><td>KIPS PER SQUARE FOOT</td></sf<>	KIPS PER SQUARE FOOT
	ANGI F
BS	
	PUUNIA

APPROX

DRAWING MATERIALS				
CONCRETE/ PRECAST CONCRETE	SHEAR WALLS			
COMPACTED EARTH /	RIGID INSULATION			
CRUSHED STONE	GROUT			
CONCRETE MASONRY UNIT	IVANY CONCRETE MASONRY UNIT			
AREA OF OVERFRAMING	MECHANICAL UNIT			
BRICK VENEER	WOOD			
STONE VENEER	ZZZZZ STEEL			
PLYWOOD SHEATHING/ DECKING	METAL DECKING			

DRAWING LIST			
SHEET			
IMBER	SHEET NAME		
5-001	COVER SHEET		
5-002	GENERAL NOTES		
5-003	PROJECT SCHEDULES		
5-101	FOUNDATION PLAN		
5-102	ROOF FRAMING PLAN		
S-501	TYPICAL FOUNDATION DETAILS & SECTIONS		
S-51	TYPICAL FRAMING DETAILS & SECTIONS		





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> JOB NUMBER: 101.286 CONTACT: J. BAKER

# PROJECT SPECIFICATIONS & GENERAL NOTES

### GENERAL

- COMPLETE ALL WORK PER THE DRAWINGS AND SPECIFICATIONS CONTAINED HEREIN.
- MEANS AND METHODS INCLUDING ALL WORK RELATED TO THE STAGING, CONSTRUCTION PRACTICES, AND SAFETY OF THE PROJECTS WORKERS AND PROPERTY SHALL BE COMPLETED BY THE CONTRACTOR IN ACCORDANCE WITH STANDARD INDUSTRY PRACTICE AND ALL CODES AND STANDARDS. ENGINEER SITE VISITS ARE FOR THE REVIEW OF THE STRUCTURAL WORK FOR GENERAL CONFORMANCE WITH THE DRAWINGS AND SPECIFICATIONS AND ARE NOT FOR THE REVIEW OF CONTRACTOR RESPONSIBILITIES, INCLUDING BUT NOT LIMITED TO PROJECT SAFETY AND MEANS AND METHODS OF CONSTRUCTION.
- ALL DRAWINGS HAVE BEEN PREPARED IN ACCORDANCE WITH THE 2018 INTERNATIONAL BUILDING CODE, AS WELL AS ALL REFERENCED STANDARDS CONTAINED THEREIN.
- THE CONTRACTOR IS RESPONSIBLE FOR THE EVALUATION AND COMPLIANCE WITH LOADING RESTRICTIONS FOR MEANS AND METHODS OF CONSTRUCTION AS WELL AS STAGING FOR OTHER TRADES.
- SPECIAL INSPECTIONS SHALL BE IN ACCORDANCE WITH CHAPTER 17 OF THE REFERENCED INTERNATIONAL BUILDING CODE. SUBMIT ALL REPORTS TO THE ENGINEER OF RECORD FOR REVIEW. AT THE COMPLETION OF THE PROJECT, THE SPECIAL INSPECTION REPORT SHALL BE COMPLETED AND SUBMITTED TO THE ENGINEER OF RECORD.
- CONTRACTOR SHALL NOT SCALE DRAWINGS TO DETERMINE DIMENSIONS OF ELEMENTS. STRUCTURAL DRAWINGS SHALL NOT BE REPRODUCED TO CREATE SHOP DRAWINGS OR SHORING DOCUMENTATION WITHOUT THE EXPRESS WRITTEN CONSENT OF PILOTTOWN ENGINEERING.
- DIMENSIONS NOT SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE COORDINATED WITH THE OTHER DISCIPLINE DRAWINGS. THE HORIZONTAL AND VERTICAL DIMENSIONS CONTAINED ON THE STRUCTURAL DRAWINGS WERE DEVELOPED BY OTHER DISCIPLINES FOR THE PURPOSE OF THIS PROJECT.
- THE STRUCTURAL DOCUMENTS ARE TO BE USED IN COORDINATION WITH ALL OTHER DISCIPLINES INCLUDING THE ARCHITECTURAL, MECHANICAL, PLUMBING, AND ELECTRICAL DRAWINGS. ANY DISCREPANCIES SHOULD BE BROUGHT TO THE ATTENTION OF THE DESIGN TEAM PRIOR TO THE COMMENCEMENT OF WORK.
- UNLESS SPECIFICALLY APPROVED, ALL REQUESTED CHANGES IN WORK BY THE CONTRACTOR ARE CONSIDERED TO BE COMPLETED AT NO ADDITIONAL COST AND ARE SUBJECT TO THE APPROVAL OF THE DESIGN TEAM AND OWNER.
- REFER TO THE ARCHITECTURAL DOCUMENTS FOR ALL WATERPROOFING AND FIREPROOFING LOCATIONS AND DETAILS.

### SHOP DRAWING REQUIREMENTS

- SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW BY PILOTTOWN ENGINEERING AND THE DESIGN TEAM FOR THE FOLLOWING ITEMS FOR THIS THE PROJECT:
- CONCRETE MIX DESIGNS INCLUDING ALL LABORATORY TESTING, MATERIALS, ETC
- REINFORCING SHOP DRAWINGS ANCHOR BOLT AND CONCRETE EMBEDDED ASSEMBLIES
- STEEL FRAMING
- WOOD TRUSS FRAMING
- MASONRY PRODUCTS ALL ADMIXTURES, SEALANTS, HARDENERS, AND COATINGS
- CONTRACTORS TO ALLOW FOR A 10 BUSINESS DAY REVIEW PERIOD BY THE DESIGN TEAM FOR ALL SHOP DRAWINGS NOTED ABOVE. CONTRACTOR RESPONSIBLE TO SUBMITTED SHOP DRAWINGS IN A TIMELY MANNER AND ALL
- SUBMITTED DRAWINGS SHALL BE REVIEWED BY THE CONSTRUCTION MANAGER PRIOR TO SUBMISSION. DELEGATED DESIGN SUBMITTALS REQUIRE THE REVIEW AND APPROVAL FROM A PROFESSIONAL ENGINEER AND SHALL
- BE SUBMITTED WITH CALCULATIONS AND SIGNED AND SEALED DRAWINGS PRIOR TO REVIEW.

### EXISTING CONSTRUCTION

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN, COORDINATION, AND INSTALLATION OF SHORING AND STABILIZATION OF EXISTING CONSTRUCTION AS REQUIRED TO PERFORM THE WORK CONTAINED IN THE DRAWINGS AND SPECIFICATIONS
- DIMENSIONS SHOWN REFERRING TO EXISTING STRUCTURES ARE FOR REFERENCE ONLY. ALL DIMENSIONS RELATED TO EXISTING BUILDINGS AND FRAMING SHOULD BE VERIFIED BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF WORK.
- THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY INFORMATION RELATING TO THE EXISTING STRUCTURE THAT HAS BEEN UNCOVERED DUE TO DEMOLITION AND REMOVAL OF FINISHES.

### FOUNDATIONS

- BOTTOM OF FOOTINGS SHALL BEAR ON (UNDISTURBED VIRGIN SOIL, CONTROLLED COMPACTED FILL, DENSIFIED NATURAL SOIL, ROCK) CAPABLE OF SUPPORTING 2000 PSF.
- BOTTOM OF FOOTING SUBGRADE MUST BE INSPECTED AND APPROVED BY A REGISTERED GEOTECHNICAL ENGINEER PRIOR TO PLACING ANY CONCRETE FOUNDATIONS. APPROVAL IN WRITING MUST INDICATE THE SOIL IS ADEQUATE TO SAFELY SUSTAIN THE SPECIFIED BEARING PRESSURE AND ALL REPORTS TO BE SUBMITTED TO THE ENGINEER OR RECORD.
- BOTTOM OF ALL FOOTINGS SUBJECTED TO FREEZE THAW CONDITIONS SHALL BE A MINIMUM 2 FEET 8 INCHES BELOW FINISHED GRADE.

### CONCRETE

ALL CONCRETE SHALL BE READY-MIX AND PROPORTIONED ON THE BASIS OF LABORATORY TRIAL MIXTURE OR FIELD TEST DATA OR BOTH ACCORDING TO ACI 301 AND ACI 318. DESIGN MIXTURES SHALL MEET THE REQUIREMENTS BELOW BASED ON CONCRETE PLACEMENT LOCATIONS: INTERIOR SLABS ON GRADE: a

- MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS
- EXPOSURE CATEGORY: FO
- EXTERIOR SLABS ON GRADE: Ь
- MINIMUM COMPRESSIVE STRENGTH OF 4500 PSI AT 28 DAYS
- EXPOSURE CATEGORY: F2 6% AIR-ENTRAINMENT (+/- 1.5%)
- FOOTINGS AND FOUNDATION WALLS
- MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS
- EXPOSURE CATEGORY: FO
- ELEVATED, FORMED CONCRETE SLABS d.
- MINIMUM COMPRESSIVE STRENGTH OF 5000 PSI AT 28 DAYS EXPOSURE CATEGORY: FO
- ELEVATED SLABS ON METAL DECK е
- MINIMUM COMPRESSIVE STRENGTH OF 3500 PSI AT 28 DAYS
- EXPOSURE CATEGORY: FO CONTRACTOR IS RESPONSIBLE FOR THE PREPARATION OF DESIGN MIXTURES FOR EACH APPLICATION/LOCATION USED
- IN CONSTRUCTION AS NOTED ABOVE AND ON THE DRAWINGS.
- ALL CONCRETE WORK SHALL COMPLY WITH THE REQUIREMENTS OF THE FOLLOWING:
- ACI BUILDING CODE (ACI 318), a.
- b ACI DETAILING MANUAL (MNL-GG),
- SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS (ACI 301).
- ALL REINFORCING STEEL SHALL BE MANUFACTURED AND CONFORM TO ASTM DESIGNATION AGIS GRADE GO. ALL
- BARS TO BE LAPPED A MINIMUM 48 BAR DIAMETERS UNLESS OTHERWISE NOTED. ALL WWF SHALL BE MANUFACTURED FROM HIGH STRENGTH STEEL CONFORMING TO ASTM A1064/A1064M. ALL WWF SHALL LAP A MINIMUM OF G INCHES.
- GRADE BEAMS, CONCRETE BEAMS, AND STRUCTURAL SLABS SHALL HAVE THE FOLLOWING LAP LOCATIONS: 6 TOP STEEL TO BE LAPPED AT MID-SPAN a.
- BOTTOM STEEL TO BE LAPPED OVER SUPPORT.
- LOCATE CONSTRUCTION JOINTS IN STRUCTURAL SLABS AND GRADE BEAMS AT MID-SPAN AND KEY JOINTED WITH REINFORCING CONTINUOUS ACROSS JOINT.
- CONCRETE SLAB ON GRADE SHALL BE FINISHED TO TOLERANCE FOR FLOOR FLATNESS (FF) OF 25 AND FLOOR LEVELNESS (FI) OF 20 UNLESS OTHERWISE MANDATED BY ARCHITECTURAL FINISH REQUIREMENTS. ALL CONCRETE SLAB ON GRADE SHALL BE TESTED FOR FLOOR FLATNESS AND LEVELNESS WITHIN 48 HOURS OF
- THE SLAB ON GRADE PLACEMENT. CONTRACTOR SHALL SUBMIT REPORTS TO THE ENGINEER AND ARCHITECT OF RECORD AND ALL SPECIALTY FLOORING SUB-CONTRACTORS FOR REVIEW.
- CONSTRUCTION JOINTS IN COMPOSITE STEEL AND CONCRETE SLABS SHALL BE LOCATED AT THE MIDDLE THIRD OF Ю. BEAMS AND GIRDERS. DO NOT LOCATE JOINTS ALONG BEAMS AND GIRDERS. SEE DRAWINGS FOR ADDITIONAL INFORMATION AND LOCATIONS.
- PLACE TRANSVERSE REINFORCING (SWB) IN BOTTOM LAYER OF CONTINUOUS FOOTINGS. PROVIDE CORNER BARS IN FOOTINGS TO MATCH CONTINUOUS REINFORCEMENT. EXTEND WALL FOOTING REINFORCING INTO COLUMN FOOTINGS A MINIMUM OF 2 FEET.
- PROVIDE KEYS IN CONCRETE WALLS, PIERS, GRADE BEAMS, AND FOOTINGS AT INTERSECTIONS UNLESS NOTED OTHERWISE. PROVIDE CORNER BARS TO MATCH HORIZONTAL REINFORCEMENT AT WALL CORNERS AND TEE INTERSECTIONS.
- CONCRETE SHALL ACHIEVE A MINIMUM OF 70% OF THE DESIGN STRENGTH PRIOR TO STEEL ERECTION. WRITTEN CONFIRMATION OF THIS STRENGTH SHOULD BE SUBMITTED TO THE ENGINEER OF RECORD PRIOR TO THE COMMENCEMENT OF STEEL ERECTION.

### STEEL

- 1
  - WIDE FLANGE (W) SHAPES, ASTM A992/A992M GRADE 50 a.
  - S, M, AND HP SHAPES, ASTM A572 GRADE 50
  - HSS ROUND SECTIONS, ASTM A500 GRADE C, Fy = 46 KSI.
  - STEEL PIPE SECTIONS, ASTM A53, GRADE B, Fy = 35 KSI.
  - ANCHOR BOLTS, ASTM F1554
- UNPAINTED.
- ALL LINTELS SHALL BE GALVANIZED AND PAINTED.
- REQUIRED BY THE STEEL ERECTOR.
- ORIENT ALL BEAMS MILL CAMBER UPWARD DURING FABRICATION AND ERECTION.
- WORK REQUIRED
- APPROVAL. THE FOLLOWING CONNECTIONS ARE PERMITTED:
- DOUBLE ANGLE a. SHEAR PLATE
- SINGLE ANGLE
- DESIGN
- FOLLOWING
- WELDED CONNECTIONS
- PIPE AND TUBE COLUMN CONNECTIONS:
- ASTM F1852 AND F2280. ALL STEEL WELDING RODS SHALL BE AS FOLLOWS:
- a. E70XX FOR STEEL CONNECTIONS
- 6

### MASONRY

TIMBER

8

9

1

10.

- STRENGTH OF 2000 PSI (F'm) (AVERAGE OF 3 TESTS). ALL CMU SHALL BE LAID IN A FULL BED OF MORTAR.
- CONTINUE HORIZONTAL WALL REINFORCEMENT THROUGH THE PIER.
- 2800 PSI ON GROSS AREA FOR SOLID INDIVIDUAL UNITS. a. 1900 PSI ON NET AREA OF HOLLOW INDIVIDUAL UNITS.
- 3750 PSI ON NET AREA OF INDIVIDUAL IVANY UNITS. 6. DAYS

- Ю. 530.1/ASCE 6/TMS 602"
- ||

175 PSI, E = 1,100,000 PSI.

TRUSSES, DSB-89.

TRUSSES, BCSI.

1,300,000 PSI.

ALL STRUCTURAL STEEL SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST AISC CODE. ALL STRUCTURAL STEEL SHAPES AND GRADES SHALL BE AS FOLLOWS (UNLESS NOTED OTHERWISE):

HSS STRUCTURAL SECTIONS, ASTM A500 GRADE B, Fy = 46 KSI.

ALL OTHER STRUCTURAL STEEL SHALL BE ASTM A3G UNLESS OTHERWISE NOTED.

CLEAN ALL STEEL IN ACCORDANCE WITH SSPC-SP3 AND PROVIDE A SHOP COAT OF RUST INHIBITIVE PAINT. STEEL CONTRACTOR TO COORDINATE PRIMER LCOATION WITH SLIP CRITICAL BOLTED CONNECTION LOCATIONS AS REQUIRED. STEEL TO RECEIVE SPRAYED-ON FIREPROOFING OR CONCRETE ENCASEMENT SHALL REMAIN CLEANED AND

ANY POINTS OF WELDING ON GALVANIZED MEMBERS SHALL BE TOUCHED UP IN THE FIELD WITH A ZINC-RICH PAINT AS

ALL SHOP AND FIELD WELDING SHALL BE PERFORMED BY WELDERS CERTIFIED, AS DESCRIBED IN "LATEST EDITION OF THE AMERICAN WELDING SOCIETY'S STANDARD QUALIFICATION PROCEDURE", AWS D.I., TO PERFORM THE TYPE OF

ALL BEAM TO GIRDER CONNECTIONS SHALL BE AS DESIGNED BY THE FABRICATOR SUBJECT TO THE ENGINEER'S

FABRICATOR SHALL ADHERE TO ALL OSHA FEDERAL REGISTER STANDARDS WITH REGARD TO CONNECTION

UNLESS NOTED OTHERWISE ON THE DRAWINGS, BEAM TO GIRDER CONNECTIONS SHALL BE DESIGNED FOR THE

NON-COMPOSITE BEAM TO GIRDER, A MINIMUM OF 150% OF THE MAXIMUM BEAM END REACTION INDICATED BY THE AISC MAXIMUM TOTAL UNIFORM LOAD TABLES.

ALL CONNECTIONS TO BE DESIGNED BY THE STEEL FABRICATOR AND TO CONSIST OF THE FOLLOWING: BOLTED WITH A MINIMUM OF 3/4" A325N HIGH STRENGTH BOLTS

ALL GIRDER AND BEAM CONNECTIONS TO COLUMNS SHALL BE AS DESIGNED BY THE FABRICATOR SUBJECT TO THE ENGINEERS APPROVAL. THE FOLLOWING CONNECTIONS ARE REQUIRED:

FULL DEPTH DOUBLE ANGLE CONNECTIONS. BOLTS SHALL BE AT 3-INCH O/C VERT. AISC TYPE 2 PR / FLEXIBLE MOMENT CONNECTIONS (LOCATIONS SHOWN ON DRAWINGS): FULL DEPTH DOUBLE ANGLE CONNECTIONS WITH TOP AND BOTTOM CLIP ANGLES AS INDICATED IN THE DRAWINGS.

a. PROVIDE A MINIMUM 3/8 INCH THICK, FULL DEPTH THRU-PLATE UNLESS OTHERWISE NOTED ON THE DRAWINGS. PROVIDE TYPICAL BOLTED CONNECTIONS WITH TENSION CONTROLLED BOLTS CONFORMING TO THE REQUIREMENTS OF

CONTRACTOR TO SUBMIT ALL STEEL SHOP DRAWINGS FOR REVIEW PRIOR TO ANY FABRICATION. STEEL FABRICATOR IS SOLELY RESPONSIBLE FOR COORDINATING WITH THE GENERAL CONTRACTOR FOR THE

PURPOSE OF SURVEYING AND VERIFICATION OF EXISTING CONDITIONS INCLUDING BUT NOT LIMITED TO THE LOCATION, ELEVATION, AND DIMENSIONS OF WALLS AND FRAMING THAT EXIST AT THE TIME OF THE STEEL ERECTION.

ALL MASONRY UNITS SHALL BE NORMAL WEIGHT MASONRY UNITS MEETING ASTM C90 WITH MINIMUM COMPRESSIVE

ALL MASONRY UNITS TO BE GROUTED SOLID BELOW GRADE AND WHERE INDICATED IN DRAWINGS.

CONTRACTOR TO CONSTRUCT COLUMN PIERS INTEGRALLY WITH FOUNDATION AND ABOVE GRADE WALLS AND

THE FOLLOWING BLOCK STRENGTHS ARE REQUIRED UNLESS ASSEMBLY STRENGTH IS JUSTIFIED VIA THE PRISM TEST

ALL MASONRY MORTAR SHALL BE ASTM C270 TYPE S WITH A MINIMUM COMPRESSIVE STRENGTH OF 1800 PSI AT 28

COMPRESSIVE STRENGTH VALUES DETERMINED THROUGH ASTM C780 IN THE FIELD ARE NOT EXPECTED TO ACHEVE

THE COMPRESSIVE STRENGTHS OF LABORATORY TESTED ASTM C270 SPECIFICATION MORTARS. GROUT SHALL BE A HIGH SLUMP MIX, PROPORTIONED IN ACCORDANCE WITH ASTM C476, THAT ACHIEVES THE COMPRESSIVE STRENGTH OF THE MASONRY (Fm), NOT LESS THAN 2000 PSI AT 28 DAYS.

ALL GROUT SHALL BE TESTED USING FIELD OBTAINED CYLINDERS IN ACCORDANCE WITH ASTM CIO19. ALL CONCRETE MASONRY SHALL BE CONSTRUCTED IN ACCORDANCE WITH "BUILDING CODE REQUIREMENTS FOR

MASONRY STRUCTURES ACI 530/ASCE 5/TMS 402" AND THE "SPECIFICATION FOR MASONRY STRUCTURES ACI

ALL BRICK MASONRY UNITS SHALL BE GRADE SW IN ACCORDANCE WITH ASTM C21G WITH A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI, BONDED TOGETHER WITH TYPE S MORTAR.

PROVIDE HOT-DIPPED GALVANIZED TRUSS TYPE HORIZONTAL JOINT REINFORCEMENT, MIN. 9 GA, AT 16" ON CENTER VERTICAL IN ALL MASONRY WALLS. SPACE HORIZONTAL JOINT REINFORCEMENT AT 8 INCHES ON CENTER IN ALL PARAPETS. USE SHOP FABRICATED SPECIAL PIECES AT ALL CORNERS AND TEES.

ALL STRUCTURAL TIMBER FRAMING, WALLS, BLOCKING, ETC. SHALL BE HEM FIR #2 MINIMUM, STRESS GRADE LUMBER OR APPROVED EQUAL. THE MINIMUM ALLOWABLE PROPERTIES ARE AS FOLLOWS: Fb = 850 PSI, Fv = 150 PSI, E =

ALL STRUCTURAL TIMBER FOR WOOD TRUSS FRAMING SHALL SOUTHERN YELLOW PINE (SYP) #3 MINIMUM STRESS GRADE LUMBER OR APPROVED EQUAL. THE MINIMUM ALLOWABLE PROPERTIES ARE AS FOLLOWS: Fb = 500 PSI, Fv =

ALL MICROLLAM BEAMS (LVLs) SHALL BE AS ENGINEERED AND MANUFACTURED BY WEYERHAEUSER OR APPROVED EQUAL. THE MINIMUM ALLOWABLE PROPERTIES ARE AS FOLLOWS: Fb = 2,600 PSI, Fv = 285 PSI, E = 2,000,000 PSI. DESIGN, FABRICATION, AND INSTALLATION OF WOOD TRUSSES AND SHEET METAL CONNECTORS SHALL BE IN ACCORDANCE WITH THE FOLLOWING TRUSS PLATE INSTITUTE (TPI) STANDARDS: THE NATIONAL DESIGN STANDARD FOR METAL-PLATE-CONNECTED WOOD TRUSS CONSTRUCTION, TPI !.

RECOMMENDED DESIGN SPECIFICATION FOR TEMPORARY BRACING OF METAL PLATE CONNECTED WOOD

GUIDE TO GOOD PRACTICE FOR INSTALLING, RESTRAINING AND BRACING METAL PLATE CONNECTED WOOD

ALL TIMBER CONNECTIONS SHALL BE MADE USING PREFABRICATED CONNECTORS. TOE-NAILING IS NOT PERMITTED AS THE FINAL CONNECTION UNLESS OTHERWISE APPROVED BY THE ENGINEER. SUBMIT MANUFACTURER'S DATA FOR REVIEW. FASTENERS SHALL BE AS MANUFACTURED BY SIMPSON STRONGTIE OR APPROVED EQUAL.

WOOD ROOF TRUSSES ARE TO BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER FOR THE WOOD TRUSS FABRICATOR. SIGNED AND SEALED CALCULATIONS ARE TO BE SUBMITTED FOR REVIEW AND APPROVAL. DESIGNS SHALL REFLECT THE LOADING SHOWN IN THE STRUCTURAL DOCUMENTS. TRUSS FABRICATOR SHALL PROVIDE PREFABRICATED HANGERS AND CONNECTORS AS REQUIRED.

PROVIDE MINIMUM CONTINUOUS SOLID BLOCKING OR CROSS-BRIDGING LINES AT 8'-0" O/C MAX SPACING FOR ALL WOOD JOISTS AND WOOD RAFTERS.

PROVIDE ADDITIONAL X-BRIDGING AS REQUIRED BY THE FABRICATOR.

PROVIDE A MINIMUM OF ONE LINE OF BLOCKING OR CROSS BRIDGING FOR ALL SPANS.

TREATED LUMBER SHALL BE PROVIDED AT ALL LOCATIONS WHERE LUMBER IS IN CONTACT WITH CONCRETE AND MASONRY FOUNDATION WALLS OR AT THE EXTERIOR OF THE BUILDING.

SHEATHING FOR EXTERIOR WALLS SHALL BE MIN 1/2" THICK (NOMINAL), 32/16 SPAN RATING, APA STRUCTURAL RATED SHEATHING, EXPOSURE 1. ALL SHEATHING SHALL BE PLACED HORIZONTALLY AND SECURED IN ACCORDANCE WITH THE WALL SCHEDULE SHOWN ON THE STRUCTURAL DRAWINGS. ALL JOINTS IN SHEATHING SHALL BE STAGGERED. SHEATHING FOR ROOFS SHALL BE 5/8" THICK (NOMINAL), 32/16 SPAN RATING, APA STRUCTURAL RATED SHEATHING, EXPOSURE 1. ALL JOINTS IN SHEATHING SHALL BE STAGGERED. USE PANEL CLIPS, TONGUE & GROOVE, OR LUMBER BLOCKED EDGE SUPPORTS AS RECOMMENDED BY APA. NAILING SHALL COMPLY WITH APA REQUIREMENTS FOR PLYWOOD FLOOR/ROOF DIAPHRAGMS.





PILOTTOWN ENGINEERING 7585 NASSAU COMMONS BLVD. UNIT 3 | LEWES, DE 19958 PHONE: 302-703-1770

> JOB NUMBER: 101.286 CONTACT: J. BAKER



# SHEAR WALL ELEVATIONS

NOTES: I. 'SW\_' INDICATES SHEAR TYPE. SEE SCHEDULE FOR ADDITIONAL INFORMATION. 2. 'HD\_' INDICATES HOLD DOWN TYPE. SEE SCHEDULE FOR ADDITIONAL INFORMATION.

# SHEATHING & FASTENER SCHEDULE

MARK	SHEATHING	FASTENER	PLAN VIEW
SWI	1/2" WOOD SHEATHING w/ BLOCKING (ONE SIDE)	8d NAILS @ 6" o/c SPACING @ EDGES, 12" o/c IN FIELD	SHEATHING BLOCKING AS REQD STUD
SW2	1/2" GYPSUM SHEATHING w/ BLOCKING (BOTH SIDES)	Gd NAILS @ 4" o/c SPACING @ EDGES, 12" o/c IN FIELD	STUD SHEATHING BLOCKING SHEATHING AS REQD

INTERMEDIATE CONNECTION SCHEDULE				
MARK	ТУРЕ	SPACING	NOTES	
ICI	1/2"Ø ANCHOR BOLT w/ 3"x3"x3GA. WASHER PLATES	<del>1</del> 8" o/c	CONNECTION TO FOUNDATION WALL	

HOLD DOWN SCHEDULE					
MARK	TYPE	MIN. STUDS	NOTES		
HDI	HDU4-SDS2.5 w/ 5/8"Ø ANCHOR BOLT	(3) 2x	-		

### TRUSS NOTES

I) WOOD TRUSSES SHALL BE BRACED & ERECTED IN ACCORDANCE WITH THE "BUILDING COMPONENT SAFETY INFORMATION" MANUAL PUBLISHED MAY 2008 & THE "TRUSS PLATE INSTITUTE" BRACING WOOD TRUSSES: COMMENTARY & RECOMMENDATIONS, BWT-76.

2) BRACING IN THE PLANE OF WEB MEMBERS: a. THE TRUSS FABRICATOR SHALL PROVIDE & LOCATE CONTINUOUS LATERAL BRACING FOR EACH TRUSS WEB MEMBER AS REQUIRED. b. LATERAL BRACING SHALL BE RESTRAINED BY DIAGONAL BRACING (MIN.

2" THICK NOMINAL LUMBER). THIS BRACING IS TO BE CONTINUOUS. c. A MINIMUM OF TWO ROWS OF DIAGONAL BRACING IS REQUIRED. ONE AT EACH VERTICAL WEB MEMBER CLOSEST TO BEARING LOCATIONS.

3) THE BOTTOM CHORD SHALL BE BRACED BY CONTINUOUS LATERAL BRACING SPACED AT 8 TO 10 FEET NAILED TO TOP OF THE BOTTOM CHORD. DIAGONALS PLACED AT 45° TO THE LATERAL BRACES SHALL BE LOCATED AT EACH END. IF BUILDING EXCEEDS 60 FEET IN LENGTH, DIAGONAL BRACING SHOULD BE REPEATED AT 20 FOOT INTERVALS.

### 4) TOP CHORD BRACING

a. IF PLYWOOD DECKING IS APPLIED DIRECTL TO TOP CHORD, PROPERLY LAPPED & NAILED TO DEVELOOP DIAPHRAGM ACTION, BRACING IS NOT REQUIRED. b. IF PURLINS ARE USED, DIAGONAL TOP CHORD BRACING IS REQUIRED AT EACH END. IF BUILDING EXCEEDS 60 FEET IN LENGTH, DIAGONAL BRACING SHOULD BE REPEATED AT 20 FOOT INTERVALS.

5) WOOD ROOF TRUSSES ARE TO BE DESIGNED FOR THE WOOD FABRICTOR BY A PROFESSIONAL ENGINEER & SEALED CALCULATIONS & DRAWINGS ARE TO BE SUBMITTED FOR REVIEW.



SECTION A-A



TYPICAL TRUSS ELEVATION









- SHEATHING

COMPRESSION WEB-SLOPING OR VERTICAL

- LATERAL BRACE CONTINUOUS



WOOD HEADER SCHEDULE					
MARK	DESCRIPTION	JACK STUDS	KING STUDS	SECTION	REMARKS
н	(3) 2×10	(2) 2x	(2) 2x		
H2	(3) 2×12	(2) 2x	(3) 2x		

(3) 2x

4x6 LSL

POST

(3) |-3/4"x20" LVL

H3

MA F20	<b>RK</b> 0.28	2' - (
MA EI	5G	WIDT
	DE	ESIGN L
	$\bigcirc$	
	DEAD	LOAD CC
	4" CON	CRETE SLAB
	FRAMI	NG
	CEILING	- - -
	COLLA	TERAL
	MECHA	NICAL
	TOTAL	

MARK

CI

STEEL COLUMN SCHEDULE					
SIZE	BASE PLATE	ANCHOR BOLTS	BOLT GRADE (F1554)	REMARKS	
HSS5X5X5/16	3/4" x 12" x 1'-0"	(4) 3/4 <sup>®</sup> Ø	36 KSI		

	WALL FOOTING SCHEDULE					
DIMENSIONS REINFORCING						
Ή	THICKNESS	LONGITUDINAL	TRANSVERSE	REMARKS		
ll.	2' - 8"	(3) #4	#4 @ 24"			

COLUMN FOOTING SCHEDULE					
DIMENSIONS			PEINIEOPCING	PEMAPKS	
H LENGTH THICKNESS		REINF ORGING	REIVINKS		
2	5' - 6"	ľ - 2"	(G) #G EWB		

OAD SCHEDULE (psf)				
	LOCATION	SLAB ON GRADE	ROOF	
MPONENT	$\searrow$			
ON GRADE		50		
ON			5	
			8	
			2	
			5	
			5	
		50	25	
		100	30	
		150	55	

WIND LOAD DESIGN CRITERIA 2018 INTERNATIONAL BUILDING CODE				
ITEM	SYMBOL	VALUE		
ULTIMATE WIND SPEED	V <sub>uLT</sub>	112 MPH		
ALLOWABLE WIND SPEED	V <sub>ASD</sub>	87 MPH		
RISK CATEGORY	-	11		
WIND EXPOSURE CATEGORY	-	В		
INTERNAL PRESSURE COEFFICIENT	GC <sub>PI</sub>	± 0.18		

SEISMIC LOAD DESIGN CRITERIA 2018 INTERNATIONAL BUILDING CODE						
ITEM	SYMBOL	VALUE				
SITE CLASS	-	D				
SPECTRAL RESPONSE ACCELERATION (0.2 SEC.)						
MAPPED	<b>S</b> 5	0.157				
DESIGN	S <sub>DS</sub>	0.167				
SPECTRAL RESPONSE ACCELERATION (I SEC.)						
MAPPED	SI	0.044				
DESIGN	S <sub>DI</sub>	0.071				
RISK CATEGORY		11				
IMPORTANCE FACTOR	E	I.O				
SEISMIC DESIGN CATEGORY	-	В				
ANALYSIS PROCEDURE	-	EQUIVALENT LATERAL FORCE				
SEISMIC FORCE RESISTING SYSTEM	-	LIGHT FRAME WALLS w/ STRUCT. PANELS				
RESPONSE MOD. FACTOR	R	6-1/2				
SEISMIC RESPONSE COEFFICIENT	Cs	0.0217				
DESIGN BASE SHEAR	V	34 K				

SNOW LOAD DESIGN CRITERIA 2018 INTERNATIONAL BUILDING CODE								
ITEM	SYMBOL	VALUE						
GROUND SNOW LOAD	P <sub>G</sub>	25 PSF						
RISK CATEGORY	-	11						
EXPOSURE FACTOR	C <sub>E</sub>	I.O						
IMPORTANCE FACTOR	I	I.O						
THERMAL FACTOR	CT	I.O						
FLAT-ROOF SNOW LOAD	PF	20 PSF						



5-003



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> JOB NUMBER: 101.286 CONTACT: J. BAKER



## FOUNDATION PLAN

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

S-IOI NOTES:

- I. TOP OF SLAB EL. = DATUM EL. (0.00') UNLESS NOTED OTHERWISE THUS (...).
- 2. SEE PLAN FOR TOP OF FOOTING ELEVATION BELOW DATUM ELEVATION.
- 3. TOP OF PIER EL. = [-0.67'] BELOW DATUM UNLESS NOTED OTHERWISE THUS [...].
- 4. 'SF' INDICATES STEPPED FOOTING. SEE TYPICAL DETAIL FOR ADDITIONAL INFORMATION.
- 5. 'TDS' INDICATES TURNED DOWN SLAB. SEE TYPICAL DETAIL FOR ADDITIONAL INFORMATION.
- 6. 'S\_/D\_' INDICATES FLOOR/ ROOF CONSTRUCTION. SEE SCHEDULE ON THIS SHEET FOR ADDITIONAL INFORMATION.
- 7. COORDINATE ALL UNDER SLAB PIPING WITH ARCHITECTURAL/ MECHANICAL DRAWINGS.
- 8. COORDINATE ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS PRIOR TO BUILDING LAYOUT.

SEAL:	ERR TURE rre, LLC Drive 21801 238
CONSULTANTS:	
7	
MIDDLETOWN SHOPPING CENTER	1611-31 LAKE SEYMOUR DRIVE MIDDLETOWN, DELAWARE 19709
SHEET INF	0:
REV REV DATE DESCRIPTI DATE: 2023.01.1 PROJECT NO. 2022159 SCALE: As indica	ON 1 ted
PROJ MGR: J. BAKEF DRAWN BY: J. RODG SHEET NUMBER:	ERS
S-16	<b>9</b> 1

SLAB/ DECK CONSTRUCTION SCHEDULE						
MARK	SECTION	DESCRIPTION				
SI		8" CONCRETE SLAB ON GRADE w/ GxG- WI.4xWI.4 WWF OVER 4" CRUSHED STONE				
52		4" CONCRETE SLAB ON GRADE w/ 6x6- WI.4xWI.4 WWF OVER 4" CRUSHED STONE				
DI		5/8" T&G PLYWOOD ROOF SHEATHING				



PILOTTOWN E N G I N E E R I N G 17585 NASSAU COMMONS BLVD. UNIT 3 | LEWES, DE 19958 PHONE: 302-703-1770

> JOB NUMBER: 101.286 CONTACT: J. BAKER



	R	OOF FRAMING PLAN SCALE: 1/8" = 1'-0"
5-102/	NO	TES:
	I.	TRUSS BEARING EL. = (14'-0") ABOVE DATUM EL.
	2.	SEE PLAN FOR TOP OF STEEL ELEVATION.
	3.	'S_/D_' INDICATES FLOOR/ ROOF CONSTRUCTION. SEE SCHEDULE ON THIS SHEET FOR ADDITIONAL INFORMATION.
	4.	INDICATES 2x CONVENTIONAL WOOD OVERFRAMING, TRUSS OVERFRAMING, OR ROOF SLOPE BUILT INTO
		TOP CHORD OF ROOF TRUSS @ CONTRACTORS OPTION.
	5.	'H_' INDICATES HEADER. SEE SCHEDULE FOR ADDITIONAL INFORMATION.
	6.	'GT' INDICATES GIRDER TRUSS.
	7.	COORDINATE ROOF TOP UNIT LOCATIONS & DUCT PENETRATIONS WITH ARCHITECTURAL/ MECHANICAL DRAWINGS.
		SEE TYPICAL DETAILS FOR ADDITIONAL INFORMATION.

- 8. PROVIDE TRIPLE JAMB STUDS @ ALL LVL, GLB, & GIRDER TRUSS BEARING LOCATIONS UNLESS NOTED
- OTHERWISE.
- 9. PROVIDE MINIMUM (2) JAMB STUDS @ EACH END OF HEADER UNLESS NOTED OTHERWISE. 10. 'SW\_' INDICATES SHEARWALL. SEE SCHEDULE FOR ADDITIONAL INFORMATION.
- II. INDICATES SHEARWALL LOCATION.
- 12. 'PT' INDICATES PRESSURE TREATED LUMBER.
- 13. ALL STEEL FOR WF MEMBERS SHALL BE ASTM A992.
- 14. )---- INDICATES WIND MOMENT CONNECTION. SEE TYPICAL DETAIL FOR ADDITIONAL INFORMATION.
- 15. PROVIDE MIN. TRUSS DEPTH = (1'-6") @ LOW END. SLOPE TOP CHORD OF TRUSS AS REQ'D.
- 16. PROVIDE MIN. 250 16/Ft DRAG TRUSS LOADING.
- 17. PROVIDE DRAG TRUSS @ HSS COLUMN LOCATIONS. ATTACH TO HSS COLUMN w/ 3/8"+. STEEL SADDLE SEAT.



R DRIVE RE 19109

SLAB/ DECK CONSTRUCTION SCHEDULE						
MARK	SECTION	DESCRIPTION				
SI		8" CONCRETE SLAB ON GRADE w/ 6x6- WI.4xWI.4 WWF OVER 4" CRUSHED STONE				
52		4" CONCRETE SLAB ON GRADE w/ 6x6- WI.4xWI.4 WWF OVER 4" CRUSHED STONE				
DI	E	5/8" T&G PLYWOOD ROOF SHEATHING				



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- WALL BEYOND

#4 @ 2'-0" o/c – FUTURE SLAB SLAB CONSTRUCTION CONSTRUCTION (SEE PLAN) T.O. SLAB EL. = (SEE PLAN) × 4 × ľ-**4**"

> - SEE PLAN/ SCHEDULE FOR FOOTING SIZE, REINF. & ELEV.

FISHER ARCHITECTURE Fisher Architecture, LLC 542 Riverside Drive Salisbury, MD 21801 (110) 742 0038 (410) 742-0238 SEAL: CONSULTANTS: 2 <u>۵</u>۲ U <u>N</u> <u>ل</u>لاً و Ωщ <u>3</u>С Ц С Ц AKE OWN, OWN Ш \_ Δ  $\square$  $\overline{\overline{\Sigma}}$ SHEET INFO: TYPICAL FOUNDATION DETAILS \$ SECTIONS REV REV DATE DESCRIPTION 
 DATE:
 2023.01.11

 PROJECT NO.
 2022159

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

 PROJ MGR:
 J. BAKER

 DRAWN BY:
 J. RODGERS
 SHEET NUMBER:

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> JOB NUMBER: 101.286 CONTACT: J. BAKER

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S-501





### GENERAL NOTES

- 1. REFER TO A-501 FOR WALL TYPES. TENANT SEPARATION WALL CONSTRUCTION WILL BE DEPENDENT UPON FUTURE TENANTS SELECTED.
- INTERIOR WALLS TO BE TYPE IA UNLESS OTHERWISE NOTED.
   REFER TO A-3005 FOR EXTERIOR WALL SECTION DETAILS.
- EXIT LIGHTS \$ EXIT/EMERGENCY COMBO UNITS SHALL BE EQUAL TO PHILIPS/CHLORIDE SERIES LED, 120 PRIMARY CIRCUIT, 30-MIN BATTERY ILLUMINATION; REFER TO ELECTRICAL ENGINEERING DRAWINGS FOR LOCATIONS \$ SPECIFICATIONS
   PROVIDE EXTERIOR REMOTE LAMP HEADS AT ALL LOCATIONS OF EXIT; REFER TO ELECTRICAL
- ENCIVIDE EXTERIOR REPORTE LATIN HEADS AT ALL LOCATIONS OF EXITY REPER TO ELECTRICAL ENGINEERING DRAWINGS FOR ADDITIONAL INFORMATION
   PER IECC 2018, SECTION C405.21; OCCUPANT SENSOR CONTROLS SHALL BE INSTALLED TO CONTROL LIGHTS IN EMPLOYEE BREAK ROOMS, PRIVATE OFFICES, RESTROOMS, STORAGE ROOMS, JANITORIAL CLOSETS, OTHER SPACES 300 S.F. OR LESS THAT ARE ENCLOSED BY FLOOR-TO-CEILING HEIGHT PARTITIONS. G.C. TO REFER TO IECC 2018 SECTION C405.2.1.1 FOR REQUIREMENTS OF OCCUPANT SENSOR CONTROL FUNCTIONS.
- 1. SIZE GUTTER AND DOWNSPOUTS FOR 100 YEAR STORM EVENT RAINFALL PER SMACNA MANUAL, LATEST EDITION

DRAWINGS TO REFERENCE

REFER TO CIVIL ENGINEERING PLANS FOR FURTHER DIMENSIONS AND BUILDING LOCATIONS.
 REFER TO STRUCTURAL DWGS. FOR GROUND FLOOR COLUMN LOCATIONS.

NFPA NOTES

PLEASE REFER TO SHEET A501 FOR CLARIFICATION ON ALL WALL TYPE CONSTRUCTION. 1. COORDINATE SIZE AND OTHER SPRINKLER ROOM REQUIREMENTS WITH FIRE SUPPRESSION CONTRACTOR.

![](_page_8_Picture_11.jpeg)

![](_page_9_Figure_0.jpeg)

![](_page_9_Figure_1.jpeg)

![](_page_9_Figure_2.jpeg)

2 ELEVATION SOUTH 1/8" = 1'-0"

STONE VENEER FINISH; COLOR \$ MANUFACTURER TO BE COORD. WITH OWNER/TENANT. REFER TO A-6005 FOR STOREFRONT AND DOOR DETAILS APPROX. GRADE; REFER TO CIVIL DRAWINGS FOR FURTHER SITE DETAILS

HORIZONTAL SIDING; COLOR & MANUFACTURER

TO BE COORD. WITH OWNER/TENANT.

![](_page_9_Figure_5.jpeg)

1) ELEVATION NORTH

![](_page_9_Figure_7.jpeg)

HORIZONTAL SIDING; COLOR MANUFACTURER TO BE COORD. WITH OWNER/TENANT.

### - REFER TO A-6005 FOR STOREFRONT AND DOOR DETAILS

----- STONE VENEER FINISH; COLOR \$ MANUFACTURER TO BE COORD. WITH OWNER/TENANT.

APPROX. GRADE; REFER TO CIVIL DRAWINGS FOR FURTHER SITE DETAILS

![](_page_9_Figure_13.jpeg)

NOT BE USED TO FILL VOIDS BETWEEN FIRE SPRINKLER COVER PLATES AND WALLS OR CEILINGS.
4. RECESSED LIGHTING FIXTURES SHALL COMPLY WITH SECTION C402.5.8. WHERE SIMILAR OBJECTS ARE INSTALLED THAT PENETRATE THE AIR BARRIER, PROVISIONS SHALL BE MADE TO MAINTAIN THE INTEGRITY OF THE AIR BARRIER.

### ELEVATION NOTES

- 1. G.C. TO VERIFY ALL FINAL GRADE ELEVATIONS PRIOR TO EXTERIOR MATERIAL INSTALLATION
- 2. ALL MATERIALS USED ON THE BUILDING EXTERIOR TO BE SUBMITTED TO ARCHITECT/OWNER; VERIFY NECESSARY WATERPROOFING AND FLASHING
- FOR SYSTEMS 3. ALL PENETRATIONS IN THE BUILDINGS THERMAL BARRIER TO BE SEALED.
- ALL WIRES, PIPES, FIXTURES AND FASTENERS TO BE SEALED SO THAT NO GAPS EXIST 4. FILL AND PAINT ALL EXPOSED NAIL AND FASTENERS THAT EXIST IN
- EXTERIOR TRIM
- 5. VERIFY ALL FASTENERS IN BUILDING EXTERIOR ARE RATED FOR EXTERIOR EXPOSURE
- 6. VERIFY ALL METALS ARE COMPLIANT FOR THE USE AND ARE EXPOSED FOR USE WITH ADJACENT MATERIALS
- 1. CAULK AND SEAL AT INTERSECTION OF ALL DISSIMILAR MATERIALS 8. SEE 'GENERAL NOTES: THERMAL ENVELOPE' ON A201/202
- 9. INSTALL ALL STONE VENEER PER MANUFACTURER'S PUBLISHED ICC-ES REPORT.

COORDINATE SIZE  $\$  LOCATION OF ALL SIGNAGE WITH TENANT/OWNER

HORIZONTAL SIDING; COLOR \$ MANUFACTURER TO BE COORD. WITH OWNER/TENANT.

PROVIDE TYPICAL METAL CANOPY (10'-0" A.F.F.) OVER STOREFRONTS

REFER TO A-6005 FOR STOREFRONT AND DOOR DETAILS

- STONE VENEER FINISH; COLOR MANUFACTURER TO BE COORD. WITH OWNER/TENANT.

APPROX. GRADE: REFER TO CIVIL DRAWINGS FOR FURTHER SITE DETAILS

HORIZONTAL SIDING; COLOR  $\$  MANUFACTURER TO BE COORD. WITH OWNER/TENANT.

STONE VENEER FINISH; COLOR & MANUFACTURER TO BE COORD. WITH OWNER/TENANT.

APPROX. GRADE; REFER TO CIVIL DRAWINGS FOR FURTHER SITE DETAILS

![](_page_9_Picture_34.jpeg)

![](_page_10_Figure_0.jpeg)

![](_page_10_Figure_2.jpeg)

BUILDING SECTION 1 <u>1/4" = 1'-@"</u>

![](_page_10_Figure_4.jpeg)

![](_page_11_Figure_0.jpeg)

# PROVIDE POLYISOCYANURATE INSULATION MECHANICALLY FASTENED TO ROOF DECK; MIN. ROOF R-VALUE AT LOWEST POINT TO BE MIN. OF R-30 CI PER IECC 2018 -

5/8" T\$G PLYWOOD ROOF SHEATHING

\_\_\_\_\_

REFER TO A-3005 FOR PARAPET CAP DETAILS

WOOD TRUSS @ 24" O.C. TOP CHORD TO SLOPE 6"; REFER TO STRUCTURAL FOR DETAILS -

2" THICK EIFS FINISH, COLOR \$ MANUFACTURER TO BE COORDINATED WITH OWNER/TENANT -

STONE VENEER WATERTABLE FINISH TO BE 4'-O" A.F.F.; PROVIDE TYPICAL STONE CAP. COLOR \$ MANUFACTURER TO BE COORD. WITH OWNER/TENANT -

REFER TO STRUCTURAL DRAWINGS FOR FOUNDATION DETAILS

BUILDING SECTION 3 1) Build ..... 1/4" = 1'-0"

![](_page_11_Figure_9.jpeg)

2 TYPICAL PARAPET @ EIFS WALL 1" = 1'-@"

# 

- PROVIDE POLYISOCYANURATE INSULATION MECHANICALLY FASTENED TO ROOF DECK, WITH MIN. 1" SPRAY IN PLACE CLOSED CELL SPRAY POLYURETHANE ROOF FOAM INSULATION OVER ENTIRE ROOF DECK; CARRY SPRAY FOAM UP BACK OF PARAPET WALL, SEAL ALL TRANSITIONS, PENETRATIONS, \$ CURB CUTS. MIN. ROOF R-VALUE AT LOWEST POINT TO BE MIN. OF R-30 CI PER IECC 2018

5/8" PLYWOOD SHEATHING

5/8" PLYWOOD ROOF SHEATHING

\_\_\_\_

- WOOD TRUSS @ 24" O.C. TOP CHORD TO SLOPE 6"; REFER TO STRUCTURAL FOR DETAILS

REPARED OR APPROVED BY ME, A ACHITECTURE, LLC, ARE THE DOCUMENTS PREPARI ARCHITECTURE, LLC, ARE THE PROJECT. FISHER ARCHITE MAKES NO REPRESENTATI THEIR SUTABILITY FOR A ACHITECTURE, LLC, ARE THE PROJECT. FISHER ARCHITE MAKES NO REPRESENTATI THER SUTABILITY FOR A ACHITECTURE, LLC, ARE THE PROJECT. FISHER ARCHITE MAKES NO REPRESENTATI THER SUTABILITY FOR A ACHITECTURE, LLC ARE TO OF FISHER ARCHITECTURE CONSULTANTS:	ERR TURE re, LLC Drive 21801 38 TION: SWERE ND THAT IAM ERT THE LAWS 5-0007610 01.31.2023 ED BY FISHER SOLELY FOR SOLELY FOR
SHEET INFO	C 1611-31 LAKE SEYMOUR DRIVE MIDDLETOWN, DELAWARE 19709
BUILDING SE \$ DETA	

![](_page_11_Figure_16.jpeg)

4 TYPICAL FOUNDATION DETAIL @ STOREFRONT & DOORS 1" = 1'-0"

![](_page_12_Figure_1.jpeg)

WALL SECTION - 1

1/2" = 1'-Ø"

![](_page_12_Figure_2.jpeg)

TO ENTIRE FOUNDATION PERIMETER FROM BOTTOM OF FOOTING TO TOP OF SLAB

APPLY WATER PROOF MEMBRANE

PROVIDE R-10 CONTINUOUS INSULATION AT PERIMETER

#4@2'-O" O.C.

FIRST FLOOR

FUTURE SLAB CONSTRUCTION

PROVIDE RIBBON SLAB COMING INTO BUILDING FOOTPRINT 2 FEET

#4 (CONT.)

1/2" PREMOLDED JOINT FILLER

STOREFRONT AS SCHEDULED

REFER TO CIVIL DRAWINGS

TYPICAL 4" CONCRETE SIDEWALK;

![](_page_12_Figure_17.jpeg)

REFER TO SHEET A-3005 FOR

DOUBLE 2X6 TOP PLATE (CONT.)	╞
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OVER PLYWOOD SHEATHING TYP	F
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WITH MANUFACTURER 5' - O"	F
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<b>_</b>	т
	F
PROVIDE TYPICAL METAL CANOPY	h
(10'-0" A.F.F.) OVER STOREFRONTS	Ľ
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DETAILS	L
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STOREFRONT DETAILS	Ľ
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	L
PROVIDE RIBBON SLAB COMING INTO	
BUILDING FOOTPRINT 2 FEET	ľ
	ł
	┝
TYPICAL 4" CONCRETE SIDEWALK;	ŀ
REFER TO CIVIL DRAWINGS	
	ŀ
	57
	122
	_
	_
APPLY WATER PROOF	_
MEMBRANE TO ENTIRE	
	7

REFER TO STRUCTURAL FOR

WALL SECTION - 2

4 .

, Δ ,

1" = 1'-0"

1/2" = 1'-Ø"

MORE DETAILS

REFER TO A-303 FOR PARAPET DETAILS

PROVIDE POLYISOCYANURATE INSULATION MECHANICALLY FASTENED TO ROOF DECK; MIN. ROOF R-VALUE AT LOWEST POINT TO BE MIN. OF R-30 CI PER IECC 2018

COORDINATE SIGNAGE WITH OWNER/TENANT

DETAILS

LOW PARAPET

WOOD TRUSS @ 24" O.C. TOP CHORD TO SLOPE 6" TO THE REAR OF THE

BUILDING; REFER TO STRUCTURAL FOR

![](_page_12_Figure_23.jpeg)

![](_page_12_Figure_24.jpeg)

PROVIDE POLYISOCYANURATE INSULATION MECHANICALLY FASTENED TO ROOF DECK; MIN. ROOF R-VALUE AT LOWEST POINT TO BE MIN. OF R-30 CI PER IECC 2018 WOOD TRUSS @ 24" O.C. TOP CHORD TO

SLOPE 6" TO THE REAR OF THE BUILDING; REFER TO STRUCTURAL FOR

HURRICANE CLIP @ EACH TRUSS

DOUBLE 2×6 TOP PLATE (CONT.)

PROVIDE COMMERCIAL BUILDING WRAP OVER PLYWOOD SHEATHING, TYP.

PROVIDE MIN. R-20 BATT INSULATION FITTED BETWEEN STUDS PER IECC

2×6 WOOD STUDS @ 16" O.C.

1/2" PLYWOOD SHEATHING ON EXTERIOR

HORIZONTAL SIDING; COLOR \$ MANUFACTURER TO BE COORD. WITH OWNER/TENANT.

PROVIDE RIBBON SLAB COMING INTO BUILDING FOOTPRINT 2 FEET

PROVIDE R-10 CONTINUOUS INSULATION

TYPICAL 4" CONCRETE SIDEWALK;

24"×28" CONCRETE FOOTING; REFER TO STRUCTURAL FOR MORE DETAILS

APPLY WATER PROOF MEMBRANE TO ENTIRE FOUNDATION PERIMETER FROM BOTTOM OF FOOTING TO TOP OF SLAB

2" TPO DRIP EDGE FLASHING

2X ROOF EDGE BLOCKING

CONTINUOUS GUTTER

1/2" PLYWOOD SHEATHING OVER 2×6 STUDS @ 16" O.C.

PROVIDE COMMERCIAL BUILDING WRAP OVER PLYWOOD SHEATHING, TYP.

PROVIDE MIN. R-20 BATT INSULATION FITTED BETWEEN STUDS PER IECC 2018

ROOF BEARING

HURRICANE CLIP @ EACH TRUSS

HORIZONTAL SIDING; COLOR \$ MANUFACTURER TO BE COORD. WITH OWNER/TENANT.

![](_page_12_Figure_49.jpeg)

![](_page_13_Figure_0.jpeg)

![](_page_13_Figure_1.jpeg)

![](_page_13_Figure_2.jpeg)

- WOOD STUDS TO BE SPACED @ 16" O.C. UNLESS OTHERWISE NOTED. 2. REFER TO THE LATEST EDITION OF UNDERWRITERS LABORATORIES INC. FIRE RESISTANCE DIRECTORY FOR ADDITIONAL REQUIREMENTS ON UL RATED ASSEMBLIES AS NOTED IN THE PARTITION DESCRIPTIONS.
- 3. ALL PARTITION TYPES MIGHT NOT BE USED. 4. PROVIDE MOISTURE RESISTANT GYPSUM BOARD AT ALL WET WALL
- LOCATIONS 5. PROVIDE DIAMONDBACK TILE BACKER AND "TYPE X" DIAMONDBACK TILE BACKER (FIRE RATED WALL CONSTRUCTIONS) OR SIMILAR AT ALL LOCATIONS TO RECEIVE WALL TILE, SEE ROOM
- SCHEDULE FOR TILE LOCATIONS \$ A-101 FOR FIRE RATED WALL LOCATIONS. 6. LIMIT NECESSARY WALL PENETRATIONS TO ONE PER STUD CAVITY AS ABLE TO. SEAL ALL CAVITIES WITH ACOUSTICAL SEALANT, CAULK OR PUTTY PADS.
- A. 6.1. SEALANT TO MEET ASTM C 919 B. 6.2. PUTTY PADS TO MEET ASTM E 90
- 1. IN ACCORDANCE TO IBC 2018 SECTION 118.2.2, FIREBLOCKING SHALL BE PROVIDED IN CONCEALED SPACES OF STUD WALLS AND PARTITIONS, INCLUDING FURRED SPACES, PARALLEL ROWS OF STUDS, OR STAGGERED STUDS AS FOLLOWS: A. VERTICALLY AT THE CEILING AND FLOOR LEVELS
  - B. HORIZONTALLY AT INTERVALS NOT EXCEEDING 10 FEET.

![](_page_13_Figure_10.jpeg)

![](_page_13_Figure_11.jpeg)

SEAL:

### DOOR SCHEDULE

					DOOR			FRAME				ENERGY CON	MPLIANCE		
DOOR TAG	DOOR TYPE		SIZE		MATERIAL			ENIGU	DETAILS		HW SET			FIRE	KEYNOTES
		WIDTH	HEIGHT	THICK		FINISH	MATERIAL	FINISH	HEAD	JAMB		UFACIOR	5.H.G.C	RATING	
ØI	A	3' - O"	T' - Ø"	2"	METAL	PAINT	METAL	BLACK	1/A-602	2/A-602	2	0.61	0.40		1
O2	A	3' - O"	T' - Ø"	2"	METAL	PAINT	METAL	BLACK	1/A-602	2/A-602	4	0.61	0.40		1
<i>0</i> 3	В	3' - O"	T' - Ø"	2"	SOLID CORE WOOD	PAINT	METAL	PAINT	9/A-602	1 <i>0</i> /A-6 <i>0</i> 2	3				1
<i>0</i> 4	В	3' - O"	T' - Ø"	2"	SOLID CORE WOOD	PAINT	METAL	PAINT	9/A-602	1 <i>0</i> /A-6 <i>0</i> 2	3				1
<i>0</i> 5	В	3' - O"	T' - Ø"	2"	SOLID CORE WOOD	PAINT	METAL	PAINT	9/A-602	1 <i>0</i> /A-6 <i>0</i> 2	3				1
06	В	3' - O"	T' - Ø"	2"	SOLID CORE WOOD	PAINT	METAL	PAINT	9/A-602	1 <i>0</i> /A-6 <i>0</i> 2	3				1
Ø٦	В	3' - O"	T' - Ø"	2"	SOLID CORE WOOD	PAINT	METAL	PAINT	9/A-602	1 <i>0</i> /A-6 <i>0</i> 2	3				1
08	С	6' - O"	T' - Ø"	1 3/4"	ANO. ALUM. \$ GLAZING	CLEAR	ANO. ALUMINUM	BLACK			1	Ø.77	0.40		1
09	A	3' - O"	T' - Ø"	2"	METAL	PAINT	METAL	BLACK	1/A-602	2/A-602	2	0.61	0.40		1
10	A	3' - O"	T' - Ø"	2"	METAL	PAINT	METAL	BLACK	1/A-602	2/A-602	2	0.61	0.40		1
11	A	3' - O"	T' - Ø"	2"	METAL	PAINT	METAL	BLACK	1/A-602	2/A-602	2	0.61	0.40		1
12	В	3' - O"	T' - Ø"	2"	SOLID CORE WOOD	PAINT	METAL	PAINT	9/A-602	1 <i>0</i> /A-6 <i>0</i> 2	3				1
13	A	3' - O"	T' - Ø"	2"	METAL	PAINT	METAL	BLACK	1/A-602	2/A-602	2	0.61	0.40		1
14	A	3' - O"	T' - Ø"	2"	METAL	PAINT	METAL	BLACK	1/A-602	2/A-602	2	0.61	0.40		1
15	С	6' - O"	T' - Ø"	1 3/4"	ANO. ALUM. \$ GLAZING	CLEAR	ANO. ALUMINUM	BLACK			1	Ø.11	0.40		1
16	С	6' - O"	T' - Ø"	1 3/4"	ANO. ALUM. \$ GLAZING	CLEAR	ANO. ALUMINUM	BLACK			1	Ø.11	0.40		1
17	С	6' - O"	T' - Ø"	1 3/4"	ANO. ALUM. \$ GLAZING	CLEAR	ANO. ALUMINUM	BLACK			1	Ø.11	0.40		1
18	С	6' - O"	T' - Ø"	1 3/4"	ANO. ALUM. \$ GLAZING	CLEAR	ANO. ALUMINUM	BLACK			1	Ø.11	0.40		1
19	С	6' - O"	T' - Ø"	1 3/4"	ANO. ALUM. & GLAZING	CLEAR	ANO. ALUMINUM	BLACK			1	Ø.77	0.40		1

# DOOR TYPES

![](_page_14_Figure_3.jpeg)

- ALL INTERIOR DOOR TOP'S AND BOTTOM'S TO BE FINISHED PER DOOR, NO RAW EDGES ALLOWED.
   ALL HARDWARE SHALL COMPLY WITH APPLICABLE ACCESSIBILITY REQUIREMENTS.
   ALL HARDWARE SHALL BE LEVER TYPE, ANSI GRADE 2 OR BETTER U.N.O. FOR STOREFRONT DOOR SYSTEMS UNLESS OTHERWISE NOTED.
- 4. PROVIDE EXIT DEVICES AS REQUIRED BY LOCAL FIRE \$ BUILDING CODE OFFICIAL(S); AS WELL AS LOCATIONS REQUIRED BY 2018 NFPA 101 \$ 2018 IBC.

REQUIRED BT 2018 NFPA 101 \$ 2018 IBC.
COORDINATE KEYING AND LOCKING REQUIREMENTS WITH OWNER/TENANT; SUBMIT KEYING SCHEDULE TO ARCHITECT AND OWNER/TENANT FOR REVIEW AND APPROVAL.
G. G.C. TO COORDINATE GENERAL DOOR HARDWARE, SWEEPS, WEATHERSTRIPPING, THRESHOLDS, ETC.
ALL HARDWARE ON EXIT DOORS MUST COMPLY WITH CHAPTER 1 OF THE NFPA 101, LIFE SAFETY CODE, 2018 EDITION; 101: 38.2.2.2.2 \$ 1.2.1.5.5.1. DEAD BOLTS ARE ONLY PERMITTED ON THE PRINCIPAL ENTRANCE/EXIT DOOR. IF THE PRINCIPAL ENTRANCE/EXIT DOOR DOES UTILIZE A DEADBOLT THAN EITHER THE LOCKING DEVICE IS TO BE OF A TYPE THAT IS READILY DISTINGUISHABLE AS LOCKED (INDICATOR); OR ALL OTHER EXIT DOOR HARDWARE MUST RELEASE BY A SINGLE MEANS OF OPERATION UTILIZING A LEVER, PADDLE, OR PANIC DEVICE 8. ALL DOORS TO BE INSTALLED, FLASHED, CAULKED/SEALED, AND SET PER MANUFACTURER'S SPECIFICATIONS.

- 9. ALL DOORS WITH GLASS PANELS, INTEGRATED SIDELITE OR WINDOW SYSTEM SHALL HAVE A MINIMUM OF 1/4" TEMPERED (IMPACT RESISTANT) GLAZING.
- 10. G.C. TO VERIFY IF WEIGHT OF DOOR(S) REQUIRES ADDITIONAL HINGES, PROVIDE AS NECESSARY. 11. KEYS SHALL BE HANDED TO THE TENANT/OWNER WHEN ALL CONSTRUCTION HAS BEEN COMPLETED.
- 12. COORDINATE ALL DOOR AND FRAME PAINT FINISHES WITH TENANT \$ FINISH SCHEDULE IN FIELD

### DOOR KEYNOTES

1. OWNER TO SPECIFY FINISH

		STOREFROM	NT.	FR	RAME	DET	TAILS	CI AZING	ENERGY COMPLIANCE		KEYNOTE
STUREFRUNT TAG	WIDTH	HEIGHT	THICKNESS	MATERIAL	FINISH	HEAD	JAMB	GLAZING	U-FACTOR	S.H.G.C.	REINCIE
		•					·	·	· · · ·		
SF-1	18' - 2"	10' - 0"	u ,	ANO. ALUM	ANO. SILVER	3/A-602, 5/A-602, 7/A-602	4/A-602, 6/A-602, 8/A-602	CLEAR, 1" INSULATED, DOUBLE PANE, LOW-E	Ø.38	0.36	
SF-2	10' - 0"	10' - 0"	5″	ANO. ALUM	ANO. SILVER	5/A-602	6/A-602	CLEAR, 1" INSULATED, DOUBLE PANE, LOW-E	Ø.38	0.36	

STOREFRONT SCHEDULE

# STOREFRONT TYPES

![](_page_14_Figure_17.jpeg)

NOTE: WINDOWS/DOORS WITH GLAZING BELOW 18" MUST HAVE TEMPERED GLAZING PER IBC 2406.4.3 (NOT REQUIRED FOR TRANSOMS)

# 6 HINGES 2 STANDARD DOOR CLOSERS 2 PULL LEVERS 2 PUSH PLATES

2 SWEEPS 2 GASKETING

1 THRESHOLD

2 3 HINGES

3 3 HINGES

1 SWEEP

1 GASKETING

1 THRESHOLD

2 KICKPLATE

1 GASKETING 1 THRESHOLD

1 SECURITY DEADLATCH CYLINDER (ANSI #E2141)

1 STANDARD DOOR CLOSER 1 KEYED ENTRANCE/EXIT LEVER SET (ANSI F82) I SURFACE MOUNT PANIC BAR

1 PRIVACY LEVER STYLE LOCK SET (ANSI F16)

4 3 HINGES 1 KEYED ENTRANCE/EXIT LEVER SET (ANSI F82)

	GENERAL NOTES	FISHER ARCHITECTURE Fisher Architecture, LLC 542 Riverside Drive Salisbury, MD 21801 (410) 742-0238
10' - 0" EQ. 2 1/2" EQ. 2 1/2"	<ol> <li>PROVIDE TEMPERED GLAZING (SAFETY GLAZING) AS REQUIRED AND SPECIFIED BY IBC 2018 SECTION 2406. G.C. TO VERIFY ALL WINDOWS MEET OR EXCEED ALL APPLICABLE CODE REQUIREMENTS (IECC 2018, IBC 2018, 2018 NFPA 101, ETC.)</li> <li>ALL WINDOWS WITHIN 18" OF GRADE SHALL HAVE TEMPERED GLAZING MINIMUM.</li> <li>ALL PANELS LABELED WITH "T" ARE TO REPRESENT TEMPERED GLAZING.</li> <li>WINDOW KEYNOTES</li> <li>NORTH FACING WINDOWS TO MEET MIN. U-FACTOR OF 0.53</li> </ol>	SEAL:
T T		PROFESSIONAL CERTIFICATION: ICERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED OR ACHITECT UNDER THE LAWS OF THE STATE OF DELAWARE. LICENSE NO.: S5-0007610 EXPIRATION NO.: 01.31.2023 THE DOCUMENTS PREPARED BY FISHER ARCHITECTURE, LLC, ARE SOLELY FOR THE PURPOSES OF THE SPECIFIED PROJECT. THEY ARE NOT INTENDED OR AUTHORIZED FOR USE ON ANY OTHER PROJECT. TISHER ARCHITECTURE, LLC MAKES NO REPRESENTATION AS TO THEIR SUITABILITY FOR ANY OTHER USE. ALL DOCUMENTS PREPARED BY FISHER ARCHITECTURE, LLC ARE INSTRUMENTS
SF-2		ARCHITECTURE, LLC ARE INSTRUMENTS OF PROFESSIONAL SERVICE IN RESPECT OF THE PROJECT. THESE DOCUMENTS ARE, AND SHALL REMAIN, THE PROPERTY OF FISHER ARCHITECTURE, LLC.

CONSULTANTS:

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SHEET INFO:

DOOR \$ WINDOW SCHEDULES
REV REV DATE DESCRIPTION
DATE: 2022.01.20
SCALE: As indicated
PROIMCR: L. White
DRAWN BY: L. Sterner
SHEET NUMBER:

A-601

### BATT INSULATION. VERIFY WITH FLOOR PLANS AND WALL TYPES

1/16" PLYWOOD SHEATHING. ALL SEAMS ARE TO BE SEALED PER CODE.
EXTERIOR SIDING; REFER TO WALL
WOOD STUD AS SPECIFIED
PROVIDE BOX HEADER OVER ALL
J-CHANNEL
BACKER ROD \$ SEALANT
SHIM
STEEL CHANNEL
DOOR AS SCHEDULED

1 EXTERIOR DOOR HEAD DETAIL - SIDING 3" = 1'-0"

![](_page_15_Figure_3.jpeg)

5 EXTERIOR STOREFRONT HEAD DETAIL- SIDING  $3'' = 1' - \Theta''$ 

	$\wedge$
5/8" DRYWALL	
WOOD STUD AS SPECIFIED	
PROVIDE BOX HEADER OVER ALL — DOOR OPENINGS	
18 G.A. HOLLOW METAL TRIM. VERIFY - WITH MATERIAL SCHEDULES.	
BACKER ROD \$ SEALANT	
SHIM	
KNOCK DOWN STEEL DOOR FRAME $-$	
DOOR AS SCHEDULED	

(9 INTERIOR DOOR HEAD DETAIL @ WOOD STUD WALL 3" = 1'-O"

# BATT INSULATION. VERIFY WITH FLOOR PLANS AND WALL TYPES 7/16" PLYWOOD SHEATHING. ALL SEAMS ARE TO BE SEALED PER CODE. EXTERIOR SIDING; REFER TO WALL TYPES DOUBLE STUDS AT DOOR JAMB

J-CHANNEL	
BACKER ROD \$ SEALANT	
6HIM	
METAL STOP	
DOOR AS SCHEDULED	

2 EXTERIOR DOOR JAMB DETAIL - SIDING 3" = 1'-0"

BATT INSULATION. VERIFY WITH FLOOR PLANS AND WALL TYPES
1/16" PLYWOOD SHEATHING. ALL SEAMS ARE TO BE SEALED PER CODE.
EXTERIOR SIDING; REFER TO WALL
FLASHING TAPE SEALED TO AIR BARRIER
J-CHANNEL
BACKER ROD & WEATHER STRIP

ANODIZED ALUMINUM STOREFRONT FRAME SYSTEM AS SCHEDULED	
NTEGRATED THERMAL SIDELITE AS SCHEDULED	

ANODIZED ALUMINUM STOREFRONT FRAME \$ DOOR SYSTEM AS SCHEDULED

	EXTERIOR	STOREFRONT	JAMB	DETAIL-	SIDING
0	3" = 1'-Ø"				

5/8" DRYWALL.	
DOUBLE STUDS @ DOOR JAMB	
18 GA. HOLLOW METAL TRIM. VERIFY	
BACKER ROD \$ SEALANT	
SHIM	
KNOCK DOWN STEEL DOOR FRAME	
DOOR AS SCHEDULED	

INTERIOR DOOR JAMB DETAIL @ WOOD STUD WALL 3" = 1'-0"

![](_page_15_Figure_16.jpeg)

![](_page_15_Figure_17.jpeg)

![](_page_15_Figure_19.jpeg)

![](_page_15_Figure_21.jpeg)

A-602

 REV
 REV DATE
 DESCRIPTION

 DATE:
 2022.01.20

 PROJECT NO.
 2022159

 SCALE:
 3" = 1'-0"

 PROJ MGR:
 L. White

 DRAWN BY:
 L. Sterner

SHEET NUMBER:

![](_page_16_Figure_0.jpeg)

![](_page_16_Figure_1.jpeg)

![](_page_16_Figure_2.jpeg)

![](_page_16_Figure_3.jpeg)

![](_page_16_Figure_4.jpeg)

![](_page_16_Figure_5.jpeg)

42" MAX.

24" MIN.

![](_page_16_Figure_6.jpeg)

![](_page_16_Figure_7.jpeg)

![](_page_16_Figure_8.jpeg)

(1) RECESSED DOOR - FRONT APPROACH - PULL SIDE ICC AII11 - 4042.3.5(A)

![](_page_16_Figure_10.jpeg)

12 HINGED DOOR - HINGE APPROACH - PULL SIDE - OPTION 1 ICC AII11 - 404.2.3.2(D)

![](_page_16_Figure_12.jpeg)

\_\_\_\_ 30" MIN. DRINKING FOUNTAIN - PLAN

42" MAX.

24" MIN.

Œ

![](_page_16_Figure_14.jpeg)

2 DISPENSER OUTLET LOCATION - PROTRUDING DISPENSER BELOW GRAB BAR ICC AIITI - 604.TI(A) \$ 603.3

![](_page_16_Figure_16.jpeg)

![](_page_16_Figure_18.jpeg)

![](_page_16_Figure_19.jpeg)

![](_page_16_Figure_20.jpeg)

 $\bigvee$ 

![](_page_16_Figure_21.jpeg)

![](_page_16_Figure_22.jpeg)

![](_page_16_Figure_23.jpeg)

 $\overline{\bigcirc}$ 

(19) RECESSED DOOR - FRONT APPROACH - PUSH SIDE W/ LATCH & CLOSER ICC AIIT.I - 404.2.3.5(C)

![](_page_16_Figure_24.jpeg)

![](_page_16_Figure_25.jpeg)

![](_page_16_Figure_26.jpeg)

![](_page_16_Figure_27.jpeg)

REAR-WALL GRAB BAR FOR WATER CLOSET ICC AII 7.1 - 1104.11.1 \$ 604.5.2 \$ 609.4.1 \$ 604.6

30" MIN.

(3) LAVATORY CLEARANCES - PLAN

![](_page_16_Figure_29.jpeg)

![](_page_16_Figure_30.jpeg)

![](_page_16_Figure_31.jpeg)

42" MAX. 36" MAX.

24" MIN.

C

![](_page_16_Figure_32.jpeg)

5 SIDE-WALL GRAB BAR FOR WATER CLOSET ICC AII'1. - 1104.11.1 \$ 604.4 \$ 604.5.1 \$ 603.4.1

![](_page_16_Figure_34.jpeg)

(10) HINGED DOOR - FRONT APPROACH - PULL SIDE

![](_page_16_Figure_36.jpeg)

(15) HINGED DOOR - LATCH APPROACH - PULL SIDE ICC AII1.1 - 404.2.3.2(G)

![](_page_16_Figure_38.jpeg)

20 OPENINGS WITHOUT DOORS - FRONT APPROACH ICC AII1.I - 404.2.3.4(A)

![](_page_16_Figure_40.jpeg)

25 TOE CLEARANCE - PLAN ICC AIIT.I - 306.2

![](_page_16_Figure_42.jpeg)

![](_page_17_Figure_0.jpeg)

1 FORWARD REACH - OBSTRUCTED HIGH (A)

![](_page_17_Figure_2.jpeg)

2 FORWARD REACH - OBSTRUCTED HIGH (B) ICC AII 1.1 - 308.2.2

![](_page_17_Figure_4.jpeg)

![](_page_17_Figure_6.jpeg)

T-SHAPED TURNING SPACE - OPTION 1 ICC AII7.1 - 304.3.2.1(A)

![](_page_17_Figure_8.jpeg)

3 FORWARD REACH - UNOBSTRUCTED

![](_page_17_Figure_10.jpeg)

![](_page_17_Figure_11.jpeg)

![](_page_17_Figure_12.jpeg)

8 T-SHAPED TURNING SPACE - OPTION 2 ICC AII1.1 - 304.3.2.1(B)

![](_page_17_Figure_14.jpeg)

(9) T-SHAPED TURNING SPACE - OPTION 3 ICC AII1.I - 304.3.2.I(C)

![](_page_17_Figure_16.jpeg)

(10) CIRCULAR TURNING SPACE \$ OVERLAP - NEW BUILDINGS

![](_page_17_Picture_18.jpeg)

![](_page_18_Figure_0.jpeg)

1 EGRESS PLAN 1/8" = 1'-0"

		ELECTRICAL ABBREVIATIONS				
/	A	AMPERE			Φ	s
	FF	ABOVE FINISHED FLOOR			ΦE	D
A	HU	AIR HANDLING UNIT			Ö	D
A	AIC	AMPERE INTERRUPTING CURRENT			H	
A	TS	AUTOMATIC TRANSFER SWITCH			$\Phi$	
A	٩V	AUDIO/VISUAL			4	D 4
BF	FG	BELOW FINISHED GRADE			M	Ċ
(	С	CONDUIT			₩	C
CA					<b>O</b> <sup>WP</sup>	D V
	CTV					
C	FL	COMPACT FLUORESCENT			<b>O</b>	
CI	KT	CIRCUIT				В
EE	BU	EMERGENCT BATTERY UNIT			Φ	F  I
E	EC	EMPTY CONDUIT			$\Phi \mathbf{v}$	F
E						C
E	CB				ΨΨ	P
	-' RU				$\overline{\bullet}$	F
EQ	QUIP	EQUIPMENT				S S
E	TR	EXISTING TO REMAIN				∎ B
EV	WC	ELECTRIC WATER COOLER			$\bigcirc$	S
EV	WН	ELECTRIC WATER HEATER		$\left  \right $	تا ت	
EX	IST	EXISTING		$\vdash$		Ľ
FL					MGB	N
FP\		FAN POWERED VARIABLE AIR VOLUME			GB	G
G	G G	GENERAL CONTRACTOR				2
GF	FCI	GROUND FAULT CIRCUIT INTERRUPTER			$\Box$	
GI	ND	GROUND				
Н	lid	HIGH INTENSITY DISCHARGE			\$ <sub>M</sub>	Н
н	ΗP	HORSE POWER/HEAT PUMP			$\overline{\mathcal{N}}$	N
HV	/AC	HEATING, VENTILATING, AND AIR CONDITIONING				E
	IB	JUNCTION BOX				
K	VA	KILO-VOLT AMPERE			VFD	N D
К	Ŵ	KILO-WATT			SPD	s
L	_C	LIGHTING CONTACTOR			ECUI	╞
L1	TG	LIGHTING				
M	AU					E
M				1	$\sim$	E
M	//C	METAL CLAD				E
M	СВ	MAIN CIRCUIT BREAKER				P N
М	FR	MANUFACTURER				P G
M	LO	MAIN LUGS ONLY			(	
M	TD	MOUNTED				
	EC					
		NON-FUSED				
	NL.	NIGHT LIGHT				_
N	TS	NOT TO SCALE				
0	C	ON CENTER			$\langle 1 \rangle$	
OF	FCI	OWNER FURNISHED CONTRACTOR INSTALLED				
F	P	POLE				
	уС СВ				$\mathbf{\Theta}$	
	97 PF	POWER FACTOR				
P	<u>э</u> г	PROPERTY LINE			$(x \rightarrow$	
PI	NL	PANEL			X.X	
PNI	LBD	PANELBOARD				
<u>,</u>	Ø	PHASE				
P	PRI					
RE	<u>-</u> CP					
	SE	SERVICE ENTRANCE			ELECT	R
SE	EC	SECONDARY	VAC		VOLTS A	۔ ۱LT
TE	BB	TELEPHONE BACKBOARD	VAV	1	VARIABI	E
Т	ſR	TAMPER RESISTANT	VDC	;	VOLTS	DIR
TF	RT	TRIPLE TUBE FLUORESCENT LAMP	VFD		VARIABI	E
TV	/SS	TRANSIENT VOLTAGE SURGE SUPPRESSER	W	$\downarrow$	WATTS/	WII
		UNI ESS OTHERWISE NOTED	WG	+	WFATH	JA
1 00						- i N

V VOLTS

	POWER
Φ	SINGLE RECEPTACLE, 20A, 120V, 18"AFF, UON.
Фe	DUPLEX RECEPTACLE, 20A, 120V, 18"AFF, UON.
Ф	DUPLEX RECEPTACLE, GROUND FAULT INTERRUPTING TYPE, 20A, 120V, 18"AFF, UON.
♦	DUPLEX RECEPTACLE, 20A, 120V, 40"AFF OR 4" ABOVE COUNTER TOP OR IN CASEWORK (AS APPLICABLE), OR IN CASEWORK, AS APPLICABLE, UON.
•	DUPLEX RECEPTACLE, GROUND FAULT INTERRUPTING TYPE, 20A, 120V, 40" AFF TO 4" ABOVE COUNTER TOP OR IN CASEWORK (AS APPLICABLE), OR IN CASEWORK, AS APPLICABLE, UON.
₽	QUADRUPLEX RECEPTACLES IN COMMON BOX, 20A, 120V, 18"AFF, UON.
$igoplus^{WP}$	DUPLEX RECEPTACLE, GROUND FAULT INTERRUPTING TYPE, 20A, 120V, WITH COOPER MODEL WIU-1D (OR EQUAL) "WHILE-IN-USE" WEATHERPROOF COVER, 18"AFG UON.
<b>∳</b> EWC	ELECTRIC WATER COOLER CONNECTION, PROVIDE 20A, 120V GROUND FAULT INTERRUPTING TYPE DUPLEX RECEPTACLE. COORDINATE WITH EWC MANUFACTURER'S ROUGH-IN REQUIREMENTS. RECEPTACLE SHALL BE ACCESSIBLE THROUGH REMOVAL OF EWC COVER.
Φ	FLOORBOX WITH DUPLEX RECEPTACLE. COORDINATE EXACT LOCATION IN FIELD WITH IN-FLOOR DISTRIBUTION SYSTEM.
$\Phi \mathbf{v}$	FLOORBOX WITH DUPLEX RECEPTACLE AND TELE/DATA. COORDINATE EXACT LOCATION IN FIELD WITH IN-FLOOR DISTRIBUTION SYSTEM.
┲┸┛	CABLE TELEVISION OUTLET WITH DUPLEX RECEPTACLE, EQUAL TO ARLINGTON TVBS505 BOX. PROVIDE DUPLEX RECEPTACLE AND 3/4"C WITH PULL STRING STUBBED ABOVE ACCESSIBLE CEILING AND TERMINATED WITH BUSHING.
۲	FLOOR BOX. REFER TO FLOOR BOX SCHEDULE SHEET EX.X FOR DETAILS.
	SURFACE METAL RACEWAY WITH 20A, 120V SINGLE RECEPTACLES MOUNTED AT 12" ON CENTER. MOUNT 1" ABOVE COUNTERTOP BACKSPLASH.
$\bigcirc$	SPECIAL RECEPTACLE. NEMA CONFIGURATION AS NOTED. MOUNT 18"AFF UON.
JJ	JUNCTION BOX - ABOVE CEILINGS OR FLUSH IN WALLS.
MGB	MAIN GROUND BAR
GB	GROUND BAR
	DISCONNECT SWITCH - SIZE AS INDICATED ON PLANS 30/2/20/3R
\$ <sub>M</sub>	HORSEPOWER RATED MOTOR SWITCH
$\mathcal{N}$	MOTOR CONNECTION.
	EMON DMON METER. REFER TO POWER PLAN FOR ADDITIONAL
VFD	VARIABLE FREQUENCY DRIVE (FURNISHED WITH ASSOCIATED MECHANICAL EQUIPMENT, INSTALLED BY EC), WITH INTEGRAL DISCONNECT SWITCH.
SPD	SURGE PROTECTIVE DEVICE
FCU	FAN COIL UNIT.
	ELECTRICAL METER. MOUNT 54" AFF (MINIMUM).
	ELECTRICAL PANELBOARD
	ELECTRICAL CIRCUIT RUN IN CONDUIT AND CIRCUIT HOMERUN TO PANELBOARD (PANEL AND CIRCUIT DESIGNATION AS INDICATED). AS A MINIMUM CONDITION, EACH SINGLE PHASE CIRCUIT SHALL HAVE 1 #12 PHASE CONDUCTOR, 1 #12 NEUTRAL CONDUCTOR, AND 1 #12 GROUNDING CONDUCTOR IN 3/4" CONDUIT. PROVIDE ADDITIONAL PHASE CONDUCTORS AS REQUIRED FOR "MULTIPLE PHASED" ELECTRICAL LOADS. PROVIDE ADDITIONAL "SWITCH LEG" CONDUCTORS TO PROVIDE THE LIGHT FIXTURE CONTROL INDICATED. MULTIPLE SINGLE PHASE CONDUCTORS SHALL BE GROUPED TOGETHER IN A COMMON CONDUIT IN ACCORDANCE WITH THE NEC AND AT THE CONTRACTOR'S DISCRETION. NEUTRAL AND GROUNDING CONDUCTORS SHALL BE SHARED AS ALLOWED BY THE NEC. CONDUIT LARGER THAN 3/4" AND CONDUCTORS LARGER THAN #12 SHALL BE AS INDICATED.

GENERAL	
$\langle 1 \rangle$	KEYNOTE.
$\bullet$	LIMIT OF DEMOLITION WORK.
$\bullet$	POINT OF CONNECTION, NEW TO EXISTING.
	DETAIL OR SECTION NOTATION: ENUMERATION: A = DETAIL, 1 = SECTION
	ENUMERATION NUMBER OR LETTER
	SHEET WHERE DETAIL OR SECTION IS SHOWN

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V	TELE/DATA 18"AFF, UC
	ACCESSIB
$\bigtriangledown$	40"AFF OR HIGHER) O

	SHEET WHERE DETAIL OR SECTION IS	SHOWN
	ELECTRICAL ABBREVIATIONS	
VAC	VOLTS ALTERNATING CURRENT	
VAV	VARIABLE AIR VOLUME	
VDC	VOLTS DIRECT CURRENT	
VFD	VARIABLE REQUENCY DRIVE	
W	WATTS/WIRE	
WG	WIRE GUARD	
WP	WEATHERPROOF	

XFMR TRANSFORMER

### LIGHTING

LIGHTING FIXTURE.
LIGHTING FIXTURE ON EMERGENCY CIRCUIT. SUBSCRIPT "NL" WHERE USED, INDICATES NIGHT LIGHT CONNECTED AHEAD OF LIGHTING CONTROLS. TYPICAL ALL FIXTURE TYPES.
DOWNLIGHT FIXTURE.
DOWNLIGHT FIXTURE ON EMERGENCY CIRCUIT. SUBSCRIPT "NL" WHERE USED, INDICATES NIGHT LIGHT CONNECTED AHEAD OF LIGHTING CONTROLS.
WALL MOUNTED LIGHTING FIXTURE.
WALL MOUNTED LIGHTING FIXTURE ON EMERGENCY CIRCUIT. SUBSCRIPT "NL" WHERE USED, INDICATES NIGHT LIGHT CONNECTED AHEAD OF LIGHTING CONTROLS.
EMERGENCY LIGHTING REMOTE UNIT.
EMERGENCY BATTERY LIGHTING UNIT, CONNECT AHEAD OF LOCAL SWITCH.
EXIT LIGHTING FIXTURE WITH DIRECTIONAL ARROWS AS INDICATED ON DRAWINGS. CONNECT TO DEDICATED EMERGENCY BRANCH CIRCUIT. SHADED AREA DENOTES LIGHTED FACE.
DUAL SWITCH (SINGLE POLE OR AS INDICATED BY SUBSCRIPT). 20A, 120/277V, 44"AFF, UON. CONNECT EACH TO SEPARATELY CONTROL INBOARD AND OUTBOARD LAMPS OF EACH FIXTURE INDICATED. CONTROL INBOARD AND OUTBOARD LAMPS CONSISTENTLY. SUBSCRIPT "a" INDICATES ASSOCIATED FIXTURES TO BE CONTROLLED.
SINGLE POLE SWITCH, 20A, 120/277V, 44"AFF UON. SUBSCRIPT "a" INDICATES ASSOCIATED FIXTURES TO BE CONTROLLED.
SINGLE POLE KEYED SWITCH, 20A, 120/277V, 44" AFF UON. SUBSCRIPT "a" INDICATES ASSOCIATED FIXTURES TO BE CONTROLLED.
THREE-WAY SWITCH, 20A, 120/277V, 44"AFF UON. SUBSCRIPT "a" INDICATES ASSOCIATED FIXTURES TO BE CONTROLLED.
DIMMER SWITCH, 44" AFF UON. SUBSCRIPT "a", WHERE USED, INDICATES ASSOCIATED FIXTURES TO BE CONTROLLED.
WALL SWITCH OCCUPANCY SENSOR, 44" AFF UON.
WALL SWITCH VACANCY SENSOR, 44" AFF UON.
OCCUPANCY SENSOR. "#" DENOTES OCCUPANCY SENSOR TYPE. SUBSCRIPT "a", WHERE USED, INDICATES ASSOCIATED FIXTURES TO BE CONTROLLED.
VACANCY SENSOR. "#" DENOTES VACANCY SENSOR TYPE. SUBSCRIPT "a", WHERE USED, INDICATES ASSOCIATED FIXTURES TO BE CONTROLLED.
PHOTOCELL FOR EXTERIOR LIGHTING CONTROL. MOUNT ON ROOF OF BUILDING AND AIM NORTH.
 LIGHTING FIXTURE KEY

 LETTER "A" DENOTES FIXTURE TYPE. REFER TO LIGHTING FIXTURE SCHEDULE.
 SUBSCRIPT "LP-B" INDICATES NAME OF PANELBOARD FROM WHICH FIXTURE IS FED. ASSOCIATED NUMBER "3" INDICATES CIRCUIT NUMBER IN PANELBOARD FROM WHICH FIXTURE IS FED. ASSOCIATED LETTER "a", WHERE USED, INDICATES LIGHTING FIXTURE CONTROL DEVICE DESIGNATION.

LINEWEIGHTS
NEW
EXISTING
REMOVE EXISTING

### COMMUNICATIONS

TELE/DATA BOX, 4"X4"X2 1/4"D BOX WITH SINGLE GANG PLASTER RING18"AFF, UON, WITH 3/4"C WITH PULL STRING STUBBED ABOVEACCESSIBLE CEILING AND TERMINATED WITH PLASTIC BUSHING.TELE/DATA BOX, 4"X4"X2 1/4"D BOX WITH SINGLE GANG PLASTER RING40"AFF OR 4" ABOVE COUNTER TOP OR BACKSPLASH (WHICHEVER ISHIGHER) OR IN CASEWORK AS APPLICABLE, UON, WITH 3/4"C WITH PULLSTRING STUBBED ABOVE ACCESSIBLE CEILING AND TERMINATED WITHPLASTIC BUSHING.

TELEPHONE PLYWOOD BACKBOARD 3/4"x8'x4', FIRE RETARDANT. BOTTOM AT 0'-4" AFF.

> CABLE TELEVISION OUTLET WITH DUPLEX RECEPTACLE, PROVIDE DUPLEX RECEPTACLE AND ADDITIONAL 4"X4"X2 1/4"D BOX WITH SINGLE GANG PLASTER RING, WITH 3/4"C WITH PULL STRING STUBBED ABOVE ACCESSIBLE CEILING AND TERMINATED WITH BUSHING. MOUNT 18"AFF

WAP WIRELESS ACCESS POINT.

ΤV

UON.

DIVISION OF MECHANICAL/ ELECTRICAL WORK						
ITEM	MECH/ DIV 22 AND 23	ELEC/ DIV 26				
AUTOMATIC TEMPERATURE CONTROLS	FURNISH, INSTALL & WIRE	POWER WIRE				
CONTROL PANELS FOR MECHANICAL EQUIPMENT	FURNISH & INSTALL	POWER WIRE				
LOW VOLTAGE CONTROL WIRING FOR MECH EQUIP.	FURNISH & INSTALL					
LINE VOLTAGE CONTROL WIRING FOR MECH. EQUIP.	FURNISH, INSTALL & WIRE					
MECHANICAL FLOW SWITCHES	FURNISH, INSTALL & WIRE					
THERMOSTATS/ SENSORS	FURNISH, INSTALL & WIRE					
P/E & E/P SWITCHES	FURNISH, INSTALL & WIRE					
DISCONNECT SWITCHES FOR MECHANICAL EQUIPMENT	FURNISH & INSTALL	POWER WIRE				
MECHANICAL EQUIPMENT MONITORS	FURNISH & INSTALL	POWER WIRE				
MANUAL STARTERS FOR MECHANICAL EQUIPMENT	FURNISH & INSTALL	POWER WIRE				
MAGNETIC STARTERS FOR MECHANICAL EQUIPMENT	FURNISH	INSTALL & POWER WIRE				
MOTOR CONTROL CENTERS	CONTROL WIRING	FURNISH, INSTALL, & POWER WIRE				
VARIABLE SPEED CONTROLLERS	FURNISH & INSTALL	POWER WIRE				
MOTORIZED DAMPERS & VALVES	FURNISH, INSTALL & WIRE					
DUCT SMOKE DETECTORS	INSTALL	FURNISH & WIRE				
HEAT TRACE CABLE FOR PIPING	FURNISH & INSTALL	POWER WIRE				
OIL/ GAS EMERGENCY SHUT-OFF SWITCHES		FURNISH, INSTALL, & POWER WIRE				
SPRINKLER FLOW & TAMPER SWITCHES	BY SPRINKLER CONTRACTOR	WIRE				

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Middletown Shopping Center 2	1725 Lake Seymour Drive Middletown, Delaware 19709
SHEET INFO:	:
ELECTRICAL SHEET	DATA
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### ELECTRICAL SPECIFICATIONS

. PRODUCTS AND INSTALLATION SHALL COMPLY WITH ALL APPLICABLE LAWS, CODES, GOVERNMENT REGULATIONS, UTILITY COMPANY REQUIREMENTS, ETC. OF ALL AUTHORITIES HAVING JURISDICTION. WORK SHALL COMPLY WITH THE

- FOLLOWING CODES, STANDARDS AND ORGANIZATIONS: 2017 NATIONAL ELECTRIC CODE (NEC)
- 2018 INTERNATIONAL MECHANICAL CODE (IMC) 2018 INTERNATIONAL PLUMBING CODE (IPC)
- 2018 INTERNATIONAL ENERGY CONSERVATION CODE
- 2018 INTERNATIONAL BUILDING CODE W/ LOCAL AMENDMENTS NFPA

UNDERWRITERS LABORATORY (UL), IRI, FM IESNA

DEVIATIONS FROM THE CONTRACT DOCUMENTS REQUIRED BY THE ABOVE AUTHORITIES SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW. OBTAIN PERMITS AND PAY ALL FEES. ARRANGE FOR ALL REQUIRED INSPECTIONS AND APPROVALS. CONFIRM ALL UTILITY COMPANY REQUIREMENTS AND CONNECTION POINTS IN FIELD, PRIOR TO STARTING WORK.

2. ALL SPECIFICATIONS AND DRAWINGS, I.E., ARCHITECTURAL, MECHANICAL PLUMBING, AND ELECTRICAL ARE COMPLIMENTARY AND MUST BE USED IN COMBINATION TO OBTAIN COMPLETE CONSTRUCTION INFORMATION. ANY INFORMATION CONFLICTS WITHIN THE SPECIFICATIONS AND DRAWINGS SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION. ELECTRICAL DRAWINGS ARE DIAGRAMMATIC. THEY ARE INTENDED TO SHOW THE APPROXIMATE LOCATIONS OF EQUIPMENT AND CONDUIT. THE ELECTRICAL CONTRACTOR SHALL LAYOUT ALL EQUIPMENT ROOMS TO MAKE SURE THE EQUIPMENT FITS IN THE ROOM OR SPACE SHOWN AND HAS ALL CLEARANCES REQUIRED BY THE NEC. PRIOR TO ORDER. EXACT LOCATION OF ALL EQUIPMENT SHALL BE VERIFIED IN THE FIELD AND ROUTING OF CONDUITS SHALL SUIT FIELD CONDITIONS.

8. WORK SHALL BE EXECUTED IN A GOOD WORKMANLIKE MANNER USING MECHANICS SKILLED IN THEIR RESPECTIVE TRADES. ALL EQUIPMENT AND MATERIALS SHALL BE NEW, FREE OF DEFECTS. SYSTEMS ARE TO BE COMPLETE AND WORKABLE IN ALL RESPECTS, PLACED IN OPERATION AND PROPERLY ADJUSTED.

4. MAINTAIN THE CONSTRUCTION PREMISES IN A NEAT AND ORDERLY CONDITION AT THE END OF EACH WORKING DAY. CLEAN UP. REMOVE AND LEGALLY DISPOSE OF ALL RUBBISH DAILY. CONTRACTOR SHALL PROTECT THEIR WORK AND EXISTING OR ADJACENT PROPERTY AGAINST WEATHER, TO MAINTAIN THEIR WORK, MATERIALS, APPARATUS AND FIXTURES FREE FROM INJURY OR DAMAGE. ANY WORK DAMAGED BY FAILURE TO PROVIDE PROTECTION REQUIRED, SHALL BE REMOVED AND REPLACED WITH NEW WORK AT THE CONTRACTOR'S EXPENSE.

5. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE SAFETY OF HIS WORKERS, ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES FOR COORDINATING THE WORK UNDER THIS CONTRACT. CONFORM TO ALL GENERAL AND SPECIAL CONDITIONS OF CONTRACT AS SPECIFIED BY ARCHITECT AND/OR OWNER.

6. IN CASES OF DOUBT AS TO THE WORK INTENDED, OR IN THE EVENT OF NEED FOR EXPLANATION THEREOF. THE CONTRACTOR SHALL REQUEST SUPPLEMENTARY INSTRUCTIONS FROM THE ENGINEER. NO CHANGES ARE TO BE MADE TO THE WORK OF THIS CONTRACT WITHOUT PRIOR KNOWLEDGE AND APPROVAL OF THE ENGINEER. THE CONTRACTOR SHALL HOLD THE OWNER AND ITS CONSULTANTS HARMLESS AGAINST ALL CLAIMS AND JUDGMENTS ARISING OUT OF THE CONTRACTORS PERFORMANCE OF THE WORK OF THIS CONTRACT. THE CONTRACTOR SHALL NOT PROCEED WITH ANY WORK, WHICH HE EXPECTS ADDITIONAL COMPENSATION BEYOND THE CONTRACT AMOUNT, WITHOUT WRITTEN AUTHORIZATION FROM THE APPROPRIATE AUTHORITY. FAILURE TO OBTAIN SUCH AUTHORIZATION SHALL INVALIDATE ANY CLAIM FOR EXTRA COMPENSATION.

ALL PRODUCTS SHALL COMPLY WITH 25/50 FLAME AND SMOKE HAZARD RATINGS PER ASTM E-84, NFPA 255 AND UL 723.

8. IT SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR TO INSTALL ALL ELECTRICAL FIXTURES AND EQUIPMENT AS TO INSURE QUIET OPERATION. NO VIBRATION OR SOUND SHALL BE TRANSMITTED TO THE BUILDING. STRUCTURE OR OCCUPIED AREAS. THE DECISION OF THE ENGINEER AS TO THE QUIETNESS OF THE SYSTEM AND EQUIPMENT SHALL BE FINAL. IT SHALL BE THIS CONTRACTORS RESPONSIBILITY TO CORRECT OR REPLACE ANY NOISY FIXTURES OR EQUIPMENT AS REQUIRED.

### WORK IN EXISTING BUILDINGS

. EXISTING BUILDING IS TO REMAIN OCCUPIED AND ACCESSIBLE AT ALL TIMES. PROTECT THE BUILDING PREMISES AND ALL OCCUPANTS ON THE PROJECT SITE. THE CONTRACTOR IS RESPONSIBLE FOR ALL DAMAGES CAUSED BY IMPROPER PROTECTION AND SHALL MAKE ALL NECESSARY REPLACEMENTS OR REPAIRS VITHOUT ANY ADDITIONAL COST. MAKE ALL ARRANGEMENTS, MAINTAIN AN PAY ALL COSTS FOR TEMPORARY WATER, PLUMBING, POWER, LIGHTING, AND HEATING OR VENTILATION AS REQUIRED TO PROPERLY CONDUCT THE WORK OF THIS CONTRACT AND MAINTAIN SERVICES. PROVIDE AND MAINTAIN FOR THE ENTIRE LENGTH OF THIS CONTRACT ALL EXITS, EXIT LIGHTING, FIRE PROTECTION DEVICES AND ALARMS TO CONFORM TO LOCAL BUILDING CODE REQUIREMENTS.

2. CONFORM WITH THE CURRENT EDITION OF THE SMACNA "IAQ GUIDELINES FOR OCCUPIED BUILDINGS UNDER CONSTRUCTION."

3. CONTRACTOR SHALL VERIFY ALL POINTS OF CONNECTION BEFORE COMMENCING WORK. CONTRACTOR SHALL COORDINATE WORK WITH EXISTING WORK AND OTHER TRADES. ALL UNUSED EQUIPMENT SERVING THIS AREA SHALL BE REMOVED AND RETURNED TO THE OWNER.

4. EXISTING EQUIPMENT, MATERIALS OR WORK TO REMAIN, BE REUSED, OR RELOCATED WITHIN OR SERVING THE SPACE, WHICH IS DAMAGED OR DOES NOT COMPLY WITH THE SPECIFICATIONS, SHALL BE RESTORED TO LIKE NEW CONDITION SUBJECT TO REVIEW BY THE ARCHITECT AND ENGINEER, OR SHALL BE REPLACED WITH NEW MATERIALS MEETING THE SPECIFICATION REQUIREMENTS.

5. SOME WORK SHOWN MAY REQUIRE PREMIUM TIME INCLUDING NOISE PRODUCING ACTIVITIES, ACCESS INTO ADJOINING SPACES & ACTIVITIES DISRUPTING MEP SERVICES. CONFIRM THE REQUIREMENTS FOR PREMIUM TIME OR SPECIAL PROCEDURES WITH THE OWNER/LANDLORD AND INCLUDE THE COST IN BID PROPOSAL. WORK RELATED TO THE EXISTING BUILDING SHALL BE COORDINATED TO MINIMIZE INTERFERENCE OR INTERRUPTION OF NORMAL BUILDING USE BY OWNER. REFER TO ARCHITECTURAL PLANS FOR ANY PHASING REQUIREMENTS. ARRANGE FOR AND OBTAIN OWNER'S PERMISSION FOR ANY

6. THE CONTRACTOR, BY SUBMITTING HIS BID PROPOSAL AGREES TO ACCEPT ALL EXISTING SITE CONDITIONS NOT SPECIFICALLY EXCEPTED. ALL EXCEPTIONS SHALL BE PROVIDED IN WRITING TO THE ARCHITECT AND ENGINEER.

### BASIS OF DESIGN AND SUBSTITUTIONS

SERVICE SHUTDOWNS.

. MANUFACTURERS LISTED ARE BASIS OF DESIGN. SUBSTITUTIONS ARE SUBJECT TO THE APPROVAL OF THE DESIGN-BUILDER. ARCHITECT & ENGINEER IF SUBSTITUTION IS SUBMITTED, IT IS THE CONTRACTOR'S RESPONSIBILITY TO EVALUATE IT AND CERTIFY THAT THE SUBSTITUTION IS EQUIVALENT IN ALL RESPECTS TO THE BASIS OF DESIGN. WHERE SUBMITTALS VARY FROM THE CONTRACT REQUIREMENTS, THE CONTRACTOR SHALL CLEARLY INDICATE ON SUBMITTAL OR ACCOMPANYING DOCUMENTS THE NATURE AND REASON FOR VARIATIONS. IF SUBSTITUTIONS ARE APPROVED, NOTIFY ALL OTHER CONTRACTORS, SUBCONTRACTORS OR TRADES AFFECTED BY SUBSTITUTION AND FULLY COORDINATE. ANY COSTS RESULTING FROM SUBSTITUTION, WHETHER BY CONTRACTOR OR OTHERS, SHALL BE RESPONSIBILITY OF AND PAID FOR BY SUBSTITUTING CONTRACTOR. APPROVED SHOP DRAWINGS DOES NOT ABSOLVE THIS CONTRACTOR FROM THIS RESPONSIBILITY. APPROVAL OF SUBSTITUTIONS IS AT THE DISCRETION OF THE ARCHITECT & ENGINEER AND IF SUBMITTED AFTER THE BID, AT THE RISK OF THE CONTRACTOR.

### SHOP DRAWING SUBMITTALS

1. COORDINATES, PREPARE AND SUBMIT SHOP DRAWINGS TO THE ARCHITECT AND ENGINEER FOR THEIR REVIEW. CONTRACTOR SHALL REVIEW AND INDICATE HIS APPROVAL OF EACH SHOP DRAWING PRIOR TO SUBMITTAL FOR REVIEW. DO NOT ORDER, START WORK OR FABRICATION UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED BY THE ENGINEER AND RETURNED TO THE CONTRACTOR. SHOP DRAWINGS TO BE SUBMITTED INCLUDE, BUT NOT LIMITED TO:

- WIRING DEVICES PANEL BOARDS, STARTERS, SAFETY SWITCHES, TRANSFORMERS CONTACTORS
- LIGHTING SYSTEMS, FIXTURES AND EQUIPMENT FIRE ALARM SYSTEM AND DEVICES
- SECURITY SYSTEM AND EQUIPMENT

2. CLEARLY IDENTIFY EACH ITEM ON THE SUBMITTAL AS TO MARK, LOCATION AND USE, USING SAME IDENTIFICATION AS PROVIDED ON DESIGN DRAWINGS. ELECTRONIC SUBMITTALS SHALL BE PRESENTED WITH ALL SHEETS IN ALPHANUMERIC ORDER AND ALL SHEETS ORIENTED WITH TOP OF SHEET UP.

3. SUBMITTALS WILL BE REVIEWED ONLY FOR GENERAL COMPLIANCE WITH THE CONTRACT DOCUMENTS AND NOT FOR DIMENSIONS OF QUANTITIES. THE SUBMITTAL REVIEW SHALL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR PURCHASE OF ANY ITEM IN FULL COMPLIANCE WITH THE CONTRACT DOCUMENTS OR ITS COMPLETE AND PROPER INSTALLATION.

### RECORD DRAWINGS

1. A SET OF MEP RECORD/COORDINATION DRAWINGS SHALL BE MAINTAINED IN THE GENERAL CONTRACTORS OFFICE AT THE JOB SITE. PRINTS SHALL INDICATE ADDITIONS, DELETIONS, VARIATIONS IN LOCATION, VARIATIONS IN NUMBERING ETC. ALTERATIONS SHALL BE MARKED IN RED AND DELETIONS ALL BE MARKED IN GREEN AND SHALL BE ON THE LATEST CONTRACT DRAWING ISSUED. RECORD DRAWINGS SHALL BE KEPT CLEAN AND UNDAMAGED AND SHALL NOT BE USED FOR ANY PURPOSE OTHER THAN RECORDING DEVIATIONS FROM WORKING DRAWINGS AFTER THE PROJECT IS COMPLETED. THESE SETS OF DRAWINGS SHALL BE DELIVERED TO THE ARCHITECT IN GOOD CONDITION, AS A PERMANENT RECORD OF THE INSTALLATION AS ACTUALLY CONSTRUCTED

### EQUIPMENT

1. ALL PACKAGED EQUIPMENT SHALL BE INDEPENDENTLY THIRD PARTY LABELED AS A SYSTEM FOR ITS INTENDED USE BY A NATIONALLY RECOGNIZED TESTING LABORATORY (NRTL) IN ACCORDANCE WITH OSHA FEDERAL REGULATIONS 29CFR1910.303 AND .399, AS WELL AS NFPA PAMPHLET NO. 70, AND THE NATIONAL ELECTRICAL CODE (NEC), ARTICLE 90-7.

2. MAKE ALL FINAL EQUIPMENT CONNECTIONS AND PROVIDE THE NECESSARY ADAPTORS, FITTINGS, DEVICES, ETC, FOR A COMPLETE AND OPERABLE SYSTEM. PROVIDE COMPLETE WITH BASES, ISOLATORS, SUPPORTS AND OTHER REQUIRED ACCESSORIES.

3. EQUIPMENT SHALL BE INSTALLED IN FULL ACCORDANCE WITH THE MANUFACTURER'S DATA AND INSTALLATION INSTRUCTIONS. INCLUDING CLEARANCES. IT IS THIS CONTRACTOR'S RESPONSIBILITY TO CHECK AND CONFORM TO THESE REQUIREMENTS PRIOR TO STARTING WORK.

4. THE CONTRACTOR SHALL COORDINATE WITH THE OTHER TRADES FOR ELECTRICAL CHARACTERISTICS OF ALL EQUIPMENT. COORDINATE REQUIREMENT FOR PROVISION OF MOTOR STARTERS, DISCONNECTS, CONTACTORS, CONTROL WIRING, ETC. AS REQUIRED FOR PROPER FUNCTIONING SYSTEM.

5. ALL FLOOR MOUNTED EQUIPMENT SHALL BE INSTALLED ON CONCRETE HOUSEKEEPING PADS. MINIMUM PAD THICKNESS SHALL BE NOMINAL 4". PAD SHALL EXTEND BEYOND THE EQUIPMENT A MINIMUM OF 4" ON EACH SIDE CONCRETE PADS SHALL BE PROVIDED BY THIS CONTRACTOR. IT SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR TO COORDINATE THE SIZE AND LOCATION OF THE CONCRETE HOUSEKEEPING PADS WITH THE GENERAL CONTRACTOR

### IDENTIFICATION

1. FURNISH AND MOUNT ON EACH PANELBOARD, SWITCHBOARD (INCLUDING BRANCH SWITCHES), LARGE JUNCTION BOX, SAFETY SWITCH, STARTER, REMOTE CONTROL, PUSH BUTTON STATION, AND ALL SIMILAR CONTROLS, A

NAMEPLATE DESCRIPTIVE OF THE EQUIPMENT OR EQUIPMENT CONTROLLED. 2. PROVIDE BLACK AND WHITE NAMEPLATES CONSTRUCTED FROM LAMINATED

PHENOLIC WITH A WHITE CENTER CORE. LETTERS SHALL BE ENGRAVED IN THE PHENOLIC TO FORM WHITE LETTERS 3/8" HIGH.

### CUTTING, PATCHING AND DRILLING

1. ALL CUTTING AND PATCHING OF THE BUILDING CONSTRUCTION REQUIRED FOR THIS WORK SHALL BE BY THIS CONTRACTOR UNLESS SHOWN ON ARCHITECTURAL DRAWINGS AND CONFIRMED AS TO SIZE AND LOCATION PRIOR TO NEW CONSTRUCTION. CUTTING SHALL BE IN A NEAT AND WORKMANLIKE MANNER

2. DO NOT CORE DRILL OR CUT ANY CONCRETE SLABS OR OTHER STRUCTURAL COMPONENTS FOR ANY REASON WITHOUT THE KNOWLEDGE AND WRITTEN CONSENT OF THE STRUCTURAL ENGINEER, ARCHITECT AND THE OWNER.

3. PATCH AND FINISH TO MATCH ADJACENT AREAS THAT HAVE BEEN CUT, DAMAGED OR MODIFIED AS A RESULT OF THE INSTALLATION OF THE MECHANICAL OR ELECTRICAL EQUIPMENT.

### MOUNTING ACCESSORIES

1. THIS CONTRACTOR SHALL FURNISH AND INSTALL ALL ANGLE IRON, CHANNEL IRON, RODS, SUPPORTS, HANGERS, CONCRETE OR PLYWOOD REQUIRED TO INSTALL, MOUNT AND SUPPORT ANY ELECTRICAL EQUIPMENT OR DEVICE CALLED FOR ON THE PLANS.

2. SUPPORTING MATERIAL SHALL BE COMPLETE WITH HANGERS, CONNECTORS BOLTS, CLAMPS AND NECESSARY ACCESSORIES TO MAKE A COMPLETE INSTALLATION. SUPPORTING MATERIAL SHALL BE GALVANIZED, PAINTED OR OTHERWISE SUITABLY FINISHED.

### FIRESTOPPING/FIREDAMPERS

1. ALL PENETRATIONS OF SLAB-TO-SLAB PARTITIONS SHALL BE SEALED

2. WHEREVER FIRE RATED PARTITIONS ARE PENETRATED FOR WIRE, DUCT, OR PIPE PASSAGE, SEAL PASSAGES WITH CODE APPROVED, LABORATORY TESTED AND LABELED SEALANT OF FIRE RESISTANCE RATING NOT LESS THAN THAT OF PENETRATED ASSEMBLY THAT WILL PREVENT PASSAGE OF FIRE AND SMOKE. ALL FIRE STOPPING SYSTEM SHALL MEET THE REQUIREMENTS OF ASTM E 814 UL 1479 AND BE FACTORY MUTUAL APPROVED ALL FIRESTOPPING AND/OR SMOKE STOPPING MATERIAL AND INSTALLATION SHALL BE AS MANUFACTURED BY HILTI OR APPROVED EQUAL.

3. INSTALLATION OF LIGHT FIXTURES, AND OUTLETS IN RATED CEILINGS OR WALLS SHALL HAVE RATED BOXES OR BE PROVIDED WITH PREMANUFACTURED TENTS MATCHING THE RATING OF THE CEILING OR WALL ASSEMBLY.

### ACCESS DOORS

1. ACCESS DOORS SHALL BE PROVIDED IN WALLS AND CEILINGS WHERE REQUIRED TO PERMIT PROPER ACCESS TO EQUIPMENT AND OTHER DEVICES WHICH REQUIRE MAINTENANCE OR SERVICE. DOORS PLACED IN WALLS, PARTITIONS OR OTHER FIRE-RATED CONSTRUCTION SHALL HAVE A LABEL SIGNIFYING THAT THE DOOR HAS THE SAME FIRE RATING AS THE FIRE-RATED CONSTRUCTION.

2. ACCESS PANELS SHALL BE CONSTRUCTED OF 14 GAUGE STEEL, WITH 16 GAUGE STEEL FRAMES. DOORS SHALL FINISH FLUSH WITH THE SURROUNDING SURFACE. FRAMES SHALL HAVE 3 " WIDE EXPANDED METAL FOR PLASTERED SURFACES AND PLAIN FLANGED TYPE FRAME FOR TILE, MASONRY OR GYPSUM BOARD SURFACES. DOORS AND FRAMES SHALL BE FURNISHED PRIME COATED. DOORS INSTALLED IN CERAMIC TILE OR OTHER NON-PAINTED SURFACES SHALL BE STAINLESS STEEL. HINGES SHALL BE CONCEALED SPRING TYPE, TO ALLOW DOORS TO BE OPENED 175 DEGREES. LOCKS SHALL BE FLUSH SCREWDRIVER TYPE WITH STEEL CAMS. ACCESS PANELS SHALL BE 16" X 16" OR LARGER AS MAY BE REQUIRED FOR PROPER ACCESS TO THE DEVICE BEING SERVED.

3. ACCESS PANELS ARE NOT REQUIRED IN COMPLETELY ACCESSIBLE LIFT OUT TILE CEILINGS. CONTRACTOR SHALL REVIEW THE ROOM FINISH SCHEDULE ON THE ARCHITECTURAL DRAWINGS IN ORDER TO VERIFY THE NEED FOR ACCESS PANELS. PROVIDE ACCESS PANELS TO GENERAL CONTRACTOR FOR INSTALLATION.

### RACEWAYS

1. ALL WIRE SHALL BE RUN IN ACCORDANCE WITH CODE IN INTERMEDIATE METAL CONDUIT (IMC) OR ELECTRICAL METALLIC TUBING (EMT) OR METAL CLAD (MC) CABLING UNLESS OTHERWISE SPECIFICALLY STATED HEREIN. CONDUIT SIZE SHALL BE 3/4" MINIMUM UNLESS NOTED OTHERWISE

2. CONDUIT IN EXTERIOR WALLS. EXPOSED TO THE WEATHER OR OTHER DAMP/WET LOCATIONS SHALL BE RIGID, THREADED, GALVANIZED, HEAVY WALL

3. CONDUIT UNDERGROUND SHALL BE SCHEDULE 40 PVC CONDUIT WITH GROUND WIRE. PVC CONDUIT SHALL NOT BE RUN IN OR ABOVE FLOOR SLAB. PVC CONDUIT SHALL TERMINATE BELOW FLOOR SLAB WITH RIGID, THREADED

4. ALL CONDUIT SHALL BE CONCEALED IN WALLS. FLOORS AND CEILINGS WHEREVER POSSIBLE. EXPOSED CONDUIT IN FINISHED AREAS WILL NOT BE PERMITTED. EXPOSED CONDUIT WILL BE PERMITTED IN UNFINISHED AREAS WITH THE SPECIFIC APPROVAL OF THE ARCHITECT.

5. USE FLEXIBLE CONDUIT FOR THE CONNECTION TO THE RECESSED OR SEMI-RECESSED LIGHTING FIXTURES (6' LENGTH MAXIMUM). USE LIQUID TIGHT METAL CONDUIT FOR ALL CONNECTIONS TO MOTORS AND OTHER EQUIPMENT SUBJECT TO VIBRATION AND IN AREAS SUBJECT TO MOISTURE.

6. USE WATERTIGHT JOINTS WITH BURIED AND CONCRETE ENCASED CONDUIT. ALL BURIED CONDUITS OUTSIDE OF BUILDINGS SHALL HAVE A MINIMUM OF 24" OF COVER. METAL CONDUITS BURIED IN EARTH SHALL BE PAINTED WITH TWO COATS OF HEAVY ASPHALTUM PAINT.

7. CONDUIT SHALL BE SECURELY FASTENED IN PLACE. SUPPORT RUNS OF CONDUIT AS DETAILED IN THE APPROPRIATE TABLE OF THE NATIONAL ELECTRICAL CODE.

8. INSTALL EXPOSED RUNS OF CONDUIT AND CONDUIT ABOVE LAY-IN CEILINGS PARALLEL OR PERPENDICULAR TO THE WALLS, STRUCTURAL MEMBERS OF INTERSECTIONS OF VERTICAL PLANES AND CEILINGS. PROVIDE RIGHT ANGLE TURNS USING FITTINGS OR SYMMETRICAL BENDS. SUPPORT CONDUITS WITHIN 1' OF ALL CHANGES INDIRECTION.

9. IF A CONDUIT IS SUSPENDED, IT SHALL BE SUPPORTED ON TRAPEZE HANGERS, WHICH USE "ALL-THREAD" RODS FROM THE STRUCTURAL STEEL. THE USE OF CEILING SUPPORT WIRE OR SIMILAR MATERIAL WILL NOT BE ACCEPTED.

10. INSTALL EMPTY CONDUIT FOR FUTURE USE AS INDICATED ON THE DRAWINGS. CONDUIT SHALL BE COMPLETE WITH JETLINE OR PULL ROPE, JUNCTION/OUTLET BOXES. TILE RINGS AND APPROPRIATE COVER PLATES

11. PROVIDE PITCHPOCKETS WHERE CONDUITS PENETRATE THE ROOF. HORIZONTAL PORTIONS OF CONDUIT EXPOSED ON THE ROOF AND FEEDING EQUIPMENT SHALL NOT BE MORE THAN 5'-0" UNLESS THE WRITTEN APPROVAL FROM ARCHITECT OR ENGINEER IS OBTAINED.

12. THREAD LUBRICATION/SEALANT IS REQUIRED ON OUTDOOR AND UNDERGROUND THREADED METAL JOINTS.

AVOID INTERFERENCE.

NECESSARY TO COMPENSATE FOR THERMAL EXPANSION AND CONTRACTION.

15. SURFACE RACEWAYS SHALL BE AS INDICATED ON DRAWINGS AND INSTALLED AS A COMPLETE SYSTEM WITH ALL REQUIRED FITTINGS AND APPURTENANCES. RECEPTACLES/OUTLETS AS INDICATED ON PLAN. INSTALL RACEWAYS PARALLEL AND PERPENDICULAR TO BUILDING ELEMENTS.

### BOXES

1. INSTALL PULL AND JUNCTION BOXES WHERE SHOWN ON THE DRAWINGS, AND WHERE REQUIRED FOR CHANGES IN DIRECTION, AT JUNCTION POINTS AND TO FACILITATE WIRE PULLING. FURNISH BOX SIZES IN ACCORDANCE WITH NEC UNLESS LARGER BOXES ARE INDICATED ON THE DRAWINGS.

PLATED

3. IN FLOOR LOCATIONS - PROVIDE CAST IRON, CONCRETE-TITE FLOOR BOXES WITH ADJUSTABLE COVERS SET FLUSH AND LEVEL WITH THE FINISHED FLOOR, WITH OUTLETS AS INDICATED ON THE DRAWINGS. PROVIDE BOXES WITH LEVELING SCREWS. FLUSH TYPE BRASS COVERS AND OPENINGS TO SERVE OUTLETS USED. FURNISH FLUSH CAPS FOR CLOSING OFF BOX WHEN NOT IN

4. ALL OTHER LOCATIONS EXCEPT BELOW GRADE - USE CAST BOXES, ZINC-CADMIUM FINISH MALLEABLE IRON. FURNISH WEATHERPROOF BOXES WHEN INSTALLED OUTSIDE OR IN DAMP/WET LOCATIONS.

5. PROVIDE REMOVABLE COVERS OF CODE GAUGE, HOT ROLLED SHEET STEEL, HOT DIPPED GALVANIZED FOR ALL BOXES. UNO.

FOR INGROUND INSTALLATIONS.

7. WALL BOX SIZES SHALL BE MINIMUM 4" SQUARE X 2-1/2" DEEP WHERE WALL CONSTRUCTION PERMITS, FIXTURE OUTLETS IN CEILING SHALL BE MINIMUM 4" )CTAGONAL X 1-1/2" DEEP (4-11/16 OCTAGONAL X 2-1/2" DEEP WHERE REQUIRED TO ACCOMMODATE LARGER CONDUIT OR LARGER NUMBER OF WIRES). GANG BOXES SHALL BE ONE PIECE MINIMUM 2-1/8" DEEP.

8. FLUSH MOUNT BOXES IN ALL FINISHED WALLS, INSTALL THE PLASTER RINGS IN DRYWALLED PLASTERED WALLS AND RAISED COVERS AS REQUIRED IN WALLS WITH OTHER FINISHES SO THAT THE COVER PLATES FIT TIGHTLY AGAINST BOXES OR RINGS. 3/16" MAXIMUM GAPS ARE ALLOWED FOR NONCOMBUSTIBLE WALLS. SUPPORT ALL BOXES TO MAINTAIN PROPER ALIGNMENT AND RIGIDITY. CLEAN BOXES OF ALL FOREIGN MATTER PRIOR TO THE INSTALLATION OR WIRING OR DEVICES.

9. MOUNTING HEIGHTS ON THE DRAWING ARE TO THE CENTERLINE OF THE BOXES UNLESS OTHERWISE NOTED, ADJUST LOCATIONS OF OUTLETS IN MASONRY OR TILE CONSTRUCTION TO OCCUR IN THE NEAREST JOINT TO THE HEIGHT SPECIFIED. HEIGHTS SHALL MEET ADA REQUIREMENTS

CONDUCTORS

GROUND

ABOVE

CONDUCTORS) AS FOLLOWS

	208 or 240/120
PHASE A	BLACK
PHASE B	RED
PHASE C	BLUE
NEUTRAI	WHITE

GREEN

JUNCTION BOXES CONDUCTORS SHALL BE SOFT ANNEALED COPPER INSULATED FOR 600 VOLTS UNLESS SPECIFICALLY INDICATED OTHERWISE. DRAWINGS INDICATE SIZES BASED ON COPPER CONDUCTORS. THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE ALUMINUM ALLOY CONDUCTORS FOR FEEDERS 100AMP OR LARGER, INCLUSIVE, FOR USE IN DISTRIBUTION FEEDER CIRCUITS. ALUMINUM CONDUCTORS SHALL HAVE EQUAL OR GREATER AMPACITIES TO THAT OF THE COPPER CONDUCTORS SHOWN ON THE DRAWINGS. CONTRACTOR ASSUMES RESPONSIBILITY FOR

MODIFICATIONS ASSOCIATED WITH USING ALUMINUM IN LIEU OF COPPER, TO INCLUDE RESIZING CONDUIT AND CABLE. 2. INSULATION TYPE SHALL BE TYPE THHW FOR WIRE SIZES #8 AWG AND LARGER AND THWN FOR #10 AWG AND SMALLER. THHN SHALL NOT BE USED IN

WET OR DAMP LOCATIONS. 3. FLEXIBLE CORD SHALL BE HEAVY DUTY TYPE SO WITH AN EQUIPMENT GROUND CONDUCTOR IN ADDITION TO THE CURRENT CARRYING CONDUCTORS.

4. PROVIDE #12 CONDUCTORS, UNLESS OTHERWISE INDICATED. CONTROL CONDUCTORS SHALL BE #14 MINIMUM FOR NEC CLASS 1 AND #16 FOR NEC CLASS 11. CONDUCTORS #8 AWG AND LARGER SHALL BE STRANDED. CONDUCTORS #10 AWG AND SMALLER SHALL BE SOLID.

5. CONNECT #10 AND SMALLER WIRES WITH CONSTANT PRESSURE EXPANDABLE SPRING TYPE CONNECTORS. CONNECT #8 AND LARGER WIRES WITH COMPRESSION CONNECTORS OR SPLICES.

6. INSTALL WIRING IN CONDUIT. PULL CONDUCTORS USING RECOGNIZED METHODS AND EQUIPMENT LEAVING AT LEAST 6" WIRE AT ALL JUNCTION BOXES FOR CONNECTIONS, CLEANOUT EACH CONDUIT SYSTEM TO FLIMINATE OBSTRUCTIONS OVER FULL LENGTH BEFORE PULLING WIRE.

7. FORM AND TIE ALL WIRING IN PANELBOARDS, THERE SHALL BE NO WIRENUT JOINTS OR SPLICES MADE INSIDE SWITCHBOARDS/PANELBOARDS.

METAL CONDUIT ADAPTER. CONDUIT ABOVE SLAB SHALL BE METAL.

13. COORDINATE CONDUIT RUNS WITH OTHER TRADES AND ADJUST ROUTING TO

14. RACEWAYS SHALL BE PROVIDED WITH EXPANSION FITTINGS WHERE

2. INTERIOR CONCEALED - USE SHEET STEEL BOXES, ZINC COATED OR CADMIUM

6. EXTERIOR BELOW GRADE - COMPOSITE WATERPROOF ASSEMBLIES SUITABLE

1. COLOR CODE CONDUCTORS (EXCEPT CONTROL AND INSTRUMENTATION

VOLT SYSTEM

CONDUCTORS SHALL HAVE CONTINUOUS INSULATION COLOR, AS LISTED

COLOR CODE CONDUCTORS WHICH DO NOT HAVE CONTINUOUS INSULATION COLOR BY APPLICATION OF AT LEAST TWO LAPS OF COLORED TAPE ON EACH CONDUCTOR AT ALL POINTS OF ACCESS INCLUDING

8. BRANCH CIRCUIT WIRE SIZES (AND CONDUITS) SHALL BE INCREASED FROM

THOSE INDICATED ON THE PLANS TO PREVENT EXCESSIVE VOLTAGE DROP. BRANCH CIRCUITS SHALL BE INSTALLED WITH WIRES OF SUFFICIENT SIZE SO THAT VOLTAGE DROP BETWEEN THE PANEL AND THE LOADS DOES NOT EXCEED LIMIT OF 2%.

9. WIRE SIZES SHALL BE BASED ON THE 60°C. AMPACITIES FOR WIRE SIZES #14-1 AWG AND 75°C AMPACITIES FOR WIRE SIZES #1/0 AWG AND LARGER.

10. CIRCUITS MAY BE MULTI-PLEXED IN CONDUIT PROVIDED WIRE IS PROPERLY DERATED AND CONDUIT SIZED PER NEC. UNDER NO CIRCUMSTANCES SHALL MORE THAN NINE (9) CURRENT CARRYING CONDUCTORS BE RUN IN A SINGLE CONDUIT. WIREMOLD SERVED BY MULTIPLE CIRCUITS SHALL BE WIRED WITH INDIVIDUAL SEPARATE NEUTRALS FOR EACH CIRCUIT.

11. METAL-CLAD (MC) OR ARMORED CABLE (AC) MAY BE USED FOR BRANCH CIRCUITS WHERE ALLOWED BY CODE. ARMORED CABLE SHALL NOT BE USED IN ASSEMBLY AREAS OR WHERE PROHIBITED BY CODE. CABLES SHALL BE CONCEALED IN FINISHED SPACES. TEST CABLES FOR CONTINUITY AND GROUNDS. INSTALL CABLES PARALLEL AND PERPENDICULAR TO BUILDING SURFACES. COORDINATE CABLE RUNS WITH OTHER TRADES AND ADJUST ROUTING TO AVOID INTERFERENCE. LOW VOLTAGE WIRING INSTALLED ABOVE CEILINGS SHALL BE BUNDLED AND SUPPORTED FROM THE BUILDING STRUCTURE. DO NOT LAY CABLE ON CEILINGS.

12. COMMUNICATION CABLE SHALL BE PLENUM RATED.

DEVICES

1. WIRING DEVICE COLOR SHALL BE IVORY OR AS SELECTED BY ARCHITECT, UNLESS OTHERWISE INDICATED.

2. PROVIDE TOTALLY ENCLOSED, SPECIFICATION GRADE, 20 AMPERE, 120/277 VOLT QUIET A/C GENERAL USE SNAP SWITCHES MANUFACTURED BY HUBBELL. P&S OR LEVITON.

3. PROVIDE SPECIFICATION GRADE NEMA CONFIGURATION 5-20R DUPLEX 125-VOLT GROUNDING TYPE RECEPTACLES UNLESS OTHERWISE NOTED ON THE DRAWINGS. MANUFACTURED BY HUBBELL, P&S OR LEVITON.

4. RECEPTACLES REQUIRING AMPERAGES, VOLTAGES OR CONFIGURATIONS DIFFERENT FROM THE DUPLEX CONVENIENCE RECEPTACIES ABOVE SHALL BE AS INDICATED ON THE DRAWINGS AND OF A QUALITY, MATERIAL AND CONSTRUCTION EQUAL TO THAT SPECIFIED FOR DUPLEX CONVENIENCE RECEPTACLES.

5. PROVIDE COVER OR DEVICE PLATES FOR OUTLET BOXES AS FOLLOWS UNLESS OTHERWISE NOTED

FINISHED AREAS: THERMOPLASTIC- COLOR TO MATCH DEVICE UNFINISHED AREAS: ZINC COATED SHEET METAL, ALUMINUM, OR CAST METAL AS APPROPRIATE FOR THE TYPE OF BOX.

EXTERIOR AREAS: COPPER FREE ALUMINUM WITH GRAY, POWDER EPOXY FINISH, GASKETED, WEATHERPROOF. TELEPHONE. COMMUNICATION, AND SIGNAL OUTLET PLATES, SHALL MATCH

THOSE USED FOR RECEPTACLES AND SWITCHES. ALL OUTLET AND/OR JUNCTION BOXES SHALL BE COMPLETE WITH A COVER PLATE BY THIS CONTRACTOR. WHERE DEVICES ARE GANGED, THEY SHALL BE INSTALLED UNDER A

COMMON COVERPLATE. LOCATE THE SWITCHES APPROXIMATELY 4'-0" ABOVE THE FINISHED FLOOR ELEVATION OR NEAREST BLOCK COURSE (WITH IN ADA REQUIREMENTS) UNLESS OTHERWISE NOTED. THE LONG DIMENSION OF THE SWITCHES SHALL BE VERTICAL.

6. LOCATE RECEPTACLES APPROXIMATELY 1'-6" ABOVE THE FINISHED FLOOR ELEVATION OR NEAREST BLOCK COURSE (WITH IN ADA REQUIREMENTS), UNLESS OTHERWISE NOTED. THE LONG DIMENSION OF THE RECEPTACLE SHALL BE VERTICAL. ALL DEVICES SHALL BE FLUSH MOUNTED U.N.O.

7. RECEPTACLES WITHIN 6' OF SINKS SHALL BE GFCI TYPE. ALL DEVICES INSTALLED OUTDOORS SHALL BE WEATHERPROOF AND GFCI PROTECTED.

8. RECEPTACLE IN KITCHEN AREA OR BATHROOM TO BE GFCI PROTECTED. SAFETY SWITCHES

1. PROVIDE DISCONNECT SWITCHES FOR ALL EQUIPMENT, WHERE REQUIRED BY CODE. MANUFACTURER SHALL BE SQUARE D, SIEMENS, G.E., OR CUTLER-HAMMER. ALL SAFETY SWITCHES SHALL BE BY ONE MANUFACTURER

2. SAFETY SWITCHES SHALL BE THE ENCLOSED HEAVY-DUTY TYPE (TYPE HD) WITH QUICK-MAKE, QUICK-BREAK MECHANISM AND EXTERNAL PAD LOCKABLE OPERATING HANDLE

3. SAFETY SWITCHES SHALL BE RATED FOR 240 OR 600 VOLTS AS APPLICABLE. THEY SHALL BE HORSEPOWER RATED WHEN USED IN MOTOR CIRCUITS. SAFETY SWITCHES SHALL BE FUSIBLE OR NONFUSIBLE 2, 3 OR 4 POLE AS INDICATED ON THE DRAWINGS. SAFETY SWITCHES SHALL BE SINGLE THROW, UNO. ENCLOSURES SHALL BE NEMA 1 INDOORS AND NEMA 3R OUTDOORS UNI ESS OTHERWISE INDICATED ON THE DRAWINGS.

4. MOUNT THE SAFETY SWITCHES SECURELY BETWEEN 3' X 6' LEVELS ABOVE THE FLOOR UNLESS OTHERWISE NOTED IN THE DRAWINGS. SWITCHES ON BLOCK WALLS SHALL BE MOUNTED ON A 3/4" PLYWOOD BACKBOARD, WHERE LOCATED INDOORS.

5. THE CONTRACTOR SHALL FURNISH A COMPLETE SET OF FUSES FOR ALL FUSIBLE SWITCHES. PLUS FUSIBLE EQUIPMENT FURNISHED BY OTHER TRADES. UNLESS OTHERWISE INDICATED ON THE DRAWINGS, THE FUSES SHALL BE OF THE FOLLOWING TYPE:

FUSES 601 TO 6000 AMPS SHALL BE UL CLASS RK5. TRADE TYPE SHALL BE KRP-C AS MANUFACTURED BY THE BUSSMANN COMPANY. FUSES 1/10 TO 600 AMPS SHALL BE UL CLASS RK1. TRADE TYPE SHALL BE LOW PEAK LPS-RK (600V) AND LPN-RK (250C) AS MANUFACTURED BY **BUSSMANN COMPANY** 

ALL OTHER FUSES SHALL BE DUAL ELEMENT CURRENT LIMITING TYPE WITH 200,000 AMPERES SYMMETRICAL INTERRUPTING CAPACITY.

6. THIS CONTRACTOR SHALL REPLACE ALL FUSES BLOWN DURING CONSTRUCTION.

### MOTOR STARTERS

1. STARTERS SHALL BE SQUARE D, G.E., CUTLER-HAMMER/WESTINGHOUSE, OR SIEMENS.

2. COORDINATE ALL EQUIPMENT INDICATED ON THE ELECTRICAL DRAWINGS WITH MECHANICAL EQUIPMENT SCHEDULES AND SPECIFICATIONS. STARTERS AND DISCONNECTS SUPPLIED AS AN INTEGRAL PART OF EQUIPMENT SHALL BE FURNISHED UNDER THE DIVISION PROVIDING THE EQUIPMENT. WIRING AND EQUIPMENT CONNECTIONS SHALL BE BY THIS CONTRACTOR.

### DISTRIBUTION PANELS

1. DISTRIBUTION PANELS SHALL BE DEAD FRONT TYPE WITH CIRCUIT BREAKERS, FUSES AND HEAVY-DUTY SWITCHES OF SIZE AND NUMBER INDICATED ON THE PANELS. PANELS SHALL BE MANUFACTURED AS A COMPLETE UNIT AND NOT AN ASSEMBLY OF PARTS SECURED FROM A SUPPLY HOUSE. ALL BUS BARS SHALL BE RECTANGULAR SOLID COPPER. ALL LUGS SHALL BE UL APPROVED CU/AL TYPE. VERTICAL BUSSING SHALL BE EXTENDED THE FULL LENGTH OF THE PANEL. ALL PANELS SHALL BE CAPABLE OF ACCEPTING SWITCH SIZES UP TO AND INCLUDING 600 AMPS. DISTRIBUTION PANELS SHALL BE G.E., SQUARE "D". SIEMENS, OR WESTINGHOUSE

2. THE INDIVIDUAL SWITCH AND FUSE UNITS SHALL BE OF THE QUICK-MAKE, QUICK-BREAK TYPE, FUSED UNITS SHALL HAVE HINGED FUSE COMPARTMENTS WITH INTERLOCKED FUSE DOORS WHEN THE EXTERNALLY OPERATED HANDLE IS IN THE OFF POSITION. THESE UNITS SHALL BE REMOVABLE AND ACCESSIBLE FROM THE FRONT SO THAT THE CABINET MAY BE WALL-MOUNTED.

3. INSTALL PANELS SUCH THAT HANDLE FOR THE TOP SWITCH DOES NOT EXCEED 6'-6" ABOVE FINISHED FLOOR. SURFACE-MOUNTED PANELS SHALL BE MOUNTED ON A 3/4" PLYWOOD BACKBOARD. FLOOR-MOUNTED PANELS SHALL BE MOUNTED ON A 4" HIGH CONCRETE PAD. PROVIDE PHENOLIC LABELS FOR EACH PANEL AND FOR EACH SWITCH.

4. ALL BOLTED CONNECTIONS SHALL BE TORQUED IN ACCORDANCE WITH MANUFACTURER'S STANDARDS. RETORQUE CONNECTIONS ONE MONTH OR MORE AFTER INITIAL TORQUE.

PANELBOARDS

1. PANELBOARDS SHALL BE ENCLOSED DEAD FRONT SAFETY TYPE WITH

FEATURES AND RATINGS AS SCHEDULED ON DRAWINGS. ALL BUS BARS SHALL BE RECTANGULAR SOLID COPPER. SPACE, WHERE SHOWN IN PANEL SCHEDULES, DESIGNATES SPACE FOR FUTURE PROTECTIVE DEVICES AND SHALL INCLUDE BUS AND SUPPORT. PANELS KNOWN AS "LOAD CENTERS" ARE UNACCEPTABLE. MANUFACTURER SHALL BE SQUARE D, SIEMENS, GE OR CUTLER-HAMMER.

2. MOLDED CASE CIRCUIT BREAKERS SHALL BE AS SCHEDULED ON THE DRAWINGS AND SPECIFIED IN THIS DIVISION. ALL BREAKERS SHALL BE BOLT ON TYPE. ALL BOLTED CONNECTIONS SHALL BE TORQUED IN ACCORDANCE WITH MANUFACTURERS STANDARDS. RETORQUE ALL CONNECTIONS ONE MONTH AFTER INITIAL TORQUE.

3. INSTALL CABINETS SO THAT CENTER OF THE TOP BREAKER DOES NOT EXCEED 6'-6" ABOVE THE FINISHED FLOOR. PROVIDE (3) SPARE 1" CONDUITS INTO ACCESSIBLE CEILING WHERE PANELS ARE FLUSH MOUNTED.

4. ELECTRICAL CONTRACTOR SHALL ARRANGE CIRCUITS AS NEAR AS POSSIBLE TO CIRCUIT NUMBERS ON THE DRAWINGS. AT COMPLETION OF JOB, ELECTRICAL CONTRACTOR SHALL TAKE CURRENT READING CHECKS OF RESPECTIVE PHASES. A MINIMUM OF CIRCUIT CONNECTIONS SHALL BE REARRANGED TO BALANCE, AS CLOSELY AS POSSIBLE, THE LOAD IN THE PANEL. ENTRIES ON DIRECTORY CARDS SHALL BE TYPED. COMPLETE AND ACCURATE. FINAL ROOM NAMES/NUMBERS MAY BE DIFFERENT FROM THOSE USED ON PLANS AND SHOULD BE USED TO CREATE DIRECTORIES.

### TRANSFORMERS

1. TRANSFORMERS SHALL BE CONTINUOUSLY RATED ISOLATING TYPE FOR 60-HERTZ SERVICE UNLESS OTHERWISE INDICATED. TRANSFORMERS SHALL BE DRY TYPE, GENERAL PURPOSE, COPPER OR WINDINGS. PROVIDE CLASS 220 INSULATION (80°C RISE).

2. K RATED TRANSFORMERS AS INDICATED FOR NONLINEAR LOADS, WITH MAX 220°C TEMP RISE, WITH DOUBLE SIZE NEUTRAL BUS, COPPER WINDINGS, ELECTROSTATICALLY SHIELDED, WHERE INDICATED.

3. ENCLOSURES FOR TRANSFORMERS SHALL BE METALLIC, SUITABLE FOR INDOOR AND OUTDOOR INSTALLATION AS APPLICABLE AND RODENT PROOF. MANUFACTURER SHALL BE EATON/CUTLER-HAMMER, SQUARE "D", GENERAL ELECTRIC OR SIEMENS. FRACTIONAL KVA TRANSFORMERS SHALL BE MANUFACTURED BY EDWARDS OR THE SPECIAL EQUIPMENT MANUFACTURER IN WHICH THE TRANSFORMERS ARE USED.

GROUNDING

1. GROUND ALL EQUIPMENT PER NEC 250. GROUND EACH OUTSIDE LIGHTING STANDARD SEPARATELY WITH ONE GROUND ROD AND A #6 GROUND WIRE. GROUND ALL DRY TYPE TRANSFORMERS AS PER DRAWINGS AND NEC SECTION #450. AND #250.

2. ALL CONDUITS SHALL CONTAIN A CODE SIZED GROUND WIRE SIZE PER NEC IN ADDITION TO THE CONDUCTORS SHOWN ON THE PLANS. WHERE CIRCUIT CONDUCTORS ARE INCREASED IN SIZE THE GROUND WIRE SIZE SHALL BE INCREASED PROPORTIONALLY.

3. WHERE AN ISOLATED, INSULATED GROUND IS REQUIRED A SEPARATE GREEN GROUND SHALL BE RUN FROM THE PANEL GROUND BUS TO THE ISOLATED GROUND CONNECTION OF THE DEVICE SERVED. IN NO CASE SHALL THE SYSTEM GROUND (WIRE AND ASSOCIATED OUTLET BOXES, CONDUIT AND BUILDING STEEL) BE ALLOWED TO CONTACT THE ISOLATED GROUND (GREEN WIRE AND DEVICE GROUND).

COMMUNICATION SYSTEMS

1. ALL COMMUNICATION SYSTEMS ARE BY THE OWNER TO BE BE COORDINATED WITH THE DESIGN-BUILDER.

1. PROVIDE A 3/4" THICK PLYWOOD TERMINAL BOARD AS SHOWN ON DRAWINGS. ELECTRICAL CONTRACTOR TO PROVIDE TELEPHONE SERVICE CONDUIT OR DUCT TO TELEPHONE BOARD AS SHOWN ON PLANS. CONDUIT TO BE A MINIMUM OF 3/4".

2. THIS CONTRACTOR SHALL PROVIDE AND INSTALL ALL CONDUITS WITH PULL WIRES, OUTLET BOXES, METAL CABINETS AND PULL BOXES. PROVIDE A COMPLETE CONDUIT SYSTEM WITH PULL WIRES AS INDICATED ON THE DRAWINGS. ALL CONDUIT RUN SHALL HAVE NOT MORE THAN THREE (3) BENDS IN A RUN BETWEEN OUTLET BOXES OR BETWEEN OUTLET BOX AND A METAL CABINET OR PULL BOX. WHEN A RUN REQUIRES MORE THAN THREE (3) BENDS A PULL BOX OF SUITABLE SIZE SHALL BE PLACED IN A SUITABLE LOCATION TO MEET THE ABOVE CONDITIONS.

3. TELEPHONE AND DATA OUTLET LOCATIONS BY OWNER TO BE COORDINATED WITH THE DESIGN-BUILDER. PROVIDE OUTLET BOX AND EMPTY RACEWAY WIT PULL WIRE IN INSULATED OR SOLID OR INACCESSIBLE AREAS. ALL PLATES SHALL BE STANDARD TELEPHONE TYPE WITH JACK. PROVIDE PLATES OF SAME MATERIAL AND FINISH AS SPECIFIED FOR RECEPTACLES. WALL PHONE PLATES SHALL HAVE MOUNTING STUDS.

START UP AND INSTRUCTIONS

1. AFTER INSTALLATION, CHECK ALL EQUIPMENT, AND PERFORM START UP IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS, PLACE ALL SYSTEMS INTO OPERATION.

2. TESTS SHALL INCLUDE THE FOLLOWING: MEASURE THE LOAD ON EACH PHASE OF THE MAIN SERVICE AND EACH

- PHASE OF EVERY FEEDER UNDER FULL LOAD CONDITIONS MEASURE THE NO-LOAD AND FULL-LOAD VOLTAGES (PHASE TO PHASE, PHASE TO NEUTRAL AND PHASE TO GROUND FOR EACH PHASE OF EACH SERVICE, OF EACH SEPARATELY DERIVED SYSTEM, AND AT EACH PANELBOARD OR TRANSFORMER).
- MEASURE THE GROUND RESISTANCE OF THE MAIN SERVICE GROUNDING ELECTRODE AND THE GROUND RESISTANCE OF EACH SEPARATELY DERIVED SYSTEM'S GROUNDING ELECTRODE
- MAKE INSULATION RESISTANCE TESTS ON ALL DRY TYPE TRANSFORMERS AND MOTORS.

3. CLEAN ALL ELECTRICAL EQUIPMENT AND FIXTURES OF ALL CONSTRUCTION DUST AT PROJECT COMPLETION.

4. PROVIDE OWNER TRAINING AND DEMONSTRATION OF ALL ELECTRICAL SYSTEMS AND EQUIPMENT. INSTRUCT OWNER ON PROPER OPERATION AND PREVENTATIVE MAINTENANCE OF SYSTEM. SUBMIT OPERATING AND MAINTENANCE MANUAL ON ALL EQUIPMENT AND SYSTEMS.

### WARRANTY

1. FULLY WARRANT ALL MATERIALS, EQUIPMENT AND WORKMANSHIP FOR ONE (1) YEAR FROM DATE OF ACCEPTANCE. EXTEND ALL MANUFACTURER'S WARRANTIES TO OWNER, INCLUDING ALL EXTENDED WARRANTIES.

2. REPAIR OR REPLACE WITHOUT CHARGE TO THE OWNER ALL ITEMS FOUND DEFECTIVE DURING THE WARRANTY PERIOD.

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SHEET INFO:

Mid

ELECTRICAL SPECIFICATIONS

2023.01.19 PROJECT NO. 2022159 NONE SCALE: PROJ MGR: JTH DRAWN BY: PRD SHEET NUMBER: E002

REV REV DATE DESCRIPTION

ALLEN + SHARIFF JOB #: 2231082

![](_page_21_Picture_0.jpeg)

![](_page_21_Figure_1.jpeg)

TYPE	FIXTURE DESCRIPTION	MANUFACTURER
L4	4' LED STRIP LIGHT	LITHONIA LIGHTING
XW1	EXTERIOR LED WALL PACK	LITHONIA LIGHTING
D6	DOWNLIGHT	LITHONIA LIGHTING
EX	COMBINATION EXIT SIGN EMERGENCYLIGHT	LITHONIA LIGHTING
NOTES		

ARCHITECT SHALL SPECIFY / VERIFY ALL FINISH SELECTIONS. 2. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES. 3. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL MOUNTING ACCESSORIES.

ARCHITECT, OR ENGINEER. 6. FIXTURES WITH FILLED/HALF FILLED CENTERS SHALL BE PROVIDED WITH COLD WEATHER TYPE EMERGENCY BATTERY DRIVER.

LIGHTING GENERAL NOTES:

- 1. FIRE STOP ALL FIRE RATED FLOORS, CEILINGS, AND WALLS AS REQUIRED BY CODE. PENETRATIONS INTO OR THROUGH FIRE RESISTANCE RATED WALLS SHALL COMPLY WITH IBC CHAPTER 7.
- 2. PROVIDE EXPANSION FITTINGS AS REQUIRED AT ALL EXPANSION JOINTS. COORDINATE WITH ARCHITECTURAL PLANS.
- 3. WHERE EXPOSED, BRANCH CIRCUITS SHALL BE RUN IN EMT CONDUIT ROUTED PARALLEL AND PERPENDICULAR TO BUILDING STRUCTURE. WHERE CONCEALED WITHIN WALLS OR ABOVE CEILING, MC CABLE IS PERMISSIBLE.
- 4. EC SHALL NOT HAVE MORE THAN THREE CURRENT CARRYING CONDUCTORS IN A CONDUIT WITHOUT DERATING AMPACITIES PER THE NEC.
- 5. VERIFY EXACT LOCATIONS OF ALL DEVICES WITH ARCHITECTURAL PLANS PRIOR TO ROUGH-IN.
- 6. WHERE DEVICES ARE DIMENSIONED ON ARCHITECTURAL DRAWINGS, INSTALL DEVICES PER THOSE DIMENSIONS. WHERE DEVICE LOCATIONS ARE NOT DIMENSIONED ON ARCHITECTURAL DRAWINGS, INSTALL IN ACCORDANCE WITH DEFAULT LOCATIONS IN ELECTRICAL SPECIFICATIONS.
- 7. WHERE WIRE SIZE IS NOT INDICATED, #12 AWG MINIMUM SHALL BE USED FOR CIRCUITS LESS THAN 100 FEET IN LENGTH, #10 AWG SHALL BE USED FOR CIRCUITS FROM 100 TO 150 FEET IN LENGTH, AND #8 AWG SHALL BE USED FOR CIRCUITS FROM 150 TO 250 FEET IN LENGTH. CIRCUIT LENGTHS GREATER THAN 250 FEET SHALL BE WIRED USING #6 MINIMUM, SUBJECT TO FIELD VERIFICATION. ALL EXACT CONDUIT FOOTINGS, LENGTHS, AND WIRE SIZES SHALL BE FIELD DETERMINED BY THE E.C. PER ALL APPLICABLE CODES BASED ON ACTUAL CONDUIT AND WIRE ROUTING. THE INFORMATION ABOVE SHALL BE USED FOR PRICING PURPOSES ONLY.

### DISCIPLINE KEY NOTES: $\langle \# \rangle$

- 1. PROVIDE JUNCTION BOX FOR EXTERIOR SIGNAGE. COORDINATE
- EXACT LOCATION FOR EXTERIOR ILLUMINATED SIGNAGE. 2. PROVIDE 10 30A ELECTRICALLY HELD POLES ENCLOSED LIGHTING CONTACTOR WITH PHOTOCELL IN NEMA 1 ENCLOSURE. ROUTE EXTERIOR LIGHTING CIRCUIT AND EACH EXTERIOR ILLUMINATED SIGN CIRCUIT THROUGH CONTACTOR.

LIGHTING FIXTURE SCHEDULE								
MODEL	L/ LAMP #	AMP(S) LAMP TYPE	DRIVER/ BALLAST	INPUT WATTS	VOLTS	MOUNTING	NOTES	
ZL1D L48 3000LM FST MVOLT 35K 80CRI WH	N/A	LED 35K	<mark>0-10V</mark>	30	120	SURFACE		
WDGE1 P2 40K 80CRI VW MVOLT E4WH XX	N/A	LED 40K	N/A	15	120	SURFACE 6" ABOVE DOOR	PROVIDE WITH INTEGRAL COLD WEATHER EMERGENCYBATTERYDRIVER.	
LDN6 35 07 LO6 AR MVOLT GZ10	N/A	LED 35K	N/A	<mark>8.9</mark>	120	RECESSED SOFFIT		
LHQMLED R HO SD	N/A	LED	N/A	4	120	WALL		

### 4. LIGHTING FIXTURE SUBSTITUTIONS THAT ARE CONSIDERED EQUAL TO THE SPECIFIED PRODUCTS MAY BE SUBMITTED AND WILL BE REVIEWED BY ARCHITECT AND ELECTRICAL ENGINEER. ACCEPTANCE WILL BE EVALUATED BASED ON AESTHETICS, PERFORMANCE, AND QUALITY. DO NOT PROVIDE VALUE ENGINEERING OPTIONS UNLESS SPECIFICALLY DIRECTED BY THE OWNER,

5. THE STANDARD DRIVER OPTION FOR MOST FIXTURES IS 0-10V DIM. THE CONTRACTOR IS ONLY REQUIRED TO PROVIDE 0-10V WIRING WHERE DIMMING CONTROLS ARE SHOWN ON THE LIGHTING PLAN.

![](_page_21_Picture_20.jpeg)

![](_page_21_Picture_21.jpeg)

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

![](_page_22_Figure_0.jpeg)

![](_page_22_Figure_1.jpeg)

![](_page_22_Picture_2.jpeg)

POWER GENERAL NOTES:

- 1. FIRE STOP ALL FIRE RATED FLOORS, CEILINGS, AND WALLS AS REQUIRED BY CODE. PENETRATIONS INTO OR THROUGH FIRE RESISTANCE RATED WALLS SHALL COMPLY WITH IBC CHAPTER 7.
- 2. PROVIDE EXPANSION FITTINGS AS REQUIRED AT ALL EXPANSION JOINTS. COORDINATE WITH ARCHITECTURAL PLANS.
- 3. WHERE EXPOSED, BRANCH CIRCUITS SHALL BE RUN IN EMT CONDUIT ROUTED PARALLEL AND PERPENDICULAR TO BUILDING STRUCTURE. WHERE CONCEALED WITHIN WALLS OR ABOVE CEILING, MC CABLE IS PERMISSIBLE.
- 4. EC SHALL NOT HAVE MORE THAN THREE CURRENT CARRYING CONDUCTORS IN A CONDUIT WITHOUT DERATING AMPACITIES PER THE NEC.
- 5. VERIFY EXACT LOCATIONS OF ALL DEVICES WITH ARCHITECTURAL PLANS PRIOR TO ROUGH-IN.
- 6. WHERE DEVICES ARE DIMENSIONED ON ARCHITECTURAL DRAWINGS, INSTALL DEVICES PER THOSE DIMENSIONS. WHERE DEVICE LOCATIONS ARE NOT DIMENSIONED ON ARCHITECTURAL DRAWINGS, INSTALL IN ACCORDANCE WITH DEFAULT LOCATIONS IN ELECTRICAL SPECIFICATIONS.
- 7. WHERE WIRE SIZE IS NOT INDICATED, #12 AWG MINIMUM SHALL BE USED FOR CIRCUITS LESS THAN 100 FEET IN LENGTH, #10 AWG SHALL BE USED FOR CIRCUITS FROM 100 TO 150 FEET IN LENGTH, AND #8 AWG SHALL BE USED FOR CIRCUITS FROM 150 TO 250 FEET IN LENGTH. CIRCUIT LENGTHS GREATER THAN 250 FEET SHALL BE WIRED USING #6 MINIMUM, SUBJECT TO FIELD VERIFICATION. ALL EXACT CONDUIT FOOTINGS, LENGTHS, AND WIRE SIZES SHALL BE FIELD DETERMINED BY THE E.C. PER ALL APPLICABLE CODES BASED ON ACTUAL CONDUIT AND WIRE ROUTING. THE INFORMATION ABOVE SHALL BE USED FOR PRICING PURPOSES ONLY.

### DISCIPLINE KEY NOTES: (#)

- 1. SERVICE ENTRANCE METER CENTER. REFER TO SINGLE LINE
- DIAGRAM FOR REQUIREMENTS. 2. CONNECT EXHAUST FAN TO LOCAL SWITCHED LIGHTING CIRCUIT.

![](_page_22_Picture_14.jpeg)

N

![](_page_22_Picture_15.jpeg)

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

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FISHER ARCHITECTURE

Fisher Architecture, LLC 542 Riverside Drive

Salisbury, MD 21801

(410) 742-0238

SEAL:

CONSULTANTS:

Allen + Shariff

MEP Engineering Project Management

205 East Market Street

Salisbury, Maryland 21801 443.545.1300

 $\sim$ 

SHEET INFO:

Middletown

ELECTRICAL POWER

![](_page_22_Picture_20.jpeg)

E-201

Branch Panel: Location: Supply From: Mounting: Enclosure:	2P1 : TENANT 1 : METER CENTER : SURFACE : TYPE 1			Volts: 2 Phases: 3 Wires: 4	208/120V 3		A.I.C. Ra Mains T Mains Ra MCB Ra	ing: 22 KAIC /pe: MCB ing: 200 ing: 200		Brai	nch Panel Location Supply From Mounting Enclosure	: 2P2 :: TENANT 2 :: METER CENTER :: SURFACE :: TYPE 1			Pr	Volts: 208/12 hases: 3 Wires: 4	20V		A.I.C. Main Mains MCB	Rating: 22 KA s Type: MCB Rating: 200 Rating: 200	\IC		Branch Panel Location Supply From Mounting Enclosure	<b>2P3</b> : TENANT 3 : METER CENTER : SURFACE : TYPE 1			Ph V	Volts: 208/120V nases: 3 Vires: 4		A.I.C. Rating Mains Type Mains Rating MCB Rating	: 22 KAIC : MCB : 200 : 200
CKTCircuit Description1LTG3SPACE5EXTERIOR SIGN LTG7REC9REC BATH RM11SPACE13SPACE15SPACE17SPACE19SPACE21SPACE23SPACE25SPACE27SPACE29SPACE31SPACE33SPACE35SPACE37SPACE39SPACE41SPACE	Wire Size 2#12,1#12G,3/4"C - 2#12,1#12G,3/4"C 2#12,1#12G,3/4"C 2#12,1#12G,3/4"C	Trip     Pole       20     1     99       20     1     99       20     1     72       21     2     7       22     2     7	A 4908	LOAD (VA)	C 1000 2080 - 2163 - 2163 - 2163         	Pole     Trip       2     60       2     25       2     40       2     25       -     -	Wire Size 2#10,1#10G,3/4"( 2#10,1#10G,3/4"( 2#10,1#10G,3/4"( 2#10,1#10G,3/4"( - - - - - - - - - - - - -	Circuit De Circuit De AHU-1A AHU-1B CU-1 EWH-1 SPACE SPACE SPACE SPACE SPACE SPACE SPACE SPACE SPACE SPACE SPACE SPACE SPACE SPACE SPACE SPACE SPACE SPACE	scription CKT 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 30 32 34 36 38 40 42	CKT 1 LTG 3 SPA 5 EXT 7 REC 9 REC 11 SPA 13 SPA 15 SPA 17 SPA 19 SPA 21 SPA 23 SPA 25 SPA 27 SPA 29 SPA 31 SPA 33 SPA 35 SPA 39 SPA 41 SPA	Circuit Description	Wire Size 2#12,1#12G,3/4"C - 2#12,1#12G,3/4"C 2#12,1#12G,3/4"C 2#12,1#12G,3/4"C	Trip         Po           20         1           -         -           20         1      20<	A           99         4907           99         4907           720         2087           720         2087           720         2087           720         2087           720         2087           720         2087           720         2087           720         2087           720         2087           720         2087           720         2087           720         2087           720         2087           720         2087           720         2087           720         2087           720         2087           720         2087           720         2057           720         2057           720         70           720         70           720         70           720         70           720         70           720         70           720         70           720         70           720         70           720         70           720         70	LOAD ( B LOAD ( C C C C C C C C C C C C C C C C C C C	(VA) 4908 4908 2163 2050 2050 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0	C Provide the second se	Dile     Trip       2     60       2     25       2     40       2     25       -     -	Wire Size 2#10,1#10G,3/ 2#10,1#10G,3/ 2#10,1#10G,3/ 2#10,1#10G,3/ - - - - - - - - - - - - - - - - - - -	4"C AHU-2 4"C AHU-2 4"C CU-2 4"C CU-2 4"C EWH- SPAC SPAC SPAC SPAC SPAC SPAC SPAC SPAC	Circuit Description 2A 2B -1 -1 -2E	CKT 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42	CKTCircuit Description1LTG3SPACE5EXTERIOR SIGN LTG7REC9REC BATH RM11SPACE13SPACE15SPACE17SPACE21SPACE23SPACE24SPACE25SPACE27SPACE29SPACE31SPACE33SPACE34SPACE35SPACE39SPACE41SPACE	Wire Size 2#12,1#12G,3/4"( - 2#12,1#12G,3/4"( 2#12,1#12G,3/4"( 2#12,1#12G,3/4"(	Trip         I           C         20           -         -           C         20           C         20           C         20           C         20           C         20           C         20           C         -           - <td< td=""><td>Pole A A 1 99 490 1 720 208 1 720 208 1 720 208 1 720 208 7 720 208 7 720 708 7 720 708 7</td><td>LOAD ( B 908 - 4 908 - 4 908 - 4 9080 -</td><td>VA) VA VA</td><td>Pole     Trip       2     60       2     25       2     40       2     25       -     -</td><td>Wire Size 2#10,1#10G,3/4"C 2#10,1#10G,3/4"C 2#10,1#10G,3/4"C 2#10,1#10G,3/4"C - - - - - - - - - - - - -</td><td>Circuit Description AHU-2A AHU-2B CU-2 EWH-1 SPACE</td></td<>	Pole A A 1 99 490 1 720 208 1 720 208 1 720 208 1 720 208 7 720 208 7 720 708 7	LOAD ( B 908 - 4 908 - 4 908 - 4 9080 -	VA) VA	Pole     Trip       2     60       2     25       2     40       2     25       -     -	Wire Size 2#10,1#10G,3/4"C 2#10,1#10G,3/4"C 2#10,1#10G,3/4"C 2#10,1#10G,3/4"C - - - - - - - - - - - - -	Circuit Description AHU-2A AHU-2B CU-2 EWH-1 SPACE
NOTES:		Total Load: Amps:	9857	9301 67.7	5243					NOTES:			Total Load Amp	d: 9857 s:	930 <sup>-</sup> 67.7	7	5243						NOTES:		Total Lo An	oad: 9857 nps:	9301 67.7	1 5243			
Branch Panel: Location: Supply From: Mounting: Enclosure:	2P4 : TENANT 4 : METER CENTER : SURFACE : TYPE 1			Volts: 2 Phases: 3 Wires: 4	208/120V 3 4		A.I.C. Ra Mains Mains Ra MCB Ra	ting: 22 KAIC ype: MCB ting: 200 ting: 200		Bra	nch Pane Locatio Supply From Mountin Enclosur	1: 2P5 n: TENANT 5 n: METER CENTER g: SURFACE e: TYPE 1			P	Volts: 208/12 ?hases: 3 Wires: 4	20V		A.I.C. Main Mains MCB	Rating: 22 KA Is Type: MCB Rating: 200 Rating: 200	AIC		Branch Panel Location Supply From Mounting Enclosure	: 2P6 :: TENANT 6 :: METER CENTER :: SURFACE :: TYPE 1			Pr	Volts: 208/120V hases: 3 Wires: 4		A.I.C. Rating Mains Type Mains Rating MCB Rating	1: 22 KAIC 1: MCB 1: 200 1: 200
CKTCircuit Description1LTG3SPACE5EXTERIOR SIGN LTG7REC9REC BATH RM11SPACE13SPACE15SPACE17SPACE21SPACE23SPACE25SPACE29SPACE31SPACE33SPACE34SPACE35SPACE39SPACE41SPACE10NOTES:	Wire Size 2#12,1#12G,3/4"C - 2#12,1#12G,3/4"C 2#12,1#12G,3/4"C 2#12,1#12G,3/4"C	Trip       Pole         20       1       9         20       1       72         20       1       72         20       1       72         20       1       72         20       1       72         20       1       72         -       -       -	A 9 4908 9 10 10 10 10 10 10 10 10 10 10 10 10 10	LOAD (VA) B  - 4908 - 180 2163 - 180 2163 2050 2050 2050	C 1000 2080 - 2163 - 2163       	Pole       Trip         2       60         2       25         2       25         2       25         2       25         -       -	Wire Size 2#10,1#10G,3/4" 2#10,1#10G,3/4" 2#10,1#10G,3/4" 2#10,1#10G,3/4" - - - - - - - - - - - - -	Circuit De Circuit De C AHU-2A C AHU-2B C CU-2 E EWH-1 SPACE SPACE SPACE SPACE SPACE SPACE SPACE SPACE SPACE SPACE SPACE SPACE SPACE SPACE	escription CK 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42	T         CKT           1         LTC           3         SP           5         EX           7         RE           9         RE           11         SP           13         SP           15         SP           13         SP           15         SP           17         SP           19         SP           21         SP           23         SP           25         SP           27         SP           33         SP           33         SP           33         SP           33         SP           41         SP           NOTES:         NOTES:	Circuit Description	Wire Size 2#12,1#12G,3/4"( - 2#12,1#12G,3/4"( 2#12,1#12G,3/4"( 2#12,1#12G,3/4"(	Trip         Pc           2         20         1           2         20         1           2         20         1           2         20         1           2         20         1           2         20         1           -         1         1           -         -         1           -         -         1           -         -         1           -         -         1           -         -         1           -         -         1           -         -         1           -         -         1           -         -         1           -         -         1           -         -         1           -         -         1           -         -         1           -         -         1           -         -         1           -         -         1           -         -         1           -         -         1           -         -         1	De A 1 99 490 	LOAD   B 30 - 30 - 30 - 50 - 50 - 50 - 50 - 50 - 50 - 50 - 5	(VA)           4908           1000           2163           -           2050           -           2050           -	C P C 2080 2163 2163        -	ole     Trip       2     60       2     25       2     40       2     25       -     -	Wire Size 2#10, 1#10G, 3 2#10, 1#10G, 3 2#10, 1#10G, 3 2#10, 1#10G, 3 - - - - - - - - - - - - - - - - - - -	/4"C AHU-2 /4"C AHU-2 /4"C CU-2 /4"C EWH- SPAC SPAC SPAC SPAC SPAC SPAC SPAC SPAC	Circuit Description	CKT 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42	CKT Circuit Description          1       LTG         3       SPACE         5       EXTERIOR SIGN LTG         7       REC         9       REC BATH RM         11       SPACE         13       SPACE         14       SPACE         15       SPACE         16       SPACE         21       SPACE         23       SPACE         24       SPACE         25       SPACE         26       SPACE         27       SPACE         28       SPACE         31       SPACE         33       SPACE         34       SPACE         35       SPACE         39       SPACE         41       SPACE         NOTES:       NOTES:	Wire Size 2#12,1#12G,3/4" - 2#12,1#12G,3/4" 2#12,1#12G,3/4" 2#12,1#12G,3/4"	Trip C 20 - C 20 C 20 C 20 - - - - - - - - - - - - -	Pole A 1 99 49 1 720 20 1 720	LOAD ( B 908 30 908 10 10 10 10 10 10 10 10 10 10 10 10 10	C           4908         -           1000         2080           2163         -           2050         -           -         2163           2050         -           -         -	Pole     Trip       2     60       2     25       2     40       2     25       -     -	Wire Size 2#10,1#10G,3/4"C 2#10,1#10G,3/4"C 2#10,1#10G,3/4"C 2#10,1#10G,3/4"C - - - - - - - - - - - - -	Circuit Description AHU-1A AHU-1B CU-1 EWH-1 SPACE
Branch Panel: Location: Supply From: Mounting: Enclosure:	<b>2H1</b> : TENANT 1 : METER CENTER : SURFACE : TYPE 1			Volts: 2 Phases: 3 Wires: 4	208/120V 3		A.I.C. Ra Mains T Mains Ra MCB Ra	ing: 22 KAIC /pe: MCB ing: 200 ing: 200																							
CKT         Circuit Description           1         SPACE           3         LTG           5         RECP ELEC ROOM           7         EUH-1           9         SPACE           11         SPACE           13         SPACE           14         SPACE           15         SPACE           16         SPACE           17         SPACE           19         SPACE           21         SPACE           23         SPACE           24         SPACE           25         SPACE           26         SPACE           27         SPACE           29         SPACE           31         SPACE           33         SPACE           34         SPACE           35         SPACE           39         SPACE           39         SPACE           41         SPACE           NOTES:         NOTES:	Wire Size - 2#12,1#12G,3/4"C 2#12,1#12G,3/4"C 2#12,1#12G,3/4"C	Trip     Pole       20     1       20     1       20     1       20     1       20     1       20     1       20     1       20     1       20     1       20     1       20     1       20     1       20     1       20     1       20     1       20     1       20     1       20     1       20     -       20     -       20     -       20     -       20     -       20     -       20     -       20     -       20     -       20     -       20     -       20     -       20     -       20     -       20     -       20     -       20     -       20     -       20     -       21     -       22     -       23     -       24     -       25     -       26     -	A 500 1	LOAD (VA) B 210 500 - 500 - 500 - 500 500 500 	C 180 500 180 500 - 500 - 500 100 100 100 100 100 100 100 100 100 100 100 100 100 	Pole       Trip         1       20         1       20         1       20         1       20         1       20         1       20         1       20         1       20         1       20         1       20         -       -	Wire Size 2#12,1#12G,3/4"( 2#12,1#12G,3/4"( 2#12,1#12G,3/4"( 2#12,1#12G,3/4"( 2#12,1#12G,3/4"( 2#12,1#12G,3/4"(	Circuit De TENANT 1 EXT TENANT 2 EXT TENANT 3 EXT TENANT 4 EXT TENANT 4 EXT TENANT 6 EXT SPACE SPACE SPACE SPACE SPACE SPACE SPACE SPACE SPACE SPACE SPACE SPACE SPACE SPACE SPACE SPACE SPACE SPACE	scription CKT . SIGN 2 . SIGN 4 . SIGN 6 . SIGN 8 . SIGN 10 . SIGN 12 . 14 . 16 . 18 . 20 . 22 . 24 . 26 . 28 . 30 . 32 . 34 . 36 . 38 . 40 . 42																						

- 7. PROVIDE PULL BOXES WHERE REQUIRED PER NEC FOR CONDUIT BENDS.
- 8. THE BASIS OF DESIGN MATERIAL FOR ALL EQUIPMENT BUSES IS COPPER.

### RISER DIAGRAM KEY NOTES: (#)

- COORDINATE ALL ELECTRICAL WORK WITH UTILITY PROVIDER. REFER TO GROUNDING DETAIL FOR GROUNDING REQUIREMENTS.
- 3. 1200A SERVICE ENTRANCE RATED 208Y/120V 3Ø/4W METER CENTER WITH 1200A MAIN CIRCUIT BREAKER. PROVIDE TWO (2) METER BANKS WITH 800A COPPER BUS AND FOUR (4) 200A 208Y/120V 3Ø/4W METER SOCKETS EACH BANK.

<u>FEEDER</u>

4-#4/0, 1#6G - 2 1/2"C

4 SETS EACH 4-350KCMIL - 4"C

### COPPER FEEDER SCHEDULE:

FEEDER TAG	
41200 40200	

### FEEDER TAG KEY:

- NUMBER OF WIRES - WIRE AMPS

![](_page_23_Picture_11.jpeg)

![](_page_23_Picture_12.jpeg)

40100

6. EXPOSED EXTERIOR CONDUIT SHALL BE RMC. WHERE APPROVED BY THE OWNER, SCHEDULE 80 PVC MAY BE SUBMITTED AS A VALUE ENGINEERING OPTION. ALL EXTERIOR BUILDING MOUNTED CONDUIT SHALL BE PAINTED PER THE ARCHITECT'S SPECIFICATIONS.

# 1 ELECTRICAL SINGLE LINE DIAGRAM

![](_page_23_Figure_25.jpeg)

PROJECT NO.	2022159					
SCALE:	NONE					
PROJ MGR:	JTH					
DRAWN BY:	PRD					
SHEET NUMBER:						

E30<sup>-</sup>

ALLEN + SHARIFF JOB #: 2231082

### GENERAL MECHANICAL NOTES (ALL DRAWINGS):

- 1. MECHANICAL CONTRACTOR SHALL PROVIDE ALL MATERIALS AND EQUIPMENT AND PERFORM ALL LABOR REQUIRED TO INSTALL COMPLETE AND OPERABLE HVAC SYSTEMS AS INDICATED ON THE DRAWINGS, AS SPECIFIED AND REQUIRED BY CODE.
- 2. THE CONTRACT DOCUMENT DRAWINGS ARE DIAGRAMMATIC ONLY, AND ARE INTENDED TO CONVEY THE SCOPE AND GENERAL ARRANGEMENT OF WORK.
- 3. ALL DIMENSIONS AND EXISTING CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR BY FIELD INSPECTION PRIOR TO BIDDING. ANY INTERFERENCES TO INSTALLATION SHALL BE NOTED AND THE CONTRACTOR SHALL INCLUDE IN HIS BID PRICE THE COST TO AVOID OR RELOCATE ALL ITEMS, INCLUDING ITEMS OF OTHER TRADES, THAT INTERFERE. ALL WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. ALL OFFSETS, RISES, TRANSITIONS AND DROPS IN DUCTS AND PIPING AROUND OBSTRUCTIONS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
- 4. VERIFY ALL EQUIPMENT CONNECTIONS WITH MANUFACTURERS' CERTIFIED DRAWINGS. VERIFY AND PROVIDE DUCT TRANSITIONS OR PIPE ADAPTERS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DIMENSIONS BEFORE FABRICATION.
- 5. PROVIDE ACCESS IN WALLS & CEILINGS TO ACCESS ALL EQUIPMENT, VALVES, CONTROL DEVICES, VOLUME DAMPERS, AND FIRE/SMOKE DAMPERS.
- 6. FOLLOW MANUFACTURE'S RECOMMENDATIONS FOR INSTALLATION OF EQUIPMENT. ALSO REFER TO TYPICAL DETAILS FOR INSTALLATION OF EQUIPMENT.
- 7. ALL MATERIALS FURNISHED, AND ALL WORK PERFORMED BY THE MECHANICAL CONTRACTOR SHALL BE IN ACCORDANCE WITH ALL APPLICABLE CODES AND REGULATIONS, INCLUDING BUT NOT LIMITED TO THE LATEST APPLICABLE EDITIONS OF NFPA, IEEE, OSHA, SMACNA, INTERNATIONAL MECHANICAL CODE, INTERNATIONAL BUILDING CODE, AND ANY STATE, COUNTY, AND LOCAL CODES.
- 8. ALL EQUIPMENT, DUCTWORK, ETC., SHALL BE SUPPORTED SUFFICIENTLY AND ANY ADDITIONAL SUPPORT SHALL BE PROVIDED AS REQUIRED TO PROVIDE VIBRATION FREE AND SAFE INSTALLATION. ALL MISCELLANEOUS STEEL REQUIRED AND/OR AS SHOWN IN DETAILS FOR DUCTWORK, AND EQUIPMENT (UNLESS OTHERWISE NOTED) SHALL BE FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR. SUPPORT ALL DUCTWORK, PIPING AND EQUIPMENT MOUNTED ABOVE THE CEILING DIRECTLY FROM THE STRUCTURE. ALL ATTACHMENTS TO BEAMS, TRUSSES, OR JOIST SHALL BE MADE AT PANEL POINTS WITH BEAM CLAMPS MEETING MSS STANDARDS.
- 9. ALL CONTROL WIRE AND CONDUIT SHALL COMPLY WITH NEC AND ELECTRICAL SPECIFICATIONS FOR THIS PROJECT.

### DUCTWORK GENERAL NOTES (ALL DRAWINGS):

- 1. ALL DUCTWORK INDICATED IS SCHEMATIC AND SHOW ONLY RELATIVE POSITIONS. PROVIDE OFFSETS, RISES, TRANSITIONS AND ELBOWS AS NEEDED TO INSTALL PROPERLY.
- 2. PROVIDE ACCESS DOORS IN DUCTWORK FOR OPERATION, ADJUSTMENT, AND MAINTENANCE OF ALL HVAC DEVICES, FANS, DAMPERS, (FIRE, SMOKE, BALANCING) COILS, AND TERMINAL EQUIPMENT.
- 3. LOCATIONS OF TERMINAL DEVICES, AIR OUTLETS AND INLETS ARE APPROXIMATE. LOCATE PER THE ARCHITECTURAL DRAWINGS AND TO AVOID OTHER TRADE'S WORK. COORDINATE LOCATIONS WITH OTHER TRADES. CONSULT ARCHITECT/ENGINEER FOR CLARIFICATION IF CONFLICTS OCCUR.
- DUCT DIMENSIONS SHOWN ARE CLEAR INSIDE FACE-TO-FACE DIMENSIONS 4. AND DO NOT INCLUDE DUCT LINER WHERE SPECIFIED. INCREASE DIMENSIONS OF LINED DUCTWORK TO PROVIDE FREE INSIDE AREA EQUAL DIMENSIONS SHOWN. REFER TO THE SPECIFICATIONS FOR LOCATION OF LINED DUCTWORK.
- FINAL CONNECTIONS FROM HIGH VELOCITY MAIN DUCTS TO AIR TERMINAL 5. UNITS SHALL BE MADE WITH FLEXIBLE DUCTWORK NOT EXCEEDING 3 FEET IN LENGTH. CONNECTIONS BETWEEN LOW VELOCITY DUCTWORK AND/OR TERMINAL UNITS TO AIR INLETS AND OUTLETS SHALL BE MADE WITH FLEXIBLE DUCTWORK NOT EXCEEDING 6 FEET IN LENGTH. LONGER DUCT RUN OUTS SHALL BE CONSTRUCTED OF HARD DUCT OF THE SAME MATERIAL SPECIFIED FOR THE SYSTEM SERVED AND INSULATED AS SPECIFIED FOR THAT SYSTEM. FLEXIBLE DUCTWORK SHALL BE OF THE PRESSURE CLASS AND FACTORY INSULATED AS SPECIFIED FOR THE SYSTEM WHERE INSTALLED.
- FLEXIBLE DUCTWORK SHALL BE INSTALLED IN ACCORDANCE WITH THE 6. MANUFACTURER'S INSTRUCTIONS WITHOUT ANY SAGS, SHARP TURNS OR KINKS. AT THE MINIMUM, THE FLEXIBLE DUCTWORK SHALL BE FASTENED TO THE HARD DUCT BY A NYLON STRAP SECURED BY SHEETMETAL SCREWS TO PREVENT SLIPPING OFF FROM COLLAR.
- PROVIDE VOLUME DAMPERS AT EACH AIR OUTLET, AIR INLET AND TERMINAL 7 DEVICE AND AT EACH BRANCH TAKE-OFF CONNECTION FROM THE MAIN.

MECHANI		CTWORK & GENERAL SYMBOLS LEGEND
	XTR	EXISTING EQUIPMENT OR DUCTWORK TO REMAIN
<u><u></u><u></u></u>	RX	EXISTING EQUIPMENT OR DUCTWORK TO BE REMOVED
		NEW EQUIPMENT OR DUCTWORK
<u><u></u></u>		LINED DUCTWORK
$\square$		SUPPLY DUCT UP
×		SUPPLY DUCT DOWN
		RETURN / EXHAUST DUCT UP
		RETURN / EXHAUST DUCT DOWN
} ©_}		ROUND DUCT ELBOW UP
		ROUND DUCT ELBOW DOWN
		ELBOW WITH TURNING VANES
		DUCT OFFSET UP
		DUCT OFFSET DOWN
		SQUARE / RECTANGULAR DUCT TRANSITION
		SQUARE/RECTANGULAR TO ROUND DUCT TRANSITION
	CD	CEILING DIFFUSER ROUND NECK - # THROW DIRECTIONS
	SD	SUPPLY DIFFUSER - RECTANGULAR - MULTI-DIRECT.
└── ┨ ┨-~	SG/EG	SIDEWALL SUPPLY or RETURN GRILLE - (R = REGISTER)
	LD	LINEAR DIFFUSER. SEE SCHEDUI F FOR INFORMATION
	RG/FG	RETURN or EXHAUST GRILLE - (R = REGISTER)
	FLEA	
	AD	DUCT ACCESS DOOR
	VD	VOLUME CONTROL DAMPER
	BDD	BACKDRAFT DAMPER
	MD	MOTORIZED DAMPER
	FD	VERTICAL FIRE DAMPER (WALL)
	HFD	HORIZONTAL FIRE DAMPER (FLOOR)
	SD	VERTICAL SMOKE DAMPER (WALL)
	HSD	HORIZONTAL SMOKE DAMPER (FLOOR)
	FD/SD	COMBINATION VERTICAL FIRE & SMOKE DAMPER
	HFD/SD	COMBINATION HORIZONTAL FIRE & SMOKE DAMPER
	RD	CEILING RADIATION FIRE DAMPER
DD	DD	DUCT SMOKE DETECTOR
		THERMOSTAT
H		HUMIDISTAT
(SP)		STATIC PRESSURE SENSOR
		CARBON DIOXIDE SENSOR
		CARBON MONOXIDE SENSOR
(TAG #		EQUIPMENT UNIT DESIGNATION
TAG CFM		DIFFUSER, REGISTER & GRILLE UNIT DESIGNATION W/ CFM
	1	UNDER CUT DOOR
_		
		LOUVERED DOOR
		LOUVERED DOOR CONNECTION POINT, NEW TO EXISTING
		LOUVERED DOOR CONNECTION POINT, NEW TO EXISTING DISCONNECTION POINT
		LOUVERED DOOR CONNECTION POINT, NEW TO EXISTING DISCONNECTION POINT DRAWING KEYNOTE
$- \bigcirc \\ \bullet \\$		LOUVERED DOOR CONNECTION POINT, NEW TO EXISTING DISCONNECTION POINT DRAWING KEYNOTE DEMOLITION DRAWING KEYNOTE
$-1 \rightarrow -1 \rightarrow$		LOUVERED DOOR CONNECTION POINT, NEW TO EXISTING DISCONNECTION POINT DRAWING KEYNOTE DEMOLITION DRAWING KEYNOTE REVISION NUMBER
$-1 \rightarrow -1 \rightarrow$	RA or EA	LOUVERED DOOR CONNECTION POINT, NEW TO EXISTING DISCONNECTION POINT DRAWING KEYNOTE DEMOLITION DRAWING KEYNOTE REVISION NUMBER RETURN OR EXHAUST AIR

N	/IECHAN	NICAL PIPING SYMBOLS LEGEND
SYMBOL	ABRV.	
HWR		
CWS	CWS	
	CWR	CONDENSER WATER RETURN PIPING
	CHWS	
	CHWR	
	G	
R	B	
	MDS	
	HPS	
PR		
	V OW	
Cw		
FOS	FOS	
FOR-	FOR	
0		ELBOW TURNED UP
		ELBOW TURNED DOWN
<u> </u>		BOTTOM PIPE CONNECTION
		TOP PIPE CONNECTION
]		PIPING CAP
 		UNION
│		FLANGED CONNECTION
		CONCENTRIC PIPE REDUCER
		ECCENTRIC PIPE REDUCER
<b>→</b>		FLOW ARROW
<b>_</b>	BV	BALL VALVE
	BFV	BUTTERFLY VALVE
I  	PV	PLUG VALVE
	GV	GATE VALVE
	GBV	GLOBE VALVE
	CV	CHECK VALVE
		2-WAY CONTROL VALVE
		3-WAY CONTROL VALVE
		CIRCUIT SETTER (BALANCING VALVE)
		STRAINER (W/ BALL VALVE AND CAP)
		BACKFLOW PREVENTER
		PRESSURE REGULATING VALVE
<u></u>		PRESSURE RELIEF VALVE
		TRIPLE DUTY VALVE WITH MEASURING CONNECTIONS
Ŷ		PRESSURE GAGE W/ SHUT-OFF
<u>_</u>		FLEXIBLE CONNECTOR
<del></del>		AUTOMATIC AIR VENT
<b>T</b>		HOSE BIB
<del></del>		PIPE ANCHOR
		PIPE GUIDE
-0-		STEAM TRAP

ND		MECHANICAL ABBREVIATIONS
	ABRV.	DESCRIPTION
	HVAC	HEATING, VENTILATION AND AIR CONDITIONING
	MBH	1000 - BRITISH THERMAL UNITS
	KW	1000-WATT (1 KW = 3,412 BTUH)
	SENS.	SENSIBLE
	LAT.	LATENT
	E.A.T.	ENTERING AIR TEMPERATURE
	L.A.T.	LEAVING AIR TEMPERATURE
	E.W.T.	ENTERING WATER TEMPERATURE
	L.W.T.	LEAVING WATER TEMPERATURE
	DB/WB	DRY BULB / WET BULB
	IN. W.G.	INCHES WATER GAUGE (AIR)
	FT. W.G.	FEET WATER GAUGE (HYDRONIC)
	E.S.P.	EXTERNAL STATIC PRESSURE
	T.S.P.	TOTAL STATIC PRESSURE
	TG	TRANSFER GRILLE
IG (0-15 PSIG)	TR	TOP REGISTER
IPING (16-60 PSIG)	(E)	EXISTING
- ( /	R/R	REMOVE EXISTING ITEM & RELOCATE TO NEW LOCATION
NG (61 TO 200 PSIG)	UNO	UNLESS NOTED OTHERWISE
	NTS	NOT TO SCALE
RETURN	NIC	NOT IN CONTRACT
ATE RETURN	Ø OR PH	PHASE
	Ø	DIAMETER
E RETURN	AFF	ABOVE FINISHED FLOOR
	ELEV.	ELEVATION FROM DATUM

NOTES:

1. NOT ALL SYMBOLS AND ABBREVIATIONS ARE IN USE FOR THIS PROJECT.

![](_page_24_Picture_40.jpeg)

### SHEET INFO:

Mechanical Data Sheet

![](_page_24_Picture_43.jpeg)

ALLEN + SHARIFF JOB #: 2231082

### MECHANICAL SPECIFICATIONS

PRODUCTS AND INSTALLATION SHALL COMPLY WITH ALL APPLICABLE LAWS. CODES, GOVERNMENT REGULATIONS, UTILITY COMPANY REQUIREMENTS, ETC. OF ALL AUTHORITIES HAVING JURISDICTION. WORK SHALL COMPLY WITH THE FOLLOWING CODES, STANDARDS AND ORGANIZATIONS: 2018 INTERNATIONAL MECHANICAL CODE (IMC) 2018 INTERNATIONAL PLUMBING CODE (IPC) 2018 INTERNATIONAL ENERGY CODE

- 2017 NATIONAL ELECTRIC CODE NFPA
- UNDERWRITERS LABORATORY (UL), IRI, FM

ASHRAE WHERE CONFLICTS EXIST BETWEEN CODES, STANDARDS OR THIS SPECIFICATION THE HIGHER REQUIREMENT SHALL APPLY. DEVIATIONS FROM THE CONTRACT DOCUMENTS REQUIRED BY THE ABOVE AUTHORITIES SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW. OBTAIN PERMITS AND PAY ALL FEES. ARRANGE FOR ALL REQUIRED INSPECTIONS AND APPROVALS. CONFIRM ALL UTILITY COMPANY REQUIREMENTS AND CONNECTION POINTS IN FIELD, PRIOR TO STARTING WORK.

2. ALL SPECIFICATIONS AND DRAWINGS, I.E., ARCHITECTURAL, MECHANICAL, PLUMBING, AND ELECTRICAL ARE COMPLIMENTARY AND MUST BE USED IN COMBINATION TO OBTAIN COMPLETE CONSTRUCTION INFORMATION. ANY INFORMATION CONFLICTS WITHIN THE SPECIFICATIONS AND DRAWINGS SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION. DRAWINGS ARE DIAGRAMMATIC. CONFIRM ALL DIMENSIONS BY FIELD MEASUREMENT. THE EXACT LOCATIONS FOR APPARATUS, FIXTURES, EQUIPMENT AND PIPING WHICH IS NOT COVERED BY DRAWINGS, SHALL BE OBTAINED FROM THE ARCHITECT OR HIS REPRESENTATIVE IN THE FIELD, AND THE WORK SHALL BE LAID OUT ACCORDINGLY.

3. WORK SHALL BE EXECUTED IN A GOOD WORKMANLIKE MANNER USING MECHANICS SKILLED IN THEIR RESPECTIVE TRADES. ALL EQUIPMENT AND MATERIALS SHALL BE NEW, FREE OF DEFECTS. SYSTEMS ARE TO BE COMPLETE AND WORKABLE IN ALL RESPECTS, PLACED IN OPERATION AND PROPERLY ADJUSTED.

4. MAINTAIN THE CONSTRUCTION PREMISES IN A NEAT AND ORDERLY CONDITION AT THE END OF EACH WORKING DAY. CLEAN-UP, REMOVE AND LEGALLY DISPOSE OF ALL RUBBISH DAILY. CONTRACTOR SHALL PROTECT THEIR WORK AND EXISTING OR ADJACENT PROPERTY AGAINST WEATHER, TO MAINTAIN THEIR WORK, MATERIALS, APPARATUS AND FIXTURES FREE FROM INJURY OR DAMAGE, ANY WORK DAMAGED BY FAILURE TO PROVIDE PROTECTION REQUIRED, SHALL BE REMOVED AND REPLACED WITH NEW WORK AT THE CONTRACTOR'S EXPENSE.

5. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE SAFETY OF HIS WORKERS, ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES FOR COORDINATING THE WORK UNDER THIS CONTRACT. CONFORM TO ALL GENERAL AND SPECIAL CONDITIONS OF CONTRACT AS SPECIFIED BY ARCHITECT AND/OR OWNER.

6. IN CASES OF DOUBT AS TO THE WORK INTENDED, OR IN THE EVENT OF NEED FOR EXPLANATION THEREOF, THE CONTRACTOR SHALL REQUEST SUPPLEMENTARY INSTRUCTIONS FROM THE ENGINEER. NO CHANGES ARE TO BE MADE TO THE WORK OF THIS CONTRACT WITHOUT PRIOR KNOWLEDGE AND APPROVAL OF THE ENGINEER. THE CONTRACTOR SHALL HOLD THE OWNER AND ITS CONSULTANTS HARMLESS AGAINST ALL CLAIMS AND JUDGMENTS ARISING OUT OF THE CONTRACTORS PERFORMANCE OF THE WORK OF THIS CONTRACT. THE CONTRACTOR SHALL NOT PROCEED WITH ANY WORK, WHICH HE EXPECTS ADDITIONAL COMPENSATION BEYOND THE CONTRACT AMOUNT, WITHOUT WRITTEN AUTHORIZATION FROM THE APPROPRIATE AUTHORITY. FAILURE TO OBTAIN SUCH AUTHORIZATION SHALL INVALIDATE ANY CLAIM FOR EXTRA COMPENSATION.

255 AND UL 723.

8. IT SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR TO INSTALL THE HEATING, VENTILATION AND AIR CONDITIONING SYSTEM SO AS TO INSURE QUIET OPERATION. NO VIBRATION OR SOUND SHALL BE TRANSMITTED TO THE BUILDING, STRUCTURE OR OCCUPIED AREAS. THE DECISION OF THE ENGINEER AS TO THE QUIETNESS OF THE SYSTEM AND EQUIPMENT SHALL BE FINAL. IT SHALL BE THIS CONTRACTORS RESPONSIBILITY TO CORRECT OR REPLACE ANY NOISY SYSTEM OR EQUIPMENT AS REQUIRED.

BASIS OF DESIGN AND SUBSTITUTIONS

1. MANUFACTURERS LISTED ARE BASIS OF DESIGN. SUBSTITUTIONS ARE SUBJECT TO THE APPROVAL OF THE OWNER, ARCHITECT & ENGINEER, IF SUBSTITUTION IS SUBMITTED, IT IS THE CONTRACTOR'S RESPONSIBILITY TO EVALUATE IT AND CERTIFY THAT THE SUBSTITUTION IS EQUIVALENT IN ALL RESPECTS TO THE BASIS OF DESIGN. WHERE SUBMITTALS VARY FROM THE CONTRACT REQUIREMENTS, THE CONTRACTOR SHALL CLEARLY INDICATE ON SUBMITTAL OR ACCOMPANYING DOCUMENTS THE NATURE AND REASON FOR VARIATIONS. IF SUBSTITUTIONS ARE APPROVED, NOTIFY ALL OTHER CONTRACTORS, SUBCONTRACTORS OR TRADES AFFECTED BY SUBSTITUTION AND FULLY COORDINATE. ANY COSTS RESULTING FROM SUBSTITUTION, WHETHER BY CONTRACTOR OR OTHERS, SHALL BE RESPONSIBILITY OF AND PAID FOR BY SUBSTITUTING CONTRACTOR. APPROVED SHOP DRAWINGS DOES NOT ABSOLVE THIS CONTRACTOR FROM THIS RESPONSIBILITY. APPROVAL OF SUBSTITUTIONS IS AT THE DISCRETION OF THE ARCHITECT & ENGINEER AND IF SUBMITTED AFTER THE BID, AT THE RISK OF THE CONTRACTOR.

### SHOP DRAWING SUBMITTALS

1. COORDINATE, PREPARE AND SUBMIT SHOP DRAWINGS TO THE ARCHITECT AND ENGINEER FOR THEIR REVIEW. CONTRACTOR SHALL REVIEW AND INDICATE HIS APPROVAL OF EACH SHOP DRAWING PRIOR TO SUBMITTAL FOR REVIEW. DO NOT ORDER, START WORK OR FABRICATION UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED BY THE ENGINEER AND RETURNED TO THE CONTRACTOR. SHOP DRAWINGS TO BE SUBMITTED INCLUDE BUT NOT LIMITED TO: SHEETMETAL **DIFFUSERS, GRILLES & REGISTERS** 

VALVES & PIPING ALL EQUIPMENT

2. INDICATE THE OPERATING CHARACTERISTICS FOR EACH REQUIRED ITEM. PROVIDE ADEQUATE DETAILS AND SCALES TO CLEARLY SHOW CONSTRUCTION. CLEARLY IDENTIFY EACH ITEM ON THE SUBMITTAL AS TO MARK, LOCATION AND USE, USING SAME IDENTIFICATION AS PROVIDED ON DESIGN DRAWINGS. ELECTRONIC SUBMITTALS SHALL BE PRESENTED WITH ALL SHEETS IN ALPHANUMERIC ORDER AND ALL SHEETS ORIENTED WITH TOP OF SHEET UP.

3. SHEETMETAL SHOP DRAWINGS SHALL BE FULLY DIMENSIONED BASED ON FIELD VERIFIED DIMENSIONS AND ARCHITECTURAL CEILING LAYOUTS. DRAWINGS SHALL BE COORDINATED WITH ALL DISCIPLINES AND SHOW DUCT ELEVATIONS. INDICATE STRUCTURAL, LIGHTING, DUCTWORK AND PIPING AT ALL CRITICAL LOCATIONS. PROVIDE RISES, DROPS AND OFFSETS AS REQUIRED. BRING AREAS OF POTENTIAL CONFLICT TO THE ENGINEERS ATTENTION.

4. SUBMITTALS WILL BE REVIEWED ONLY FOR GENERAL COMPLIANCE WITH THE CONTRACT DOCUMENTS AND NOT FOR DIMENSIONS OR QUANTITIES. THE SUBMITTAL REVIEW SHALL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR PURCHASE OF ANY ITEM IN FULL COMPLIANCE WITH THE CONTRACT DOCUMENTS OR ITS COMPLETE AND PROPER INSTALLATION ..

### RECORD DRAWINGS

1. A SET OF MEP RECORD/COORDINATION DRAWINGS SHALL BE MAINTAINED IN THE GENERAL CONTRACTORS OFFICE AT THE JOB SITE. PRINTS SHALL INDICATE ADDITIONS, DELETIONS, VARIATIONS IN LOCATION, VARIATIONS IN NUMBERING ETC. ALTERATIONS SHALL BE MARKED IN RED AND DELETIONS ALL BE MARKED IN GREEN AND SHALL BE ON THE LATEST CONTRACT DRAWING ISSUED. RECORD DRAWINGS SHALL BE KEPT CLEAN AND UNDAMAGED AND SHALL NOT BE USED FOR ANY PURPOSE OTHER THAN RECORDING DEVIATIONS FROM WORKING DRAWINGS. AFTER THE PROJECT IS COMPLETED, THESE SETS OF DRAWINGS SHALL BE DELIVERED TO THE ARCHITECT IN GOOD CONDITION, AS A PERMANENT RECORD OF THE INSTALLATION AS ACTUALLY CONSTRUCTED

### DUCTWORK

1. ALL NEW (INTERIOR) RECTANGULAR DUCTWORK SHALL BE 1" W.G. CONSTRUCTION, CONSTRUCTED OF LOCK FORMING No. 1 GALVANIZED STEEL. VOLUME DAMPERS SHALL BE PROVIDED IN ALL BRANCH TAKE OFFS, SPIN-INS OR OTHER CONNECTIONS TO INDIVIDUAL AIR DISTRIBUTION DEVICES. ALL 90 DEGREE ELBOWS SHALL BE RADIUS, OR RECTANGULAR WITH TURNING VANES. DUCTWORK SHALL BE HUNG FROM THE BUILDING STRUCTURE WITH HANGER ASSEMBLIES IN ACCORDANCE WITH "SMACNA" REQUIREMENTS. ALL DUCTWORK SHALL BE SEALED USING HARDCAST TAPE AND ADHESIVE (2 PART SYSTEM). IRON GRIP MAY BE USED AS AN ALTERNATE FOR SEALING INDOOR DUCTWORK. TAPES AND MASTICS FOR DUCT SEALING SHALL BE UL-181A RATED AND LABELED AS SUCH. WHERE FLEXIBLE DUCT OR PORTIONS OF SHEET METAL DUCT ARE SHOWN TO BE REMOVED, BUT ADJACENT SHEET METAL DUCT REMAINS, PATCH REMAINING SHEET METAL AIRTIGHT. DUCTWORK SHALL MEET SMACNA LOW PRESSURE CONSTRUCTION 2" STATIC PRESSURE RATING AND SEALED PER SMACNA CLASS "B" REQUIREMENTS. ALL BRANCH CONNECTION FITTINGS IN RECTANGULAR DUCTWORK SHALL BE 45 DEGREE TRANSITION TYPE, CONICAL FITTINGS OR SPIN-IN FITTINGS WITH INTEGRAL AIR SCOOPS. BUTT FITTINGS ARE NOT ACCEPTABLE.

2. INCLUDE ALL ACOUSTIC; AIRFOIL SHAPED PERFORATED ALUMINUM TURNING VANES, MANUAL DAMPERS, FLEXIBLE CONNECTORS, GRILLES AND DIFFUSERS, ACOUSTIC LINING, AND OTHER SHEET METAL ACCESSORIES FOR THE PROJECT. VOLUME DAMPERS TO BE OF OPPOSED BLADE TYPE CONSTRUCTED IN ACCORDANCE WITH "SMACNA" STANDARDS.

SMACNA "HVAC DUCT CONSTRUCTION STANDARDS" GUIDELINES, DETAILS, & MODEL SPECIFICATION

7. ALL PRODUCTS SHALL COMPLY WITH 25/50 FLAME AND SMOKE HAZARD RATINGS PER ASTM E-84, NFPA

### EQUIPMENT

ALL PACKAGED EQUIPMENT SHALL BE INDEPENDENTLY THIRD PARTY LABELED AS A SYSTEM FOR ITS INTENDED USE BY A NATIONALLY RECOGNIZED TESTING LABORATORY (NRTL) IN ACCORDANCE WITH OSHA FEDERAL REGULATIONS 29CFR1910.303 AND .399, AS WELL AS NFPA PAMPHLET NO. 70, AND THE NATIONAL ELECTRICAL CODE (NEC), ARTICLE 90-7.

2. MAKE ALL FINAL EQUIPMENT CONNECTIONS AND PROVIDE THE NECESSARY ADAPTORS, FITTINGS, VALVES, DEVICES, ETC. FOR A COMPLETE AND OPERABLE SYSTEM. PROVIDE COMPLETE WITH BASES, ISOLATORS, SUPPORTS AND OTHER REQUIRED ACCESSORIES.

3. EQUIPMENT SHALL BE INSTALLED IN FULL ACCORDANCE WITH THE MANUFACTURER'S DATA AND INSTALLATION INSTRUCTIONS, INCLUDING CLEARANCES; LUBRICATE AND ADJUST AS REQUIRED. IT IS THIS CONTRACTOR'S RESPONSIBILITY TO CHECK AND CONFORM TO THESE REQUIREMENTS PRIOR TO STARTING WORK. FURNISH AND INSTALL CLEAN SET OF FILTERS PRIOR TO BALANCING.

4. THE CONTRACTOR SHALL COORDINATE ELECTRICAL CHARACTERISTICS OF ALL MECHANICAL EQUIPMENT PRIOR TO ORDERING OF EQUIPMENT. COORDINATE REQUIREMENT FOR PROVISION OF MOTOR STARTERS, DISCONNECTS, CONTACTORS, CONTROL WIRING, ETC. AS REQUIRED FOR PROPER FUNCTIONING SYSTEM WITH ELECTRICAL CONTRACTOR. NO ADDITIONAL PAYMENT WILL BE MADE FOR LACK OF CONTRACTOR COORDINATION OF ELECTRICAL CHARACTERISTICS.

5. ALL EQUIPMENT SHALL BE MOUNTED ON VIBRATION ISOLATORS TO PREVENT THE TRANSMISSION OF VIBRATION AND MECHANICALLY TRANSMITTED SOUND TO THE BUILDING STRUCTURE.

6. ISOLATION EQUIPMENT SHALL BE THE PRODUCT OF A SINGLE MANUFACTURER, AND SHALL BE DESIGNED SPECIFICALLY FOR THE APPLICATION REQUIRED. THIS INCLUDES, BUT IS NOT LIMITED TO, PIPING DUCTWORK, PUMPS, COMPRESSORS. VIBRATION ISOLATORS SHALL BE RATED FOR THE WEIGHT AND SPACING REQUIRED FOR THE EQUIPMENT REQUIRING ISOLATION.

7. ALL CONDENSATE DRAINS SHALL BE TRAPPED PER THE COOLING COIL TRAP DETAIL OR MANUFACTURERS RECOMMENDATIONS, WHICH EVER IS MORE STRINGENT/DEEPER. PROVIDE CLEANOUT. PROVIDE AUXILIARY DRAIN PANS AT ALL EQUIPMENT WHERE DAMAGE TO ANY BUILDING COMPONENT COULD OCCUR AS A RESULT OF OVERFLOW OR STOPPAGE OF THE PRIMARY SYSTEM. WATER LEVEL DETECTION SHALL BE PROVIDED IN AUXILIARY PAN TO PROVIDE SHUT DOWN OF EQUIPMENT.

8. PROVIDE CURBS FOR ALL ROOF OPENINGS FOR DUCTS, FLUES, PIPING AND EQUIPMENT. CURBS SHALL BE FURNISHED AS ACCESSORIES TO THE EQUIPMENT OR 8" HIGH PATE OR EQUAL EQUIPMENT SUPPORTS SPANNING STRUCTURE AND FLASHED INTO ROOFING. ALL CUTTING, FLASHING, AND PATCHING OF ROOF SHALL BE BY OWNER'S ROOFING CONTRACTOR AND PAID FOR BY MECHANICAL CONTRACTOR.

### PIPING SYSTEMS

INSTALL PIPING SYSTEMS TO PERMIT FREE MOVEMENT FOR EXPANSION. SUPPORT ALL PIPING FROM STRUCTURE WITH UL LISTED HANGERS AND SUPPORTS SUITABLE FOR THE INTENDED INSTALLATION. DESIGN, SELECTION, SPACING, AND APPLICATION OF HANGERS AND SUPPORTS SHALL COMPLY WITH ANSI B31.1 AND MSS SP-69.

2. PROVIDE INSULATION HANGER WITH PROTECTIVE SHIELDS ON SYSTEMS REQUIRING A VAPOR BARRIER. PIPING AT EACH LEVEL. HANGER SHALL BE PROVIDED AT EACH CHANGE OF DIRECTION. HANGERS AND SUPPORTS SHALL BE SPACED AT INTERVALS WHICH WILL PREVENT SAGGING AND REDUCE STRAIN ON VALVES AND SPECIALTIES. HANGERS SHALL ALLOW FOR EXPANSION AND CONTRACTION.

3. RISER CLAMPS SHALL BE INSTALLED ABOVE THE FLOOR AT EACH LEVEL. RISER CLAMPS MAY BE SUSPENDED BELOW FLOOR LEVEL, WITH HANGER RODS AND INSERTS, WHERE THE INSTALLATION OF ESCUTCHEON PLATES IS REQUIRED.

3. PROVIDE VALVES AND UNIONS WHERE NEEDED TO PERMIT DISCONNECTIONS OF EACH PIECE OF EQUIPMENT FOR REPAIRS. MAKE CONNECTIONS TO EQUIPMENT WITH SHUT-OFF VALVES ON SUPPLY AND BALANCE VALVES ON RETURNS. INSTALL UNIONS IN PIPES 2" AND SMALLER, ADJACENT TO EACH VALVE, AT FINAL CONNECTIONS EACH PIECE OF EQUIPMENT, AND ELSEWHERE AS INDICATED. UNIONS ARE NOT REQUIRED ON FLANGED DEVICES.

4. CONNECTIONS BETWEEN DISSIMILAR PIPING MATERIALS SHALL BE MADE WITH SUITABLE DIELECTRIC INSULATING UNIONS. ISOLATE COPPER PIPING FROM DISSIMILAR METALS, SUCH AS METAL STUDS AND VENT PIPING.

### **REFRIGERANT PIPING**

1. REFRIGERANT PIPING SHALL BE NITROGENIZED ACR HARD DRAWN COPPER TUBE - ASTM B280 WITH WROUGHT COPPER, SOLDER JOINT FITTINGS MADE WITH SILVER-COPPER-CDMIUM-ZINC BRAZING ALLOY (45-15-24-16) TYPE SOLDER.FILL THE PIPE AND FITTINGS DURING BRAZING, WITH NITROGEN OR CARBON DIOXIDE TO PREVENT FORMATION OF SCALE. PIPE PER MANUFACTURER'S PIPING DIAGRAMS, SIZING SPECIFICATIONS AND INSTALLATION INSTRUCTIONS. INSTALL PIPING IN AS SHORT AND DIRECT ARRANGEMENT AS POSSIBLE TO MINIMIZE PRESSURE DROP

2. INSTALL UNIONS TO ALLOW REMOVAL OF SOLENOID VALVES, PRESSURE REDUCING VALVES, EXPANSION VALVES, AND AT CONNECTIONS TO COMPRESSORS AND EVAPORATORS. INSTALL FLEXIBLE CONNECTORS AT INLET AND DISCHARGE CONNECTION OF COMPRESSORS. BALL VALVES SHALL BE TWO PIECE, CONVENTIONAL PORT, FORGED BRASS BODY, 500 PSIG WORKING PRESSURE, AS MANUFACTURED BY HENRY VALVE COMPANY. CHARGING AND PURGE VALVES SHALL BE HENRY VALVE COMPANY TYPE 643. MOISTURE LINE INDICATORS SHALL BE HENRY VALVE COMPANY MODEL 3003. FILTER-DRIERS SHALL BE HENRY VALVE COMPANY MODEL 87-C CARTRIDGE WITH TYPE 77, 78, OR 79 UNIT SHELL AS APPLICABLE.

3. AFTER COMPLETION, PRESSURE TEST PIPING, PURGE AND EVACUATE SYSTEM TWICE AND CHARGE SYSTEM WITH REFRIGERANT AND OIL.

HVAC WATER & CONDENSATE PIPING

1. AT THE CONTRACTORS OPTION HVAC CONDENSATE PIPING SHALL BE TYPE "L" COPPER TUBING, HARD DRAWN, WITH CAST BRASS OR WROUGHT COPPER FITTINGS MADE WITH 95-5 TYPE SOLDER, OR SCHEDULE 40, WELDED BLACK STEEL (ASTM A53) WITH BLACK WROUGHT STEEL, BUTT WELDING TYPE (ASTM B16.9) FITTINGS, OR SCHEDULE 40, GROOVED BLACK STEEL (ASTM A53) WITH GROOVED FITTINGS SIMILAR TO VICTAULIC OR APPROVED EQUAL MAY BE UTILIZED.

2. PROVIDE VENTS AT HIGH POINTS AND DRAIN VALVES AT LOW POINTS. INCLUDE OFFSETS TO SUIT THE BUILDING CONSTRUCTION. INSTALL PIPING TO ALLOW CLEARANCE FOR EXPANSION AND CONTRACTION. INSTALL PIPING AT A UNIFORM SLOPE OF 1" IN 10 FEET UPWARD IN THE DIRECTION OF FLOW. MAKE REDUCTIONS IN PIPE SIZES USING ECCENTRIC REDUCER FITTING INSTALLED WITH THE LEVEL SIDE UP.

### INSULATION

1. ALL RIGID SUPPLY, RETURN, EXHAUST DUCTWORK W/IN 10' OF BUILDING ENVELOPE, OUTSIDE AIR. ALL RIGID SUPPLY, RETURN, AND EXHAUST DUCTWORK OUTSIDE THE INSULATED BUILDING ENVELOPE (CRAWL SPACE, UNINSULATED ATTIC OR SIMILAR) SHALL BE INSULATED WITH 3" THICK (3/4 TO 1 1/2LB/FT3) FIBERGLASS DUCT WRAP (MINIMUM R-8 INSTALLED).

2. FIBERGLASS DUCT WRAP SHALL HAVE FACTORY FOIL JACKET. SEAL ALL SEAMS AND JOINTS WITH PRESSURE SENSITIVE TAPE MATCHING THE FACING, CLOTH DUCT TAPE IS NOT ACCEPTABLE. WHERE RECTANGULAR DUCTS ARE 24" IN WIDTH OR GREATER, DUCT WRAP SHALL BE ADDITIONALLY SECURED TO THE BOTTOM OF THE DUCT WITH PUSH PINS AND SPEED WASHERS, SPACED ON 18" CENTERS. EXTERNAL INSULATION IS NOT REQUIRED WHERE DUCTWORK IS INTERNALLY LINED.

3. THE FIRST 15 FEET OF SUPPLY AND RETURN DUCTWORK DOWN & UP STREAM FROM AIR HANDLING EQUIPMENT SHALL BE INTERNALLY LINED. THE FIRST 10 FEET DOWNSTREAM OF VAV BOXES SHALLL BE INTERNALLY LINED. ALL EXTERIOR SUPPLY AND RETURN DUCTWORK SHALL BE LINED. ALL DUCTORK EXPOSED IN FINISH SPACES SHALL BE INTERNALLY LINED. LINER SHALL BE NON-FLAKING COATED FIBERGLASS. DUCT DIMENSIONS INDICATED ON THE DRAWINGS ARE CLEAR INSIDE DIMENSIONS.

4. DUCTLINER WITHIN THE INSULATED BUILDING ENVELOPE SHALL BE 1-1/2" THICK, 2LB/FT3 DENSITY OR 1" THICK, 3LB/FT3 DENSITY (MINIMUM R-6 INSTALLED). DUCTLINER OUTSIDE THE INSULATED BUILDING ENVELOPE (CRAWLSPACE, UNINSULATED ATTIC, EXTERIOR OR SIMILAR) SHALL BE 2" THICK, 2LB/FT3 DENSITY (MINIMUM R-8 INSTALLED).

5. INSULATE ALL REFRIGERANT PIPING, VALVES, FITTINGS, AND FLEXIBLE CONNECTIONS WITH 1" THICK FLEXIBLE FOAMED PLASTIC INSULATION WITH JOINTS AND SEAMS SEALED VAPOR TIGHT.

6. CONDENSATE PIPING SHALL BE INSULATED WITH 1" THICK FIBERGLASS INSULATION WITH STANDARD VAPOR BARRIER JACKET OR WITH 1" THICK FLEXIBLE UNICELLULAR ("ARMAFLEX").

7. FIBERGLASS PIPE INSULATION SHALL BE WITH STANDARD VAPOR BARRIER JACKET AND HAVE A MAXIMUM CONDUCTIVITY OF 0.27 BTU PER "/HR-FT2-°F. ALL INSULATION TO BE APPLIED IN FULL ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

8. INSULATE FITTINGS, JOINTS, AND VALVES WITH INSULATION OF LIKE MATERIAL AND THICKNESS AS ADJOINING PIPE. PROVIDE REMOVABLE INSULATION SECTIONS TO COVER PARTS OF EQUIPMENT WHICH MUST BE OPENED PERIODICALLY FOR MAINTENANCE: INCLUDE METAL VESSEL COVERS, FASTENERS, FLANGES, CHILLED WATER PUMPS, FRAMES AND ACCESSORIES, FINISH WITH GLASS CLOTH OR PVC FITTING COVERS.

### IDENTIFICATION

1. ALL PIPING SYSTEMS, VALVES, DAMPERS AND EQUIPMENT SHALL BE PROPERLY IDENTIFIED. ALL DAMPERS AND VALVES SHALL HAVE THEIR NORMAL (IN OPERATION) POSITION IDENTIFIED, SUCH AS "NORMALLY OPEN" OR "NORMALLY CLOSED".

2. IDENTIFICATION SHALL BE IN ACCORDANCE WITH ANSI STANDARD A13.1. PRESSURE SENSITIVE MARKERS SHALL BE MANUFACTURED BY THE BRADY CO., OR APPROVED EQUAL. MARKERS SHALL BE MANUFACTURER'S STANDARD PRODUCT.

### CONTROLS

1. PROVIDE COMPLETE TEMPERATURE CONTROLS FOR ALL HVAC SYSTEMS. PROVIDE NEW CONTROL DEVICES INCLUDING DAMPER OPERATORS. TEMPERATURE SENSORS. STAGING RELAYS AND OTHER REQUIRED DEVICES TO PROVIDE A COMPLETE OPERATIONAL SYSTEM. MOUNT ALL CONTROLS FURNISHED AS ACCESSORIES TO EQUIPMENT AND PROVIDE ALL CONTROL WIRING REQUIRED FOR PROPER OPERATION WHERE NOT SPECIFICALLY SHOWN ON ELECTRICAL PLANS. ALL WIRING SHALL BE IN CONDUIT PER N.E.C. AND LOCAL CODE REQUIREMENTS. STANDARD MOUNTING HEIGHT TO TOP OF THERMOSTAT IS 48" ABOVE FINISHED FLOOR OR AS INDICATED ON THE ARCHITECTURAL DRAWINGS. DO NOT INSTALL THERMOSTATS NEAR DIMMER SWITCHES. WIRING OF ALL MOTORIZED OPERATORS AND THERMOSTATS (REGARDLESS OF VOLTAGE) ARE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR.

2. PROVIDE ONE YEAR SERVICE. SERVICE SHALL INCLUDE SOFTWARE UPGRADES, REPROGRAMMING, SETPOINT ADJUSTMENTS, REVISIONS TO SEQUENCE OF OPERATION (NOT REQUIRING NEW CONTROL POINTS) AND REGULAR MAINTENANCE. ANY SYSTEMS WITH LOGINS WILL BE PROVIDED WITH A MINIMUM OF 2 LOGIN GROUPS; ONE SHALL PERMIT REGULAR DAY TO DAY ACCESS TO TYPICAL SETPOINTS; THE SECOND SHALL PERMIT 100% UNRESTRICTED ACCESS TO ALL PROGRAMMING POINTS AND SEQUENCES FOR CURRENT AND FUTURE SERVICE PERSONNEL DESIGNATED BY THE OWNER. NO ACCESS SHALL BE RESTRICTED FROM OWNER DESIGNATED SERVICE PERSONNEL OR CONTRACTORS BY INSTALLER OR SUPPLIER.

### BALANCING. START UP AND INSTRUCTIONS

1. AFTER INSTALLATION, CHECK ALL EQUIPMENT, AND PERFORM START UP IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. PLACE ALL SYSTEMS INTO OPERATION.

2. AIR BALANCING SHALL BE PERFORMED BY AN AABC CERTIFIED CONTRACTOR. THIS CONTRACTOR SHALL BE ACCEPTABLE UPON APPROVAL OF THE ENGINEER. ADJUST AND BALANCE THE AIR SYSTEMS BEFORE REFRIGERANT SYSTEMS. TESTING AND BALANCING SHALL BE DONE IN ACCORDANCE WITH THE MOST RECENT AABC NATIONAL STANDARDS FOR TOTAL SYSTEM BALANCE. AFTER ALL AIR SYSTEMS ARE INSTALLED, EACH SUPPLY AIR OUTLET SHALL BE AIR BALANCED TO WITHIN 10% OF THE CFM SHOWN WITH AIR PATTERNS SET AS INDICATED ON DRAWINGS (OR WITHIN 10 CFM WHEN BELOW 100 CFM). FAN RPMS AND ZONE DAMPERS SHALL BE ADJUSTED AND SHEAVES SHALL BE REPLACED AS REQUIRED TO ACHIEVE AIR BALANCE. ALL ZONES OR PORTIONS THEREOF SERVING OTHER SPACES AND WHICH MAY BE AFFECTED BY THE PROJECT SHALL BE TRAVERSED PRIOR TO CONSTRUCTION. THE FINAL AIR BALANCE SHALL RESTORE THESE AIR QUANTITIES. BEFORE AND AFTER AIR QUANTITIES SHALL BE LISTED IN THE AIR BALANCE REPORT

3. SHOULD THE AIR BALANCE REPORT INDICATE UNACCEPTABLE DUCT LEAKAGE, AS DETERMINED BY THE ENGINEER, THEN DUCT LEAKAGE TEST SHALL BE PERFORMED IN ACCORDANCE WITH AABC STANDARDS. DUCT SHALL BE RESEALED AND/OR REPAIRED AS REQUIRED TO MEET DESIGN REQUIREMENTS. ALL, OR PORTIONS OF THE SYSTEM SHALL BE REBALANCED AS REQUIRED UNTIL ALL SYSTEMS ARE WITHIN THE PERFORMANCE STANDARDS LISTED ABOVE.

4. CLEAN ALL MECHANICAL EQUIPMENT AND DUCTWORK OF ALL CONSTRUCTION DUST AT PROJECT COMPLETION. REPLACE ALL FILTERS PRIOR TO AIR BALANCING. PROVIDE ONE SPARE SET OF FILTERS FOR EACH PIECE OF EQUIPMENT TO THE OWNER.

PROVIDE OWNER TRAINING AND DEMONSTRATION OF ALL MECHANICAL SYSTEMS AND EQUIPMENT. INSTRUCT OWNER ON PROPER OPERATION AND PREVENTATIVE MAINTENANCE OF SYSTEM. SUBMIT OPERATING AND MAINTENANCE MANUAL ON ALL EQUIPMENT AND SYSTEMS.

### WARRANTY

1. FULLY WARRANT ALL MATERIALS, EQUIPMENT AND WORKMANSHIP FOR ONE (1) YEAR FROM DATE OF ACCEPTANCE. EXTEND ALL MANUFACTURER'S WARRANTIES TO OWNER, INCLUDING ALL EXTENDED WARRANTIES.

2. REPAIR OR REPLACE WITHOUT CHARGE TO THE OWNER ALL ITEMS FOUND DEFECTIVE DURING THE WARRANTY PERIOD. IN THE CASE OF REPLACEMENT OR REPAIR DUE TO FAILURE WITHIN THE WARRANTY PERIOD, THE WARRANTY ON THAT PORTION OF THE WORK SHALL BE EXTENDED FOR A MINIMUM PERIOD OF ONE (1) YEAR FROM THE DATE OF SUCH REPLACEMENT OR REPAIR.

![](_page_25_Picture_76.jpeg)

REV REV DATE DESCRIPTION

PROJECT NO. 2022159

PROJ MGR: AMAS DRAWN BY: ZCIO

SHEET NUMBER:

SCALE:

2023.01.19

M002

ALLEN + SHARIFF JOB #: 2231082

NONE

![](_page_26_Figure_0.jpeg)

![](_page_26_Figure_1.jpeg)

![](_page_26_Picture_2.jpeg)

# MECHANICAL GENERAL NOTES:

SPLASHBLOCK ON GRADE.

# MECHANICAL KEY NOTES:

- DUCT, AND INSTALL WIRE MESH SCREEN.
- GOOSENECK ON ROOF.

1. ROUTE CONDENSATE PIPING TO PLAN NORTH WALL. SPILL ONTO

1. PROVIDE DUCT COLLAR FULL SIZE OF UNIT RETURN, AND INSTALL WIRE MESH SCREEN.

2. PROVIDE 10"Ø OA DUCT UP TO ROOF. TERMINATE WITH GOOSENECK ON ROOF. PROVIDE MANUAL VOLUME DAMPER AND BALANCE TO 310 CFM. PROVIDE MD AND INTERLOCK IT WITH THE UNIT TO OPEN ONLY DURING THE UNIT OPERATION HOURS. 3. TERMINATE SA DUCT WITH DUCT COLLAR FULL SIZE OF SUPPLY

4. 5"Ø EXHAUST AIR DUCT UP TO ROOF. TERMINATE WITH

5. CONDENSATE TO SPILL ON SPLASH BLOCK SET ON GRADE.

![](_page_26_Picture_18.jpeg)

![](_page_26_Picture_19.jpeg)

N

DIVISION OF MECHANICAL/ ELECTRICAL WORK										
ITEM	MECH/ DIV 22 AND 23	ELEC/ DIV 26								
AUTOMATIC TEMPERATURE CONTROLS	FURNISH, INSTALL & WIRE	POWER WIRE								
CONTROL PANELS FOR MECHANICAL EQUIPMENT	FURNISH & INSTALL	POWER WIRE								
LOW VOLTAGE CONTROL WIRING FOR MECH EQUIP.	FURNISH & INSTALL									
LINE VOLTAGE CONTROL WIRING FOR MECH. EQUIP.	FURNISH, INSTALL & WIRE									
MECHANICAL FLOW SWITCHES	FURNISH, INSTALL & WIRE									
THERMOSTATS/ SENSORS	FURNISH, INSTALL & WIRE									
P/E & E/P SWITCHES	FURNISH, INSTALL & WIRE									
DISCONNECT SWITCHES FOR MECHANICAL EQUIPMENT	FURNISH & INSTALL	POWER WIRE								
MECHANICAL EQUIPMENT MONITORS	FURNISH & INSTALL	POWER WIRE								
MANUAL STARTERS FOR MECHANICAL EQUIPMENT	FURNISH & INSTALL	POWER WIRE								
MAGNETIC STARTERS FOR MECHANICAL EQUIPMENT	FURNISH	INSTALL & POWER WIRE								
MOTOR CONTROL CENTERS	CONTROL WIRING	FURNISH, INSTALL, & POWER WIRE								
VARIABLE SPEED CONTROLLERS	FURNISH & INSTALL	POWER WIRE								
MOTORIZED DAMPERS & VALVES	FURNISH, INSTALL & WIRE									
DUCT SMOKE DETECTORS	INSTALL	FURNISH & WIRE								
HEAT TRACE CABLE FOR PIPING	FURNISH & INSTALL	POWER WIRE								
OIL/ GAS EMERGENCY SHUT-OFF SWITCHES		FURNISH, INSTALL, & POWER WIRE								
SPRINKLER FLOW & TAMPER SWITCHES	BY SPRINKLER CONTRACTOR	WIRE								

### EXHAUST FAN SCHEDULE

REMARKS

				SP IN	ΕΔΝ	WT	мото	DR	BASIS OF	DESIGN	
TAG	TYPE	TYPE CFM	W.C.	RPM	LB.S	HP	VOLTS/ PH	MFG.	MODEL		
	EF-1	CEILING	75	.5	900	9	(18)	115/1	GREENHECK	SP-B80	

1. PROVIDE DISCONNECT SWITCH AND SPEED CONTROLLER. 2. UNIT TO BE INTERLOCKED WITH BATHROOM OCCUPANCY SENSOR

# ELECTRIC HEATER SCHEDULE

UNIT DES.	TYPE	SERVES	BTUH	WATTS/ FT. or CFM	KW	NO. OF ELMT.S OR STAGES	AMP.S	ELECTRICAL VOLTS/PH.	DIMENSIONS or HEIGHT ABOVE FLOOR	BASIS DESI
EUH-1	WALL HEATER	SPRINKLER RM	5115	100	1.5	1	12.5	120V/1ø	2'-0" AFF	QMAI

REMARKS:

1. PROVIDE DISCONNECT SWITCH. 2. PROVIDE INTEGRAL BUILT-IN THERMOSTAT.

3. PROVIDE WALL MOUNT BACK BOX. 4. CUSTOM COLOR SELECTED BY ARCHITECT.

	SPLIT SYSTEM SCHEDULE - HEAT PUMP																	
					INDOOR UNIT					OUTDOOR UNIT								
UNIT DES.	SENS. CAP MBH	TOTAL CAP MBH	E.A.T. DB / WB	HEAT CAP. MBH @ 47°F O.A.T.	CFM	O.A. CFM	E.S.P. IN. W.G.	HP	HEATER KW@208V	BASIS OF DESIGN TRANE MODEL	ELEC. VOLTS / PHASE	UNIT. DES.	NOM. TONS	SEER	HSPF (BTUH/W)	BASIS OF DESIGN TRANE MODEL	VOLTS / PHASE	REMARKS
AHU-1	37.2	48.8	80/67	44.0	1600	310	0.5	0.75	9.6	TEM6A0C48	208/1 <b>φ</b>	CU-1	4	15.4	7.8 BTUH/W	4TWR5048	208/230/1ø	1 - 11
AHU-2	32.2	42.2	80/67	38.5	1400	310	0.5	0.75	9.6	TEM6A0C42	208/1 <b>φ</b>	CU-2	4	15.4	7.8 BTUH/W	4TWR5042	208/230/1ø	1 - 11

1. PIPE 3/4" INSULATED CONDENSATE DRAIN PIPING TO SPILL ON SPLASH BLOCK LOCATED ON GRADE OUTSIDE. SEAL EXTERIOR WALL PENETRATION.

2. PROVIDE ELECTRIC HEAT WITH 24° HEAT RISE, 208V/1¢, DUAL-CIRCUIT WIRING, CIRCUIT BREAKER, AND DISCONNECT SWITCH FOR AHU.

3. SIZE AND INSTALL INSULATED REFRIGERANT LINES PER MANUFACTURER'S RECOMMENDATIONS.

5. PROVIDE STANDARD 1" RETURN AIR FILTER IN AHU.

6. PROVIDE 7-DAY, REMOTE, PROGRAMMABLE, WALL MOUNTED THERMOSTAT WITH AUTOMATIC CHANGEOVER. MOUNT 48" AFF. INTERLOCK AHU WITH ASSOCIATED CU.

7. PROVIDE CONDENSATE OVERFLOW SENSOR IN PRIMARY CONNECTION OF THE COOLING COIL TO SHUT SOWN THE UNIT UPON SENSING CONDENSATE.

8. PROVIDE FLEXIBLE CONNECTION AT INLET AND DISCHARGE OF AHU TO ISOLATE FAN. USE HEAT RESISTANT MATERIAL.

9. PROVIDE TXV, VARIABLE SPEED ECM MOTOR, TIME DELAY RELAY AND LOW AMBIENT COOLING TO 14°F.

10. PROVIDE VIBRATION ISOLATION FOR AHU AND CU.

11. PROGRAM THERMOSTATS TO OPERATE AT 80°/55° CLG/HTG DURING OCCUPIED HOURS OF OPERATION AND 85°/50° CLG/HTG DURING UNOCCUPIED HOURS OF OPERATION.

![](_page_27_Figure_21.jpeg)

![](_page_27_Figure_24.jpeg)

# S OF IGN ١RK

ALLEN + SHARIFF JOB #: 2231082

AUTOMATIC TEMP CONTROL PANELS LOW VOLTAGE CO LINE VOLTAGE CO MECHANICAL FLO THERMOSTATS/ SI P/E & E/P SWITCHE DISCONNECT SWI MECHANICAL EQU MANUAL STARTER MAGNETIC START MOTOR CONTROL VARIABLE SPEED MOTORIZED DAMF DUCT SMOKE DET HEAT TRACE CABL OIL/ GAS EMERGE SPRINKLER FLOW

DIVISION OF MECHANICAL/ ELECTRICAL WORK											
ITEM	MECH/ DIV 22 AND 23	ELEC/ DIV 26									
PERATURE CONTROLS	FURNISH, INSTALL & WIRE	POWER WIRE									
S FOR MECHANICAL EQUIPMENT	FURNISH & INSTALL	POWER WIRE									
ONTROL WIRING FOR MECH EQUIP.	FURNISH & INSTALL										
ONTROL WIRING FOR MECH. EQUIP.	FURNISH, INSTALL & WIRE										
W SWITCHES	FURNISH, INSTALL & WIRE										
ENSORS	FURNISH, INSTALL & WIRE										
ES	FURNISH, INSTALL & WIRE										
ITCHES FOR MECHANICAL EQUIPMENT	FURNISH & INSTALL	POWER WIRE									
JIPMENT MONITORS	FURNISH & INSTALL	POWER WIRE									
RS FOR MECHANICAL EQUIPMENT	FURNISH & INSTALL	POWER WIRE									
ERS FOR MECHANICAL EQUIPMENT	FURNISH	INSTALL & POWER WIRE									
CENTERS	CONTROL WIRING	FURNISH, INSTALL & POWER WIRE									
CONTROLLERS	FURNISH & INSTALL	POWER WIRE									
PERS & VALVES	FURNISH, INSTALL & WIRE										
TECTORS	INSTALL	FURNISH & WIRE									
LE FOR PIPING	FURNISH & INSTALL	POWER WIRE									
ENCY SHUT-OFF SWITCHES		FURNISH, INSTALL & POWER WIRE									
/ & TAMPER SWITCHES	BY SPRINKLER CONTRACTOR	WIRE									

### GENERAL PLUMBING DATA

### GENERAL INFORMATION

### A. GENERAL

- 1. CONFORM TO GENERAL AND SPECIAL CONDITIONS OF CONTRACT.
- 2. SPECIFICATIONS ARE APPLICABLE TO CONTRACTORS AND/OR SUBCONTRACTORS.
- 3. THE ARCHITECTURAL, STRUCTURAL, MECHANICAL, PLUMBING AND EQUIPMENT DRAWINGS AND SPECIFICATIONS ARE INCORPORATED INTO, AND BECOME A PART OF THIS DIVISION. THIS CONTRACTOR SHALL EXAMINE SUCH DRAWINGS AND SPECIFICATIONS AND BECOME THOROUGHLY FAMILIAR WITH THE PROVISIONS CONTAINED THEREIN. THE SUBMISSION OF THE BID SHALL INDICATE SUCH KNOWLEDGE.
- 4. VISIT SITE, CHECK FACILITIES AND CONDITIONS.
- 5. SYSTEMS SHALL BE COMPLETE AND PLACED IN OPERATION.
- 6. EACH CONTRACTOR SHALL PROVIDE FOR HIS OWN CLEAN-UP, REMOVAL AND LEGAL DISPOSAL OF RUBBISH DAILY. CONTRACTOR SHALL PROTECT THEIR WORK AND EXISTING OR ADJACENT PROPERTY AGAINST WEATHER, TO MAINTAIN THEIR WORK, MATERIALS, APPARATUS AND FIXTURES FREE FROM INJURY OR DAMAGE. ANY WORK DAMAGED BY FAILURE TO PROVIDE PROTECTION REQUIRED, SHALL BE REMOVED AND REPLACED WITH NEW WORK AT THE CONTRACTOR'S EXPENSE.
- 7. CONTRACTORS SHALL CONFIRM AND COMPLY WITH UTILITY COMPANY REQUIREMENTS, COORDINATE CONNECTION POINTS IN FIELD.
- 8. ARRANGE FOR AND OBTAIN OWNER'S AND INSURANCE REPRESENTATIVE'S PERMISSION FOR ANY SERVICE SHUTDOWNS.
- 9. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, SEQUENCES OF CONSTRUCTION AND THE SAFETY OF WORKMEN.
- 10. PIPING, CONTROLS, ETC., SHALL NOT BE INSTALLED, OR ROUTED ABOVE, ELECTRICAL PANELS AND EQUIPMENT OR THROUGH ELEVATOR MACHINE ROOMS.
- 11. THE CONTRACTOR SHALL COORDINATE AND PROVIDE A WRITTEN LISTING OF ELECTRICAL CHARACTERISTICS OF PLUMBING EQUIPMENT TO ELECTRICAL CONTRACTOR PRIOR TO ORDERING OF EQUIPMENT. ADDITIONAL COMPENSATION WILL NOT BE MADE FOR LACK OF CONTRACTOR COORDINATION OF EQUIPMENT'S ELECTRICAL CHARACTERISTICS.
- 12. DURING THE BUILDING CONSTRUCTION SOME EXISTING INSTALLATION MAY BE EXPOSED THAT WILL HAVE TO BE CHANGED, ALTERED, REROUTED AND/OR ABANDONED. ANY SUCH WORK WHICH COMES UNDER THE JURISDICTION OF THIS CONTRACTOR SHALL BE DONE BY THIS CONTRACTOR WITHOUT ADDITIONAL COST TO THE OWNER.
- 13. WORK RELATED TO THE EXISTING BUILDING SHALL BE COORDINATED TO MINIMIZE INTERFERENCE OR INTERRUPTION OF NORMAL BUILDING USE BY OWNER. REFER TO ARCHITECTURAL PLANS AND SPECIFICATIONS FOR PHASING REQUIREMENTS.
- 14. THE CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE THEMSELVES WITH EXISTING CONDITIONS. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING CONDITIONS THAT MAY AFFECT THE BID. ADDITIONAL COMPENSATION WILL NOT BE PROVIDED FOR FAILURE TO REVIEW EXISTING CONDITIONS PRIOR TO BIDDING.
- B. CODES, PERMITS, STANDARDS AND REGULATIONS
- 1. CONFORM TO APPLICABLE CODES (LOCAL, STATE, NATIONAL CODES, NFPA, OSHA, ETC.), GOVERNMENT REGULATIONS, UTILITY COMPANY REQUIREMENTS, AND APPLICABLE STANDARDS.
- 2. OBTAIN PERMITS AND PAY FEES. ARRANGE FOR REQUIRED TESTS, INSPECTIONS AND APPROVALS. PROVIDE COPIES OF INSPECTIONS, AND APPROVALS TO THE ARCHITECT-ENGINEER.

### C. RELATED WORK SPECIFIED ELSEWHERE

- 1. OPENINGS AND CHASES, WHEN SHOWN ON ARCHITECTURAL DRAWINGS.
- 2. TEMPORARY WATER SERVICE, SANITARY FACILITIES, FIRE PROTECTION AND HEATING DURING CONSTRUCTION.
- 3. POURED-IN-PLACE CONCRETE.
- 4. FINISH PAINTING.
- 5. ELECTRIC POWER WIRING.

### D. DRAWINGS

- 1. THE SYSTEMS SHOWN ON DRAWINGS ARE DIAGRAMMATIC. CONFIRM DIMENSIONS BY FIELD MEASUREMENT.
- 2. THE EXACT LOCATIONS FOR APPARATUS, FIXTURES, EQUIPMENT AND PIPING WHICH IS NOT COVERED BY DRAWINGS, SHALL BE OBTAINED FROM THE ARCHITECT OR HIS REPRESENTATIVE IN THE FIELD, AND THE WORK SHALL BE LAID OUT ACCORDINGLY.
- 3. DRAWINGS AND SPECIFICATIONS ARE INTENDED TO SUPPLEMENT ONE ANOTHER. ANY MATERIALS OR LABOR CALLED FOR IN ONE BUT NOT THE OTHER SHALL BE PROVIDED.

PLUM	BING LE	GEND AND ABBREVIATIONS
SYMBOL	ABRV.	DESCRIPTION
₅SANS	SAN., W.	SANITARY PIPING
\$\$	V	VENT PIPING
۶CW\$	CW	COLD WATER PIPING
⊱—HW—\$	HW	HOT WATER PIPING
<b>ہ</b> ے		PIPE UP
ډې		PIPE DOWN
; <del></del> ;		PIPE TEE DOWN
<u></u> ]		CAPPED PIPE
<b>۶اب</b> ۲		PIPE UNION
<b>⊱_</b> ₹{		BALL VALVE OR SHUTOFF VALVE
₹ <u> </u>		BALL VALVE OR SHUTOFF VALVE IN RISE
۲ <u>۲</u> ۲	MV	MIXING VALVE
મ્ર્યુસ મે મુ	CV	CHECK VALVE
<del>ک ای ا</del>		"Y" TYPE STRAINER
; <u> </u>	BFP	BACK FLOW PREVENTER
۶۳		HOSE BIB OR HOSE END DRAIN VALVE
ا ا	со	CLEAN OUT, EXPOSED
#		DRAWING NOTE
xx		REVISION NUMBER
#		-PART PLAN NUMBER
X-###		-SHEET NUMBER WHERE PART PLAN IS FOUN
		CONNECTION POINT, NEW TO EXISTING
	DISC.	POINT OF DISCONNECTION
	IN. W.C.	INCHES WATER COLUMN
	UNO	UNLESS NOTED OTHERWISE
	GW	GREASE WASTE DRAIN LINE
	FCO	FLOOR CLEAN OUT
	WCO	WALL CLEAN OUT
	A.F.F.	
	р.г.г. FFF	
	0.1.1.∟. DN.	DOWN
	VTR	VENT THROUGH ROOF TERMINATION
	ETR	EXISTING TO REMAIN
	RX	REMOVE EXISTING
	TBR	TO BE RELOCATED

![](_page_28_Picture_51.jpeg)

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PLUMBING SPECIFICATIONS

1. PRODUCTS AND INSTALLATION SHALL COMPLY WITH ALL APPLICABLE LAWS, CODES, GOVERNMENT REGULATIONS, UTILITY COMPANY REQUIREMENTS, ETC. OF ALL AUTHORITIES HAVING JURISDICTION. WORK SHALL

- COMPLY WITH THE FOLLOWING CODES, STANDARDS AND ORGANIZATIONS: 2021 INTERNATIONAL PLUMBING CODE (IPC) WITH DELAWARE AMDENDMENTS
- 2018 INTERNATIONAL MECHANICAL CODE (IMC)
- 2018 INTERNATIONAL ENERGY CONSERVATION CODE 2017 NATIONAL ELECTRIC CODE
- 2018 INTERNATIONAL FUEL GAS CODE
- 2018 INTERNATIONAL BUILDING CODE UNDERWRITERS LABORATORY (UL), IRI, FM

WHERE CONFLICTS EXIST BETWEEN CODES, STANDARDS OR THIS SPECIFICATION THE HIGHER REQUIREMENT SHALL APPLY. DEVIATIONS FROM THE CONTRACT DOCUMENTS REQUIRED BY THE ABOVE AUTHORITIES SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW. OBTAIN PERMITS AND PAY ALL FEES. ARRANGE FOR ALL REQUIRED INSPECTIONS AND APPROVALS. CONFIRM ALL UTILITY COMPANY REQUIREMENTS AND CONNECTION POINTS IN FIELD, PRIOR TO STARTING WORK.

2. ALL SPECIFICATIONS AND DRAWINGS, I.E., ARCHITECTURAL, MECHANICAL, PLUMBING, AND ELECTRICAL ARE COMPLIMENTARY AND MUST BE USED IN COMBINATION TO OBTAIN COMPLETE CONSTRUCTION INFORMATION. ANY INFORMATION CONFLICTS WITHIN THE SPECIFICATIONS AND DRAWINGS SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION. DRAWINGS ARE DIAGRAMMATIC. CONFIRM ALL DIMENSIONS BY FIELD MEASUREMENT THE EXACT LOCATIONS FOR APPARATUS, FIXTURES, EQUIPMENT AND PIPING WHICH IS NOT COVERED BY DRAWINGS, SHALL BE OBTAINED FROM THE ARCHITECT OR HIS REPRESENTATIVE IN THE FIELD, AND THE WORK SHALL BE LAID OUT ACCORDINGLY.

3. WORK SHALL BE EXECUTED IN A GOOD WORKMANLIKE MANNER USING MECHANICS SKILLED IN THEIR RESPECTIVE TRADES. ALL EQUIPMENT AND MATERIALS SHALL BE NEW, FREE OF DEFECTS. SYSTEMS ARE TO BE COMPLETE AND WORKABLE IN ALL RESPECTS, PLACED IN OPERATION AND PROPERLY ADJUSTED.

4. MAINTAIN THE CONSTRUCTION PREMISES IN A NEAT AND ORDERLY CONDITION AT THE END OF EACH WORKING DAY. CLEAN-UP, REMOVE AND LEGALLY DISPOSE OF ALL RUBBISH DAILY. CONTRACTOR SHALL PROTECT THEIR WORK AND EXISTING OR ADJACENT PROPERTY AGAINST WEATHER, TO MAINTAIN THEIR WORK. MATERIALS, APPARATUS AND FIXTURES FREE FROM INJURY OR DAMAGE. ANY WORK DAMAGED BY FAILURE TO PROVIDE PROTECTION REQUIRED, SHALL BE REMOVED AND REPLACED WITH NEW WORK AT THE CONTRACTOR'S EXPENSE.

5. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE SAFETY OF HIS WORKERS, ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES FOR COORDINATING THE WORK UNDER THIS CONTRACT. CONFORM TO ALL GENERAL AND SPECIAL CONDITIONS OF CONTRACT AS SPECIFIED BY ARCHITECT AND/OR OWNER.

6. IN CASES OF DOUBT AS TO THE WORK INTENDED, OR IN THE EVENT OF NEED FOR EXPLANATION THEREOF, THE CONTRACTOR SHALL REQUEST SUPPLEMENTARY INSTRUCTIONS FROM THE ENGINEER. NO CHANGES ARE TO STOP. PROVIDE 2" EXTENSION NECKS ON ALL VALVES INSTALLED IN INSULATED LINES. BE MADE TO THE WORK OF THIS CONTRACT WITHOUT PRIOR KNOWLEDGE AND APPROVAL OF THE ENGINEER. THE CONTRACTOR SHALL HOLD THE OWNER AND ITS CONSULTANTS HARMLESS AGAINST ALL CLAIMS AND JUDGMENTS ARISING OUT OF THE CONTRACTORS PERFORMANCE OF THE WORK OF THIS CONTRACT. THE CONTRACTOR SHALL NOT PROCEED WITH ANY WORK, WHICH HE EXPECTS ADDITIONAL COMPENSATION BEYOND THE CONTRACT AMOUNT, WITHOUT WRITTEN AUTHORIZATION FROM THE APPROPRIATE AUTHORITY. FAILURE TO OBTAIN SUCH AUTHORIZATION SHALL INVALIDATE ANY CLAIM FOR EXTRA COMPENSATION.

7. ALL PRODUCTS LOCATED WITHIN PLENUM AREAS, INCLUDING BUT NOT LIMITED TO INSULATION AND ADHESIVE SYSTEMS, SHALL HAVE A COMPOSITE FIRE HAZARD RATING NOT TO EXCEED 25 FLAME SPREAD AND 50 SMOKE DEVELOPED PER ASTM E-84, NFPA 255 AND UL 723.

8. IT SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR TO INSTALL THE PLUMBING SYSTEM SO AS TO OCCUPIED AREAS. THE DECISION OF THE ENGINEER AS TO THE QUIETNESS OF THE SYSTEM AND EQUIPMENT SHALL BE FINAL. IT SHALL BE THIS CONTRACTORS' RESPONSIBILITY TO CORRECT OR REPLACE ANY NOISY SYSTEM OR EQUIPMENT AS REQUIRED.

### BASIS OF DESIGN AND SUBSTITUTIONS

1. MANUFACTURERS LISTED ARE BASIS OF DESIGN. SUBSTITUTIONS ARE SUBJECT TO THE APPROVAL OF THE OWNER, ARCHITECT & ENGINEER. IF SUBSTITUTION IS SUBMITTED, IT IS THE CONTRACTOR'S RESPONSIBILITY TO EVALUATE IT AND CERTIFY THAT THE SUBSTITUTION IS EQUIVALENT IN ALL RESPECTS TO THE BASIS OF DESIGN. WHERE SUBMITTALS VARY FROM THE CONTRACT REQUIREMENTS, THE CONTRACTOR SHALL CLEARLY INDICATE ON SUBMITTAL OR ACCOMPANYING DOCUMENTS THE NATURE AND REASON FOR VARIATIONS. IF SUBSTITUTIONS ARE APPROVED, NOTIFY ALL OTHER CONTRACTORS, SUBCONTRACTORS OR TRADES AFFECTED BY SUBSTITUTION INSTALLER; PROOF OF CERTIFICATION SHALL BE SUBMITTED TO ENGINEER FOR REVIEW AS PART OF THE AND FULLY COORDINATE. ANY COSTS RESULTING FROM SUBSTITUTION, WHETHER BY CONTRACTOR OR OTHERS, SHALL BE RESPONSIBILITY OF AND PAID FOR BY SUBSTITUTING CONTRACTOR. APPROVED SHOP DRAWINGS DOES NOT ABSOLVE THIS CONTRACTOR FROM THIS RESPONSIBILITY. APPROVAL OF SUBSTITUTIONS IS AT THE DISCRETION OF THE ARCHITECT & ENGINEER AND IF SUBMITTED AFTER THE BID, AT THE RISK OF THE CONTRACTOR.

### SHOP DRAWING SUBMITTALS

COORDINATE, PREPARE AND SUBMIT SHOP DRAWINGS TO THE ARCHITECT AND ENGINEER FOR THEIR REVIEW. CONTRACTOR SHALL REVIEW AND INDICATE HIS APPROVAL OF EACH SHOP DRAWING PRIOR TO SUBMITTAL FOR REVIEW. DO NOT ORDER, START WORK OR FABRICATION UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED BY THE ENGINEER AND RETURNED TO THE CONTRACTOR. SHOP DRAWINGS TO BE SUBMITTED INCLUDE BUT NOT LIMITED TO:

- ALL DRAINS AND ACCESSORIES PLUMBING FIXTURES AND ACCESSORIES
- VALVES & PIPING
- INSULATION PUMPS, WATER HEATERS, TANKS AND ALL EQUIPMENT

2. INDICATE THE OPERATING CHARACTERISTICS FOR EACH REQUIRED ITEM. PROVIDE ADEQUATE DETAILS AND SCALES TO CLEARLY SHOW CONSTRUCTION. CLEARLY IDENTIFY EACH ITEM ON THE SUBMITTAL AS TO MARK, LOCATION AND USE, USING SAME IDENTIFICATION AS PROVIDED ON DESIGN DRAWINGS. ELECTRONIC SUBMITTALS SHALL BE PRESENTED WITH ALL SHEETS IN ALPHANUMERIC ORDER AND ALL SHEETS ORIENTED WITH TOP OF SHEET UP.

3. SUBMITTALS WILL BE REVIEWED ONLY FOR GENERAL COMPLIANCE WITH THE CONTRACT DOCUMENTS AND NOT FOR DIMENSIONS OR QUANTITIES. THE SUBMITTAL REVIEW SHALL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR PURCHASE OF ANY ITEM IN FULL COMPLIANCE WITH THE CONTRACT DOCUMENTS OR ITS COMPLETE AND PROPER INSTALLATION.

### **RECORD DRAWINGS**

1. A SET OF MEP RECORD/COORDINATION DRAWINGS SHALL BE MAINTAINED IN THE GENERAL CONTRACTORS OFFICE AT THE JOB SITE. PRINTS SHALL INDICATE ADDITIONS, DELETIONS, VARIATIONS IN LOCATION, VARIATIONS IN NUMBERING ETC. ALTERATIONS SHALL BE MARKED IN RED AND DELETIONS SHALL BE MARKED IN GREEN AND SHALL BE ON THE LATEST CONTRACT DRAWING ISSUED. RECORD DRAWINGS SHALL BE KEPT CLEAN AND UNDAMAGED AND SHALL NOT BE USED FOR ANY PURPOSE OTHER THAN RECORDING DEVIATIONS FROM WORKING DRAWINGS. AFTER THE PROJECT IS COMPLETED, THESE SETS OF DRAWINGS SHALL BE DELIVERED TO THE ARCHITECT IN GOOD CONDITION, AS A PERMANENT RECORD OF THE INSTALLATION AS ACTUALLY CONSTRUCTED.

### **EQUIPMENT & FIXTURES**

1. ALL PACKAGED EQUIPMENT SHALL BE INDEPENDENTLY THIRD PARTY LABELED AS A SYSTEM FOR ITS INTENDED USE BY A NATIONALLY RECOGNIZED TESTING LABORATORY (NRTL) IN ACCORDANCE WITH OSHA FEDERAL REGULATIONS 29CFR1910.303 AND .399, AS WELL AS NFPA PAMPHLET NO. 70, AND THE NATIONAL ELECTRICAL CODE (NEC), ARTICLE 90-7.

2. MAKE ALL FINAL EQUIPMENT AND FIXTURE CONNECTIONS AND PROVIDE THE NECESSARY ADAPTORS FITTINGS, VALVES, DEVICES, ETC, FOR A COMPLETE AND OPERABLE SYSTEM, PROVIDE COMPLETE WITH BASES. ISOLATORS, SUPPORTS AND OTHER REQUIRED ACCESSORIES. PROVIDE VALVES AND UNIONS WHERE NEEDED TO PERMIT DISCONNECTIONS OF EACH PIECE OF EQUIPMENT FOR REPAIRS. PLUMBING CONNECTIONS SHOWN ARE NOMINAL. VERIFY EXACT CONNECTION SIZE WITH EACH PIECE OF EQUIPMENT SUPPLIED. FOLLOW FIXTURE MANUFACTURER'S RECOMMENDED INSTALLATION INSTRUCTIONS, AND ROUGH-IN DIMENSIONS. REFER TO CONSULTANT AND ARCHITECTURAL DOCUMENTS FOR ADDITIONAL INFORMATION. COORDINATE WITH THE EQUIPMENT SUPPLIER FOR ADDITIONAL INFORMATION.

3. EQUIPMENT SHALL BE INSTALLED IN FULL ACCORDANCE WITH THE MANUFACTURER'S DATA AND INSTALLATION INSTRUCTIONS, INCLUDING CLEARANCES; LUBRICATE AND ADJUST AS REQUIRED. IT IS THIS CONTRACTOR'S RESPONSIBILITY TO CHECK AND CONFORM TO THESE REQUIREMENTS PRIOR TO STARTING WORK. FURNISH AND INSTALL CLEAN SET OF FILTERS PRIOR TO BALANCING.

4. THE CONTRACTOR SHALL COORDINATE ELECTRICAL CHARACTERISTICS OF ALL PLUMBING EQUIPMENT PRIOR TO ORDERING OF EQUIPMENT. COORDINATE REQUIREMENT FOR PROVISION OF MOTOR STARTERS, DISCONNECTS, CONTACTORS, CONTROL WIRING, ETC. AS REQUIRED FOR PROPER FUNCTIONING SYSTEM WITH ELECTRICAL CONTRACTOR. NO ADDITIONAL PAYMENT WILL BE MADE FOR LACK OF CONTRACTOR COORDINATION OF ELECTRICAL CHARACTERISTICS. REFER TO DIVISION OF WORK SCHEDULE FOR COMPLETE LIST OF RESPONSIBILITIES.

5. ALL FLOOR MOUNTED EQUIPMENT SHALL BE INSTALLED ON CONCRETE HOUSEKEEPING PADS. MINIMUM PAD THICKNESS SHALL BE NOMINAL 4". PAD SHALL EXTEND BEYOND THE EQUIPMENT A MINIMUM OF 4" ON EACH SIDE. CONCRETE PADS SHALL BE PROVIDED BY THIS CONTRACTOR. IT SHALL BE THE RESPONSIBILITY OF THE THIS CONTRACTOR TO COORDINATE THE SIZE AND LOCATION OF THE CONCRETE HOUSEKEEPING PADS WITH THE GENERAL CONTRACTOR.

6. ALL EQUIPMENT SHALL BE MOUNTED ON VIBRATION ISOLATORS TO PREVENT THE TRANSMISSION OF VIBRATION AND MECHANICALLY TRANSMITTED SOUND TO THE BUILDING STRUCTURE.

# THE EQUIPMENT REQUIRING ISOLATION.

8. ALL CONDENSATE DRAINS SHALL BE TRAPPED PER DETAIL ON MECHANICAL DRAWINGS. PROVIDE CLEANOUT(S). PROVIDE AUXILIARY DRAIN PANS AT ALL EQUIPMENT WHERE DAMAGE TO ANY BUILDING COMPONENT COULD OCCUR AS A RESULT OF OVERFLOW OR STOPPAGE OF THE PRIMARY SYSTEM. WATER LEVEL DETECTION SHALL BE PROVIDED IN AUXILIARY PAN TO PROVIDE SHUT DOWN OF EQUIPMENT.

9. PROVIDE CURBS FOR ALL ROOF OPENINGS FOR DUCTS, FLUES, PIPING AND EQUIPMENT. CURBS SHALL BE FURNISHED AS ACCESSORIES TO THE EQUIPMENT OR 8" HIGH PATE OR EQUAL EQUIPMENT SUPPORTS SPANNING BE INSTALLED AS TIGHT AS POSSIBLE TO THE UNDERSIDE OF THE STRUCTURE. STRUCTURE AND FLASHED INTO ROOFING. ALL CUTTING, FLASHING, AND PATCHING OF ROOF SHALL BE BY

CLEAN-OUTS SHALL BE PROVIDED IN PIPING AT EACH CHANGE IN DIRECTION, IN ALL HORIZONTAL STRAIGHT OWNER'S ROOFING CONTRACTOR AND PAID FOR BY PLUMBING CONTRACTOR. RUNS MORE THAN 50 FEET LONG OR AS ALLOWED BY CODE, AND AT ALL OTHER LOCATIONS AS NOTED ON THE 10. SEAL JOINTS BETWEEN PLUMBING FIXTURES AND THE SURFACE TO WHICH THEY ARE MOUNTED USING DRAWINGS. ALL CLEAN-OUTS SHALL BE THE SAME SIZE AS THE PIPE DIAMETER UP TO AND INCLUDING PIPE 4 SANITARY-TYPE, ONE-PART, MILDEW RESISTANT SILICONE SEALANT. MATCH SEALANT COLOR TO FIXTURE COLOR. INCHES IN DIAMETER. FOUR INCH CLEAN-OUTS SHALL BE USED FOR ALL PIPE LARGER THAN 4 INCHES, UNLESS NOTED OTHERWISE. ALL CLEAN-OUT LOCATIONS SHALL BE NO MORE THAN 5 FEET ABOVE THE BASE OF THE HORIZONTAL OFFSET AND BE APPROVED BY THE ARCHITECT. FOR CARPETED AREAS, PROVIDE A PERMANENT PIPING SYSTEMS IDENTIFYING MARK IN THE CARPET DIRECTLY ABOVE THE CLEAN-OUT. THE CLEAN-OUT SHALL HAVE A SMOOTH POLISHED BRONZE FINISH WITH THE LETTERS "C.O." CAST IN THE COVER. FOR WALLS. PROVIDE AN ACCESS INSTALL PIPING SYSTEMS TO PERMIT FREE MOVEMENT FOR EXPANSION. SUPPORT ALL PIPING FROM PANEL WITH CLEARANCE FOR RODDING. THE FLOOR CLEAN-OUTS SHALL BE ZURN MODEL ZN-1400-T OR STRUCTURE WITH UL LISTED HANGERS AND SUPPORTS SUITABLE FOR THE INTENDED INSTALLATION. DESIGN, APPROVED EQUAL WITH BRONZE PLUG, SQUARE NICKEL BRONZE FRAME AND COVER. THE WALL CLEAN-OUTS SELECTION, SPACING, AND APPLICATION OF HANGERS AND SUPPORTS SHALL COMPLY WITH ANSI B31.1, MSS SP-69, AND PIPE MANUFACTURER'S RECOMMENDED SPACING REQUIREMENTS. SHALL BE ZURN MODEL ZN-1443-BP OR APPROVED EQUAL WITH BRONZE PLUG AND 7 INCHES X 7 INCHES NICKEL BRONZE COVER. NO SANITARY, SOIL OR WASTE PIPE SHALL EXTEND GREATER THAN 2'-0" TO A DEAD-END.

PROVIDE INSULATION HANGER WITH PROTECTIVE SHIELDS ON SYSTEMS REQUIRING A VAPOR BARRIER HANGER SHALL BE PROVIDED AT EACH CHANGE OF DIRECTION. HANGERS AND SUPPORTS SHALL BE SPACED AT INTERVALS WHICH WILL PREVENT SAGGING AND REDUCE STRAIN ON VALVES AND SPECIALTIES; ALL PIPING SUPPORTS AND RESTRAINTS SHALL BE IN STRICT ACCORDANCE WITH THE PIPE MANUFACTURER'S RECOMMENDATIONS AND INSTALLATION GUIDELINES. HANGERS SHALL ALLOW FOR EXPANSION AND CONTRACTION.

RISER CLAMPS SHALL BE INSTALLED ABOVE THE FLOOR AT EACH LEVEL. RISER CLAMPS MAY BE SUSPENDED BELOW FLOOR LEVEL, WITH HANGER RODS AND INSERTS, WHERE THE INSTALLATION OF ESCUTCHEON PLATES IS REQUIRED.

PROVIDE VALVES AND UNIONS WHERE NEEDED TO PERMIT DISCONNECTIONS OF EACH PIECE OF EQUIPMENT 1. REFER TO DOMESTIC PIPING INSULATION SCHEDULE FOR PIPING INSULATION REQUIREMENTS. FOR REPAIRS. MAKE CONNECTIONS TO EQUIPMENT WITH SHUT-OFF VALVES ON SUPPLY AND BALANCE VALVES ON RETURNS. INSTALL UNIONS IN PIPES 2" AND SMALLER, ADJACENT TO EACH VALVE, AT FINAL CONNECTIONS 2. CONDENSATE PIPING SHALL BE INSULATED WITH 1 INCH THICK FIBERGLASS INSULATION WITH STANDARD EACH PIECE OF EQUIPMENT AND ELSEWHERE AS INDICATED. UNIONS ARE NOT REQUIRED ON FLANGED DEVICES. VAPOR BARRIER JACKET OR WITH 1" THICK FLEXIBLE UNICELLULAR ("ARMAFLEX").

5. LEVER TYPE HANDLE OPERATORS SHALL BE PROVIDED ON VALVES UP TO 4". GEAR OPERATORS SHALL BE 3. FIBERGLASS PIPE INSULATION SHALL BE PROVIDED WITH STANDARD VAPOR BARRIER JACKET AND HAVE A PROVIDED ON VALVES OVER 4", AND ON VALVES REQUIRING CHAIN OPERATION. VALVES USED FOR BALANCING MAXIMUM CONDUCTIVITY OF 0.27 BTU PER "/HR-FT2-°F. ALL INSULATION SHALL BE APPLIED IN FULL ACCORDANCE SHALL HAVE INFINITE POSITION LEVER OR GEAR OPERATORS WITH ADJUSTABLE, OPEN POSITION "MEMORY" WITH THE MANUFACTURER'S RECOMMENDATIONS.

CONNECTIONS BETWEEN DISSIMILAR PIPING MATERIALS SHALL BE MADE WITH SUITABLE DIELECTRIC INSULATING FITTINGS. ISOLATE COPPER PIPING FROM DISSIMILAR METALS, SUCH AS METAL STUDS AND VENT PIPING.

ALL PIPING SHALL RUN CONCEALED ABOVE CEILING OR IN WALL CHASE, UNLESS OTHERWISE NOTED. EXPOSED PIPING SHALL BE 3/4 INCH MINIMUM FROM ANY WALL SURFACE. EXCEPT WHERE OTHERWISE INDICATED ON THE DRAWINGS, PIPING IS SHOWN ON THE FLOOR WHERE IT ACTUALLY OCCURS IN THE BUILDING. DOMESTIC WATER SYSTEMS

THEIR NORMAL (IN OPERATION) POSITION IDENTIFIED, SUCH AS "NORMALLY OPEN" OR "NORMALLY CLOSED". POTABLE WATER PIPING AND COMPONENTS SHALL COMPLY WITH NSF 14, NSF 372, AND NSF 61 ANNEX G. ENSURE QUIET OPERATION. NO VIBRATION OR SOUND SHALL BE TRANSMITTED TO THE BUILDING, STRUCTURE OR PLASTIC PIPING COMPONENTS SHALL BE MARKED WITH "NSF-PW." GASKETS, JOINTS, CONNECTORS, SPECIALTIES, 2. IDENTIFICATION SHALL BE IN ACCORDANCE WITH ANSI STANDARD A13.1. PRESSURE SENSITIVE MARKERS AND PIPE SHALL BE MANUFACTURED AND PROVIDED BY THE SAME MANUFACTURER. ALL PIPING SHALL BE SHALL BE MANUFACTURED BY THE BRADY CO., OR APPROVED EQUAL. MARKERS SHALL BE MANUFACTURER'S SUPPORTED DIRECTLY ON EACH SIDE OF A JOINT. ALL PIPING SUPPORTS AND RESTRAINTS SHALL BE IN STRICT STANDARD PRODUCT. ACCORDANCE WITH THE PIPE MANUFACTURER'S RECOMMENDATIONS AND INSTALLATION GUIDELINES.

> PIPE LABEL LOCATIONS: LOCATE PIPE LABELS WHERE PIPING IS EXPOSED OR ABOVE ACCESSIBLE CEILINGS IN FINISHED SPACES; MACHINE ROOMS; ACCESSIBLE MAINTENANCE SPACES SUCH AS SHAFTS, TUNNELS, AND 2. ALL DOMESTIC WATER PIPING SHALL BE TYPE L HARD DRAWN SEAMLESS COPPER WATER TUBE OR CPVC PIPE (ASTM D2846) WITH CPVC FITTINGS AND SOLVENT WELD JOINTS. COPPER TUBE FITTINGS SHALL BE PLENUMS; AND EXTERIOR EXPOSED LOCATIONS AS FOLLOWS: WROUGHT COPPER JOINT FITTINGS CONFORMING TO ASTM B88. SOLDERED COPPER JOINTS SHALL BE SOLDERED • NEAR EACH VALVE AND CONTROL DEVICE. WITH LEAD FREE ASTM B32 GRADE 95T TIN-ANTIMONY SOLDER. AS AN OPTION FOR ABOVE GRADE PIPING 2"Ø AND NEAR EACH BRANCH CONNECTION, EXCLUDING SHORT TAKEOFFS FOR FIXTURES AND TERMINAL UNITS. SMALLER, COPPER PIPE FITTINGS MAY BE PRESS-CONNECT CAST-BRONZE OR WROUGHT-COPPER FITTING WITH WHERE FLOW PATTERN IS NOT OBVIOUS, MARK EACH PIPE AT BRANCH. EPDM-RUBBER, O-RING SEAL IN EACH END. PRESS-CONNECT FITTINGS SHALL CONFORM TO ASME B16.51 NEAR PENETRATIONS AND ON BOTH SIDES OF THROUGH WALLS, FLOORS, CEILINGS, AND INACCESSIBLE STANDARD. CONTRACTOR SHALL BE CERTIFIED BY THE PRESS CONNECT MANUFACTURER AS A CERTIFIED ENCLOSURES. • AT ACCESS DOORS, MANHOLES, AND SIMILAR ACCESS POINTS THAT PERMIT VIEW OF CONCEALED PIPING. SUBMITTAL PROCESS. CPVC PIPING SHALL NOT BE INSTALLED IN AREAS CLASSIFIED AS "PLENUM RATED" (WHICH • NEAR MAJOR EQUIPMENT ITEMS AND OTHER POINTS OF ORIGINATION AND TERMINATION. TYPICALLY ENCOMPASSES CEILING PLENUMS UTILIZED AS A RETURN AIR PATH); REFER TO MECHANICAL SPACED AT MAXIMUM INTERVALS OF 50 FEET (15 m) ALONG EACH RUN. REDUCE INTERVALS TO 25 FEET (7.6 m) DRAWINGS FOR LOCATION OF PLENUM RATED AREAS. IN EXISTING BUILDINGS, CONTRACTOR SHALL FIELD VERIFY IN AREAS OF CONGESTED PIPING AND EQUIPMENT. ALL EXISTING CEILING SPACES TO DETERMINE IF THERE ARE ANY EXISTING PLENUM SPACES WHICH ARE NOT IDENTIFIED ON THE MECHANICAL DRAWINGS PRIOR TO BIDDING THIS OPTION. CUTTING, PATCHING AND DRILLING

> 3. REDUCED PRESSURE BACKFLOW PREVENTION ASSEMBLY SHALL BE WATTS NO# LF909-S SERIES OR 1. ALL CUTTING AND PATCHING OF THE BUILDING CONSTRUCTION REQUIRED FOR THIS WORK SHALL BE BY THIS APPROVED EQUAL. IF IT COMPLIES WITH THESE SPECIFICATIONS EQUIPMENT MANUFACTURED BY CLA-VAL CONTRACTOR UNLESS SHOWN ON ARCHITECTURAL DRAWINGS AND CONFIRMED AS TO SIZE AND LOCATION COMPANY, FEBCO, HERSEY PRODUCTS, INC., OR WATTS REGULATION COMPANY WILL BE ACCEPTABLE PRIOR TO NEW CONSTRUCTION. CUTTING SHALL BE IN A NEAT AND WORKMANLIKE MANNER. ASSEMBLY SHALL BE COMPLETE WITH STRAINER, DRAIN LINES, INLET AND OUTLET SHUT-OFF VALVES AND WATTS SERIES 'AG' AIR GAP. THE PRESSURE LOSS OVER THE ENTIRE ASSEMBLY SHALL NOT EXCEED 10 PSI AT THE 2. NEATLY SAW CUT ALL RECTANGULAR OPENINGS, SET SLEEVE THROUGH OPENING, AND FINISH PATCH OR DESIGN FLOW. THE SIZE OF THE ASSEMBLY SHALL NOT BE SMALLER THAN THE LINE SIZE IN WHICH IT IS PROVIDE TRIM FLANGE AROUND OPENING. CORE DRILL AND SLEEVE ALL ROUND OPENINGS. INSTALLED. BACKFLOW PREVENTER ASSEMBLY SHALL BE INSTALLED IN AN ACCESSIBLE LOCATION. RELIEF OUTLET PIPE SHALL DISCHARGE TO NEAREST FLOOR DRAIN OR OTHER APPROVED LOCATION OF DISCHARGE. DO 3. DO NOT CORE DRILL OR CUT ANY CONCRETE SLABS OR OTHER STRUCTURAL COMPONENTS FOR ANY NOT INSTALL ABOVE FINISHED CEILINGS, UNLESS NOTED OR INDICATED OTHERWISE.

> 4. DOMESTIC WATER SHUT-OFF VALVES INSTALLED ON CPVC PIPING SHALL BE THREE PIECE, FULL PORT, TRUE THE OWNER. UNION TYPE, WITH PLASTIC BODY, BLOW-OUT PROOF STEM DESIGN AND O-RING STEM SEAL, PLASTIC PARTS SHALL BE CPVC. DOMESTIC WATER SHUT-OFF VALVES INSTALLED ON COPPER PIPING SHALL BE TWO PIECE, FULL 4. PATCH AND FINISH TO MATCH ADJACENT AREAS THAT HAVE BEEN CUT, DAMAGED OR MODIFIED AS A RESULT PORT, WITH BRASS BODY, STAINLESS STEEL BALL AND TRIM, BLOW-OUT PROOF STEM, AND REPLACEABLE OF THE INSTALLATION OF THE MECHANICAL OR ELECTRICAL EQUIPMENT. "TEFLON OR TFE" SEATS AND SEALS. VALVES SHALL BE NIBCO OR EQUAL. PROVIDE VALVE HANDLE EXTENSIONS FOR ALL INSULATED BALL VALVES. FIRESTOPPING

5. DOMESTIC WATER PRESSURE REDUCING VALVE ASSEMBLIES SHALL BE SELECTED TO PROVIDE STABLE FLOW ALL PENETRATIONS OF SLAB-TO-SLAB PARTITIONS SHALL BE SEALED AIRTIGHT CONDITIONS WITHOUT CAVITATION OR VALVE CHATTER.

6. SHOCK ARRESTORS SHALL BE LOCATED DOWNSTREAM OF THE DOMESTIC WATER SERVICE VALVE, AT EACH 2. WHEREVER FIRE RATED PARTITIONS ARE PENETRATED FOR WIRE, DUCT, OR PIPE PASSAGE, SEAL PASSAGES SERVICE TO A GROUP OF FIXTURES, OR AS INDICATED ON THE DRAWINGS. SHOCK ARRESTORS SHALL BE AS WITH CODE APPROVED, LABORATORY TESTED AND LABELED SEALANT OF FIRE RESISTANCE RATING NOT LESS MANUFACTURED BY PRECISION PLUMBING PRODUCTS OR APPROVED EQUAL AND CONFORM TO THE THAN THAT OF PENETRATED ASSEMBLY THAT WILL PREVENT PASSAGE OF FIRE AND SMOKE. ALL FIRE STOPPING REQUIREMENTS OF THE PLUMBING AND DRAINAGE INSTITUTE. SYSTEM SHALL MEET THE REQUIREMENTS OF ASTM E 814, UL 1479, AND BE FACTORY MUTUAL APPROVED. ALL FIRESTOPPING AND/OR SMOKE STOPPING MATERIAL AND INSTALLATION SHALL BE AS MANUFACTURED BY HILTI PROVIDE STOP VALVES AT ALL FIXTURE AND EQUIPMENT SUPPLIES. ALL EXPOSED FIXTURE CONNECTIONS OR APPROVED EQUAL.

SHALL BE CHROME PLATED, STAINLESS STEEL OR FITTED WITH CHROME PLATED SLEEVES. PROVIDE VACUUM BREAKERS WHERE REQUIRED BY CODE.

8. ALL COLD WATER, HOT WATER, AND HOT WATER RETURN PIPING THAT IS PART OF A NEW SYSTEM OR AN ACCESS DOORS SHALL BE PROVIDED IN WALLS AND CEILINGS WHERE REQUIRED TO PERMIT PROPER ADDITION OF AN EXISTING SYSTEM SHALL BE THOROUGHLY CLEANED AND DISINFECTED AS PER AWWA C651 OR ACCESS TO VALVES AND ANY OTHER SUCH DEVICES WHICH REQUIRE MAINTENANCE OR SERVICE. DOORS PLACED AWWA C652 GUIDELINES. THE DISINFECTION PROCESS SHALL BE PERFORMED AFTER ALL PIPES, COMPONENTS, IN WALLS, PARTITIONS OR OTHER FIRE-RATED CONSTRUCTION SHALL HAVE A LABEL SIGNIFYING THAT THE DOOR VALVES, AND FIXTURES ARE INSTALLED AND THE REQUIRED LEAK/PRESSURE TESTS HAVE BEEN COMPLETED. HAS THE SAME FIRE RATING AS THE FIRE-RATED CONSTRUCTION. THE SYSTEM SHALL BE FLUSHED WITH CLEAN, POTABLE WATER UNTIL THE SYSTEM IS COMPLETELY CLEAR OF ALL DIRT, SEDIMENT, AND DEBRIS. THE SYSTEM SHALL BE FILLED WITH A WATER/CHLORINE SOLUTION AS PER 2. ACCESS PANELS SHALL BE CONSTRUCTED OF 14 GAUGE STEEL, WITH 16 GAUGE STEEL FRAMES. DOORS CODE AND SHALL BE VALVED OFF FROM THE MAIN WATER SUPPLY AND ALLOWED TO STAND FOR A MINIMUM OF 24 HOURS. AFTER THE REQUIRED STANDING TIME, THE SYSTEM SHALL BE FLUSHED WITH CLEAN POTABLE WATER SHALL FINISH FLUSH WITH THE SURROUNDING SURFACE. FRAMES SHALL HAVE 3" WIDE EXPANDED METAL FOR UNTIL THE DISINFECTANT SOLUTION IS COMPLETELY PURGED FROM THE SYSTEM, FIXTURES, AND COMPONENTS. PLASTERED SURFACES AND PLAIN FLANGED TYPE FRAME FOR TILE, MASONRY OR GYPSUM BOARD SURFACES. DOORS AND FRAMES SHALL BE FURNISHED PRIME COATED. DOORS INSTALLED IN CERAMIC TILE, WET AREAS, OR REPEAT DISINFECTION PROCEDURE AS NEEDED IF BACTERIOLOGICAL EXAMINATION INDICATES THAT CONTAMINATES ARE STILL PRESENT IN THE SYSTEM. CONTRACTOR SHALL PROVIDE FINAL STERILIZATION OTHER NON-PAINTED SURFACES SHALL BE STAINLESS STEEL. HINGES SHALL BE CONCEALED SPRING TYPE, TO ALLOW DOORS TO BE OPENED 175 DEGREES. LOCKS SHALL BE FLUSH SCREWDRIVER TYPE WITH STEEL CAMS. TESTING REPORT TO THE ENGINEER FOR REVIEW. ACCESS PANELS SHALL BE 16" X 16" OR LARGER AS MAY BE REQUIRED FOR PROPER ACCESS TO THE DEVICE

BEING SERVED. 9. IF CONTRACTOR CHOOSES PRESS-CONNECT OPTION: AFTER PRESS-CONNECT FITTINGS HAVE BEEN INSTALLED A "TWO STEP TEST" SHALL BE FOLLOWED. PRESSURIZE THE SYSTEM WITH APPLICATION APPROPRIATE TEST MEDIUM, WATER BETWEEN 15 AND 85 PSI, OR AIR/DRY NITROGEN BETWEEN .5 AND 45 PSI. CHECK THE 3. ACCESS PANELS ARE NOT REQUIRED IN COMPLETELY ACCESSIBLE LIFT OUT TILE CEILINGS. CONTRACTOR PRESSURE GAUGE FOR PRESSURE LOSS. IF THE SYSTEM DOES NOT HOLD PRESSURE, WALK THE SYSTEM AND SHALL REVIEW THE ROOM FINISH SCHEDULE ON THE ARCHITECTURAL DRAWINGS IN ORDER TO VERIFY THE NEED CHECK FOR UN-PRESSED FITTINGS. SHOULD ANY UNPRESSED FITTINGS BE IDENTIFIED FOLLOWING TEST, ENSURE FOR ACCESS PANELS. PROVIDE ACCESS PANELS TO GENERAL CONTRACTOR FOR INSTALLATION. THE TUBE IS FULLY INSERTED INTO THE FITTING AND PROPERLY MARKED PRIOR TO PRESSING THE JOINT. AFTER APPROPRIATE REPAIRS HAVE BEEN MADE, RETEST THE SYSTEM PER LOCAL CODE AND SPECIFICATION START UP AND INSTRUCTIONS REQUIREMENTS, NOT TO EXCEED 600 PSI WITH WATER OR, 200 PSI WHEN USING AIR.

SANITARY DRAINAGE SYSTEMS

GASKETS, JOINTS, CONNECTORS, SPECIALTIES AND PIPE SHALL BE MANUFACTURED AND PROVIDED BY THE SAME MANUFACTURER. ALL PIPING SUPPORTS AND RESTRAINTS SHALL BE IN STRICT ACCORDANCE WITH THE DRAINAGE PIPE MANUFACTURER'S RECOMMENDATIONS AND INSTALLATION GUIDELINES.

ALL NEW BELOW GRADE SANITARY, SOIL, WASTE, AND VENT PIPING SHALL BE SERVICE WEIGHT CAST IRON, BELL AND SPIGOT, PIPE AND FITTINGS CONFORMING TO ASTM A74 AND AS MANUFACTURED BY TYLER PIPE AND FOUNDRY CO., U.S. PIPE AND FOUNDRY CO., CENTRAL FOUNDRY OR APPROVED EQUAL. TYLER "TY-SEAL" OR 3. CLEAN ALL PLUMBING EQUIPMENT AND PIPING OF ALL CONSTRUCTION DUST AT PROJECT COMPLETION. APPROVED EQUAL, NEOPRENE POSITIVE SEAL ELASTOMERIC COMPRESSION TYPE GASKETS SHALL BE USED AT ALL JOINTS. AS AN OPTION, ALL NEW BELOW GRADE SANITARY, SOIL, WASTE, AND VENT PIPING SHALL BE PVC 4. PROVIDE OWNER TRAINING AND DEMONSTRATION OF ALL PLUMBING SYSTEMS AND EQUIPMENT. INSTRUCT PIPE, ASTM D3034, SCHEDULE 40 OR HEAVIER, WITH SOLVENT WELD JOINTS. FOAM CORE PVC PIPING SHALL NOT OWNER ON PROPER OPERATION AND PREVENTATIVE MAINTENANCE OF SYSTEM. SUBMIT OPERATING AND BE ACCEPTABLE. MAINTENANCE MANUAL ON ALL EQUIPMENT AND SYSTEMS.

3. ALL NEW ABOVE GROUND SANITARY, SOIL, WASTE, AND VENT PIPING SHALL BE SERVICE WEIGHT CAST IRON, WARRANTY BELL AND SPIGOT, PIPE AND FITTINGS, CONFORMING TO ASTM A74 AND AS MANUFACTURED BY TYLER PIPE AND FOUNDRY CO., U.S. PIPE AND FOUNDRY CO., CENTRAL FOUNDRY OR APPROVED EQUAL. TYLER "TY-SEAL" OR FULLY WARRANT ALL MATERIALS, EQUIPMENT AND WORKMANSHIP FOR ONE (1) YEAR FROM DATE OF APPROVED EQUAL. NEOPRENE POSITIVE SEAL ELASTOMERIC COMPRESSION TYPE GASKETS SHALL BE USED AT ACCEPTANCE. EXTEND ALL MANUFACTURER'S WARRANTIES TO OWNER, INCLUDING ALL EXTENDED WARRANTIES. ALL JOINTS. IN ADDITION, ALL VENT PIPING MAY BE DWV COPPER PIPE AND FITTINGS WITH SOLDERED JOINTS. (OPTION #1) ALL NEW ABOVE GROUND SANITARY, SOIL, WASTE, AND VENT PIPING 6 INCHES AND SMALLER MAY USE HUBLESS, SERVICE WEIGHT SCHEDULE 40, CAST IRON PIPE, FITTINGS AND JOINTS WITH TYLER "NO-HUB" STAINLESS STEEL CONNECTORS. HUBLESS CAST IRON PIPE AND FITTINGS SHALL BE MANUFACTURED FROM GRAY CAST IRON AND SHALL CONFORM TO ASTM A74, ASTM A888, AND CISPI STANDARDS.

7. ISOLATION EQUIPMENT SHALL BE THE PRODUCT OF A SINGLE MANUFACTURER AND SHALL BE DESIGNED SPECIFICALLY FOR THE APPLICATION REQUIRED. THIS INCLUDES, BUT IS NOT LIMITED TO, PIPING DUCTWORK, PUMPS, COMPRESSORS. VIBRATION ISOLATORS SHALL BE RATED FOR THE WEIGHT AND SPACING REQUIRED FOR

 (OPTION #2) ALL NEW ABOVE GRADE SANITARY, SOIL, WASTE, AND VENT PIPING SHALL BE PVC PIPE, ASTM D2665 WITH SOLVENT WELD JOINTS. PVC PIPING SHALL NOT BE INSTALLED IN AREAS CLASSIFIED AS "PLENUM RATED" (WHICH TYPICALLY ENCOMPASSES CEILING PLENUMS UTILIZED AS A RETURN AIR PATH); REFER TO MECHANICAL DRAWINGS FOR LOCATION OF PLENUM RATED AREAS. IN EXISTING BUILDINGS, CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CEILING SPACES TO DETERMINE IF THERE ARE ANY EXISTING PLENUM SPACES WHICH ARE NOT IDENTIFIED ON THE MECHANICAL DRAWINGS PRIOR TO BIDDING THIS OPTION. FOAM CORE PVC PIPING SHALL NOT BE ACCEPTABLE.

 EXCEPT WHERE OTHERWISE INDICATED. HORIZONTAL SANITARY. SEWAGE AND WASTE PIPING SHALL SLOPE AT 1/4 INCH PER FOOT FOR PIPES 2 INCHES AND SMALLER, PIPES 3 INCHES AND LARGER SHALL SLOPE AT 1/8 INCH PER FOOT. ALL VERTICAL SANITARY SEWER PIPING, WHICH TURN 90° AFTER PASSING THROUGH A FLOOR, SHALL

6. PROVIDE ONE TRAP PRIMER VALVE FOR EACH FLOOR DRAIN WITHOUT A CONSTANT SOURCE OF WATER SUPPLY TO MAINTAIN TRAP SEAL. PRIMER VALVE SHALL BE LOCATED IN AN ACCESSIBLE AREA AND CONNECTED TO THE NEAREST 3/4 INCH COLD WATER LINE SERVING A FIXTURE. TRAP PRIMER VALVE SHALL CONFORM TO ASSE 1018 AND 1044. BARRIER TYPE TRAP SEAL PROTECTION DEVICES COMPLYING WITH ASSE 1072 MAY BE USED IN LIEU OF TRAP PRIMER VALVES AS ALLOWED BY LOCAL CODE AND AHJ. PROVIDE FLOAT TYPE BACKWATER VALVE (SIZED FOR ANTICIPATED FLOW RATE) IN ALL OPEN SITE DRAINS AND FLOOR RECEPTORS RECEIVING A/C UNIT CONDENSATE, AND/OR CLEAR WATER WASTE, SUCH AS SPRINKLER FLOW TESTING.

### INSULATION

I. INSULATE FITTINGS, JOINTS, AND VALVES WITH INSULATION OF LIKE MATERIAL AND THICKNESS AS ADJOINING PIPE. PROVIDE REMOVABLE INSULATION SECTIONS TO COVER PARTS OF EQUIPMENT WHICH MUST BE OPENED PERIODICALLY FOR MAINTENANCE. FINISH WITH GLASS CLOTH OR PVC FITTING COVERS. 5. ALL PRODUCTS LOCATED WITHIN PLENUM AREAS, INCLUDING BUT NOT LIMITED TO INSULATION AND ADHESIVE SYSTEMS, SHALL HAVE A COMPOSITE FIRE HAZARD RATING NOT TO EXCEED 25 FLAME SPREAD AND 50 SMOKE DEVELOPED PER ASTM E-84, NFPA 255 AND UL 723.

### IDENTIFICATION

ALL PIPING SYSTEMS, VALVES AND EQUIPMENT SHALL BE PROPERLY IDENTIFIED. ALL VALVES SHALL HAVE

REASON WITHOUT THE KNOWLEDGE AND WRITTEN CONSENT OF THE STRUCTURAL ENGINEER, ARCHITECT AND

### ACCESS DOORS

1. PERFORM A HYDROSTATIC PRESSURE TEST ON ALL PIPING, AT THE PIPING SYSTEM WORKING PRESSURE, FOR A MINIMUM PERIOD OF 24-HOURS. REPAIR ANY LEAKS AND RETEST TO DEMONSTRATE TIGHTNESS. STOP-LEAK COMPOUNDS WILL NOT BE ALLOWED. ALL PIPING FOR PRESSURIZED WATER SYSTEMS SHALL HAVE A MINIMUM PRESSURE RATING OF 150 PSI.

2. AFTER INSTALLATION, CHECK ALL EQUIPMENT, AND PERFORM START UP IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. PLACE ALL SYSTEMS INTO OPERATION.

![](_page_29_Picture_76.jpeg)

ALLEN + SHARIFF JOB #: 2231082

![](_page_30_Figure_0.jpeg)

![](_page_30_Figure_1.jpeg)

![](_page_30_Figure_2.jpeg)

![](_page_30_Picture_3.jpeg)

### <u>DRAWING NOTES:</u> $\langle \# \rangle$

- 1. 1" DOMESTIC WATER SERVICE; REFER TO CIVIL FOR
- CONTINUATION.
- 2. 1" CW TO BACKFLOW PREVENTER (BFP). NO CONNECTIONS SHALL BE MADE UPSTREAM OF BFP.
   3. ASSE 1015 BFP MOUNTED ON WALL AT A HEIGHT NOT TO EXCEED
- 60" A.F.F. 4. 1" CW CONNECTION FOR FUTURE TENANT FIT-OUT.
- 3/4" CW UP AND ROUTED ABOVE RESTROOM CEILING TO SERVE RESTROOM.
- 6. 1" CW UP AND ROUTED TIGHT TO UNDERSIDE OF STRUCTURE.

![](_page_30_Picture_11.jpeg)

![](_page_30_Picture_12.jpeg)

![](_page_30_Picture_13.jpeg)

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Shopping
Middletown

Seymo Delawa

1725 Lake ? Middletown,

SHEET INFO:

PLUMBING SUPPLY PLAN AND RISER DIAGRAM

![](_page_30_Picture_17.jpeg)

![](_page_30_Picture_18.jpeg)

ALLEN + SHARIFF JOB #: 2231082

P101

REVREV DATEDESCRIPTIONDATE:2023.01.19PROJECT NO.2022159SCALE:1/8" = 1'-0"PROJ MGR:AMASDRAWN BY:PGIOSHEET NUMBER:

![](_page_31_Figure_0.jpeg)

![](_page_31_Figure_1.jpeg)

2 TYPICAL SANITARY RISER DIAGRAM P201 SCALE: NONE; W.S.F.U.'S = 5 (NOT INCLUSIVE OF FUTURE FIT-OUT)

### GENERAL NOTES:

A. FINISHED FLOOR ELEVATION = 64.90'.

### DRAWING NOTES: (#)

- 4" SANITARY DRAIN; REFER TO CIVIL FOR CONTINUATION.
   4" SAN CAPPED FOR FUTURE TENANT FIT-OUT.
- 3. 3" VTR.
   4. 2" V STUBBED AND CAPPED FOR FUTURE TENANT FIT-OUT.

![](_page_31_Picture_9.jpeg)

![](_page_31_Picture_10.jpeg)

![](_page_31_Picture_11.jpeg)

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Seymo Delaw

SHEET INFO:

PLUMBING DRAINAGE PLAN AND RISER DIAGRAM

![](_page_31_Picture_16.jpeg)

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![](_page_31_Picture_17.jpeg)

ALLEN + SHARIFF JOB #: 2231082

P201

![](_page_32_Figure_0.jpeg)

![](_page_32_Figure_1.jpeg)

- WATERPROOF CAULKING-
- INTERIOR SIDE OF FLOOR-
- CONCRETE OR MASONRY FLOOR
  - FOAM BACKER ROD -
- WATER STOP / ANCHOR COLLAR -

UNDERGROUD SIDE OF FLOOR-

![](_page_32_Picture_8.jpeg)

1. REFER TO MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR FURTHER

![](_page_32_Figure_11.jpeg)

AT GRADE.

P301 NOT TO SCALE

![](_page_32_Picture_12.jpeg)

-ACCESS COVER

-FINISH FLOOR

— CONCRETE SLAB

- DRAINAGE PIPE

DESIGNATION	FIXTURE TYPE	C.W.	H.W.	WASTE	MANUFACTURER	MODEL NO.	TRIM	DRAIN	TRAP	SUPPLY	ACCESSORIES	REMARKS		
<u>P-1</u>	LAVATORY - WALL MOUNTED; ADA	1/2"	1/2"	1-1/4"	KOHLER	K-1728	CHICAGO FAUCETS / 420-ABCP	GRID DRAIN W/ OVERFLOW	CHROME PLATED W/ CLEAN OUT PLUG	BRASSCRAFT B1-**A SUPPLIES W/ 1/4 HANDLE ISOLATION VALVES	TMV-1	1, 2, 3, 4		
<u>P-2</u>	WATER CLOSET - FLOOR MOUNTED TANK TYPE; ADA	1/2"	-	3"	KOHLER	K-3493 OR K-3493-RA		-	INTEGRAL	BRASSCRAFT B1-**DL SUPPLY W/ 1/4 HANDLE ISOLATION VALVE	BEMIS 1955SSTFR SEAT	1, 2, 4, 5, 6		

<u>REMARKS</u>

1. PROVIDE ALL REQUIRED COMPONENTS FOR COMPLETE FIXTURE ROUGH-IN, I.E., SUPPLIES, STOPS, TRAPS, CARRIERS, GRID DRAINS, TAILPIECES, ETC. NOT ALL REQUIRED COMPONENTS ARE SPECIFIED ABOVE. CARRIERS FOR LAVATORIES AND WATER CLOSETS SHALL COMPLY WITH ANSI STANDARD A112.6.1M AND PLUMBING DRAIN INSTITUTE (PDI) ARTICLE "MINIMUM SPACE REQUIREMENTS FOR ENCLOSED PLUMBING FIXTURE SUPPORTS."

2. FIXTURES SHALL BE ADA COMPLIANT. PROVIDED WITH ADA COMPLIANT ACCESSORIES. MOUNT ADA COMPLIANT. SEE ARCHITECTURAL PLANS FOR ELEVATIONS.

3. PROVIDE SKAL+GUARD INSULATING DEVICES ON EXPOSED UNDER-COUNTER PLUMBING.

4. REFER TO RISER DIAGRAM FOR VENT PIPE SIZES AND CONNECTIONS.

5. COORDINATE ADA GRAB BAR INSTALLATION WITH WATER CLOSET. GRAB BARS SHALL NOT INTERFERE WITH USE AND MAINTENANCE OF FIXTURE. PROVIDE EXTENSIONS AS REQUIRED. 6. COORDINATE MODEL NUMBER WITH FIXTURE ORIENTATION. FLUSH VALVE SHALL BE INSTALLED ON OPEN / APPROACH SIDE OF FIXTURE.

DOMESTIC PIPING INSULATION SCHEDULE											
SYSTEM OR SERVICE			I	INSULATION THICK							
	FLUID TEMPERATURE	INSULATION TYPE		PIPE SIZE	(						
	RANGE (DEG F)		1/2" TO <1-1/2"	1-1/2" TO <4"							
DOMESTIC HOT WATER AND HOT WATER CIRCULATION	105 TO 140	MINERAL FIBER	1"	1-1/2"							
DOMESTIC COLD WATER	40 TO 60	MINERAL FIBER	1/2"	1/2"							

NOTES:

1. NOT ALL PIPE SIZES LISTED ARE USED ON PROJECT.

2. SIZES LISTED ARE BASED UPON 2018 IECC TABLE C403.11.3.

3. ALL PIPING INSULATION SHALL HAVE A MAXIMUM THERMAL CONDUCTIVITY FACTOR (K) OF 0.27 BTU\*IN/HR\*FT2°F. 4. OTHER INSULATION MATERIAL THAT MEETS OR EXCEEDS THE PERFORMANCE CHARACTERISTICS OF THE LISTED MATERIAL MAY BE USED. CONTRACTOR SHALL PROVIDE INSULATION PERFORMANCE CUT SHEET PRIOR TO INSTALLATION.

ELECTRIC WATER HEATER SCHEDULE (BASIS OF DESIGN)												
DESIGNATION	DESCRIPTION	MANUFACTURER / MODEL#	LOCATION	STORAGE VOLUME	GPH RECOVERY	ELEMENT WATTAGE	VOLTAGE	REMARKS				
<u>EWH-1</u>	ELECTRIC WATER HEATER	EEMAX / SPEX4208	UNDER LAVATORY	NA	0.5 GPM AT 56°F RISE	4.1 KW	208V/1Ø	1, 2, 3, 4				
REMARKS:												

1. REFER TO MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR FURTHER INSTALLATION REQUIREMENTS.

MIXING VALVE SCHEDULE (BASIS OF DESIGN)											
DESIGNATION	DESCRIPTION	LOCATION	MANUFACTURER / MODEL#	OPTIONS	LOAD RANGE						
TMV-1	POINT OF USE MIXING VALVE CONFORMING TO ASSE 1070	AT EACH LAVATORY	WATTS / LFMMV	INTEGRAL STRAINERS AND CHECKS ON INLET PIPING	0.5 GPM AT 0.8 PSI LOSS; MIXED TEMPERATURE RANGE: 105°F - 110°F						

### PLUMBING FIXTURE SCHEDULE (BASIS OF DESIGN)

SS (INCHES)		
CHES)		
4" TO <8"	≥8"	
1-1/2"	1-1/2"	
1"	1"	

![](_page_33_Figure_21.jpeg)

### DEVELOPED LENGTH OF EXPANSION LOOP TO ACCOMMODATE 1-1/2" MOVEMENT

NOMINAL PIPE DIA.	LENGTH PIPING IN FEET			
	STEEL PIPE	COPPER PIPE	SCH. 40 CPVC	
1/2"	4.7'	5.3'	1.7'	
3/4"	5.2'	6.2'	1.9'	
1"	5.9'	7.1'	2.1'	
1-1/4"	6.6'	7.8'	2.3'	
1-1/2"	7.0'	8.5'	2.5'	
2"	7.9'	9.7'	2.8'	
2-1/2"	8.7'	10.8'	3.1'	
3"	9.6'	11.8'	3.4'	
4"	10.8'	13.5'	3.8'	
NOTES:				

1. EXPANSION LOOPS SHALL BE IN STALLED AT INTERVALS AS RECOMMENDED BY PIPE MANUFACTURER. 2. PRE-MANUFACTURED EXPANSION JOINTS MAY BE USED IN-LIEU OF EXPANSION LOOPS.

3. NOT ALL SIZES AND MATERIALS ARE USED ON PROJECT.

### – LENGTH AS LISTED IN TABLE 🛛 🦳

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	PE HANGER SPACING <sup>5,2</sup>	
PIPING MATERIAL	MAXIMUM HORIZONTAL SPACING (FEET)	MAXIMUM VERTICAL SPACING (FEET)
CAST-IRON PIPE	5 <sup>A</sup>	10
CHLORINATED POLYVINYL CHLORIDE (CPVC) PIPE AND TUBING, 1 INCH AND SMALLER	3	10 <sup>B</sup>
CHLORINATED POLYVINYL CHLORIDE (CPVC) PIPE AND TUBING, 1-1/4 INCH AND LARGER	4	10 <sup>B</sup>
COPPER OR COPPER-ALLOY TUBING, 1-1/4 INCH AND SMALLER	6	10
COPPER OR COPPER-ALLOY TUBING, 1-1/2 INCH AND LARGER	10	10
CROSS-LINKED POLYETHYLENE (PEX) PIPE 1 INCH AND SMALLER	2.67 (32 INCHES)	10 <sup>B</sup>
CROSS-LINKED POLYETHYLENE (PEX) PIPE 1-1/4 INCH AND LARGER	4	10 <sup>B</sup>
CROSS-LINKED POLYETHYLENE/ALUMINUM/CROSS- LINKED POLYETHYLENE (PEX-AL-PEX) PIPE	2.67 (32 INCHES)	4
POLYVINYL CHLORIDE (PVC) PIPE	4	10 <sup>B</sup>
STEEL PIPE	12	15

### REMARKS:

A. THE MAXIMUM HORIZONTAL SPACING OF CAST-IRON PIPE HANGERS SHALL BE INCREASED TO 10 FEET WHERE 10-FOOT LENGTHS OF PIPE ARE INSTALLED.

B. FOR SIZES 2 INCHES AND SMALLER, A GUIDE SHALL BE INSTALLED MIDWAY BETWEEN REQUIRED VERTICAL SUPPORTS. SUCH GUIDES SHALL PREVENT PIPE MOVEMENT IN A DIRECTION PERPENDICULAR TO THE AXIS OF THE PIPE.

C. THIS SCHEDULE IS BASED UPON 2021 INTERNATIONAL PLUMBING CODE TABLE 308.5. NOT ALL PIPE TYPES LISTED ARE USED IN PROJECT. PIPE MANUFACTURER'S SPACING RECOMMENDATIONS SHALL BE TAKEN INTO ACCOUNT WHEN INSTALLING HANGERS AND WHERE CONFLICTS BETWEEN THE CODE AND MANUFACTURER'S RECOMMENDATIONS OCCUR THE MOST STRINGENT SHALL BE APPLIED.

D. HANGERS/SUPPORTS SHALL BE PROVIDED IN ADDITIONAL AREAS NOT NOTED ABOVE. AREAS INCLUDE BUT NOT LIMITED TO THE FOLLOWING: EACH SIDE OF WALL/FLOOR PENETRATION, EACH SIDE OF JOINT, AT A CHANGE IN DIRECTION, AND EACH SIDE OF A VALVE.

![](_page_33_Picture_38.jpeg)

![](_page_33_Picture_39.jpeg)

![](_page_33_Picture_40.jpeg)

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Shoppin

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Middletown

SHEET INFO:

PLUMBING SCHEDULES

P401

REVREV DATEDESCRIPTIONDATE:2023.01.19PROJECT NO.2022159SCALE:NONEPROJ MGR:AMASDRAWN BY:PLG

SHEET NUMBER:

ALLEN + SHARIFF JOB #: 2231082